shorter word is easy to remember and to use and may be almost as acceptable as the gesturally more perfect hormathite. (The haulm of grain however is straight.)

REFERENCES


X-RAY EXAMINATION OF SOME EAST YORKSHIRE BOULDER CLAYS

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A brief study has been made of the mineralogical composition of some boulder clays from Dimlington on the east Yorkshire coast. X-ray powder photographs of clay from different glacial drifts were taken with a focusing camera employing both CuKα and CoKα radiation. Small erratics were removed by sedimentation from each specimen of clay prior to X-ray examination.

A summary of the vertical succession of the drifts at Dimlington has been given by Penny (1959) using the terminology proposed by Bisat. Going downwards, the drifts are (i) the Upper Purple clay (reddish-brown), (ii) the Lower Purple clay (pinkish-brown), (iii) the Drab clay (dark-grey), (iv) the Basement clay (greenish-grey) and (v) the Sub-Basement clay (blue-grey). The Upper Purple, described as Hessle clay by some is now almost universally considered to be identical with the boulder clay found at Hessle, just west of Hull. Penny (1961) considers that the Purple, Drab and Basement clays are true boulder clays, but that the Sub-Basement is a marine clay.

Quartz, calcite and micaceous material are principal constituents of all the Dimlington clays; but kaolinite, felspar (probably albite or oligoclase), and possibly chlorite are also present. The colours of the clays, and the fact that X-ray photographs taken with CuKα radiation showed unusually dark backgrounds, suggest the presence of iron in each clay. However, only in the Upper Purple clay has an iron-bearing mineral (namely, goethite) been identified: but it is quite possible that smaller amounts of goethite, perhaps in a very finely divided state, are present in the other specimens. The X-ray patterns of the Lower Purple, Drab and Basement clays are almost
identical, the Basement appearing to contain rather more felspar and rather less calcite than the other two.

The nature of the micaceous mineral is of particular interest, for here a distinct difference is found between the Sub-Basement clay and the others. The mica clay mineral in the Purple, Drab and Basement clays is an illite, whereas in the Sub-Basement the mica is more highly crystalline and is almost certainly muscovite. The Sub-Basement clay is rich in felspar (so much so that this mineral can be considered a principal constituent) and contains less calcite than the Basement clay. A further distinguishing feature of the Sub-Basement is the presence of extra lines in its powder pattern due to an unidentified mineral, or minerals; the most prominent of these reflections are two of weak-medium strength at 8.4 Å and 4.6 Å and one of medium strength at 2.63 Å. On heating the specimen for two hours at 500°C, the spacings of the latter two reflections decreased somewhat, ruling out the possible occurrence of biotite in the Sub-Basement clay. Even though the analysis of the Sub-Basement clay is still incomplete, one can conclude that it is sufficiently different from the others in mineralogical composition to support Penny's contention that this clay is of different origin.

Finally, an examination of the boulder clay from Hessle revealed that, apart from a complete absence of calcite, its mineralogical composition is identical with that of the Upper Purple clay from Dimlington.

Acknowledgement.—The author is indebted to Mr L. F. Penny for much helpful information.

Reference


Australian Clay Minerals Society

At a meeting in the University of Melbourne on 12th-13th February, 1962, an Australian Society with the above title was constituted. Dr G. F. Walker, Chemical Research Laboratories, C.S.I.R.O., Melbourne, was elected President of the new Society and Dr A. M. Posner, Waite Agricultural Research Institute, University of Adelaide, was elected Secretary.