

hydrogen gases thus furnished are to be employed in smelting the carboniferous ore of iron, which is reduced by the hydrogen at the high temperature of the flame, thus producing at one operation either steel or pure malleable iron at will. Signor Guidi states, however, that to turn out two tons daily would require the constant employment of a 120 horse-power engine.

GEOGRAPHICAL NOTES

THE Lisbon correspondent of the *Daily News* telegraphs that Ivens and Capello have arrived ill at Loanda, after two years' exploration. They are suffering from fever and other complaints induced by privation, and were almost without clothes. According to government instructions, they have completed a general map of Loanda. They explored the rivers Quango and Quanza, and the territories bordering on their basins. They could not descend the Quango to its confluence with the Zaire on account of the resistance of the hostile tribes. Capello appears quite old, and hardly recognisable. Ivens is better, though ill. Both are thorough scientific men. They bring important notes extending over 32 degrees, plans of the territories and the roads, and meteorological, magnetic, and geographical observations made with the excellent instruments they carried. They were well received by the chief of the Motiango territory, from which the German explorer, Schultz, was excluded; but the chief would not allow any white man to pass east at the peril of his life. They visited the highlands of Bihé, and explored several rivers to their sources. Nearly all their followers deserted them. They were received with great enthusiasm on their arrival at Loanda, and will go to Mossamedes to recruit, prepare their plans, and write out their observations. The period of their return to Lisbon is uncertain.

At a late meeting of the Russian Geographical Society some details were communicated as to the expedition exploring North-Western Mongolia under M. Potanin. In a letter the traveller describes his route during July and August, which first led from Tsoosilan to the River Kharkiri, and thence to the Lake of Khirghisor, layers of coal being found on the way. The banks of that lake being barren, the explorers halted near Lake Baganor, only six versts distant from the other sheet of water. Khirghisor is a great deal larger than Lake Khararous, and the Mongols asserted the existence of only two such immense reservoirs in the country—namely, the Oobsa and the Kirghisor. From the latter the expedition marched south, with intent to strike the point where the waters of Lakes Khararous and Durganor fall into Dzabchin. On August 4 the travellers came to the salt lake Dzerennor, and not till the 9th did they reach the banks of the River Tachteteli, that being the name applied to the mingled volumes of the large lakes flowing into the Dzabchin. Marching round the southern part of Lake Khararous, the explorers then arrived at the town of Kobda on September 1, with rich scientific collections of all kinds. M. Potanin intended again making for Oolangel, thence proceeding to Oolookem.

THE committee of the Dutch Arctic Expedition have made known their determination to fit out, for the third time, their little sailing schooner *Willem Barents*. The cost of their expedition is estimated at a little over 1,000*l.*

AFTER the presidential address and the paper on Sumatra read at the first meeting of the session, the new number of the Geographical Society's periodical gives us some notes on the Cocos or Keeling Islands, from the pen of Mr. H. O. Forbes, who went out to the East in October of last year for the purpose of investigating the fauna and flora of certain districts in the Malay Archipelago. While in Java, before commencing this work, he availed himself of an opportunity of paying a visit to these far-away islands, in order to ascertain what changes had occurred since the visit of H.M.S. *Beagle* in 1836; these are shown on the map accompanying his paper. Next we find a note on the boundary line between Chili and Bolivia, illustrated by a map, which explains to some extent the existing disturbances in South America. The geographical notes furnish an account of the progress being made towards Lake Tanganyika by Dr. Mullen's successors, the late Mr. Frank Oates's researches in Matabeleland, and Major Biddulph's tour in Chitral and Yassin. There is also some information of interest respecting Transcaucasia.

A CONTRACT has been concluded by the Molala Shipbuilding company, Sweden, to construct a steamer of Molala Bessemer steel, of 100 horse power, to trade between China and Siberia.

FROM the Abstract Report of the Indian Surveys for 1877-8 we see that a large amount of work was done during the season by the various departments, all now united under one organisation. Some interesting and important details are given of various trans-frontier explorations.

THE October *Bulletin* of the Paris Geographical Society begins with a long and valuable paper by M. Wiener on the Dead City of Gran-Chimu and the city of Cuzco. The paper is accompanied by large and careful plans of the two cities, and we believe is a valuable contribution to a puzzling problem. Admiral Fleuriot de Langle has a paper on African migrations, and M. Jules Girard on the subsidence of the surface of the Low Countries. M. Hamy gives an interesting *compte rendu* of M. G. Retzius's recent work on Finnish Ethnology.

THE ROYAL SOCIETY

THE anniversary meeting of the Royal Society was held on December 1, and a somewhat long address was read by the President Mr. Spottiswoode. After referring to some of the losses by death which the Society had sustained, he passed on to business which has occupied the attention of the Council during the current year.

Two important contributions to the Society's funds are announced. First, an unconditional bequest of 1,000*l.* by the late Mr. Sidney Ellis, of Leicester; and secondly, a legacy by the late Sir Walter Trevelyan, "the interest of which is to be applied to the promotion of scientific research."

The Royal Society, as is well known, possesses a rather extensive gallery of portraits, almost exclusively of Fellows of the Society, but among them also a fine painting of Lord Chancellor Bacon. Many of these portraits, however, have, through the lapse of time, begun to show signs of decay. Acting under the advice of Mr. F. W. Burton, F.S.A., Director of the National Gallery, the Council has entrusted the pictures which seemed most to require attention to the care of Mr. Dyer, of Orchard Street, who is now engaged upon them. Some of the portraits require lining, and others cleaning, or partial restoration. As will be seen from those which have been returned to their places, the work appears to have been done in a satisfactory manner. The present appearance of the pictures has been much improved, and it is hoped that these interesting portraits of those who have gone before us may now be passed on in an unimpaired condition to future generations.

Among other acquisitions 973 portraits of Fellows of the Royal Society, formed by the late J. P. Gassiot, Esq., F.R.S., have been bought during the past year. The collection consists mainly of engravings, many of which are of great artistic merit, and in excellent condition.

During the past year a small but perhaps not unimportant change in the mode of dealing with the papers to be read at the weekly meetings has been made. This consists first, in deciding a week earlier than heretofore, what papers should be advertised for reading; and secondly, in reading each week as many as practicable of those in hand, so as to leave as few as possible to stand over. The weekly journals are now able to announce to the public the papers which will be read at the Royal Society (as has in fact long been the case with other Societies) during the next week. But the main object of this arrangement has been early publication; that is to say, publication both in its technical sense of reading before the Society, and in its more widely accepted sense of appearance in the Society's Proceedings. When this was first proposed, it was feared there would soon arrive a period of scientific famine, and that occasions might occur when the Society would meet with no papers before it. Whether this would be so great a calamity as was at first imagined is still an open question, for such has been the scientific fertility of the season, that the threatened catastrophe has never yet actually occurred.

"But so far from suffering by a deficiency of matter we have more often found our difficulties in the number of papers to be read in a single evening. And on such occasions the Secretaries have been good enough to take especial pains to make themselves masters of the contents of the papers, and to communicate in a few words to the meeting the substance of each. It is, I believe, not too much to say that the 'reading' of papers carried out in this way has been the most agreeable and instructive, and has been particularly provocative of intelligent and pertinent discussion. . . .

"There is a possible alteration in our arrangements which