The book is illustrated by over 200 photographs and diagrams. Many of the photographs are of beaches, and some of these (for example, figs. 91, 92, 93 109) are poor, perhaps having lost in reproduction. No references to literature are given (except two on p. 223) although many opinions are quoted throughout the work.

F. G. H. B.

TABLES FOR MICROSCOPIC IDENTIFICATION OF ORE MINERALS. By W. UYTENBOGAARDT. Princeton University Press, 1952. (London: Geoffrey Cumberlege.) pp. 242. Price $5.00 (32*s.* 6*d.*).

Although the microscopical examination of transparent and of opaque crystalline matter began about a century ago, the study of the latter has lagged far behind that of the former. The difficulties, both theoretical and practical, of the study of minerals by reflected light are considerable, and the tables for systematic identification of ore minerals by this method are still in a very elementary state. When quantitative measurements of reflectivity are given (this cannot be done for one-fifth of the minerals listed in the present work), the method used (photometer ocular or photoelectric cell) has to be stated because the results often differ. The widespread existence of strong dispersion of reflectivity among ore minerals makes it very important to do these measurements in various monochromatic lights. It is regrettable that the author has seen fit to include, along with the figures for red, orange, and green light (taken mainly from the work of Schneiderhöhn and Ramdohr) some recent measurements made in white light only. Usable optical data in reflected light are so scanty in any case that it is a retrograde step to return to measurements in white light only.

In the present state of the data, the arrangement of minerals in comprehensive tables of this kind presents difficulties. The principal table here is given in order of " polishing hardness " mainly, although minerals which are closely related or which commonly occur together are taken together. The better the polishing, however, the more such differences of polishing hardness disappear, and the author suggests looking at sections before they get the final polish which is needed if quantitative measurements of reflectivity are to be made. He gives, also, a list in approximate order of increasing reflectivity.

The notes and references are very full and useful. The reproduction from Varitype is clear. It is only in use that the author's methods of presentation of the available data can be tested, but this book does mark a step forward towards the production of tables for use with reflected light which shall be as useful as those which we have for transmitted light.

N. F. M. H.

CORRESPONDENCE

THE GRANITIZATION PROCESS AND ITS LIMITATIONS

SIR,—In G. A. Joplin's recent paper, " The granitization process and its limitations " (*Geol. Mag.*, lxxxix, 25–38), the author has queried the possibility of the formation of basic fronts on a very large scale, except under " exceptional and rare " circumstances. It has been my good fortune to discover a basic front of considerable dimensions in south-west Tanganyika Territory, in the mountainous region of Ukinga, lying at the north-eastern end of Lake Nyasa, where, during what I have called the Ukinga Metamorphism, there occurred regional compression directed from the south-west, relieved mainly by a series of large thrusts. This thrusting forced up wedges of Basement System gneisses into younger sediments. The Basement System is dominantly amphibolitic, but some granitic gneisses were also involved in the dislocation. In many places the amphibolites were caused to over-ride the folded, sheared, and mylonized sediments. Along one of the major dislocations amphibolites were thrust over sediments along a front of more than 50 miles.

Associated with the thrusting was an influx of potash, silica, and minor constituents including boron, beryllium, lithium, fluorine, chlorine, phosphorus, and carbon dioxide. This metasomatism gave rise to profound changes in the amphibolites, transforming them to acidic potash-permeation augen gneisses. The material displaced from the amphibolites, largely iron and magnesia, was driven out into the sediments, producing, from mudstones and siltstones, a group of chlorite permeation schists which often contain as much as 90 per cent ripidolite. Micro-textures in these schists clearly show the replacement of the original sedimentary material by chlorite. Away from the thrust, the chlorite schists grade quite sharply into sediments which are unaltered except for quartz veining, silicification, and ferruginization, the iron and silica responsible for these phenomena being derived from original sedimentary material displaced by the influx of iron and magnesia.

The chlorite permeation rocks crop out not far from the major thrust mentioned above, forming an almost continuous basic front which has been traced for a distance of over 50 miles parallel to the thrust. It is significant that wherever amphibolites and sediments are involved, similar chlorite schists occur in association with the other major thrusts in Ukinga. In cases where granitic gneisses are thrust over sediments, however, the chlorite schists are completely absent or very poorly developed.

Although the potash metasomatism of Ukinga is not yet proved to be a precursor of granitization, I feel that further work in adjacent areas may show this to be the case. In this part of Tanganyika, therefore, the " exceptional and rare " conditions which, according to Joplin, are required for the production of a regional basic front, are fulfilled, the main factor being the juxtaposition of amphibolites and sediments over a distance exceeding 50 miles. It is hoped that further work to the south will enable this basic front to be traced for an even greater distance.

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10th June, 1952.

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(This communication is submitted with the permission of the Director, Department of Geological Survey, Tanganyika Territory.)

SUPPOSED TUFA BANDS IN CARBONIFEROUS REEF LIMESTONE

Sir,—In a recent paper (*Geol. Mag.*, 1952, lxxxix, 195), Dr. W. W. Black concludes that certain fibrous bands in Carboniferous reef limestone hitherto regarded as primary tufa are in fact secondary crystallization structures in an original calcite mudstone. Dr. Black may well be right in his interpretation of the particular features that he describes in detail, but the varied structures to which the name " reef tufa " have been collectively applied are often not associated with calcite mudstone and some of them are obvious encrustations, whether recrystallized or not.

In a series of papers I have frequently referred to these structures but have never critically discussed their origin, and I have hitherto accepted in a broad way Tiddeman's explanation for the reason that neither I nor others working on reef limestone have found a better one. I have always suspected, however, that the bands are not all of similar origin and that the term " reef tufa " might be inapplicable to some of them.

As Dr. Black observes, the fibrous bands are about ¼ in. thick, but this