1969, and Graves devotes much of his article to discussing alternatives and the need for flexibility in long-range planning. The New York metropolitan area is an area of perennial water surplus and runoff and, as Boyle notes, there is no shortage of water, just a shortage of clean water because of long-continued waste and pollution. To make proper use of what the region has to offer, he lists such alternatives as universal metering of water and elimination of leaks in mains in New York City, and reclaiming and reusing sewage and industrial waste water—but these would ruin the concept of water as a free good.

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Biological Psychiatry

The Genetics of Mental Disorders. ELIOT SLATER and VALERIE COWIE. Oxford University Press, New York, 1971. viii, 414 pp., illus. $25. Oxford Monographs on Medical Genetics.

That genes affect behavior is now a widely accepted fact. Much of the supporting evidence derives from animal experiments carried out under laboratory conditions. Although not as unambiguous, the evidence in man is nonetheless substantial. The evidence bearing on the role of heredity in the etiology of the psychoses, personality disorders, senile and presenile dementias, epilepsy, and mental subnormality comprises a vast literature, much of it inaccessible to the English reader. In this volume, the authors present a critical review of a considerable portion of this evidence. They do so with authority and scholarship, although sometimes in difficult literary style.

The authors intend their book primarily for the clinical psychiatrist, but it is doubtful whether American clinicians will receive it with much enthusiasm. A considerable portion of it is devoted to topics which in this country have only peripheral relevance to the practice of psychiatry. Moreover, American psychiatrists have become wary of one-sided approaches to behavioral phenomena, and this book strongly reflects the predominantly biological bias of European (particularly German) psychiatry. The literature on interpersonal, familial, social, and other experiential factors gets little attention in it, and that little is mostly of a disparaging kind.

The authors show a strong preference for traditional genetical interpretations and methods. In their discussion of the vulnerability to schizophrenia, they review the pros and cons of the monogenic and polygenic hypotheses and admit that the bulk of the evidence is not incompatible with a threshold-polygenic model. However, in the final analysis they retreat to a monogenic theory resembling one advanced by Slater more than a decade ago. They do so purely on intuitive grounds and because they feel more comfortable with its familiarity and seeming simplicity. Unfortunately, it has become apparent that the "simple" models are neither parsimonious nor compatible with what we know of the genetic determination of complex behavior from animal research. Where traditional research styles come into conflict with modern ones, they prefer the former. Thus, although few current investigators would attempt to carry out a study without double-blind procedures and other safeguards against subjective bias, these authors are skeptical of the need for such elaborate precautions.

The research on monozygotic and dizygotic twin groups is the mainstay of the genetic evidence in the behavioral disorders. Although these studies receive considerable discussion in the book, at no point is the disturbing question raised of their validity in demonstrating the operation of heredity in behavioral and psychological traits; higher rates of concordance among monozygotic twins than among dizygotic twins have been used to support both biogenic and psychogenic positions. Where alternative research designs are available, as for example in the important studies of schizophrenia in adopted children, recently carried out in Copenhagen by Kety, Rosenthal, and their colleagues, they do not receive the attention they deserve. These particular studies are barely mentioned in the book. Where the genetic evidence is at best ambiguous, as in the personality disorders, the authors prefer biological explanations to other plausible possibilities. Thus they ascribe the differential rate of criminality in the two sexes to chromosomal and other biological factors, not mentioning the possibility that the differences might be due largely to sex-role differentiation and other cultural factors.

Half the volume is given over to a review of the numerous metabolic and chromosomal disorders underlying mental subnormality. A comprehensive discussion of these data has long been overdue. The authors accept some of the evidence too uncritically, however. For example, in their discussion of the chromosomal anomalies, the purported association between an extra Y-chromosome and "severely disturbed aggressive behaviour" is presented as though it were firmly established. When the pertinent data are reviewed, it is clear that this conclusion is not warranted, being based on a small, biased sample of institutionalized individuals who have not been shown to differ psychologically in any major way from similarly institutionalized males without the chromosomal anomaly.

The strengths of the book lie in its scholarship and in the broad range of the material reviewed, for which it will be welcomed by human and medical geneticists as a reference book and text. Students of human behavior, however, will find that it does not provide a full picture of the multidimensional character of human behavioral variation. Its greatest shortcoming is in its perspective; the book looks backward rather than forward, giving the reader a sense of the past achievements rather than of the future promise of psychiatric genetics research.

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Social Insects

Army Ants. A Study in Social Organization. T. C. SCHNEIRLA. Howard R. Topoff, Ed. Freeman, San Francisco, 1971. xxii, 350 pp. + plates. $12.

The spectacular raids and emigrations of the Dorylinae, or army ants, have attracted the attention (and defensive behavior) of numerous biologists, but T. C. Schneirla was the first person to study the behavior of these ants systematically and intensively. Schneirla began to study Neotropical army ants in 1932, following his graduate training in psychology and his classic studies of maze learning in ants, and during the following 36 years he expanded his research to include related species in the southwestern United States and the Philippines. Although Schneirla published in other areas of comparative psychology, army