Letters to the Editor

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NOTES ON POINTS IN SOME OF THIS WEEK'S LETTERS APPEAR ON P. 919.

CORRESPONDENTS ARE INVITED TO ATTACH SIMILAR SUMMARIES TO THEIR COMMUNICATIONS.

A Palæolithic Industry from the Cromer District

INVESTIGATIONS by us during the last four years, supported by grants from the Percy Sladen Memorial Fund, have shown that a hitherto unrecognized flint industry occurs in the coast section at Corton, near Lowestoft, and in the neighbourhood of Cromer.

From the geological point of view, these particular implements occur in the marine sands at Corton which were classified by Searles Wood as "Middle Glacial", and in the shelly sand and gravel in the Cromer coast section which was correlated by Clement Reid with these Corton Beds. They have not so far been found in the underlying glacial deposits at either locality, but the same flint industry is also found in certain unfossiliferous gravels which are exposed in inland sections near Cromer, and further work is needed to prove the relationship of these gravels to the marine sands.

We have made a collection of Mollusca from the shelly sand near Cromer, especially at West Runton Gap, and a comparison of these shells with those of the Corton Beds is satisfactory so far as it goes, in showing that the West Runton fauna is more like that of the Corton Beds than that of any other known deposit. The shells show certain differences from those found in such older deposits as the Norwich and Weybourne Crags, and we are accordingly in agreement with the contentions of Searles Wood and Clement Reid that they are indigenous to the deposits in which they are found, and not derived. The geological side of the work has also shown that there is no real discrepancy between the stratigraphical successions at Corton and Cromer respectively. Whereas the marine sands at Corton are intermediate between the "Lower Glacial" deposits (of Searles Wood) and the "Chalky-Kimmeridgic" Boulder Clay (of F. W. Harmer), those at Cromer are younger than the North Sea Drift (North Sea Glaciation of Solomon), and it has now been proved that marly boulder clay, like that seen inland at Weybourne, and elsewhere, overlies the marine sands on the Cromer coast (near West Runton). At a pit a small distance inland at East Runton, the implementiferous gravel rests on North Sea Drift, and is covered in places by marly boulder clay.

It should be pointed out that, as the marine horizon, together with its contained implements, underlies the Chalky-Kimmeridgic Boulder Clay, it must be considerably older than, and probably represents the interglacial period preceding, that in which the well-known Middle to Late Acheulean, and Clactonian III deposits of Hoxne, High Lodge, Whitlingham, and Derby Road, Ipswich, were laid down.

The flake industry found at Corton, and in the Cromer area, may perhaps be described as representing, in a primitive form, the later well-made Clactonian III implements of the High Lodge brickearth. The "Cortonian" implements comprise side-scrapers (an outstanding form with the bulb of percussion at the side), hollow-scrapers (very rare), square-ended scrapers, and some small examples of the ordinary round-ended variety. Points are by no means common. The flakes exhibit flat striking-platforms, and have been, in many cases, modified by secondary flaking into knives and other forms. The great majority of the specimens exhibit a certain amount of gloss, but are otherwise not patinated. The flint is black, usually with a thin cortex. The artefacts exhibit very little sign of rolling by water action, and scratches on the flaked surfaces are very seldom present.

It is possible that the industry represented may be of early Acheulean date; but, with the exception of one specimen of a partly finished hand-axe, the forms of the implements do not, in the present state of our knowledge, support this supposition. A detailed paper on this research will be published in due course.

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Estimation of Uronic Anhydride Residues in Polysaccharides

IN the course of work on the constitution of certain wood starches and other polysaccharides containing uronic acid residues, we have found it necessary to investigate more closely the accuracy of the analytical methods used in the estimation of the uronic acid content. The usual procedure consists in heating the substance with aqueous hydrochloric acid and measuring the amount of carbon dioxide liberated.

Preliminary experiments revealed that potato starch gave an appreciable amount of carbon dioxide, and further investigation showed that the explanation of this lies in the fact that glucose and maltose give carbon dioxide under these conditions, the yield (*c.* 0·5 per cent) being similar to that observed with starch. It will be seen from the accompanying table that a similar yield of carbon dioxide is given by several types of starch and by cellulose, and the conclusion is reached that none of these polysaccharides contains any uronic acid residue. Fructose and fructose polysaccharides (for example, inulin) also give carbon dioxide when heated with hydrochloric acid, and, as might now be expected, so does sucrose. Rhamnose gave rather higher values, but a typical methylated sugar (2 : 3 : 6-trimethyl glucose) gave a smaller yield of carbon dioxide, presumably owing to the greater stability of the methyl ether groups; and mannitol, which cannot give rise to a reducing sugar, gave no carbon dioxide. In the case of glucose,