

rest. By these experiments Dr. Andrews cleared up the whole question of the liquefaction of gases by the separate or combined actions of cold and pressure. It is not too much to say that all the essential particulars as to apparatus and mode of working, by which two years ago the liquefaction of oxygen, and even of hydrogen, was effected simultaneously in France and in Switzerland, are to be found in Dr. Andrews's papers. It is to be regretted that the state of his health did not enable him to reap for himself (as he unquestionably would have done) this striking result of his beautiful investigations. But, after all, he has the credit of Adams or Leverrier, he pointed out how and where, with *certainty*, to find the hitherto unknown; and his glory is none the less that a Challis and a Galle, better provided with the requisite instrumental means, actually obtained the result. The mere fact of the liquefaction of oxygen, or the solidification of hydrogen, though very important in itself, is only one legitimate and inevitable consequence of Dr. Andrews's previous results; but it is vastly more easy of apprehension by the general public. But in the eye of science the demonstration that it is possible for matter to be made to pass by continuous stages from the gaseous to the liquid conditions forms one of the very greatest discoveries of even the nineteenth century.

"Such is the man whom, for the last half-century, we have had unostentatiously dwelling among us, prosecuting the labours that are only possible to the most exalted intellects of our race. Now that he goes into comparative retirement, there will be surely some means adopted of recognising in a permanent form connected with the college what it owes to him and to his great reputation."

#### GEOGRAPHICAL NOTES

WE learn from Oran that the French officers of the Staff in Algeria perceived for the first time on September 9 the electric light from the Spanish station of Tetica, at a distance of 272 kilometres. Commandant Perrier, director of the Algerian Survey, was enabled to measure one angle of the triangle, and the other having been measured from the Algerian station on the mountains, the operation may be considered as having been quite completed, and the junction of the Algerian network with the European triangulation an accomplished fact.

At the meeting of the International Geodetical Association at Geneva no delegates are reported as having been sent from Sweden, Norway, Denmark, Netherlands, England, or Turkey. France, who resisted during the lifetime of Leverrier, sent MM. Charles Sainte Claire-Deville, Faye, and Yvon Villarceau. Not only was Germany represented by Professors Peters and Rhumkers, but Saxony by M. Bruhns, and Bavaria by M. Baurneind. Spain sent General Ibanez, Belgium Col. Adams, Russia General Forsch, Austria Prof. Oppolzer, Italy General Mayo, Prof. Respighi, Col. Ferrera, and Major Maggia; Switzerland had two representatives, Professors Hirsch and Plantamour, the head of the Geneva Observatory. The session was inaugurated by reading the report by M. Deville on experiments made by himself and M. Mascart, the director of the Central Bureau of French Meteorology, for the construction of the irido-platinum international metre.

M. TYAGHIN, an officer of the Russian Navy, who went in July of last year to Novaya Zemlya with his wife, a child, and three servants to winter at the life-station organised on the island, has just returned to Archangelse. All are well, and the little family has been increased by a new-born child. The winter was not severe, the greatest cold having been only  $-29^{\circ}1$  Celsius; and on August 1, when M. Tyaghin left Novaya Zemlya, the thermometer rose as high as  $16^{\circ}$ . The five Samoyede families who were sent to the same station are well, but one old man

of more than sixty years and two others died from scurvy, and M. Tyaghin explains their death by the circumstance that they never went out of their dwelling and did not follow his recommendations. The hunting was good throughout the winter.

THE Russian Ministries of War and of Public Communications had resolved to send this year no less than three expeditions for the exploration of the old bed of the Amu-darya, and for researches as to the possibility of a water-communication between this river and the Caspian. The troubles in the Turcoman steppes hindered the starting of two of the expeditions which were to explore the steppes between Khiva and Krasnovodsk, and their departure has been postponed until January next. The third expedition has already started, and it is now engaged in the exploration of the Amu Darya River, and of its delta.

M. SIBIRYAKOFF publishes in Russian papers a telegram which he has received from Capt. Glasö, who tried this summer to enter the Kara Sea, and sail to the mouth of the Yenisei, on board the steamer *Samuel Owen*. All three passages, the Matochkin, the Kara, and the Yugor Straits, were encumbered with ice, and Capt. Glasö returned on August 26 without attempting the passage around the northern extremity of Novaya Zemlya.

ON July 28 last Dr. Gerhard Rohlfs' expedition left the Oasis of Batifal, situated at some twenty-eight kilometres distance from Djalo, in order to reach the northernmost Oasis of Siren in seven days, and Istat, the principal place in the southern Oasis of Kebalo, in the Kafra Group in twelve days. Dr. Rohlfs expected to arrive at Wadai in the middle of October. This results from a letter written by his companion, Dr. Stecker, to Prof. von Hochstetter, of Vienna. Another letter, written to a friend at Prague, states that Dr. Rohlfs will leave the expedition either at Wadai or even at Kafra, and return to Europe. Dr. Stecker will then continue the journey alone. It will be remembered that Dr. Rohlfs had already resolved to resign the leadership, but on second thoughts decided to remain. His final resignation is much to be regretted.

THE Imperial Geographical Society of St. Petersburg intends to form a connection with other institutions of the Russian Empire with a view of editing, in conjunction with them, a general description of Siberia with maps and plans, upon the occasion of the approaching tercentenary of the occupation of Siberia by the Russians. The Society will undertake the purely geographical part of the work and will also publish a bibliographical review of all other works on Siberia hitherto published.

THE International Society for the exploration of Equatorial Africa is very busy opening commercial relations between the settlements at the mouth of the Congo River and the interior. A few weeks ago the steamer *Barga* left Antwerp with European merchandise for this purpose. The steamer also takes out three small steam launches, a small steamer which will hold about thirty passengers, and three large goods-barges. By means of these the lower cataracts and rapids of the Congo will doubtless soon be reached. It is intended to establish stores at that point on both banks of the river. The question then will be to make a road along the river up to that point, where it again becomes navigable.

THE Imperial "Leopoldinisch-Carolinische" German Academy of Naturalists at Halle, which possesses the right of conferring doctor-diplomas, has lately bestowed this honourable distinction upon the three eminent travellers, Julius Payer, Karl Weyprecht, and Henry M. Stanley.

THE Berlin Geographical Society will celebrate the centenary of the birth of Karl Ritter, which happened on August 7, 1779, after the vacation, *i.e.* in October next.