

At the request of Sir Roderick Murchison, president of the Royal Geographical Society, London, the council sent a request to the Governor-General of Turkestan, that he would welcome Mr. Hayward if he reached the Russian frontier. M. Ivaschintzew read a paper on the "eastern coast of the Caspian Sea, with reference to the commercial routes to Central Asia." The Volga, the only means of communication between the interior of Russia and the Caspian countries, presents great difficulties, there being only one channel available, the Western, which is navigable only by boats drawing four to five feet. The eastern coast of the Caspian is described as generally bare of any vegetation. From the Emba to the Atrek there are no springs; wells of brackish water are found, apparently the sea-water infiltrated. The north-east coast is inaccessible: vessels cannot even approach within sight of the shore. Among the important points on the south-east shore are Sarytasch and Manghischlak coalfields, and the port Tubkaragan, the gulfs of Karabougaz and Balkan. The bay of Krassnovodsk—the occupation of which was recently announced—does not freeze in the winter; navigation, however, is reported by the Turcomans to be impeded for fifteen days by floating ice. The writer gave an account of the various explorations of Central Asia, including the attempts of the English from the sixteenth century, the expedition of Prince Békovitch, the attempt of Voiniovitch to establish commercial relations at Astrabad in 1781. The new routes to Central Asia from the centre of Russia are superior to the old, as avoiding the Kirghiz-steppe. The necessity was shown of interesting the Turcomans and the inhabitants of Khiva in commerce, and of making accurate surveys of the country between the Caspian and the Amu-Daria.

THE *Academy* states that M. Leon de Rosny, Professor of Oriental languages at the Imperial College, has published a French translation of a Japanese treatise on the rearing of silkworms. This work is published "par ordre de son Excellence le Ministre de l'Agriculture." It is the first French translation of a Japanese work.

THE *Lancet* in speaking of the arrangements of hospitals, instances, as much needing reform, the system of grouping together indiscriminately in medical wards, cases of various affections, in an atmosphere which may be destructive to some patients while it is suitable to others. Thus we may find lying side by side a case of bronchitis and one of fever; a patient with phthisis and another with gangrene of the lung; next perhaps one of rheumatic fever closely adjacent to a paralytic with offensive bed sores.

THE Royal Irish Academy has voted the sum of 25*l.* to Professor King, to enable him to carry out his researches "on the jointing, foliation and cleavage of rocks," also the same amount to Professor Ball, to enable him to carry out his experiments "on the velocity of smoke rings in air."

A NEW instance of the earnestness and liberality with which the King of Prussia encourages the prosecution of geographical discovery, has been communicated to us. The enterprising traveller, Gerhard Rohlfs, receiving kindness from the ruler of Kuka, he promised that presents should be sent from the King of Prussia, and Herr Nightingale is now on his way as the bearer of the presents. Poor Miss Tinne's death having proved the danger of the way beyond Mursuk, the Prussian Government has consented to send a guard of fifty soldiers (volunteers for the duty) to escort him in safety through the Touaregs to Kuka.

THE *Academy* reports that Herr O. Liebreich has found chloral may be employed with good results as a counteractive to poisoning by strychnine. On the other hand, the evil effects of an overdose of chloral may be remedied by the use of strychnine.

M. GORSEIX states in a letter, communicated to the Academy of Sciences, by M. St. Claire Deville, that Santorin was still in active eruption on the 6th of last month.

### MAGNETIC AND SUN SPOT PHENOMENA FOR 1870

APPEARANCES would indicate that we are now approaching the epoch of maximum, both as regards the disturbances of terrestrial magnetism and also as regards solar disturbances or sun spots; for these interesting phenomena are believed to march together. There is still a third phenomenon intimately connected with magnetic disturbances, and that is, the Aurora Borealis, a meteor which seems to sympathise with the terrestrial magnetic system to such an extent that when this is fluctuating and disturbed, displays of the Aurora are almost sure to follow.

Finally, those of us who are of an intensely practical turn of mind will be delighted to know that this interesting chain of facts is bound by one of its links, if not by two, to the practicalities of everyday life. For, in the first place, displays of the Aurora are hardly ever unaccompanied by spontaneous currents making their appearance in telegraphic wires, and causing not a little confusion in the transmission of messages; and, in the next place, some mineralogists are of opinion that these very currents are connected in some way with metalliferous deposits.

Perhaps, after all, the relation between sun spots and California may be that of cause and effect!

The first great magnetic disturbance recorded at Kew Observatory, during the last month, began about 7 a.m. on January 3, by considerably and abruptly diminishing the declination and the horizontal force, without greatly affecting the vertical force. It lasted for about 16 or 17 hours, and during its continuance an Aurora was visible.

A smaller disturbance began on January 8, about 9 p.m., its tendency being to diminish the declination and the vertical force, without much affecting the horizontal force; it was likewise accompanied by an Aurora.

The solar disc was photographed at Kew Observatory nine times during the month of January, with an average of five groups of spots on the sun's surface, one of them being always large. Thus we have:—

January 1	6 groups	2 of them rather large
" 6	5 "	2 rather large
" 10	5 "	2 large
" 11	6 "	1 large
" 12	5 "	1 very large, another large
" 13	5 "	1 large
" 14	4 "	1 large
" 24	5 "	1 very large, another large
" 29	4 "	1 large

February promises to be a still more active month, but we must wait.

### SCIENTIFIC SERIALS

*Moniteur Scientifique*, February 1.—In this number M. Emile Kopp gives an account of Weldon's well-known process for the regeneration of "manganese." In a note on the Infinitesimal Calculus, M. Néhay maintains that neither the infinitely great nor the infinitely small can be considered as real quantities; that the algebraical relations established in the calculus for such quantities depend solely on the conservation of certain ratios and not on any particular unit, and are hence true for magnitudes as great or as small as we please; and that infinitesimals can always be exchanged for finite proportionals. Bolley finds on analysis that the artificial alizarine of Meister, Lucius, and Co. has very exactly the formula  $C_{14}H_8O_4$ .

*Revue des Cours Scientifiques*, February 12.—This number contains a long list of subscribers to the Sars Fund; a report by M. Cazalis de Fondouce, of the proceedings of the Anthropological Congress at Copenhagen; also a lecture delivered at the Faculté de Médecine at Paris, by M. Onimus, on the balanced forces (*forces en tension*) and active forces (*forces vives*) in the animal organism.