The first five chapters deal with general principles relating to morphology, reproduction, metabolism, disease symptoms, including a very useful but brief chapter on methods of studying plant diseases, with an excellent introduction to the classification and naming of fungi. Adopting a different plan from that of Sir Edwin Butler, the author follows a systematic arrangement of a number of parasitic fungi which attack the more important and representative economic plants occurring in India. Preceded by an introductory account to each of the groups, twelve types are described in the Phycomycetes (succeeded by a concise account of the Zygomycetes), eight in the Ascomycetes, thirteen in the Basidiomycetes, and nine in the Fungi Imperfecti. The treatment given to the smut and rust diseases is especially praiseworthy, the former including a useful key to the identification of some of the more important smut parasites of crops in India. The last three chapters, which strictly do not come within the title of the book, deal briefly with bacterial diseases, virus diseases and plant-disease control. The bibliographies at the end of the chapters are mainly of references to general treatises.

The text is very free from errors, but a few ambiguous statements occur, such as submerged mycelium being described as endophytic; that ectoparasites alone are furnished with "holdfasts called appressoria"; "stroma" appears in place of "stromata"; and it is scarcely correct to refer to the cushion-type of sporophores as "sporodochia or acervuli". In an excellent account of sexuality in the fungi, where fertilization is described as isogamous or heterogamous, the statement occurs that "the male gamete is known as an antherozoid" (a term rarely used in the fungi), and yet zygospores are described on the same page as the result of isogamous copulation.

A pleasing feature throughout the book is the use of clarendon type for salient technical terms, though it is rather disconcerting to read the name of the host bracketed with that of the disease, for example, "Late Blight of Potatoes (*Solanum tuberosum* L.)" in place of the name of the causal parasite. The book is richly illustrated with line and half-tone figures, and the whole production is in excellent style.

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GEOLOGY OF WEST DENBIGH-SHIRE AND ADJOINING AREAS

The Middle Silur an ~~rocks~~ of North Wales

By Prof. P. G. H. Boswell. Pp. xvii+448+25 plates. (London: Edward Arnold and Co., 1949.) 80s. net.

WE appear to have entered into the planning age, and since one of the important foundations of planning is knowledge of the earth—its surface, soils, rocks and minerals—it is desirable that planners should have some knowledge of the science of geology. This is particularly so in the case of regional and district planners, for in addition to geological principles they should be familiar with the geology of the ground which falls within their domain. Engineers, geographers and town and country planners in North Wales can account themselves as fortunate in having placed at their disposal Prof. Boswell's new book.

The book is in two parts. The first part, in giving a general description of the Mid-Silurian rocks of North Wales, also deals with the principles which have governed their formation from deposition as sediments to their present disposition and their influence on scenery and topography. The account is profusely illustrated by numerous plans, maps, diagrams and photographs.

In the second part of the book the rocks of West Denbighshire and adjoining areas in Carnarvonshire and Merionethshire are systematically described in fourteen chapters each devoted to a district within the area. This part of the book gives such detailed information that it can be best described as a well-documented and amply illustrated reference book.

The book, however, is not written solely or even specially for engineers and planners. It presents the results of the geological work in North Wales during the last quarter-century of Prof. Boswell and his band of enthusiastic co-workers from the University of Liverpool, and it contains much information which has not been published previously. It will take its place on the bookshelves of geologists with other important district geological memoirs.

To the geologist two important features are first, the elucidation of the stratigraphical sequence, and secondly, the interpretation of the structure of the district. The former is based essentially on the recognition of the graptolite zones of the Wenlock and the Ludlow from the zone of *Cyrtograptus murchisoni* to *Monograptus leintwardinensis* inclusive, in an extended sequence of grits, flags, siltstones and mudstones.

In a broad survey there is a cautious approach to the interpretation of the structure of the area best illustrated by comment on two aspects of the problem, namely, faulting and intraformational disturbances. The trends of no less than 850 faults have been measured and these group themselves into two dominant directions, the *n*-faults of north to north-westerly trend and the *e*-faults with a general easterly trend. Prof. Boswell does not favour the theory of principal stresses as an explanation of the fault pattern. He considers that some of the faults may be of Caledonian Age but is inclined to the opinion that most of them are of Armorican Age (with some posthumous movement along the older faults) and may be due to rotational stresses. The influence of post-Triassic movements is indicated by the rift-valley of the Vale of Clwyd. In short, there is no single and simple explanation of the fault pattern; the fault system as seen to-day represents the cumulative activity of three major earth-movements. There is the same cautious, almost judicial, approach to the problem of interpreting intraformational disturbances. Here again, no single or simple explanation is considered to fit all of the observed and described phenomena. Some disturbances are accounted for by submarine sliding; the sliding, however, was local, covered no great area and involved beds up to thicknesses of the order of 10 ft. Other disturbances were probably formed under relatively light load when the sediments were partially consolidated. Others, wholly tectonic in origin, were formed during the Caledonian orogeny. Not infrequently the disturbances are considered to be due to a combination of these causes.

How often in geology do we find truth in a compromise embracing the essentials of what formerly appeared to be conflicting theories.

F. M. TROTTER