

I WAS much interested in reading Mr. Burkitt's letter under the above heading,¹ since some of his conclusions coincide with those that I had formed after a study of similar deposits in the basins of the Thames and Kennet in Berkshire.² He suggests that implements of St. Acheul type were deposited in the gravels when the coast-line stood about 100 ft. above its present level. It is reasonable to suppose that at that time our rivers were flowing about the same height above their present beds. Gravels about 100 ft. above the present rivers occur in the Upper Thames basin and beside the Kennet, but have produced no implements. East of the Goring Gap, however, where the terrace is usually 80 ft. above the river, and is known as the Boyn Hill terrace, they are numerous.

It may be open to doubt whether these spreads are of exactly the same age, since there appears to be a slight difference in level between some of the Maidenhead gravels, and the implements that they produce vary in type. It is possible that in this region we should distinguish two distinct layers, much intermixed, at 100 ft. and 80 ft. respectively above the river. Both of these terraces, if there are two, have produced implements in large numbers, mostly of St. Acheul type, but also some that have been described as Chelles, though these are more probably ruder implements of the later industry.

In the Kennet valley a few St. Acheul implements have been found in gravel beds lying 140 ft. above the river; unfortunately it is not known at what depth these were found. It is, however, possible that they were left in hollows in a gravel bench, then 40 ft.-50 ft. above the river-level, and afterwards covered by rain-wash. A similar implement, from a corresponding level, found in a gravel-pit at Boldre in the New Forest, is in the Newbury Museum.

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¹ NATURE, 128, 222, Aug. 8, 1931.

² See "Arch. Berks", Chaps. 1 and 2.

Unusual Lightning.

IN NATURE for Aug. 1, p. 189, Messrs. H. E. Beckett and A. F. Dufton describe "Unusual Lightning". From their description it appears that what they saw was the illumination of a cloud by lightning taking place inside it; the discharges were probably very high up, and went from one part of the cloud to another. Such discharges, which may perhaps be in the nature of a series of discharges through the clouds, often last a second or more and are sometimes many miles long. Lightning may take place very high up in the clouds, sometimes in the hybrid cirrus. In the 'Guildford storm' of Aug. 2, 1906, the lightning, at the time the storm crossed the South Downs, was almost entirely in the hybrid cirrus about two miles above the surface, and the thunder was quite faint even when the discharges were vertically overhead.

Another storm which occurred in the summer of 1917 seems to have resembled somewhat that seen by Beckett and Dufton. Seen from high ground near London, flames seemed to shoot up from the horizon, and a soldier on leave told a member of the staff of the Meteorological Office that it was "Haig blowing up the whole . . . line". At Bedford they thought that a violent air raid was in progress over London; and it was seen from all over the south-east of England. The actual storm was tracked down to a region about

five miles to the east of the Kentish coast; the lightning was high up and the thunder faint even on the coast. The farthest points from which records came were Winchester, and Benson, Oxon, each about 130 miles away, and Husbands Bosworth, Leicestershire, about 140 miles away. Even at these distant places the lightning was noticed as something unusual; and so in a way it was—the lightning high up in the clouds lit up the hybrid cirrus plumes, which looked like flames. Most of the places from which the storm was visible were much too far off for the thunder to be audible. Beckett and Dufton seem to have seen something of the same kind, though on a smaller scale. The flame colour described by them may have been due to the distance of the storm and to the state of the atmosphere through which the light had to pass.

I am afraid that 'Flachtenblitz' is new to me, but the light of an electric discharge inside a cloud can produce all the appearances noticed by Beckett and Dufton, namely, glows which extend over the whole cloud or only over a portion of it; flashes starting at one end of the cloud and moving to the other; the flashes may occur at regular intervals of time, and may last a second or more. There is no need to suppose anything more than cloud to cloud lightning.

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Conservation of Rainfall as Carbohydrates.

WHEN a good rain falls on arid country of high temperature, the growth of plant life is truly remarkable. But in a short time this verdure loses its moisture to dry winds and hot sunshine and becomes well desiccated. A point I have not seen mentioned is that a fraction of the rainfall (which I hope to determine approximately) is locked up in carbohydrate molecules, safe from sun and wind and available for animal life. Thus, anhydrous glucose when oxidised in the body will furnish 60 per cent of its weight as water and cellulose 56 per cent. Unless this is taken into account, animal life in the desert remote from water-holes is inexplicable.

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Occurrence of Dulcitol in a Red Seaweed.

THE occurrence of mannitol has long been recorded in seaweeds, but, so far as the literature reveals, its distribution is confined to the brown algæ, and hitherto it has been the only representative of the sugar alcohols known to occur in the algæ. We have recently had occasion to examine extracts of the red seaweed *Bostrychia scorpioides*, which grows on the salt marsh at Blakeney Point; from this material we were able to isolate, in crystalline form, the isomeric alcohol dulcitol. As this is the first recorded observation of this substance in algæ, we are proposing to examine a number of other red algæ, with the view of determining whether they also contain dulcitol, or whether we were dealing with an exceptional case. A fuller account of the experimental work will, it is hoped, appear before long in the *Biochemical Journal*.

P. HAAS.

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