

FROM an interesting paper in a recent number of the *Revue Scientifique*, on "Fire and Water in Paris," we learn that fire claims a larger number of victims in London than in any other large city in Europe. The lowest percentage of those who meet their death by fire is in Munich, where the percentage is .4 per 100,000 inhabitants; in Glasgow it is 1.7, in Berlin 2, in Paris 2.4, Naples 4.1, Hanover 5.7, Cologne 7.1, and London 8.3.

It is stated that Prince Ouroussoff, Russian Secretary of State, is engaged on a scheme for introducing the Gregorian Calendar into Russia.

SIGNOR DENZA, of the Moncalieri Observatory, points out the coincidence of a shock of earthquake in Lombardy and Piedmont on the 9th inst. with the great activity of Etna the same day, and an eruption of a volcano in St. Domingo.

DETAILS are now to hand regarding the earthquake at Carlsruhe on January 24 last. The phenomenon consisted of a very slight shock followed immediately by a more intense one. It occurred at 7.47 p.m. The direction was from west to east. In many parts of the Palatinate an earthquake was observed on the same date about 6.45 p.m. It lasted for seven or eight seconds and was accompanied by loud subterranean noise, ending with a dull explosion. Its direction was from south-west to north-east. Another shock occurred on January 25 at 3.35 a.m. Further earthquakes are reported from Nevesinje (Bosnia), where a violent shock occurred on January 27 at 4.30 p.m., and from San Salvador, where an earthquake did serious damage in the capital on January 10.

A FEW years ago Dr. Legoff subjected himself to an operation of transfusion of blood, in order to save the life of a wounded soldier lying in Val de Grace Hospital in Paris. The operation was successful, inasmuch as the patient escaped, but the health of the doctor declined. He went to Algiers to recover, but with no avail. We learn from an address by M. Wohl, a Professor to the Lycée, on the occasion of his funeral that he died in the beginning of February.

THE "Ornis" (Society for Ornithology and Bird-culture) of Berlin will hold its biennial exhibition from February 27 to March 2 next. The last exhibition, in the spring of 1878, was a great success. The Society will now give gold, silver, and bronze medals to the most deserving exhibitors. Dr. Karl Russ, of Steglitz, near Berlin, is the president, and requests all breeders of birds and possessors of rare and costly specimens who would like to participate in the exhibition to communicate with him.

M. DREYFUS, of Paris, has just published a second edition of M. W. de Fonvielle's recent work, "Comment le font les Miracles en dehors de l'Église," with a new preface and a number of additions relating to recent events.

A CRAYFISH epidemic has broken out from some unexplained cause in almost all the waters of Alsace-Lorraine. Possibly like most epidemics it may be due to some fungus. The German Government has applied to several eminent zoologists for their opinion, and resolved to prohibit the capture of crayfish in this province for the next three years. A number of female crayfish from the piscicultural establishment at Hünningen are to be imported into the Alsatian waters.

AT a recent meeting of the Berlin Academy of Sciences Prof. Conze spoke on the archaeological investigations which are being made at Pergamon, and in which besides himself Engineer Humann and Herren Bohn, Stiller, Raschdorff, Jun., and Lolling took part. The principal interest centred round a magnificent altar which was found close below the highest point

of the Pergamon Acropolis. We must refer our readers for details to the *Transactions* of the Academy.

THE Low-Rhenish Antiquarian Society at Xanten are having extensive excavations made outside the Cleve gate of that town, where very large Roman foundations have been discovered, dating from the Colonia Trajana.

THE Sixth Annual Report of the Postal Microscopical Society, for the distribution of microscopical slides by post, gives a favourable impression of the work carried on by the Society, which has now 138 members, distributed over the country. Mr. Alfred Allen, 1, Cambridge Place, Bath, is the secretary.

NATIVE Japanese papers state that arrangements for constructing a railway between the Urouchi coal mines and the Ishigari river in the island of Yezo are progressing, and that an agent of the Colonisation Department will shortly proceed to America to purchase necessary material.

HERR ALBIN KOHN has examined various tumuli near Czekanow, in Poland, in which well-preserved skeletons have been found, exhibiting in point of greater height, convexity of the frontal and the occipital, straightness of the facial line, and other cranial characteristics, a Caucasian rather than a Slave type. Near the Cetynia, an affluent of the Bug, prehistoric graves of similar form to those of Czekanow have been opened, but owing to the want of care of the workmen it was impossible to determine whether, as in the latter, the bodies were ranged on the back, side by side. The Polish chroniclers speak of a nomadic race called Jadjvinges, whose origin was unknown, and who, after ages of aggressive warfare, were only wholly subdued in the thirteenth century; and it is not improbable that in the tumuli of the Cetynia Herr Kohn and his coadjutor, Herr Eichler, may have come upon the representatives of this people.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mrs. Macauley; a Water Rail (*Rallus aquaticus*), European, presented by Mr. T. J. Mann; three Black Leopards (*Felis pardus*, var.) from India, three Burriel Wild Sheep (*Ovis burriel*) from the Himalayas, a Pig-tailed Monkey (*Macacus nemestrinus*) from Java, deposited; four Common Blue-birds (*Sialia wilsoni*) from North America, a Grey Plover (*Squatarola helvetica*), a Bar-tailed Godwit (*Limosa lapponica*), European, an Ocellated Monitor (*Monitor ocellatus*) from East Africa, purchased.

PHYSICAL NOTES

TWO independent sets of observations of the electro-magnetic rotation of the plane of polarisation in gases have recently been made—one by MM. Kundt and Röntgen in Strassburg, the other by M. Henri Becquerel, of Paris. The details of the systematic and elaborate research of the former are given in *Wiedemann's Annalen*. The general result was arrived at, though without sufficient precision to formulate the mathematical law of dependence, that those gases which have the highest indices of refraction possess the greatest rotatory power under magnetic strain. The gases examined—air, oxygen, nitrogen, carbonic oxide, carbonic dioxide, coal-gas, ethylene, and marsh-gas, gave a rotation agreeing in sense with that of the magnetising current. The authors also speculate upon the probability that the plane of polarisation of the atmosphere would be found to be rotated under the influence of terrestrial magnetism, and calculate from their results that a thickness of no less than 253 kilometres of air would be necessary to produce a rotation of 1° in a north-easterly azimuth. M. Becquerel approached the subject from a completely different point of view. Some months ago, when examining the vapour of carbon disulphide, he had found an abnormal apparent difference in its optic rotatory power according to the position of the tube in which it was examined. While studying another matter, however, a flood of light was thrown on this observation. In the endeavour to determine as exactly

as possible the position occupied by the plane of polarisation of the sky with respect to the position of the sun, he designed an instrument by means of which the traces of the plane containing the line of sight and passing through the sun could be compared with those of the plane of polarisation as observed in a Savart polariscope. With this instrument it was soon found that, contrary to what has always been hitherto supposed, these planes do not coincide with one another, but that the angle between them may even exceed 6 degrees. The plane of polarisation is, moreover, always nearer the horizon than the sun, while the angle between the planes presents diurnal maxima and minima, a point of extreme interest. The electro-magnetic rotation of the plane of atmospheric polarisation is distinctly proved by the following observation:—At noon the position of the sun is such as to produce an illumination of the sky symmetrical with respect to the meridian, which ought therefore to coincide with the plane of polarisation; but as a matter of fact the coincidence of the two planes does not occur at noon, but at a later hour, so that the plane of polarisation has obviously been rotated through a certain angle. This rotation corresponds with the results obtained by direct observation by M. Becquerel upon the magnetic rotatory power of air, as regards both the magnitude and the sense of the rotation. The existence of rotatory power in gases is thus confirmed from a most unexpected source.

A SUGGESTION has been made by M. d'Arsonval for the improvement of Planté's secondary batteries. M. Planté employed as electrodes in his secondary cells two sheets of lead immersed in dilute sulphuric acid, which became spongy by use, holding the hydrogen and oxygen liberated at the respective poles in loose combination. The limits of the performance of such cells appear to be fixed by the escape of hydrogen bubbles from the kathode, and by the low conductivity of the film of peroxide of lead formed over the surface of the anode. M. d'Arsonval therefore proposes to obviate the one difficulty by electrolysing a salt of zinc instead of a dilute acid, and the other by increasing the available surface of lead at the anode. For the latter he employs shot heaped about a carbon plate. The liquid is a strong solution of sulphate of zinc. During the charging of the cell, zinc is deposited out of the solution upon the surface of a lead plate, or better, upon a free surface of mercury amalgam, sulphuric acid being formed in the solution, which attacks the zinc so soon as the cell is employed to generate a current. Whether this modification is really an improvement upon the form devised by Planté, remains to be seen. An electromotive force of 2.1 volts is claimed for the new cell.

ALBUMIN is employed by M. Regnard in the place of collodion for the purposes of microphotography, and is said to afford perfect freedom from the harshness which appears inseparable from the use of collodion films.

DR. SYDNEY MARSDEN has discovered a substance in which carbon is soluble, and from which it crystallises out partly in graphitoidal, partly in adamantine forms. The adamantine crystals exhibit beautiful octahedral shapes under the microscope, and scratch sapphire readily. There seems every reason, therefore, to regard them as true diamonds.

GEOGRAPHICAL NOTES

AT the meeting of the Geographical Society on Monday last, Sir T. Fowell Buxton, after a few explanatory observations, read an account of a visit to the famous Lukuga creek in May, 1879, by Mr. E. C. Hore, of the London Missionary Society's station on Lake Tanganyika. The result of Mr. Hore's trip from Ujiji across the lake is believed to be the vindication of Cameron's theory that the Lukuga creek was the long-sought outlet of Lake Tanganyika. From the Kiyanja ridge Mr. Hore saw the Lukuga, flowing westwards with a rapid stream, on its way to join the Congo, until it became lost to view among the hills of Kwa, Mekito, and Kalumbi's, in Urua. Mr. Hore, it is well to add, was well qualified for the investigation of this matter, being well acquainted with currents, &c., from his former experience when in the service of the Peninsular and Oriental Steam Navigation Company; he is now surveyor and scientific officer attached to the Mission station at Ujiji. Commander Cameron stated to the meeting at some length the history of Lake Tanganyika, from its discovery by Burton, and gave in detail the various theories regarding its outlet. Dr. Emil Holub followed with an address on the Marutse-Mabunda empire in South Central Africa. This empire is of recent formation out of

two peoples, the Marutse and the Mabunda, who inhabit the Zambesi region near the confluence of the Chobe with that river, and have their capital at Shesheke. After a few remarks on their geographical position and the neighbouring tribes, Dr. Holub addressed himself to the ethnographical side of his subject, and gave many interesting particulars respecting the people and their manners and customs. Among their peculiarities, as distinguished from other South African tribes, the more noteworthy are a belief in a supreme being and in a life after death, and the respect and consideration in which women are held.

THE arrangements relating to the reception of Prof. Nordenskjöld in France have been somewhat altered. The celebrated explorer having expressed his determination to accomplish personally the *periplus* of the Mediterranean coasts of Europe, he will proceed, *via* Gibraltar, to Havre, where he will be received by a deputation from the Paris Geographical Society, and be conducted to Paris, where he will be magnificently treated. The Municipal Council of Paris has subscribed a sum of 200l. to the funds. It is certain that he will land at Lisbon, where the Portuguese Geographical Society is preparing a reception. It is said that the Geographical Society of Algiers will send a requisition to Prof. Nordenskjöld asking him to visit their town, and witness their festive installation. He will not be present at the meeting of the Academy of Sciences on March 1. At a large meeting of the Geographical Society of Rome, on Sunday, its gold medal was conferred upon Prof. Nordenskjöld, who was present along with his staff. Speeches were delivered in praise of the enterprise, and Prof. Nordenskjöld replied briefly in French. King Oscar of Sweden has ordered four gold and forty-six silver medals to be struck for the officers and crew of the expedition.

THE Rev. F. Coillard, of the French Basuto Mission, in company with whom it will be remembered Major Serpa Pinto made his journey from the Zambesi to the Bamangwato country and to the Makarikari, has recently delivered a lecture at Capetown, chiefly on missionary topics. He stated that he had sojourned principally among a tribe known as the Banyai in the neighbourhood of the Zambesi. On his journey thither he had passed through a tribe which was divided into small communities, and led a miserable life owing to the oppression of the Matabele. Mr. Coillard also visited the Matabele country, of which he had but a poor account to give; the climate, he says, is most unhealthy, not only for Europeans but even for the natives.

THE new *Bulletin* of the Antwerp Geographical Society contains a paper by Dr. L. Delgeur, entitled "Les Endiguements de la Néerlande: Lutte des Hollandais contre la Mer," and the text of some interesting letters which the International African Association have received from East Central Africa.

THE *Colonies and India* gives a brief description of the magnificent Tequendama Falls near Santa Fé de Bogota, in the Colombian Republic, and draws attention to the fact that it has been visited by but few English travellers.

AS supplementing No. 59 of *Petermann's Mittheilungen*, an abstract of an itinerary in Japan, by Dr. Knipping, is published. The itinerary extended from Kioto by Shimonosura to Tokio, and contains much valuable information on the country traversed. It is accompanied by three maps.

No. 8 of *Globus* describes the journey of Rohlf's and Stecker last summer from Battisal, south of Jalo, in Tripoli, to the oasis of Kufra, which lies about half-way between the western frontier of Egypt and the eastern boundary of Fezzan, and has not before been visited by Europeans. The oasis of Kufra lies between 21° and 24° E. and 26° and 24° S., and is happily described in the map which accompanies the paper as an oasis archipelago. It is represented as a series of regions covered with palms, amid a country of hills and sand dunes.

A STRANGE PHENOMENON

THE following letter from R. E. Harris, Commander A. S. N. Co.'s s.s. *Shahjehan*, dated Calcutta, January 19, appears in the *Calcutta Englishman* of January 21:—

"The most remarkable phenomenon that I have ever seen at sea was seen by myself and officers on the 5th instant between Oyster Reef and Pigeon Island (Malabar coast). At 10 P.M. we were steaming along very comfortably; there was a perfect calm, the water was without a ripple upon it, the sky was cloud-