

the Services piecemeal before the Inter-Departmental Committee. That Committee can do no more than consider each case in isolation as it comes before it, and report to a committee of the Cabinet on unresolved claims. There is no provision for the consideration of the claims as a whole, still less of the possibilities of co-ordinating and combining claims of different Services and commands and establishing principles by which individual cases can be decided; nor, more important still, for examining the allocation of the total land resources of the country to agriculture, industry, military training, electric power and water supply and popular enjoyment. If that is too large a question to be entrusted to an individual Ministry such as that of Town and Country Planning, it might well be examined by a Select Committee of both Houses of Parliament, as the National Parks Committee recommends. The imperative need for some such body with powers to enforce decisions even on recalcitrant Government departments could scarcely be better illustrated than by the decision of the War Office to retain 238 acres of London's 'green belt' near Coulsdon and Purley for a bombing range. The most perfunctory study of the Land Utilization Survey's map of Great Britain, or of the admirable population maps published for the Ministry of Town and Country Planning, should convince anyone of the need for reconsideration of such proposals.

One of the biggest questions is, in fact, whether the Bill as at present drafted provides machinery of national planning powerful enough to withstand an interested department. The decision should clearly not rest, for example, on whether the capacity of the War Office for passive resistance is stronger than the political importance of London local authorities; it should depend on an unbiased consideration of the best use of the nation's land, and proper safeguards to that end should be provided. It is disturbing to note that Mr. H. D. Hughes's specific question on this point in the debate in the House of Commons on the second reading of the Bill was unanswered when the Chancellor of the Exchequer wound up for the Government.

The incorporation of such over-riding and co-ordinating powers would, however, enhance the importance of the factor on which the efficacy of the whole Act will finally depend—the wisdom with which the control embodied in the Act is exercised. It was well said in the debate, by Mr. J. H. Hare, that the success or failure of the Bill, as it stands, must depend very largely on the wisdom, the integrity and the intelligence of those who are required to administer it. That is the point of most vital interest to the individual citizen, and the answer depends primarily on the quality of the administrator to whom the exercise of the new powers is entrusted. This is an issue transcending all party divisions. Agreed decisions on the financial provisions and on other procedure will not enable the Act to achieve its purposes unless it is administered with wisdom, dispatch and restraint. Indeed, one important reason for welcoming and fostering co-operation in the preparation of schemes contemplated

in the Bill is that it should also assist in the training of administrators for that work, and in imbuing them with the imaginative insight and understanding of the needs of the public, its comfort and convenience, which it should be the first object of public administration to study and to serve.

MECHANISM OF COLOUR VISION

Retinal Structure and Colour Vision

A Restatement and an Hypothesis. By Dr. E. N. Willmer. Pp. xii + 231 + 4 plates. (Cambridge: At the University Press, 1946.) 21s. net.

THE organ of sight continues to challenge imagination and experimental initiative and so maintains its position as one of the most fascinating living structures in existence, and at the same time the source of so much of our most important knowledge about life and matter. The list of British men of science who have made notable contributions to this field is as impressive as that of any other country. It begins with Newton, whose ideas inspired Thomas Young (according to the latter's own words). Brewster, Maxwell, Dalton, Lord Rayleigh made discoveries which are classical. From our own period one need but mention Adrian's brilliant pioneer work on optic nerve impulses, Lythgoe's discovery of transient orange, Stiles' of the directional sensitivity of the retina, and Wright's analysis of the fundamental trichromatic response curves to realize that the tradition is being maintained.

The latest contribution comes from a Cambridge histologist, Dr. E. N. Willmer. It is right that histologists should add their word to the discussion, since physiology has now reached the point at which further advance in our knowledge about the function of the retina must contain new histological terms. There are the well-known receptors, the rods and the cones, which have long been on the stage, probably too long, when one considers that to the receptors is attached a true nervous centre, exceedingly complex, and certainly of fundamental importance for the interpretation of the world around us in terms of brightness discrimination, general light perception and colour. Nature's idea, to project a piece of the central nervous system on to the periphery and thus make it easily accessible to adequate, localized and controllable stimulation, is a hint meant to be taken.

Dr. Willmer approaches his theme in an unorthodox manner. He does not accept the idea, implicit in so much of modern psychophysical work in this field, that there are three kinds of cones, for the perception of red, green and blue colours. He thinks that the cones only are responsible for the long wave-lengths, whereas the green and the blue regions are transmitted by two kinds of rods. In the human fovea there is only the 'green' kind of rod, a day-rod, to which he attributes a sensitivity curve corresponding to the scotopic luminosity curve. This necessitates the further assumption that the 'green' day-rod contains visual purple in some less-adaptable or less-spurious form, since our scotopic luminosity curve is certainly determined by the photochemical properties of visual purple. The choice of ordinates for the response of the cone (the red receptor) has given him greater difficulties owing to the accumulation of physiological evidence on this point which he has felt bound to

the fact that the temperature of the water is not constant, but varies with the season. The temperature of the water is highest in the summer and lowest in the winter. This is due to the fact that the sun's rays are more intense in the summer than in the winter, and the water absorbs more heat in the summer than in the winter.

The temperature of the water is also affected by the wind. The wind can cause the water to evaporate, which cools it. The wind can also cause the water to mix, which can bring up cooler water from the bottom. The temperature of the water is also affected by the depth of the water. The water is warmer near the surface and cooler near the bottom. This is due to the fact that the sun's rays are more intense near the surface than near the bottom, and the water absorbs more heat near the surface than near the bottom.

The temperature of the water is also affected by the amount of water. The more water there is, the more heat it can absorb. This is why the ocean is warmer than a small pond. The temperature of the water is also affected by the amount of time it has been in the sun. The longer it has been in the sun, the warmer it will be. This is why the water is warmer in the afternoon than in the morning.

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FROM AQUINE TO BENTON

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