

at elevations now occupied only by the yak and similar mountain forms.

In reference to the greater richness of the Siwalik fauna, as contrasted with the Indian fauna of the present day, he quotes with approval the suggestion of Mr. Wallace, that a sweeping reduction was brought about by the cold of the glacial period. Of the influence of this cold in India, there are abundant proofs in the great extension of the Himálayan glaciers, for instance, in Sikkim and Kashmir, down to 6,000 feet and 8,000 feet above sea-level; and in the Naya hills of Assam, whose greatest elevation does not exceed 10,000 feet, in the large moraines at 4,500 feet, described by Col. Godwin Austen.

The oldest proofs of man's occupation hitherto met with in India, are a chipped axe or scraper, in the alluvial (post-pliocene) deposits of the Narbada, associated with remains of *Ursus*, *Elephas*, *Rhinoceros*, *Hippopotamus*, *Tetraprotodon*, and *Bos*, all of extinct species; and a flake, apparently of human manufacture, in the Godavari gravels of similar age. Quartzite implements of the palaeolithic type are abundant in the laterite gravels of Madras, but these are probably of later date. Axes of neolithic type have as yet been met with only on the surface, most abundantly in the Banda district of the North-West Provinces.

The Manual is illustrated by twenty-one admirably executed lithographed plates of characteristic fossil forms, and a few woodcuts of sketches and sections. Its utility for purposes of reference is rendered all that can be desired by a copious and well-arranged index. We confidently hope that the publication of the work will give an impulse to the advancement of Indian geology by adding largely to the number of non-professional workers, a class which has hitherto been singularly wanting in India, despite the examples of such men as Carter, Forbes, Newbold, Strachey, and Hislop.

H. F. B.

#### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

#### Prof. Clifford's Mathematical Papers

HAVING, at the request of Mrs. Clifford and Dr. Spottiswoode, undertaken the editing of the late Prof. Clifford's mathematical papers, I am anxious to secure the co-operation of all mathematicians who are interested in the matter. Prof. Clifford does not appear to have been in the habit of widely distributing copies of his writings, so I have found of many of them a great number of copies, whilst of others I have not come across a single one. I will first state what I have:—

All papers in the *Phil Trans.*, in the *Proceedings of the London Mathematical Society*, in the *Messenger of Mathematics*, in the *Manchester Transactions*, in the *Cambridge Philosophical Society's Journals*, in the South Kensington Handbook, in the *Mathematical Reprint* from the *Educational Times*.

Of the papers in the *Quarterly Journal of Mathematics* I have only §§ 1-11, 17-23, of the *Analytical Metrics*. I should be glad also to have a copy of the *Academy* for August 15, 1873, and information about "Lecture Notes" on Geometry. These last are lithographed and are comprised in twenty-six articles (?all), of which I lack one page, containing § 19-21. I need hardly add I shall be glad to receive any other papers (mathematical)

which are not contained in the above-named journals. The NATURE article (translation of Riemann) I have. I have Mrs. Clifford's permission to distribute the author's copies of her late husband's papers to mathematicians who may wish to have them.

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#### Pine-Pollen mistaken for Flowers of Sulphur

THE following paragraph appeared in the *Times* of June 16:—

"During the past week, after heavy rain, a thin film of sulphur has been observed at Windsor, Slough, and in the neighbourhood generally, to settle upon the surface of rain-water caught in butts and cisterns. The phenomenon at first did not attract much attention, but being observed on different occasions it has given rise to much speculation as to the cause of it, there being no manufactures in the neighbourhood at all likely to have produced it. It has been suggested that a sulphureous vapour may have been wafted to this country by the recent south-east winds, and arrested and deposited in the rain."

The supposed "sulphur rain," a fine yellow dust, was the cause of great excitement among the country people in this neighbourhood. It was first observed on the afternoon of Sunday, June 8, after a remarkably heavy shower, and much disturbed the inhabitants of some of the villages round Eton, who fancied that it smelt "awful like brimstone," of which its yellow colour was somewhat suggestive. In some places it gave rise to such a feeling of fright that the people were afraid to go to bed, thinking that the judgment day was at hand! Two or three days afterwards there was another "sulphur" shower, and I collected a quantity of the dust with my pupils, who were at work with me in my laboratory at the time. One of them, H. Bury, immediately recognised its resemblance to the pollen of *Pinus pinaster*, with which he is familiar from its abundance in the neighbourhood of his home at Bournemouth; and we have none of us any doubt but that this so-called sulphur is the pollen of this tree or of the Scotch fir, *Pinus sylvestris*, both of which are common in Windsor Forest. Two of the Windsor doctors, both practised microscopists, at once came to the same conclusion; but a local chemist and druggist is said (on good authority) to have supported the sulphur theory. This, perhaps, accounts for the rather positive statement by the Windsor correspondent of the *Times* as to the nature of the deposit, and also for the suggestion he refers to respecting its origin, which explains the phenomenon in a manner that is certainly more curious than probable, from a chemical point of view. I hear that the "sulphureous vapour" is supposed to have been "wafted to this country," after escaping from Etna during the recent eruptions, which fortunately occurred at just the right time to give apparent probability to the sulphur theory.

Thinking that such a remarkable phenomenon should not be allowed to pass unnoticed, I sent a short note to the *Times* of the 17th inst., stating the real (pollen) nature of the yellow dust, hoping that this would set the matter at rest and dispel the superstitious fears of the rustics. I was therefore greatly surprised, a few days afterwards, at receiving a letter from an F.R.G.S. residing near Carlow, in Ireland, who had seen my note in the *Times*, but nevertheless spoke of an "extensive fall of sulphur" in his neighbourhood. He was good enough to inclose me a "specimen of its incrustations" on a dead leaf, and said that "till yesterday's heavy rains any quantity of leaves like that I send you might have been gathered, and the edges of the pools of water were heavily incrustated with pure sulphur." He added that he thought I should not find the deposit to be "the produce of *Pinus pinaster*." This, of course, was rather startling, for I naturally supposed that no one would write so confidently who had not satisfied himself by chemical tests and by microscopical examination as to the truth of his statements, especially after hearing of the mistake which had been made in England. A glance at the deposit under the microscope, however, revealed its true nature—pine-pollen again!

I wrote accordingly to my informant, telling him this and sending him some pollen taken directly from the tree, so that he might recognise its similarity to the "pure sulphur" he so kindly sent me. I hope that by this time he has done so.

The above facts are of interest, partly as affording an excellent illustration of the transportation of pollen by the wind, and partly because they show how ready some people are to attribute an almost miraculous origin to anything a trifle out of the com-