Vergleichende Untersuchungen über die Häufigkeit angeborener menschlicher Missbildungen.

By WILHELM TÜNTE. (Pp. 127; 12 figures + 23 tables. DM 39,50) Stuttgart: Gustav Fischer. 1965.

This is a detailed study of the incidence of 7 malformations (anencephaly, spina bifida, hydrocephalus, cleft-lip, with and without cleft-palate, cleft-palate alone, and polydactyly). The reasons for including polydactyly are not adequately given: a condition that is so heterogeneous seems somewhat unsuited for statistical treatment.

In each of these malformations a detailed breakdown by parental age, year, month, region, and town or country is given. There is no breakdown by both age and parity, and the statistical treatment is most confusing; significance tests, usually preceded by cumbersome explanations, abound, but many, such as dichotomizing parental age differences rather than giving the difference, are unnecessarily crude. Consequently, though a few of the many tests have passed the arbitrary threshold of statistical significance, the proportion is not significantly high, and the reader is left wondering whether the associations strained out by this sieve are of greater biological validity than those that slipped through.

We have a meticulously drawn map of the incidence of these conditions in time and space, but we are left with the problem of what to do with it. When one is lost, as we are in the study of malformations, drawing a map may seem the first course of action; however, historically, incidence maps have been of little use in unravelling the background of malformations, the major discoveries being made from new laboratory techniques, as in mongolism, or the explosive development of unusual syndromes, as in infective embryopathies and phocomelia. The reasons for this are fairly simple—to pursue the analogy further the standard error of the contour lines exceeds the height of most of the hills and some of the mountains, so that every time the map is redrawn it is difficult to relate the movements of the contour lines to any changes in the underlying structure. Firmer contours require more malformations, which require increasing the sampling over both space and time, and this not only involves far more work, but also increases the chances of types of heterogeneity which distort or blur the final picture without adding any useful information. Whether we need more extensive maps from which smaller deviations can be charted with speed, or whether map-making will continue to be distressingly non-productive, only the future can tell. Dr. Tünt has drawn his map as accurately as is possible, and, if it does not show the way, this is no criticism of the thoroughness of his surveying.

J. H. EDWARDS

Genetics of the Norway Rat. By ROY ROBINSON.

(International Series of Monographs in Pure and Applied Biology. Division: Zoology. Volume 24.) (Pp. ix + 804; 28 figures + 225 tables. 200s.) Oxford: Pergamon Press. 1965.

This book is a worthy companion volume to Gruneberg's *Genetics of the Mouse*. At earlier stages in genetic research, the mouse was the most frequently used mammal, but in recent years with the development of biochemical genetics, the rat is being employed more widely to an increasing extent. Any competent comprehensive survey of the genetics of the rat is, therefore, a service for which many workers can only be grateful.

The rat is of course also used extensively in general laboratory work in which the genetic background of the animal may be important though not often adequately assessed or even recognized. This unfortunate state has been perpetuated for many years by the lack of an adequate text on the genetics of the normal rat.

Though a number of monographs are available on specific aspects of inheritance in the rat, there is no broad survey of the field, and even the more limited accounts are not of very recent date. The present volume with its bibliography of over 1,500 items covers an exceptionally wide field and is exceedingly thorough, reviewing the literature till 1962. The 27 chapters are essentially monographs and cover not only normal traits but diverse pathological states and even normal and abnormal psychological reactions. Medical readers will in particular be grateful for the chapters on pharmacogenetics, drug resistance, tumorigenesis, and on haematology and immunogenetics. The rapid advances in these areas make the critical assessment of the older work in these chapters all the more acceptable. It is to be hoped that successive editions will keep this outstanding reference volume in circulation.

ARNOLD SORSBY

Teach Yourself Genetics. By R. J. Berry. (Pp. xi + 164; 24 figures. 7s. 6d.) London: The English Universities Press. 1965.

In his opening chapter Dr. Berry stresses that the answer to the questions raised by present-day genetics has involved the use of virtually all biological techniques, but that techniques themselves are to a large extent irrelevant to an understanding of the subject. Whether this is strictly true is a moot question, but this assumption has enabled the author to give an up-to-date account of genetics in the small compass of some 150 pages. This book is no mere restatement of the elements of genetics as taught some 20 years ago. The 13 chapters include some on cytoplasmic inheritance, the chemistry of the gene and mutation, developmental genetics, radiation genetics, and excellent summaries of both population genetics and the genetic basis of evolution. This little book can be readily recommended to the beginner, for the text is accurate, concise, and clear. Though the style does not lack individuality, the presentation could with advantage be less condensed and more amply illustrated.

ARNOLD SORSBY