

As I have recorded the presence of this deposit in many places in the neighbourhood of Derby, it is very satisfactory to find it resting in considerable masses upon, and separated by a sharp line of demarcation from, the Chalky Boulder Clay. It is evident from the great quantity of flint which exists in the Newer Pleistocene Boulder Clay and River Gravels of the Derwent Valley, at and below Derby, that the small patch of Chalky Boulder Clay on the side of Mill Hill is merely a remnant of a great mass of the same deposit which once partly choked up the Derwent, Trent, and other valleys, outliers of which are to be seen at Chellaston, Doveridge, and Hanbury Wood End.

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#### NOTICES OF MEMOIRS.

I.—THE MINERAL WEALTH OF QUEENSLAND. By R. L. JACK, F.G.S., F.R.G.S., Government Geologist. Brisbane, 1888. 8vo. pp. 71. With Map showing position of the Mineral Fields.

THIS book, written at the request of the Hon. the Minister for Mines and Works, gives a resumé of the mining statistics of the Colony, with an account of the mineral fields that have been or are being worked, of the geological formations in which they occur, the methods of working and of reducing them where the latter is done on the spot, as well as a list of the minerals associated with them, and a table of localities where minerals yet undeveloped are known to exist.

In 1887 about 400,000 oz. of gold were raised, of which less than 25,000 were of alluvial origin, the remainder being obtained by crushing stone containing from one to two ounces to the ton.

The wealthiest gold field is the Charters Towers, for which the returns given for 1887 are alluvial 317 oz., reef 151,060 oz. obtained by crushing 83,292 tons of quartz. The gold here is associated with pyrites, galena, and zinc-blende, and the yield per ton shows a slight increase at the deepest levels, the lowest of which is now 1400 ft.

Gold occurs in most parts of the Colony, but as far as at present known only in paying quantities near the coast in the southern half, while in the northern or tropical division in the interior as well.

The most remarkable mine is that of Mount Morgan in the Rockhampton District. The Mount is a dome-shaped hill 1500 ft. above sea-level and 500 above the surrounding table-land, of which the

Newer Pleistocene Boulder Clays of Lincolnshire is evident from the following passage in his letter, which I quote. Referring to my short paper in the *GEOL. MAGAZINE* for October, 1888, he says, "He suggests, however, that some of the clays classed by me as Newer Glacial may really be older than the Chalky Boulder Clay, and he apparently finds great difficulty in accepting the occurrence of such Newer Glacial beds at elevations approaching 400 feet." My greatest difficulty, distinctly stated, was the supposed "marine aspect of the high level, brown, Boulder Clays." All Boulder Clays are certainly not marine, frequently not even aqueous.

rocks belong to the Carbonifero-Permian series, and are intersected in every direction by dykes of dolerite, rhyolite, etc. "The upper portion of Mount Morgan consists of a deposit varying from red and brown hæmatite on the one hand to a frothy, spongy cellular siliceous sinter on the other. Fine gold is disseminated throughout the mass," it has averaged of late 7 oz. to the ton, is *absolutely free from silver*. The mining operations are simply quarrying, and the gold is extracted by chlorination. The mine is estimated to be worth £16,000,000, while Messrs. Morgan Bros., the original proprietors, who gave their name to the Mount, are said to have sold the 640 acres it covers for less than £300.

The amount of silver obtained in 1887 was over £120,000 in value, chiefly from galena, though in the Ravenswood silver-field the surface yielded lead carbonate giving as much as 300 oz. of silver to the ton, lower levels of galena giving 2 oz., while at a depth of 650 ft. "the shaft bottomed on an antimony and copper ore somewhat resembling tetrahedrite in composition, but containing from 500 to 5000 oz. silver to the ton."

The tin, produced chiefly by mining and crushing porphyry, quartzite and chlorite dykes, though a considerable quantity is obtained from alluvial deposits, was valued at over £220,000 in 1887.

Copper is not worked to any great extent, though there are lodes of oxides, carbonates and sulphides, the latter containing in some cases both gold and silver in considerable quantities, which, to quote the author, "would be payable under favourable conditions," meaning, we presume, proper facilities for carriage, for in one place he instances freight to England £1 per ton of ore, while the carriage to the port of shipment was £4 per ton.

The other metals are mercury and cobalt, the ores of the latter are very rich, and promise to be very productive when the workings are extended. Antimony has been mined to a small extent.

The Coal-fields extend over thirty thousand square miles, occurring in the Carbonifero-Permian and Jurassic systems. The quality is good in some of the seams, but in others the percentage of ash is high. The workings at present are few, in fact only 230,000 tons were raised in 1887.

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## R E V I E W S.

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### I.—PROF. DR. VON ZITTEL ON PALICHTHOLOGY.

KARL A. VON ZITTEL, HANDBUCH DER PALÆONTOLOGIE. PALÆO-ZOOLOGIE. Band III. Lief. I. II. (R. Oldenbourg, Munich, 1887-88.)

(Concluded from page 181.)

#### TELEOSTEI.

**T**HE only modern synopsis of the Palæontology of the Teleostean fishes, previous to the publication of Dr. v. Zittel's work, is to be found in Dr. Günther's "Study of Fishes" (1880); and as this is merely an outline, without details or references, the present