

of some new diseases, and a reminder of diseases already described in the Amish population. Much of the first half of the book is concerned with nosology, and an excellent chapter is that by P. E. Becker on the spastic paraplegias and spinocerebellar ataxias. He has brought interest and order to a difficult branch of neurology. Some of the other chapters on nosology are tedious and wordy. However there are some unusual topics covered in this book. For example, there are useful descriptions of some viral infections of the central nervous system, some of which give rise to malformations such as neural tube defects, cerebellar degeneration, and aqueduct stenosis; while others lead to the degenerative—occasionally familial—disorders of scrapie, kuru, and Creutzfeldt-Jacob disease. In another chapter, W. E. Nance discusses the aetiology of anencephaly spina bifida, mentioning the facts that only a small proportion of like-sexed twins are concordant for neural tube malformation, that maternal half-sibs have a recurrence risk as high as that of full sibs, and that the increased incidence in second and third-degree relatives is largely confined to matrilineal relatives. Dr Nance suggests that the explanation for these observations is that inheritance is through cytoplasmic factors.

Chapters which are more clinically oriented include good ones on Tay-Sach's disease, Refsum's disease with an account of dietary treatment in two patients, and descriptions of some of the childhood leucodystrophies. Of particular interest in the case reports in the later part of the volume are those autosomal recessive conditions associated with mental retardation, where diagnosis and subsequent genetic counselling are so important. Such disorders include an oculocerebrofacial syndrome where, in addition to retardation there is microcornea, optic atrophy, and small mandible; an example of the Dyggve-Melchoir-Clausen syndrome with mental deficiency; and familial megalencephaly. In all this is a helpful and interesting volume in the Birth Defects series.

SARAH BUNDEY

Genes, Dreams and Realities. By Sir Macfarlane Burnet. (Pp. 232; illustrations. £2.75.) Aylesbury: Medical and Technical Publishing Co. Ltd. 1971.

All that Sir Macfarlane Burnet writes must be treated with respect and in this book he discusses several of the most important biological issues of the day: the human applications of the new biology; the implications of the treatment of genetic disease; the immunological basis of carcinogenesis and of ageing; and the possibilities of population control. On most of these issues his conclusions are pessimistic and many readers will regard him as being unduly so; but will find it a valuable exercise to think out just where they feel he may be mistaken. On a more technical level the book is noteworthy in empha-

sizing the author's view of the importance of somatic mutation, as opposed to mutation in the germ cells, as a cause of disease.

He thinks that basic work on molecular biology is now largely completed except for the elucidation of the structure of ribosomes in relation to their function of translation and a complete specification of an RNA bacteriophage. He regards the chance of discovery of practical methods of direct gene replacement in man as infinitely small. He does however think that there is a reasonable chance of culturing and transforming some of the patient's own cells and returning them to the body so that they can compensate for genetically determined deficiencies.

He notes the difficulty that many doctors still have in accepting that a disease has a genetic cause and reminds us that this was once equally true for the concept that some diseases were due to invasion by microorganisms. He is doubtful of the ethics of treating children with disorders such as PKU and notes 'it will probably be many years before the logical solution can be accepted that infants with gross genetic defects of metabolism should be treated as those with no brains (anencephalic monsters) . . . and not allowed to survive'. Most medical practitioners perhaps would agree only if the detection and destruction of those affected could be readily achieved early in pregnancy, always provided of course that this is what the parents wanted. He makes a good case for the origin of cancers from somatic mutation and the reviewer was interested to learn that tumours in pure line strains of mice induced by carcinogenic chemicals are each antigenetically different. Burnet is sceptical of the view that viruses play much part in the aetiology of cancer on the grounds that he can see no selective advantage to a virus in inducing cancer in the host. He thinks that immune mechanisms control much potential cancer and offer the best hope for a cure. He believes however that 'little further advance can be expected from laboratory science in the handling of the 'intrinsic' type of disability and disease'.

On population problems he is equally pessimistic. He believes it necessary to get back to a global population of between one and two million until a greater proportion of solar energy can be harnessed by collectors in geostationary orbit which can beam energy onto the earth's surface. The control of population he regards as quite the most important priority. 'Family planning with its slogan of the children you want when you want them is absolutely inadequate; it is population control or chaos.' However he does not believe that any democratic country will ever initiate effective policies of population control so that 'current civilization will destroy itself and that a second civilization rebuilt in centuries or more millennia from pockets of survivors will probably again end in another catastrophe'.

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