

Age of Certain Gravels in the New Forest Area.

ALTHOUGH the researches of Dr. Longstaff, Mr. H. Bury, Mr. R. A. Smith, and others have thrown much light on Quaternary problems in the New Forest area, a good deal still remains obscure. For sometime past a former pupil of mine, Mr. J. Preston, has been examining the gravel exposures which lie to the east of the Hampshire Avon, and recently we studied together these sites and the various stone tools which have been found. Especially interesting

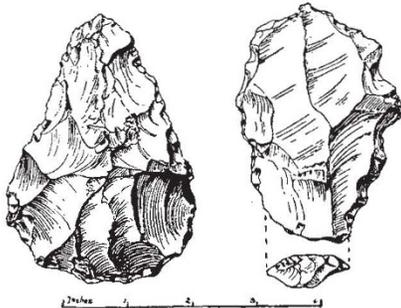


FIG. 1.

is a pit near Hordle. It lies about 100 ft. above sea-level and opens on the side of a small valley, debouching on the Solent a short distance away. The section in the pit is as follows:

- (a) Surface soil and sub-soil.
- (b) Thick deposit of coarse gravel, certainly never laid down by river action, and recalling in many ways the main plateau gravel spread which is found all over the New Forest area. This has yielded what appear to be rolled late Chellean and lower Acheulean tools at Stoney Cross and at a site near Picket Post. At the Hordle pit an unrolled *coup de poing* of latish Acheulean type and a but slightly rolled Levallois II flake have been found (Fig. 1).
- (c) Sand, similar in every way to that found to-day on the beach at Barton.
- (d) Evenly-bedded gravel, certainly laid down by river action. A slightly rolled example of a late Chellean *coup de poing* has been found, as well as a more rolled specimen of earlier date (Fig. 2).

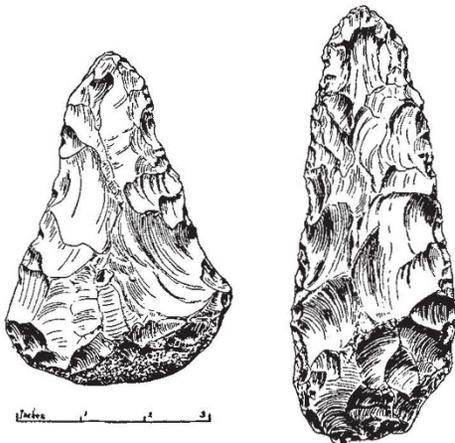


FIG. 2.

Deposit (c), taken in conjunction with the general height of the pit above sea-level, suggests that we are dealing with the effects of the same earth movement which formed the 100 ft. raised beach at Brighton, lately discussed before the Geological Society of

London by the Rev. J. Fowler. Is it too rash to suggest that the following may have been the sequence of events in this part of Hampshire?

I. Chellean tools were incorporated in fluvial gravels along the margins of rivers close to the coastline. The date, judging by the slightly rolled specimen cited in (d), must have been towards the end of Chellean times.

II. Submergence of the land to a depth of at least 100 ft.

III. Incorporation of middle Acheulean *coups de poing* and Levallois II flakes in a gravel spread which crept over the whole area, reaching down from what to-day is a height of some 350 ft. at Stoney Cross to nearly sea-level at the Solent. This gravel is to all appearance an outwash gravel, being probably due to glacial conditions beginning to occur to the north of the district. Its age would seem, judging from the archaeological data available, to have been late Acheulean. At no very different date, uplift took place and the formation of the existing valleys by the denuding action of the rivers Avon, Stour, and Blackwater. That these valleys, though probably shallower, existed previously is shown by the fact that the gravel spread, mentioned in III, sags a little way down the sides of the modern valleys—clearly, at any rate in the case of the Avon above Fordingbridge, forming a sort of pseudo-terrace, though always at a high level. At the beginning of the uplift the sea may have helped in the excavation of these deep valleys, and it should always be remembered that the underlying ground is composed of soft Barton Sands.

IV. Formation of low-terrace gravels along the bottoms of the modern valleys. In these a local archaeologist (Mr. J. B. Calkin) has found one or two Mousterian tools; mammoth bones have also been found. The age of these gravels is probably Würm. The archaeological evidence, therefore, suggests that the uplift just postulated, with the probably simultaneous valley cutting, cannot have occupied any great length of time.

It is obvious that much further work is needed in this interesting area. We can only hope that Preston and other investigators in the district will continue to find further important and interesting material.

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Condition of Sparingly Soluble Substances in Gelatine.

IN a recent letter to NATURE,¹ Mr. Nabar and Dr. Desai write: "It is considered that the results obtained from a study of the precipitation of sparingly soluble substances, such as silver chloride, which do not form Liesegang rings in gelatine, should not be applied to explain the condition of sparingly soluble substances, such as silver chromate, which do form Liesegang rings in gelatine. There is a difference in the function of the gelatine in the two cases."

The writers appear to have overlooked some experiments of Bolam and Mackenzie,² in which Liesegang rings of silver chloride in gelatin were actually obtained. Moreover, while the observations of Nabar and Desai on the behaviour of the silver electrode in gelatin-silver chromate systems appear to be in agreement with those of Bolam and Mackenzie,³ their statement with regard to gelatin-silver chloride systems, that "whatever fall in the contact potential is to take place occurs as soon as silver nitrate in gelatine and potassium chloride in gelatine are mixed", is not in accord with the results of Langdon.⁴