police—the man whose propensity may never be suspected by his associates or workmates, yet who is none the less conscious of social misunderstanding and prejudice and of an unjust criminal law. After two years of painstaking research into the lives of 127 homosexuals of all ages, varying widely in social status and occupation, Mr. Westwood has made an invaluable contribution to our understanding of this great social and moral problem, and he is particularly to be congratulated on his skill in gaining the confidence of a group whose members are naturally very reticent in discussing themselves and their manner of life. It may, of course, be objected that the sample investigated was numerically too small to give reliable results, and Mr. Westwood allows full weight to this point when he describes (in Appendix A) the research method pursued; but he concludes that the sample was adequate for the main purpose in hand, and that it reflected with sufficient accuracy the character of the group selected for study.

Although Mr. Westwood is cautious in drawing conclusions, especially about the cause of the homosexual condition, his researches certainly add emphasis to the considered opinions of other students of the problem who have tried to approach it impartially. Thus: seduction is an unimportant factor in the establishment of a homosexual pattern of life, and there is no reliable correlation between such a pattern and homosexual activity at school; there is no evidence that homosexuality is increasing, and any change in the law or in social attitudes is likely to produce at most only a slight increase in the frequency of activity; homosexual prostitution (full-time) is a minor problem, and homosexual solicitation is unlikely, in the nature of things, to prove a public nuisance. Homosexuals are generally most anxious not to be troublesome, and it will come as a surprise to many readers to learn how many make real efforts to control themselves and to combat their propensity. But adverse social pressures are strong, and feelings of isolation produce introvertive attitudes; the general tendency of the homosexual is away from integration with the community into a "homosexual world" which is, by its very nature, both self-defeating and inimical to the well-being of society at large. Though he does not labour the point, Mr. Westwood's researches add considerably to the weight of argument in favour of legal reform and the enlightenment of public opinion. It is much to be hoped that he will be able to continue his studies on a wider scale, and that in the meantime due attention will be given by responsible people to the facts which he has laid before us.

SHERWIN BAILEY

STATISTICS

Steel, Robert G. D. and **Torrie, James H.** *Principles and Procedures of Statistics, with Special Reference to the Biological Sciences.* London and New York, 1960. McGraw-Hill. Pp. xvi + 481. Price 81s. 6d.

THE AUTHORS STATE in the preface that this book is specifically written for the benefit of postgraduate students, with only an elementary knowledge of mathematics, who are preparing for a career in agricultural research. It is the result of the experience that Professor Steel and Professor Torrie have gained from lecturing to such students at the University of Wisconsin. Their aim is to make the course comprehensive, non-mathematical, and such as would give the earliest possible introduction to the design and analysis of experiments.

The first four chapters of basic concepts lead up to the use of the **t** test to compare two means in chapter 5. Chapter 6 is a general discussion of the principles of experimental design, after which there are five chapters on the analysis of variance. The first of these treats one-way classifications, and under this heading all the various methods that have been proposed for comparing treatment means are described, and the chapter goes on to deal with simple models and hierachal designs. The twenty-seven pages of "Analysis of Variance II" deal with randomised blocks, the various models which have to be considered when there are interactions in a two-way classification, and Latin squares. The chapter also includes sections on missing plot techniques, efficiency, the size of experiments, and transformations. The other chapters on analysis of variance deal with factorial designs, split plot designs, and experiments which give rise to observations which are unequally weighted. Interspersed with these chapters on the analysis of variance are two on regression and correlation. Later multiple

regression, the analysis of co-variance, and non-linear regression are dealt with. After these topics come three chapters in which the χ^2 test is applied to various classification problems, and these lead on to a chapter on discrete distributions. There is a chapter describing some of the very handy non-parametric tests, and finally, there is a chapter for which a more appropriate title might be "Sample Survey Problems". At the end of the book there is a useful collection of statistical tables covering 44 pages.

A great many topics are dealt with, and if there are several ways of handling a particular problem most of these are included. For example, the analysis of some genetic problems is discussed in one of the chapters on χ^2. As well as giving the more usual ways of testing Mendelian ratios, the minimax method of tackling such problems is described, and the necessary eight pages of tables required for this method are included at the end of the book. These are valuable, as they have not hitherto been generally available.

The presentation of all this material is fairly concentrated, and the principal method of exposition is by means of worked examples, along with which the necessary general formulae are given. There is comparatively little verbal exposition, and to obtain an insight into the problems discussed, the student must study the examples with care. In a few of the more advanced sections the reader is left to sort out how to use the mathematical formulae for himself.

The book seems essentially designed for class-work. Used in this way, places where the text appears to be inadequate can be supplemented by lectures. This applies more particularly to the chapters on regression and correlation. There is a plentiful selection of examples to work, but solutions to these are not included. Errors, which the authors say are almost bound to occur, do occur, e.g. equations 9·10 and 15·6. The index does not seem all that it might be.

The book is certainly comprehensive, and brings together the results of recent research, but my impression is that the non-mathematical student may find it heavy going. The difficulty of teaching statistics to non-mathematicians is well known, and anyone confronted with this task will be grateful to Professor Steel and to Professor Torrie for making available their experience of what is needed in this field, and what they have found to be a satisfactory method of presentation.

R. G. CARPENTER

GENETICS

Darlington, C. D. and **La Cour, L. F.** *The Handling of Chromosomes.* London, 1960. Allen and Unwin. Pp. 248, plates xxiv. Price 30s.

THIS BOOK IS now in its third edition since its publication in 1942, which is an indication of its popularity.

Professor Darlington and Dr. La Cour's work is well known in the field of cytological research, especially their work in connection with nucleic acid and its relationship to chromosomes.

This book is essentially a practical handbook written by authors with a wealth of practical background for the practical worker. In the introduction the authors claim that the present edition covers handling of chromosomes from the simplest methods used in schools to the most elaborate required in research. These most ambitious claims have been amply fulfilled. The contents range from the simple microscope, camera lucida drawings up to the control of mitosis by X-rays and chemical agents.

The book is concisely and neatly written; chapters are subdivided into sections giving a short introduction followed by a description of the various methods, with the reasons for the development of modifications of new cytological methods.

The plates illustrating the text are very well reproduced and contain a beautiful series of microphotographs illustrating normal and abnormal mitosis and meiosis. Forty-five pages of the text are devoted to a series of appendices which contain a fund of practical data, giving details of various staining techniques, physical properties of reagents in common use, composition of compound fixatives and even such detail as composition of various developers to be used for microphotography. The references at the end of the book are more than adequate and include many review articles up to 1958. The references are given in full, giving the title of the paper, which is helpful to the reader. It is amongst the references that one is aware of the extent of the