

## Extraordinary Meteor

THE following account of an extraordinary meteor occurs in a letter I received from a brother who is a missionary stationed in Agra. He does not give the exact place where he was at the time, but it must have been very near to Agra. The letter is dated Agra, 24th November, 1870. A missionary from Allahabad was with him when he saw it. ROBERT GRYSO

Mills Hill, Chadderston, near Manchester

"Agra, Nov. 24, 1870

"I recently saw a marvellous meteor. I was in camp, and had risen for an early march a few minutes before 3 A.M. on Nov. 4th. I was standing under the shade of a cluster of trees, when a sudden flash of light fell around. Two or three camp fires were blazing near, and at first I thought it might be a sudden flare up from one of them, but on casting my eyes up towards the heavens, I saw a large oval light, stationary. It appeared to be composed of a large number of irregularly-shaped, differently-sized stars, yet so closely packed as to form one light, yet giving the whole a sort of dappled appearance. At first I was struck dumb with amazement—thought it must be some mental illusion, or that my eyes were playing me false. But as I gazed it remained steadily fixed. — of Allahabad was with me. I roused him. He was soundly asleep, and some seconds passed in waking him up. In the interval it appeared to have been lengthened, nearly, though not quite, by a straight line, and as we gazed it assumed the shape of a large magnet, with the upper limb rather shorter than the other. It then gradually expanded, diminishing in brightness as it increased in size, assuming a wavy, serpentine form, though keeping much to a horse-shoe shape, until it became so attenuated as to be no longer visible. It must have continued in sight five minutes. It was seen by all the servants, and one of them cried out '*Bhagwanika seela hae*,'\* by which he appeared to mean that in his opinion the Almighty was amusing Himself with fireworks; literally, 'It is God's sport or amusement.'

## NATURAL SCIENCE AT CAMBRIDGE

THE following is a list of the Scholarships and Exhibitions for proficiency in Natural Science which are likely to be offered in Cambridge during the present year:—

TRINITY COLLEGE.—One or two of the value of about 80*l.* per annum. The Examination will be in Easter week, and will be open to all undergraduates of Cambridge and Oxford. Should one Scholarship only be assigned, preference will be given to the candidate who shows the greatest proficiency in Physiology and the allied subjects. Further information may be obtained from the Rev. E. Blore, Tutor of Trinity College.

ST. JOHN'S COLLEGE.—One of the value of 50*l.* per annum. The Examination (in Chemistry, Physics, and Physiology, with Geology, Anatomy, and Botany) will be on the 21st and 22nd of April, and will be open to all persons who are not entered at the University, as well to all who have entered and have not completed one term of residence. In this College, moreover, Natural Science is now made one of the subjects of the regular College examination of its students at the end of the academical year (in May); and Exhibitions and Foundation Scholarships will in consequence be awarded to students who show an amount of knowledge equivalent to that which in Classics or Mathematics usually gains an Exhibition or Scholarship in the College. In short, Natural Science is on the same footing as Classics and Mathematics, both as regards teaching and rewards. Further information may be obtained from the Rev. T. G. Bonney, Tutor.

CHRIST'S COLLEGE.—One or more, in value from 30*l.* to 70*l.*, according to the number and merits of the candidates, tenable for three and a half years, and for three years longer by those who reside during that period at the

College. The examination will be on March 28, and will be open to the undergraduates of this College, to non-collegiate undergraduates of Cambridge, to all undergraduates of Oxford, and to any students who are not members of either university. The candidates may select their own subjects for examination. Besides these there are three other Exhibitions perfectly open, which are distributed annually among the most deserving students of the College.

CAIUS COLLEGE.—One of the value of 60*l.* per annum. The examination will be on March 30, in Chemistry and Experimental Physics, or Zoology, with Comparative Anatomy and Physiology, or Botany, including Vegetable Anatomy and Physiology.—Scholarships of the value of 20*l.* each, or more if the candidates are unusually good, are offered, for Anatomy and Physiology, to members of the College.—Gentlemen elected to the Tancred Medical Studentships are required to enter at this College; these studentships are four in number, and the annual value of each is 113*l.* Information respecting them may be obtained from B. J. L. Frere, Esq., 28, Lincoln's Inn Fields, London; and respecting the other scholarships, from the Rev. N. M. Ferrers, Tutor of the College.

CLARE COLLEGE.—One or more of the value of 50*l.* per annum. The examination (in Chemistry, Chemical Physics, Comparative Anatomy, and Physiology, and Geology) will be on March 23, and will be open to students intending to begin residence in October.

DOWNING COLLEGE.—One or more, according to the merits of the candidates, of the value of 40*l.* per annum. The examination (in Chemistry, Comparative Anatomy, and Physiology) will be in March, and will be open to all students not members of the University, as well as to all undergraduates in their first term.

SIDNEY-SUSSEX COLLEGE.—Two of the value of 40*l.* per annum. The examination (in Heat, Electricity, Chemistry, Geology, Physiology, Botany) will be in October, and will be open to all students who may enter on the College boards before October 1.

Although several subjects for examination are in each instance given, this is rather to afford the option of one or more to the candidates than to induce them to present a superficial knowledge of several. Indeed, it is expressly stated by some of the colleges that good clear knowledge of one or two subjects will be more esteemed than a general knowledge of several.

Candidates, especially those who are not members of the University, will, in most instances, be required to show a fair knowledge of Classics and Mathematics, such, for example, as would enable them to pass the Previous Examination.

There is no restriction on the ground of religious denomination in the case of these or of any of the Scholarships or Exhibitions in the Colleges or in the University.

Further necessary information may be obtained from the Tutors of the respective Colleges.

It may be added that Trinity College will give a Fellowship for Natural Science once, at least, in three years; and that most of the colleges are understood to be willing to award Fellowships for merit in Natural Science equivalent to that for which they are in the habit of giving them for Classics and Mathematics.

EXPLORATION OF THE PERENE  
(AMAZONS) RIVER

ON the 28th November the Peruvian Government published the report of the expedition sent to examine the capabilities of the Perene river and neighbouring country, and the slope of their territory towards the Atlantic. This river, which is a branch from the Vcuyali, rises near Tarma, the capital of the Department of Junin,

\* I cannot be quite sure of these words, not knowing the original language in which they were spoken.—R. G.

and flows through the country of the Chunchamayo Indians, a wild tribe, hostile to the Peruvians and but little known to them. The soundings were found to give from three to five fathoms in depth and the width was about 100 yards. The course of the river was east for 1,000 yards from its confluence and then north.

In the valley of Chunchamayo the forests consist of trees of extraordinary size, and the villages are numerous. According to Padres Amich and Sobrevista, the Indians belong to the tribe of the Amayos. The chief object of search of the expedition was the Cerro del Sal, or the Salt Hill, from which the Indians obtain that necessary article. The expedition consider they ascertained the region of it in a sandstone formation.

The expedition observed plantations of cocoa (coca?) and Indian corn, and on the banks of the river fishing huts, with nets and fittings for catching and salting fish. What was most striking was an iron furnace of a square form, about two yards high, and five feet each way, constructed of bricks eighteen inches long. It was worked with a double bellows, and supplied with coal, wood, and pounded ore. Water for the tanks was brought from a height in landers of bark hides. There were about twenty or thirty hundredweight of cast-iron. The whole excited the admiration of Mr. James Greg, owner of the Lima Iron Foundry, who accompanied the expedition.

The party fully ascertained the presence of salt, and considered they had found the vein of salt reputed to be ten miles in length, as they found it consisted of earth with particles of salt and quartz crystals. On digging down they found that the salt increased.

The Indians use the bow and arrow, and seemed much afraid of firearms. The commander recommends as the best mode of subduing them that the Salt Hill shall be taken possession of. It is considered that a navigable point has been found about 200 miles from the capital City of Lima, and by means of which it can obtain communication with the Atlantic. The Government is strongly urged to send a more powerful expedition.

HYDE CLARKE

#### BRITISH DIATOMACEÆ \*

IT is now some years ago since Mr. Van Voorst published for Messrs. Smith and Beck two volumes of a "Synopsis of British Diatomaceæ," by Prof. William Smith, of Cork, which were beautifully illustrated by Mr. Tuffen West. The latter volume of this Synopsis was published in 1856, and even then the number of new forms of these minute silicious Algæ had rendered necessary the preparation of a supplement which, however, owing to the death of the author, never appeared. Since 1856 many and important works and memoirs on the diatoms have been published, and not only have the pages of the Quarterly Journal of Microscopical Science contained numerous writings on this subject, but workers like Rabenhorst, Grunow, and Cleve have continued to add to not only the number of species, but to the amount of our knowledge of the Diatomaceæ. We venture, nevertheless, to think that the time had not quite come to write anew a history of the British Diatomaceæ. The difficulty of finding good specific characters remains just as great as it was when Smith's work was published, and the number of local lists recorded has been too few to give us anything like an idea of the geographical distribution of these forms; still we should be sorry not to welcome one of Mr. Van Voorst's series of British Natural History works, a series of which we have every reason to be proud; almost their only drawback being incidental to the method in which the works of the series are published, viz. in numbers, by

\* "The Natural History of the British Diatomaceæ." By Arthur Scott Donkin, M.D. Part 1. Nov. 1, 1870. (London: J. Van Voorst, Illustrated with Plates by Tuffen West, F.L.S.)

which it too often happens that there is a want of uniformity between the earlier and later portions of the work.

Dr. Donkin's work is to consist of two parts, "the first will be introductory, and contain a full account of the Diatomaceæ and a new classification based on their structure and mode of development;" and the second, which is to be published first, "will be synoptical, and give an accurate and succinct description of all the known British genera and species. The synonyms of each species will be fully given with the view of rendering the work more valuable for the purpose of reference." There strikes us as being something quaintly simple in the words we have italicised. Fancy an apology for giving synonyms, as if they were something or another that people did not care about!

Part one (pp. 1 to 14 and plates 1 to 4) now lies before us. The execution of the plates disappoints us. We know that the artist's right hand is very far from having lost its cunning, and yet the figures here are, to our mind, much inferior to the figures by the same hand in Smith's work. 500 diameters, too, is a large scale for the amplification, and will only unduly increase the number of plates—it does not appear either to have contributed to greater distinctness of detail. Plate 3 is open before us. Fig. 3 we should consider scarcely recognisable; and fig. 7 is greatly less true to nature in both outline and proportion than one also of the same species before us by Grunow.

The first family treated of in the text is the Naviculææ. No synonyms are given to the genus *Navicula*, but we learn from the diagnosis and from the remarks in the text that *Pinnularia* Ehrb., as emended by Smith, is reduced to the rank of a synonym of this genus; so that *Navicula* will be a genus very full of species, and we venture to suggest that there will be great difficulty in many instances in determining whether to refer a species to the section with flattened or convex valves. The initials M. V. are used to express a view of the frustule, exhibiting the median connecting zone, and the margins of the valves; this we welcome as an improvement.

Perhaps this is hardly a fitting place to criticise very closely the species given in this part. Opinions may differ very widely indeed as to what is a species among these little Algæ, still we think it questionable if *N. didyma* var. Smith, Synop. vol. i. p. 53, quoted as a synonym to *N. smithii* De Breb. is not greatly nearer *N. smithii* var. *fusca* Ehrb. Again, we do not think that *N. hyperborea* Grun. is identical with *P. fusca* Ehrb.; it differs both in outline and details, and unless the difference in striæ is to be altogether given up, *Pinnularia forficula* O. M. cannot be regarded as synonym of *N. suborbicularis* Ehrb.; *N. nitescens* Ehrb., and *N. suborbicularis* Ehrb., are rightly kept as separate species, and we also approve of the separation of *N. subsalina* from *N. amphibæna*. *N. latissima* Ehrb. is described as having striæ distinctly granular, how then can *Pinnularia divaricata* O.M., striæ distinctly costate, be regarded as a synonym? It will not do to separate some forms and bring others together exactly for the same reason. The habitats given are most meagre, and the work presents a contrast in this to the rest of Mr. Van Voorst's series. Even in cases where the author could have given Irish localities for rare and interesting forms, he has passed them over, and if we had not found a reference or two to the Lough Mourne Deposits in the County Down, we should have fancied that no Irish localities were to be given.

We have been thus candid in our notice because we believe it possible with care to remove from this work the signs of its being slightly premature. It only needs to keep to its promise and give the *synonyms* in full, and to give the *habitats* in full, at least for uncommon forms, and lastly, to make the figures more distinct, to make this "Natural History of British Diatomaceæ" a very valuable work.

W.