

Coal-field, which extends from Dover to Deal, Wingham, and near to Ebbsfleet; (2) the structure of the ground between the borings at Dover and Ropersole, and between those of Fredville and Brabourne; (3) a map of the buried Silurian and Devonian rocks in South-Eastern England; and (4) a map of the coal-fields and tectonic folds of Southern England and Wales. He discusses the general structure of this southern area, and then gives details of the experimental borings, some of which proved the absence of Coal-measures, as at Chilham, in the valley of the Stour above Canterbury, and at Robbing, near Sittingbourne, where Silurian rocks were found directly beneath Jurassic strata. Some lists of fossils are given, and the author recommends that further trials for Coal-measures should be made in the district south of Croydon.

## XII.—BRIEF NOTICES.

1. GEOLOGY OF VICTORIA AND TASMANIA.—Mr. Frederick Chapman has contributed Reports on the Middle Devonian fossils of the Buchan district and on the Silurian and Devonian fossils of the Mitta Mitta district, Victoria (Records Geol. Survey, Victoria, vol. iii, pt. ii, 1912). Among the Middle Devonian fossils of Buchan are *Favosites basaltica*, Goldf., var. *moonbiensis*, Eth. fil., *Conocardium*, *Murchisonia*, and *Cheirurus* (?). The age of the fossils of Mitta Mitta cannot be so definitely determined; some may be Silurian, others, including *Cyathophyllum* and *Favosites*, are probably Devonian. To the same publication Mr. Chapman supplies a note on the correlation, by means of plants, of the Tasmanian and Victorian Jurassic strata. He has also recently paid special attention to the Phyllocarida, which seem to occur fairly abundantly in the Ordovician Shales of the colony, and *Hymenocaris hepburnensis* is described as new. Some well-preserved specimens of *Haliserites dechenianus*, Goepf., have likewise been figured and described by Mr. Chapman, who in the same volume gives an illustrated description of the fossil scale of a *Ceratodus* from the Jurassic beds of Kirrak, South Gippsland, calling attention to the interesting point that this is the first occurrence of a fossil scale of the fish.

2. *SPHENOPHYLLUM* IN AUSTRALIA.—In a report on the Mount Mulligan Coal-field (Geol. Surv. Queensland, 1912, publ. 237, p. 11), Mr. Lionel C. Ball reports the discovery in the shales of Siberia Camp of the pteridophyte *Sphenophyllum speciosum* in association with *Glossopteris*. The single individual obtained is described and figured. Hitherto Australia has yielded only a single very imperfect specimen of *Sphenophyllum*, which came from the Lower Carboniferous beds of Port Stephens, N.S.W. The finding in Northern Queensland of *S. speciosum*, which is characteristic of the Lower Gondwana beds of India, is of great interest as affording another link in the chain of evidence connecting Australia, India, and South Africa in Permo-Carboniferous times, by way of the sunken continent Gondwana-land. Figures of *Glossopteris*, *Sphenophyllum*, and *Sphenopteris* are given in support of the age of the beds, as well as sections, maps, and illustrations.

3. QUEENSLAND, DEPARTMENT OF MINES.—Among other interesting reports recently issued W. E. Cameron deals with the coals of North Ipswich and Dalby, gold at Ormeau, tin-lodes of the Charters Towers district, and olivines in the Toowoomba Basalts. These latter are of so fine a size and colour as to recommend themselves to European cutters for a market of 100 ounces per week. E. O. Marks deals with the *Glossopteris* flora near Hughenden and Pentland, coal near Chinchilla, and gold at Mount Emu Plains and Cape River.

4. WYOMING GEOLOGY.—An account by Mr. C. E. Jamison, of the Douglas Oil-field, Converse County, Wyoming, is contained in Bulletin 3, Series B, of the Report of the Wyoming State Geologist, 1912. The location of the fields, which are drained by tributaries of the Platte River, is discussed, and a sketch of the topography of the area is accompanied by a useful map. The geology is rather difficult, because Tertiary beds mask the Triassic, Jurassic, and Cretaceous rocks, and faulting causes further complications. Details of formations are arranged in a convenient table, and the various systems with their fossils are briefly discussed. A list of wells is accompanied by descriptive notes, and information under the heading "future development" is likely to be of value. The Muddy Creek Oil-field, in Carbon County, is similarly treated, and the bulletin is illustrated by eight plates.

5. MINING IN ELKO COUNTY, NEVADA.—Mr. E. C. Schrader gives in Bulletin 497 of the United States Geological Survey a full account of the physical and geological characters of the important mining region which has in recent years been developed in Elko County, Nevada. It lies in an area of folded and tilted Palæozoic sedimentary rocks cut by granular intrusives and flooded by Tertiary lavas, principally rhyolite. At Jarbridge the mineral deposits occur chiefly as tabular, gold-bearing fissure veins and lodes in rhyolite, an interesting feature being the exceptional abundance of adularia. There appear to have been two distinct periods of mineralization, calcite and barytes being first formed and afterwards silicified by the rising of thermal solutions. At Contact and Elk Mountain the ore is mainly copper, but a little silver and gold are also present. The paper is well illustrated with maps and photographs, and is supplied with a good index.

6. IRON ORES OF TENNESSEE.—Mr. R. P. Jarvis gives an account of "The Valley and Mountain Iron Ores of East Tennessee" (*Resources of Tennessee*, vol. ii, p. 326, 1912). Magnetite occurs in the Cranberry granite, and its occurrence is attributed to segregation from the gabbro dykes. Bedded deposits and pockets of brown and red hæmatite occur in association with Cambrian, Ordovician, and Silurian formations. The yield in 1910 of red hæmatite was 301,838 tons, and of brown hæmatite 430,409 tons.

7. RHODESIA.—From the Tenth Annual Report of the Rhodesia Museum for 1911 we learn that the rocks are arranged, the labelling of the mineral collection is getting towards completion, and that the palæontological series is to be displayed at an early date. Good collections of tinstone-bearing greisens and fine cassiterites are at present on loan.

8. PERMIAN OF DURHAM.—Dr. Woolacott's paper, printed in abstract only by the Geological Society of London in 1911, has now appeared in full in the Proc. Univ. Durham Phil. Soc., vol. iv (5), 1912. It runs to seventy pages, is well illustrated, and issued at half a crown, so should be useful to many geologists. Attention may be directed to several excellent photographs showing weathering of the local rocks.

9. THE HAMADA COUNTRY.—Under this title we welcome a short paper on a part of Sinai by G. W. Murray, the son of our late colleague, G. R. M. Murray, of the British Museum. The district contains the Sinaitic minerals, copper, turquoise, manganese, iron and petroleum, and a good series of Carboniferous rocks. It is also much broken by a series of tianic faults, one of which has a throw of 1,320 metres. The paper is illustrated by photographs and a well-printed coloured geological map. It appeared in the *Cairo Scientific Journal*, vol. vi (No. 74), pp. 264–73, November, 1912. The paper is frankly of a general nature, but contains many valuable geological notes.

10. DUDDON ESTUARY.—Those interested in J. F. N. Green's paper on this area which was read before the Geological Society of London on March 27, 1912, and published by the Society in the Abstract of Proceedings, 1911–12, p. 71, will be glad to hear that the whole paper has now been privately printed by Mr. Green and is available for reading and consideration.

11. MICROSCOPICAL PETROGRAPHY.—Dr. F. E. Wright contributes to the *Journal of Geology* for September–October, 1912, a paper on microscopical petrography from the quantitative viewpoint, in which he emphasizes the fact, not always realized by petrographers, that the quality of the quantitative work is far more important than the quantity of the qualitative work, and reproduces the main features of his discussion and description of the most refined methods of microscopic research published by the Carnegie Institution of Washington.

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## REPORTS AND PROCEEDINGS.

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### I.—MINERALOGICAL SOCIETY.

January 21, 1913.—Dr. A. E. H. Tutton, F.R.S., President, in the Chair.

T. V. Barker and J. E. Marsh: Optical Activity and Enantiomorphism of Molecular and Crystal Structure. The general nature of enantiomorphous structures accompanying optical activity in the liquid and crystalline conditions was discussed, and it was pointed out that, since the optical activity observed in crystals of six substances, including epsomite and sodium chlorate, cannot be referred to the crystal structure, it must be due to an enantiomorphous configuration of the atoms within the molecule. Suitable enantiomorphous configurations have been deduced on chemical grounds, the constitution of the compounds being based on a modification of Werner's theory of