

talk of land policy and utilization or of the conservation of natural resources and neglect to deal with this problem of derelict land. Not merely is the cost of reclamation comparatively light; it can yield appreciable economic as well as social returns, while, to say the least, it is imprudent to place no value on amenity.

What is so far completely lacking is any evidence that the Government appreciates what is involved. So far, the present Government has not given any indication that it has any more real concern than its immediate predecessors had for the preservation of amenity or the conservation of natural resources. In a written statement on November 26, the Prime Minister said that the Minister of Land and Natural Planning will be generally responsible for the availability of natural resources to meet the needs of the community and it will be for him to consider the use made of natural resources, the development of new resources, and the better use of those natural resources which are being inadequately used at present. Land is the most important and urgent problem, and the new Minister will be responsible for the establishment of the Land Commission as soon as possible and for future policies relating to the availability of land. Overall responsibility for the national and regional development plans rests with the Secretary of State for Economic Affairs, although the Minister of Land and Natural Resources will participate in their formulation. Transferred to him also will be the functions of the Minister of Housing and Local Government in relation to the National Parks Commission, those of the Minister of Agriculture for the Forestry Commission and for Commons Land, and he will also have responsibilities for the conservation and supply of water (however, the precise allocation of statutory responsibilities for water is to be the subject of a detailed statement later).

It will be noted first that the Nature Conservancy, along with the Geological Survey and Museums and the Hydrology Research Unit, now falls under the Natural Environment Research Council, which is the responsibility of the Ministry of Education and Science. This would appear to place research activities in this sphere on the same basis as research activities in science, medicine and agriculture, though not technology, and at least it remains the responsibility of a Cabinet Minister. Nevertheless, there are strong grounds for holding that a Ministry of Land and Natural Resources should be adequately equipped to pursue its own investigations if not research—reasons at least as compelling as those which have led to the Road Research Laboratory, in the face of the view of its own Board and of some other informed opinion, being transferred to the Ministry of Transport.

The most disturbing aspect, however, is the invidious position in which the Minister of Land and Natural Resources is now placed in relation to those of Transport, of Power, of Housing and Local Government, of Defence, of Agriculture, and of Trade. With no seat in the Cabinet he does not appear to possess the resources for independent enquiry and there is no indication that he possesses the powers to compel the Cabinet Ministers who have conflicting claims on the use of land and other natural resources to consider alternatives before irreparable damage is done. There is not a reference in the Prime Minister's statement to the question of derelict land, for example, nor to this vital co-ordinating and, in the ultimate resort, overruling function which any Minister of Land and Natural Resources must possess if he is to be effective.

BIOCHEMISTRY OF SPERMATOZOA AND SEMINAL PLASMA

The Biochemistry of Semen and of the Male Reproductive Tract

By Dr. Thaddeus Mann. Pp. xxiii+493+19 plates. (London: Methuen and Co., Ltd.; New York: John Wiley and Sons, Inc., 1964.) 105s. net.

MANN'S *Biochemistry of Semen*, published in 1954, was an outstanding synthesis of the information which then existed about the biochemistry of spermatozoa and of their medium, seminal plasma. It contained about 62,000 words and 990 references. The new edition, published in the autumn of 1964, is nearly three times as long and contains twice as many references. It, too, is an outstanding contribution to the subject; but it differs from its predecessor in that it also contains an expanded account of the role of the male sex hormones—testosterone, androstenedione and other steroids—in the production of semen.

The book starts with a general account of semen, that is, spermatozoa and seminal plasma, including one very useful table of the published proceedings of recent congresses devoted to the physiology and biochemistry of spermatozoa. Chapter 2 is concerned with the morphology of spermatozoa (including a superb electron micrograph, by Prof. D. W. Fawcett, of a bat spermatozoon), capacitation, the acrosomal reaction and a somewhat brief account of male- and female-producing spermatozoa. The third chapter describes the male accessory organs and their secretion, seminal plasma. It contains useful photographs and diagrams of the male reproductive tracts of some animals; but further examples could have been included with some advantage.

In Chapter 4 the chemical and physical properties of semen from different species are described. This is an important reference chapter. The fifth chapter is concerned with the enzyme adenosinetriphosphatase, the cytochromes, hyaluronidase and the glycosidases within spermatozoa; the sixth and seventh with sperm proteins and the composition of seminal plasma including the enzymes vesiculase, coagulase, the phosphatases, 5-nucleotidase and amino-peptidase. There is also a valuable discussion of sialic acid in seminal plasma.

Chapters 8, 9 and 10 contain accounts of the important substances spermine, ergothioneine, creatine, serotonin, plasmalogen, prostaglandin, fructose, sorbitol, inositol and citric acid in seminal plasma. The metabolism of spermatozoa, including fructolysis and lipid metabolism, is described in Chapter 11, which also contains an account of sperm energetics.

The influence of hormones, nutrition and other environmental factors on the male reproductive tract and semen *in vivo* is the subject of Chapter 12, while Chapter 13 contains a description of the effects on spermatozoa of variations in the external environment. Chapter 14 deals with sperm antigens and antibodies, sperm-egg interacting substances, chemotaxis and thigmotaxis. Chapter 15 has an applied flavour and contains an account of spermicidal substances.

It would be easy for a reviewer, according to his own preferences and interests, to say that Mann pays too much attention to certain subjects and not enough to others, for example the male sex hormones. But this is a matter of taste and inclination; and it is certain that no readable book in 1964 can satisfy all the specialists likely to read it. In general, Mann has struck an excellent balance and it is hard to imagine who, among those interested in the many biological, chemical, clinical and veterinary aspects of reproduction, will not want to have *The Biochemistry of Semen and of the Male Reproductive Tract* on their bookshelves.

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