possible influence on the growth of coral reefs on its shores.

The first operations under the new direction were carried on between Key West and Havana, along the route now occupied by a telegraph cable. Dredgings were made at depths varying from 90 to 300 fathoms, and yielded Crustaceans, Annelids, Mollusks, Radiata, Foraminiferæ, Sponges, a single vegetable specimen, being a minute alga, *Centroceras clavulatum*, and "a number of nodules of a very porous limestone, similar in colour and texture to the limestone forming the range of low hills along the shore of Cuba, but composed apparently of the remains of the same animals which were found living." Among these Deltocyathus, Caryophyllia, and Pteropods were recognised in the stone, and found in various stages of fossilisation.

At the end of a descriptive list of the specimens collected during the cruise, M. de Pourtales remarks:—"It would be premature to compare this deep-sea Fauna with the animals inhabiting the regions of lesser depth on the coast of Cuba or Florida. In the first place, many of the smaller forms—such, for instance, as the Bryozoa or the Hydroid polyps of those shores—are not yet sufficiently known to enable us to say if any of the species dredged exist in any other than the abyssal region. Then, a very different value must be assigned to the different classes of animals under examination. Thus, the dead shells must be left out of the question, at least the smaller ones, for they may have dropped with the excrement of fishes, or, in the case of Pteropods, have sunk from the surface after the death of the animal. The Crustaceans and Annelids being abundant and generally sedentary, will, when better known, afford good characteristics of the regions of unequal depth. The same remark applies to the sponges and the Foraminiferæ; the great abundance of the latter and the ease with which they can be brought up by the sounding lead render them particularly useful."

From this it will be understood that the United States Coast Survey is in good hands, and may be expected, when the time comes, to take part in the suggested dredging expedition all across the Atlantic, when England and the States, after accomplishing each a half, are to meet and shake hands in mid-ocean.

NOTES

PROFESSOR HENRY, the President of the American Academy of Sciences, and Director of the Smithsonian Institution, is now in this country *en route* to the Continent to attend the meetings of the International Commission on Standards.

WHEN presiding over the distribution of prizes for the Faculty of Arts and Laws at University College, London, on Friday last, the Bishop of Exeter made some admirable remarks on the nature of a true system of education, and of the places which ought to be occupied by classics, mathematics, and natural science, and the proper method of teaching them. In all true teaching a scientific method is indispensable; it is because this scientific method has been applied to instruction in Greek and Latin, that such good results have been obtained in this department of education. The introduction of scientific teaching has not hitherto met with the same success because it has not been carried out in the same spirit. In very many instances, those who are endeavouring to promote the study of natural science as a part of education, have made the great mistake of omitting altogether that which is essential to true study, namely, scientific method. The reason why the teaching of the natural sciences still hangs back in our public schools is, in great measure, the unscientific method in which science has been taught by many. To form a part of real education, the study of science must be pursued in the same rigorous manner as that of classics or mathematics; it will then prove as hard work to the learner, and the result of its introduction must be most beneficial. While the exclusive study of mathematics must fail as a complete discipline for the understanding, and the great mathematician may be uncultivated as a man, it is very rarely that you see such a result in the student of external nature; therefore, this study must rank by the side of the other, and must hold a place in no way inferior to it. The practical importance given to these remarks by the experience of Dr. Temple at Rugby, ought to make them carry great weight with all teachers of science.

DR. HENRICI has been elected by the Council of University College, London, Professor of Mathematics, in the place of Dr. Hirst, who resigned the professorship, on his appointment to the Assistant-Registrarship of the University of London. Dr. Henrici had acted as Prof. Hirst's assistant during the whole of the session just ended. He had pursued his mathematical studies at Carlsruhe under Professor Clebsch, and subsequently at Heidelberg, where he attended Prof. Hesse's lectures on mathematics, and those by Prof. Kirchhoff on theoretical physics. While at Heidelberg he took his degree of Doctor of Philosophy in the highest grade, and the Philosophical Faculty of the University considered the dissertation which he wrote on that occasion to have so high a scientific value, that they recommended the government of Baden to recognise its importance by conferring upon Dr. Henrici a special public distinction. Dr. Henrici subsequently prosecuted his studies at Berlin and Kiel, and then came to England, where he has resided nearly five years.

THE completion of the deep-sea cable between Falmouth and Bombay was celebrated last Thursday evening by an entertainment given by Mr. Pender, chairman of the British-Indian Submarine Telegraph Company, at which royalty largely assisted. Complimentary messages were exchanged between the Viceroy of India and the President of the United States, the distance of 8,442 miles being accomplished in forty minutes; between the Prince of Wales and the Khédive, the Prince of Wales and the King of Portugal, the Prince of Wales and the President of the United States, and the Prince of Wales and the Viceroy of India. This is the first instance of direct telegraphic communication between India and America. The comic side of telegraphic communication was presented by the message between the Prince of Wales and the Viceroy, which, though despatched soon after twelve at night, and only nine minutes on its way, reached Lord Mayo at five in the morning, when his lordship was, naturally enough, fast asleep. What will be the result when the earth is completely girded with a telegraphic cable, and a message is sent to the antipodes? The question between night and day will be expanded to one between to-day and to-morrow, to say nothing of yesterday.

THE Royal Commission on Scientific Instruction and the Adancement of Science has held two meetings since our last issue.

THERE will be an election at Magdalen College, Oxford, in October next, to six Demyships and one Exhibition. Of the Demyships, one will be mathematical, one in natural science, four classical. The Exhibition will be in natural science. It is necessary that candidates for the exhibition should prove to the satisfaction of the electors that they cannot be supported at college without such assistance. Evidence on this point will be considered as confidential. No person will be eligible for the Demyships who shall have attained the age of twenty years, and (in the case of candidates in mathematics and natural science) who is not sufficiently instructed in other subjects to matriculate as a member of the college. The stipend of the above Demyships and Exhibition is 75*l.* per annum, inclusive of all allow-

ances; but there are tenable with the Demyships certain College Exhibitions, which raise their annual value, on an average, to about 83*l*. They are tenable for five years. Testimonials of good conduct will be required, and a certificate of birth and baptism, which must be presented to the President on Monday, the third day of October, between the hours of three and six, or eight and nine P.M. The examination will commence on the following day. Particulars relating to the examinations in the various subjects may be obtained by applying to the senior tutor. No entrance fees or caution money are required by the college. The University fees payable on matriculation amount to 2*l*. 10*s*.

IT is refreshing to learn that that reverend and tory institution, St. John's College, Oxford, has just elected to a fellowship a devoted physical investigator, in the person of Mr. Bosanquet. This election is important, not only as a recognition of natural knowledge, but also of the principle of research as against that of mere education.

CONSEQUENT on the death of the Rev. Dr. Luby, one of the Senior Fellows of Trinity College, Dublin, the Rev. Mr. Jellett, B.D., President of the Royal Irish Academy, has been co-opted a Senior Fellow. It is understood that the Professorship of Natural Philosophy held by Mr. Jellett will be given to the Rev. R. Townsend, A.M., author of the "Modern Geometry of the Point, Line, and Circle."

THE Minister of Public Instruction in Italy has promised a grant of 1,600 *lire* towards the expenses of instituting a laboratory of cryptogamic botany in Pavia; and it is hoped that a contribution will also be received from the Minister of Agriculture.

THE death of Sir James Simpson has been followed by another heavy loss to medical science in that of Professor Syme, who died on Sunday last, at the age of seventy. Mr. Syme was for a short time Professor of Surgery in University College, London; for a much longer period he occupied the chair of Clinical Surgery in the University of Edinburgh, which he resigned only quite recently to his son-in-law, Mr. Joseph Lister. He was a voluminous writer on surgical subjects, many of his works being held in very high reputation.

THE *Field* suggests that the drought of the summers of 1868 and 1870 is connected with the rapid increase of drainage in this country, the average summer rainfall having been greatly reduced from 1860 to 1870. Our contemporary also expresses an opinion, in which we cordially concur, that a needless alarm has been raised as to the prospects of the corn harvest, as shown in the rise of 10*s*. to 12*s*. a quarter in wheat at Mark Lane. The harvest of 1868 is the finest on record; and we hope to see the prediction of our contemporary fulfilled, that "the cereal crops in this country will, on the whole, turn out favourably."

NOW that so many, both Londoners and their country friends, are flocking to the national botanic garden at Kew, we may call attention to Prof. Oliver's "Guide to the Royal Botanic Gardens and Pleasure Grounds, Kew," which has now reached its twenty-fifth edition. It is a *multum in parvo* of value and interest far beyond the purpose for which it is designed; indeed we do not know where else, in so small a compass and at so low a price, to meet with so much and varied information respecting the vegetable products of different countries, their economic purposes, and their geographical distribution, illustrated with exceedingly well-drawn woodcuts.

IN a paper in the *Bulletins de la Société Vaûdoise*, No. 62, Dr. C. Nicati gives a *résumé* of various researches respecting the peculiar red snow which occasionally falls in the Grisons. Some of this snow fell, mingled with common snow and rain, during a violent storm from the south-west on the morning of January 15th, 1867, in various places. The chemical analysis of the melted snow demonstrated the presence of minute quantities of sulphate of lime or gypsum, sulphate of magnesia, organic matters, chlorine, and iron; and microscopic examination detected vegetable fibre, pollen, spores, with here and there diatoms and small crystals. The colour varies from brick red to a pale yellow. This snow is quite distinct from the red snow of the upper Alpine regions, which owes its colour to the presence of the minute plant, *Protococcus nivalis*. After discussing various theories respecting its origin, Dr. Killias expressed his opinion that it is the dust of the desert of Sahara, transported by a sirocco, which gives the colour to the snow of the Grisons. Dr. Nicati gives many interesting particulars, with analyses, of the Algerian sirocco dust, and of the mud-rain in Naples and Sicily; and Professor C. Cramer states that he has discovered, both in the sand of the Sahara and in the red snow of the Grisons, particles of vegetable organisms (especially polythalamia) and minute fragments of animal origin, such as wool, hair, &c. He considers the presence of gypsum in the red snow an incontestable proof of its containing matter conveyed from the desert of Sahara

PROFESSOR GERARDIN has recently communicated to the Council of the "*Société d'encouragement pour l'industrie nationale*" the results of his efforts to purify the waters of the Croult, a small river which, rising at Louvres, passes through Gonesse, Arnouville, and flows through St. Denis, ultimately falling into the Seine. The stream was poisoned by the drainage from the starch manufactories. The principle on which M. Gerardin proceeded was that water in which weeds and shell-fish cannot live was infected and poisoned. The potatoes from which the starch was made contain 75 per cent. of juice, which itself contains 7 per cent of albumen. The water issuing from the factory is clear, reddish, and inodorous; in motion, it forms coherent masses of coagulated albumen. The river deposited in its course masses of whitish, pitch-like substance, without consistence. The surface was covered with white froth; the mud black and stinking, while the water had a strong odour of sulphuretted hydrogen. M. Gerardin recognised the white masses deposited by the waters as the "baregine" characteristic of the sulphurous waters of the Pyrenees. When the works stop, this "baregine" putrefies, and infusoria are developed in abundance. M. Gerardin thought the best method of remedying the unwholesome state of the water would be to destroy the albumen by the simultaneous action of the air, clay, and the organic fermenting agents always contained in cultivated ground, and he determined to make the waters pass over a soil well drained. The factory of M. Boisseau, at Gonesse, consumed in a day 400 hectolitres (sacks) of potatoes, weighing 28,000 kilog. (27½ tons), and containing 21,000 kilog. of juice, carried off by 130,000 litres of water (say 28,500 gallons); these waters are spread over a field whose area is 500 yards square, in which are placed drains at 6 feet distance from each other, and 2 feet deep. The arrangement has perfectly succeeded. Weeds grow in the Croult from Louvres to St. Denis: *Limnæus* and *Planorbis* find their abode in these weeds, the "baregine" has disappeared, the sulphuretted hydrogen odour is entirely gone, and the water is sweet and limpid.

A GOOD tabular arrangement of the Natural Orders of plants is very much wanted by botanical teachers, where the alient diagnostic characters of allied orders are presented to the eye at a glance. That this desideratum is entirely supplied by Dr. Griffith's "System of botanical analysis applied to the diagnosis of British natural orders," we cannot altogether affirm, as each teacher will probably find it vary in some respect or other from his own ideas of the best mode of classification. We can, however, safely recommend it as a useful help to beginners in getting over the difficulties of systematic botany.