

A SEARCH FOR GENETIC EFFECTS OF HIGH NATURAL RADIOACTIVITY IN SOUTH INDIA. H. Grüneberg, G. S. Bains, R. J. Berry, Linda Riles, C. A. B. Smith and R. A. Weiss. Her Majesty's Stationery Office, London. Pp. vii + 59. 11s.

Mammalian radiation genetics has so far been almost entirely concerned with the induction of mutations in a few strains of laboratory mice. The mutations studied have mainly been of simple Mendelian type, or they have been chromosomal changes often associated with lethality. This concentration of effort in a limited field has greatly increased our understanding of the role of such factors as germ-cell stage, radiation intensity and radiation quality in mutagenesis. Now that a good foundation has been established, however, it is very desirable that other mammalian species, including non-domesticated forms, should be studied. Only in this way can some idea be obtained of the range of response and sensitivity within the class and the probable position of man within this range. Because of our poor knowledge of the genetics of most other mammals some of the methods used in the mouse may be inapplicable. On the other hand, the effects of radiation on continuously varying characters can and should be widely studied, for our ignorance of this important problem is profound.

The present special report in the Medical Research Council's series is therefore very welcome, since it is mainly concerned with an analysis of continuous variation in populations of the black rat *Rattus rattus*. The object was to see if any systematic differences could be detected between Kerala rat populations which had lived for many generations on a coastal strip which is rich in radioactive monazite sand, and control populations further inland. The mean radiation intensity of the strip was about $7\frac{1}{2}$ times that of the control areas and it was estimated that strip rats were exposed to about one roentgen of gamma-radiation per generation.

The skeleton was chosen for special attention. Six dental and fifteen other measurements were made on 896 rats in all, which were also classified for 26 non-metrical variants of the threshold type. Findings were negative: variances were similar in the two groups of populations and no systematic differences had arisen between them. The failure to detect a radiation effect is not surprising, since rather similar investigations by the reviewer on an inbred mouse strain given about a hundred times as much radiation per generation have so far failed to give clear-cut results.

There is a useful discussion of possible reasons for the negative findings. However, the most valuable part of this report is that which explains what information was obtained from the skeletons and how it was analysed with the aid of a computer. The analytical procedures are described in considerable detail. Some of them are novel and this whole section will undoubtedly be a very useful guide to many who are studying differences between closely related populations. In addition, there are interesting appendices on the dosimetry and the historical geography of the strip, the latter giving evidence that the strip had been occupied and isolated from the mainland for many centuries. Despite the dry bones, this is a very readable report of a thorough and necessary piece of team-work.

A. G. SEARLE.

CHROMOSOME TECHNIQUES, THEORY AND PRACTICE. Arun Kumar Sharma and Archan Sharma. Butterworths, London. 1965. Pp. 474, 41 plates. 87s. 6d.

Herewith a tremendous assemblage of information about chromosome techniques and their application to a wide range of tissues and organisms.

The information embraces the technical, the historical and even some detailed chemical aspects of the subject. A prodigious amount of work has gone into the writing of the book and while, by the very nature of the work, it could hardly be expected to provide entertaining reading it merits a useful place as a work of reference in a cytology laboratory. Virtually all the standard cytological techniques both ancient and modern, common and uncommon, are included. There are sections on fixation, embedding, autoradiography, electron microscopy, interference and fluorescence techniques and a host of others. In some cases, as with interference microscopy, the information is sketchy and vague. There is, however, an extensive reference list to which one can turn for further guidance. While some of the information is bare and bleak in other places there is, if anything, too much detail. A whole page, for example, is taken up by one large formula to explain the Sakaguchi colour reaction. The authors incidentally forget to say what the colour is but they do remember to say that it may fade.

It is a pity that some of the plates at the end of the book by no means represent the best to be expected from the techniques applied. In all, however, a useful volume.

H. REES.

BOOKS RECEIVED

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