

the more delicate of them disappear, in the transition from the calcareous ooze to the 'red clay;' and it is only by this light of later observations that we are now aware that this is by no means necessarily the case. On the 23rd of March, 1875, in the Pacific, in lat. $11^{\circ} 24' N.$, long. $143^{\circ} 16' E.$, between the Carolines and the Ladrões, we sounded in 4,574 fathoms. The bottom was what might naturally have been marked on the chart 'red clay;' it was a fine deposit, reddish brown in colour, and it contained scarcely a trace of lime. It was different, however, from the ordinary 'red clay,'—more gritty—and the lower part of the contents of the sounding tube seemed to have been compacted into a somewhat coherent cake, as if already a stage towards hardening into stone. When placed under the microscope, it was found to contain so large a proportion of the tests of Radiolarians, that Murray proposes for it the name 'Radiolarian ooze.' This observation led to the reconsideration of the deposits from the deepest soundings, and Murray thinks that he has every reason to believe (and in this I entirely agree with him) that, shortly after the 'red clay' has assumed its most characteristic form, by the removal of the calcareous matter of the shells of the Foraminifera, at a depth of say 3,000 fathoms, the deposit begins gradually to alter again by the increasing proportion of the tests of Radiolarians, until, at such extreme depths as that of the sounding of the 23rd of March, it has once more assumed the character of an almost purely organic formation, the shells of which it is mainly composed being however in this case siliceous, while in the former they were calcareous. The 'Radiolarian ooze,' although consisting chiefly of the tests of Radiolarians, contains, even in its present condition, a very considerable proportion of red clay. I believe that the explanation of this change, which was suggested by Murray, and was indeed almost a necessary sequence to his investigations, is the true one. We have every reason to believe, from a series of observations, as yet very incomplete, which have been made with the tow-net at different depths, that Radiolarians exist at all depths in the water of the ocean, while Foraminifera are confined to a comparatively superficial belt. At the surface and a little below it, the tow-net yields certain species; when sunk to greater depths, additional species are constantly found, and, in the deposits at the bottom, new forms occur, which are met with neither at the surface nor at intermediate depths. It would seem also that the species increase in number, and that the individuals are of larger size as the depth becomes greater; but many more observations are required before this can be stated with certainty. Now, if the belt of Foraminifera which, by their decomposition, according to our view, yield the 'red clay,' be restricted and constant in thickness, and if the Radiolaria live from the surface to the bottom, it is clear that, if the depth be enormously increased, the accumulation of the Radiolarian tests must gain upon that of the 'red clay,' and finally swamp and mask it."

Prof. Wyville Thomson further informs me that the best efforts of the *Challenger's* staff have failed to discover *Bathybius* in a fresh state, and that it is seriously suspected that the thing to which I gave that name is little more than sulphate of lime, precipitated in a flocculent state from the sea-water by the strong alcohol in which the specimens of the deep-sea soundings which I examined were preserved.

"The strange thing is, that this inorganic precipitated is scarcely to be distinguished from precipitated albumen, and it resembles, perhaps even more closely, the proliferous pellicle on the surface of a putrescent infusion (except in the absence of all moving particles), colouring irregularly but very fully with carmine, running into patches with defined edges, and in every way comporting itself like an organic thing."

Prof. Thomson speaks very guardedly, and does not consider the fate of *Bathybius* to be as yet absolutely de-

cidated. But since I am mainly responsible for the mistake, if it be one, of introducing this singular substance into the list of living things, I think I shall err on the right side in attaching even greater weight than he does to the view which he suggests.

T. H. HUXLEY

THE INTERNATIONAL CONGRESS AND EXHIBITION OF GEOGRAPHY

AT the distribution of prizes the Ordnance Survey obtained a letter of distinction, although it was not an exhibitor. It is the only instance in which such an honour was awarded. M. Quatrefages, in the name of the governing body of the society, awarded two exceptional prizes, one to MM. Payer and Weyprecht for the discovery of Francis-Joseph Land, and the other to M. Delaporte for the foundation of the Cambodian Museum at Compiègne. Admiral la Roncière, le Nourry closed the meeting by a very impressive address reviewing the characteristics of the Congress.

The success of the Exhibition is so great that it will be kept open up to the 19th of September. The number of visitors is greater than ever now that the Congress is over, and many fresh attractions have been added to several sections. M. Buys Ballot, the director of the Utrecht Meteorological Institution, has sent a board used by him for better indicating the direction of winds and distribution of pressure. Small holes are perforated in a map at the places occupied by the several stations. In these holes are placed small needles whose height indicates the barometrical height, and whose head is an arrow showing the actual direction of the wind.

In the French annexe has been exhibited a drawing of a machine for manufacturing relief maps out of a block of plaster. The knife is movable by a kind of pantograph, and can be conducted alongside the several *lines of level* (*lignes de niveau*) of a map which is seen by reflection in a plate of glass placed in a suitable position.

Peter the Great having been appointed a member of the Academy of Paris in 1717, ordered a map of the Caspian Sea to be drawn, which he sent to his fellow-members of the Academy as a proof of his zeal for the progress of science, and to justify the honour which had been conferred upon him. This map was lodged in the archives of the Academy, engraved and published in the volume of 1721, with a report written by Delisle the astronomer. It happens that the same map is exhibited at the Russian annexe, and the circumstances connected with it having become generally known, it has given rise to the report that the Grand Duke Constantine will be elected a member of the Academy, like his ancestor and the Emperor of Brazil. It is something more than an idle rumour.

A banquet was given by the Section of Commercial Geography, and some resolutions were adopted *inter poculas*. The most notable is in reference to the establishment of a *fonda* in the centre of the Sahara for the use of all civilised nations. But although adopted unanimously, the motion is not likely to be carried into execution very speedily.

SCIENCE IN GERMANY

(From German Correspondents.)

IT was the phenomenon of the motion of glaciers which caused most of the scientific men, that studied its details, to make experiments on the behaviour of snow and ice under pressure. The brothers Von Schlagintweit and Prof. Tyndall were the first who made such experiments with regard to glacial phenomena. Later on Helmholtz described a series of investigations, which proved amongst other things that snow is changed into ice by high pressure, that ice broken into little pieces can again be pressed into a homogeneous ice cylinder, that