

NOTICES OF MEMOIRS.

BRITISH ASSOCIATION: ABERDEEN.

PAPERS READ BEFORE SECTION C. GEOLOGY.

I.—ON SLATY CLEAVAGE AND ALLIED ROCK-STRUCTURES; WITH SPECIAL REFERENCE TO THE MECHANICAL THEORIES OF THEIR ORIGIN. By ALFRED HARKER, M.A., F.G.S.

SINCE Professor Phillips' Report to this Association in 1856, the subject of Cleavage, especially in connection with Foliation, has received much attention. In the present communication the mechanical theories of Mr. Sharpe and Dr. Sorby are discussed at length, and pursued through their various consequences, such as the variation of Cleavage in rocks of different natures and the peculiarities of Cleavage-planes which traverse alternating strata. A section is devoted to the mode of working slate-rock in the quarries, which throws much light on the structure of the rock. The spurious and incipient Cleavages due to minute contortion or faulting of the rocks are next described. A consideration of the general effects, mechanical, physical, and chemical, of pressure upon rocks leads to a discussion of the relations between Cleavage and Foliation, and the extent to which the latter can in many cases be referred to the action of mechanical forces. The concluding section deals briefly with the relation of Cleavage to Earth movements.

II.—ON DEEP BORINGS AT CHATHAM. A CONTRIBUTION TO THE DEEP-SEATED GEOLOGY OF THE LONDON BASIN.

By W. WHITAKER, B.A., F.G.S., Assoc. Inst. C.E.

A FEW years ago the Admiralty made a boring in the Chatham Dockyard extension, to the depth of 903½ feet, just reaching the Lower Greensand, and in 1883-4 followed this by another boring, near by, to increase the supply, which has led to an unexpected result. After passing through 27 feet of Alluvium and Tertiary beds, 682 of Chalk, and 193 of Gault, the Lower Greensand was again reached; but, on continuing the boring, was found to be only 41 feet thick, when it was succeeded by a stiff clay, which, from its fossils, is found to be Oxford Clay, a formation not before known to occur in Kent.

At its outcrop, about seven miles to the south, the Lower Greensand is 200 feet thick, and is succeeded, a little further south, by the Weald Clay, there 600 feet thick. Not only, however, has this 600 feet of clay wholly disappeared, but also the whole of the next underlying set of deposits, the Hastings Beds, which crop out everywhere from beneath the Weald Clay, and are also some hundreds of feet thick.

More than this, the Purbeck Beds, which underlie the Hastings Beds near Battle, are absent, and also the Portlandian, Kimmeridge

Clay, Corallian, etc., beds which have been proved above Oxford Clay in the Subwealden Boring, to the great thickness of over 1600 feet.

We are therefore faced with a great northerly thinning of the beds below the Gault, a fact agreeing in the main with the evidence given of late years by various deep wells in and near London.

Three other deep borings have been made or are being made near Chatham, all of which have passed through the Chalk into the Gault, and one has gained a supply from the sand beneath.

The practical bearing of the Chatham section is, however, to enforce the danger of counting on getting large supplies of water in the London Basin from the Lower Greensand, by means of deep borings at any great distance from its outcrop.

Even if Lower Greensand occur at all in such places, it will probably be in reduced thickness, and therefore with reduced water-capacity.

III.—ON THE RE-DISCOVERY OF LOST NUMIDIAN MARBLES IN ALGERIA AND TUNIS.

By Lieut.-Colonel R. L. PLAYFAIR, H.M. Consul-General for Algeria and Tunis.

THE author explained that the name itself was a misnomer, as they are not found within the limits of Numidia proper, but in the province of Africa and in Mauritania. Most of the 'Giallo antico' used in Rome was obtained from *Simittu Colonia*, the modern Chemton, in the valley of the Medgérda, the quarries of which are now being extensively worked by a Belgian company; but the most remarkable and valuable marbles are found near Kleber, in the province of Oran, in Algeria. There, on the top of the Montagne Grise, exists an elevated plateau, 1500 acres in extent, forming an uninterrupted mass of the most splendid marbles and breccias which the world contains. Their variety is as extraordinary as their beauty. There is creamy white, like ivory; rose colour, like coral; Giallo antico; some are as variegated as a peacock's plumage; and on the west side of the mountain, where there has been a great earth-movement, the rock has been broken up and re-cemented together, forming a variety of breccias of the most extraordinary richness and beauty.

Colonel Playfair exhibited specimens of the principal varieties, to prove that his descriptions were not exaggerated. The beauty of these marbles has been recognised by the Trustees of the British Museum, who are now mounting the sculptures of the Parthenon and the Mausoleum on basements of them. Specimens may also be seen in the Mineralogical Room of the British Museum, at South Kensington.

The marble mountain belongs to Signor del Monte, of Oran, and, although it is not being worked as it ought to be, blocks can be obtained at a cost of about £18 per cubic mètre, ready for shipment.