

In the summer they ascend to the hilly tracts, reaching about 14,000 feet, in order to save their cattle from the mosquitoes. Though living chiefly on milk produce, they still are dependent upon the inhabited countries of the west, for they are accustomed to the use of bread. The other race inhabiting, if not the Pamir itself, then its outskirts, are the Tadjiks. In the high valleys of the Shugnan, the Roshan, the Darwaz, and the Karategin, they occupy the narrowest gorges of the mountains, trying to escape there from the persecutions of their khans, who are themselves vassals to the neighbouring larger states like Bokhara, Kokan, or China. Being Shiites, they are still more persecuted by their Sunnite rulers. Their dwellings are miserable hovels built of rough stones. Broad wooden platforms, under which fowls and young goats are kept, are divided into numerous compartments, which might be called rooms, each of them having its special destination as a kitchen or as a room for weaving, and so on. Notwithstanding the surrounding poverty, one feels comfortable in their poor hovels, the walls of which are decorated with numerous clay pillars, niches, and a variety of paintings very artistically made by the women, who have found the means of fabricating even boxes from clay mixed with husk. The pottery, all made by women without instrumental aid, is striking in the artistic feeling infused into its fabrication. Their fields are not less striking by the incredible labour which has been spent in clearing them from millions of stones. There are "fields" not larger than a common-sized table, cleared with effort, or artificially made by the side of a mountain stream. They keep some cattle, and, during the summer, mount with it to higher tracts. The Pamir is visited by many *savdagars*, or traders, from Kashgar, Badakshan, or Ferghana, who supply the Kirghizes and Tadjiks, at very high prices, with manufactured produce, receiving in exchange their own produce.

M. Ivanoff remarks that the small preliminary map published in the *Izvestia*, to illustrate the explorations of his expedition, is still incomplete, and does not quite correctly represent the results of his investigations. The larger completed map will therefore be welcomed when it appears. P. K.

NOTES

A MEETING of the General Committee of the Darwin Memorial Fund was held last week at the rooms of the Royal Society, Prof. Huxley, President, in the chair, when it was stated by the treasurer, Dr. Evans, that, after payment for the statue and other expenses, a balance of about 2200*l.* would remain. The following resolutions were then passed:—"That the statue of Darwin be made over to the Trustees of the British Museum in trust for the nation." "That the balance of the fund, after payment for the statue and medallion and incidental expenses, be transferred, under the name of the 'Darwin Fund,' to the President, Council, and Fellows of the Royal Society in trust to invest the same in or upon any stocks, funds, or securities authorised by law as investments for trust moneys." "That the President and Council of the Royal Society apply from time to time the dividends and interest of such investments in such a manner as shall to them appear best calculated to promote biological studies and research." "That a list of subscribers and a statement of the accounts be printed and circulated, together with the resolutions now passed, and that a woodcut or some other representation of the statue accompany the statement." The statue, by Mr. Boehm, R. A., has been placed in the great hall of the British Museum (Natural History), Cromwell Road, and arrangements for its unveiling will be made shortly.

THE vacancy created by Prof. Bayley Balfour's retirement from the Regius Chair of Botany in the University of Glasgow,

which we announced some time back (NATURE, March 12, p. 441), has been filled by the appointment of Mr. F. O. Bower, F.L.S., Lecturer on Botany in the Normal School of Science, South Kensington. Both as a teacher and by his important researches in the morphology of Gymnosperms and the Vascular Cryptogams, Mr. Bower has rapidly assumed a leading position amongst the younger generation of botanists, and the loss of his services to the Normal School is much to be regretted. Mr. Bower is an M.A. of Trinity College, Cambridge.

THE Goldsmiths' Company has contributed one hundred pounds towards the fund which is being raised for the family of the late Henry Watts, to which we have already drawn attention in these columns.

THE Court of Assistants of the Fishmongers' Company has unanimously resolved that a grant of 2000*l.* be made to the Marine Biological Association of the United Kingdom—1000*l.* to be paid this year, and the remainder in annual sums of 200*l.* during the next five years.

THE subject of Mr. Romanes's Rede Lecture on June 2 will be "Mind and Motion."

THE subject of Prof. W. G. Adams's British Association address will be "The Electric Light and Atmospheric Absorption."

AT a meeting of the directors of the Ben Nevis Observatory held on Thursday last week, it was agreed to add a printing press to the establishment, for printing each day the hourly observations, with a view to their distribution among the more distinguished meteorologists and prominent meteorological institutions in different parts of the world.

THE verdict of the jury who considered the case of the Usworth Colliery explosion, whereby forty men and boys were killed early in the present year, is important as marking what appears to be the commencement of a new era in the history of these phenomena. It is probably the first expression of opinion from a public body of this class to the effect that coal-dust and a small percentage of fire-damp can play the part that has hitherto been usually ascribed to fire-damp alone. They found that the explosion was caused by a shot, the fire of which acted upon "the coal-dust and a small percentage of gas." The convenient and time-worn "outburst of gas" theory, which consigned the helpless miner to the vicissitudes of chance, and exonerated colliery owners and their agents from all responsibility, seems on the point of giving way before its rival the coal-dust theory, which points out an easy means of preventing great explosions of this kind. The latter theory has doubtless a hard battle still to fight against prejudice and ignorance, but it has all the advantages of youth and vigour on its side, and is supported by a number of facts which appear to be incontrovertible.

THE Russian Geographical Society has just issued a programme of climatological and phenological observations, which, it is to be hoped, will be adopted by numerous observers. The number of plants and animals enumerated is smaller than in most similar programmes, it being the aim of the Society to make the task of the observers as easy as possible. A new feature of this programme are observations on the condition of the snow covering the ground, the time of its appearance and thawing, the rise of water in the rivers at the melting of the snow, &c.

M. FAYE has been continued on the roll of teachers of the Paris Polytechnic School, in spite of his having passed the time of incapacitation by old age. The exception has been grounded by the Minister of War on the plea of continued services rendered to science. A banquet has been given to the worthy astronomer by his admirers on this occasion.

THE Sanitary Congress opened yesterday at Rome.

IN the Spanish Congress on Monday, Señor Castelar called attention to Dr. Ferran's experiments in inoculation against cholera, and asked the Minister of the Interior to give a subvention to enable Dr. Ferran to continue his experiments on a larger scale. The Minister, in reply, said he was unable to do so at present, but as soon as it lay in his power he would grant a sufficient sum, although, in his opinion, Dr. Ferran's experiments had not yet reached a sufficient degree of certainty to prove a complete success. He added that a commission of medical men would be appointed to visit Valencia and other towns in order to study the experiments that are being made. In reference to this subject Dr. Cameron, M.P., writes to the *Standard* that the Under-Secretary for Foreign Affairs has promised to instruct the British Minister at Madrid to send home translations of any reports bearing on the system of inoculation with cholera virus attenuated by artificial cultivation, as a protection against Asiatic cholera, discovered by Dr. Ferran, of Valencia. This having come to the notice of Dr. Ferran, that gentleman has sent Dr. Cameron a telegram giving the results up to date of a great test experiment which is at present being conducted by him, under the eyes of scientific commissioners at Alcira, a town near Valencia, where an epidemic of cholera is raging. According to Dr. Ferran's telegram the population of Alcira is 16,000, and since the first of the present month 5432 of its inhabitants have been inoculated with his protective virus. That would leave the number of those not inoculated about 10,500; or, accepting 16,000 as an exact figure, precisely 10,568. Of the 10,500 persons who are not inoculated, cholera has attacked 64, and proved fatal to 30. Of the 5432 who have been inoculated it has, according to Dr. Ferran, attacked only 7, and proved fatal in no single case. In other words, since the commencement of the experiment on May 1, one person out of every 163 has been attacked among the uninoculated population, and one person in every 352 has died of cholera; while among the inoculated population only one person in 776 has been attacked, and not a single person in the entire 5432 has died of the disease. Dr. Ferran concludes his telegram by expressing the desire that a British Commission should be sent to Alcira to verify these results.

THE floating dome presented by M. Bischoffsheim to the Observatory at Nice is now finished, and has been on exhibition in Paris during the past week. It is intended to cover a colossal telescope; it is 22 m. in diameter inside, and has a circumference of 60 m., or 2 m. more than the dome of the Pantheon. Instead of rendering it movable by placing it on rollers, according to the ordinary method, it is closed below by a reservoir for air, which rests on the water in a circular basin. This system of suspension is said to be so perfect, that in spite of its great weight, a single person can turn it completely round the horizon. To provide against the water freezing, it has been proposed to dissolve in it a salt to the point of saturation, but it is feared that this may cause corrosion of the apparatus. Frosts, however, are rare in Nice, and special experiments on this subject will be made.

ON Friday night the House of Commons agreed, without a division, to a motion by Sir John Lubbock for a select committee to inquire whether, by the establishment of a forest school, our forests and woodlands could be rendered more remunerative. The proposer pointed out that, while our interests in the subject were greater than those of any other country in the world, as we had 2,800,000 acres under wood in Great Britain and about 340,000,000 in the Colonies, yet this was almost the only country without a forest school. He referred to the effect of scientific forestry in the Landes in France, and in

India, where the net forest revenue fifteen years ago was only 52,000*l.*, while, since the establishment of a forest department, it had risen to over 400,000*l.* per annum. As a result of neglect of the science in this country, students for India had to be trained at Nancy, a school of course specially adapted for French requirements, and the forests in our Colonies and other possessions (Cyprus and the Cape, for example) had to be put under the control of foreigners, as there were no Englishmen trained for the work. Sir John Lubbock, however, declined to commit himself to the establishment of a Government school; it could not be left altogether to private enterprise, because a school necessarily required access to a considerable area of forest. He thought it worthy of consideration whether some intermediate system might be adopted which would enable some one or more existing institutions to benefit by national forests. Mr. Gladstone, whose interest in arboriculture is well known, could not bind the Government to the establishment of a School of Forestry, although he recognised the universal ignorance on the subject prevalent amongst land agents and others in England. He distinguished the circumstances in India, where there are important facts connected with the climate, and with the due supply of moisture in the atmosphere, which are not present in this country. The School of Forestry, moreover, he said, which was established by the Indian Government in England, was open to every one who could pay the fees. There was also the difficulty that forests of large extent are rare here, and that they are kept, not for purposes of profit, but of landscape beauty, or pleasure and sport. In conclusion he said the Government gave their hearty approval to Sir John Lubbock's proposal, reserving, at the same time, their freedom with regard to the recommendations which the committee might make.

A TRANSLATION of Prof. Cremona's well-known work on the "Elements of Projective Geometry," by Mr. C. Leudersdorf, of Pembroke College, Oxford, will shortly be published by the Clarendon Press. It is hoped that this may be useful to students of a subject which has been, comparatively speaking, neglected in this country, although much attention has been paid to it on the Continent. The opportunity has been taken to considerably enlarge and amend the book. All the improvements to be found in the French and the German editions have been incorporated, and a new chapter on "Foci" has been added. The text has been carefully revised throughout, and has received many additions and elucidations, some due to the author himself and others to the translator.

ON the night of Friday the 15th inst. one of the most terrible storms ever witnessed in Vienna occurred there, by which shrubs, trees, and even houses were wrecked; and the cold accompanying was so severe that several persons exposed to it during the night were found frozen to death in the morning. In the *Paris Bulletin International* of the morning of the 16th it is reported that 139 millimetres of snow fell at Vienna. In all parts of Austria and Hungary snow covers vineyards and fields, where the crops were in an advanced condition, and incalculably great damage has been done. The festivals of Pancratius, Servatius, and Boniface, the Ice Saints of 1885, will long be remembered in this part of Europe.

WE have received the report of the Rugby School Natural History Society for the past year. That portion of it which relates to the Temple Observatory at Rugby has already been noticed in these columns. The editors observe that it appears to be a law of the existence of the Society (like that of the animalcule *Amœba proteus*) that an infusion of life into one part produces a corresponding decline in another. For some years the botanical, geological, and archaeological sections absorbed all energy, but now there is a decided movement towards zoology and a decline in those sections once most vigorous. A fair start

has been made with some zoological collections; the aquarium, however, has proved a failure, and the vivarium labours under the disadvantage of never being reached by the sunlight. Several short and interesting papers are published with the report.

THE Russian Government has sent an official of the Education Department to Vienna to study the State commercial and industrial schools of Austria, these establishments being regarded as models, and the Russian Government intending to organise similar ones.

THE Fish Culture Department at the International Inventions Exhibition has proved a great success and attracted a large concourse of visitors. During the past week many important additions have been made, including a magnificent model of a Fish Culture Establishment exhibited by Mr. T. J. Mann, and a series of oyster beds, demonstrative of the process of breeding and fattening oysters. A special feature has been made of oysters this year in the Aquarium, where they are to be seen in numerous varieties imported from various quarters of the globe. In close proximity to them are exhibited various dredges and implements used in this particular fishery.

THE Count Lütke Medal of the Russian Geographical Society has been awarded this year to a work which deserves a special notice. It is Prof. N. J. Zinger's work on the determination of time by means of corresponding heights of different stars (translated in German by H. Kelchner, and published at Leipzig with a preface of O. W. Struve, under the title: "Die Zeitbestimmung aus correspondirenden Höhen verschiedener Sterne.") The determination of time with great exactitude, for telegraphic determinations of longitudes, by means of easily transportable instruments, has already occupied the Pulkowa astronomers. W. Struve and W. K. Döllner proposed very skilful methods of observations. The latter had proposed to determine the time by means of a special Repsold's circle from two passages of two stars in the prime vertical. The exactitude reached by this means was from 0.05 to 0.06 of a second; the circle had to remain in an unaltered position for no more than five or six minutes; but the whole observation took about forty minutes. Prof. Zinger's method, which is a further development of the work begun by Maupertuis, Olbers, Hauss, Delambre, and Knorre, consists in making two successive observations of two stars chosen for that purpose, at the same altitude, by means of any instruments which may not be divided with great perfection, but whose level would only show the changes the telescope may undergo when directed on two different azimuths. This method was met first with some coolness, on account of the difficulty of finding two stars which would culminate soon after one another at the same altitude. But M. Zinger has shown that even with a moderate telescope it is easy to have two stars easily found and pretty well seen at daylight which pass at the same altitude at an average of no more than nine minutes one after another. His tables render the task of finding such stars very easy, there being in moderate latitudes no less than 160 pairs of stars appropriate to that purpose. As to the ease and accuracy of the method, it is sufficient to say that time is determined with a probable error of no more than 0.04 of a second in no more than half an hour, without even making use of the divisions of the Repsold circle, and with only one reading of the microscope. For several years Prof. Zinger's method has been submitted to a very extensive test by Russian astronomers. So we learn from Gen. Kovarsky's analysis of it, published in the last "Annual Report" of the Geographical Society, that, when determining by means of light-signals the difference of longitudes between Pulkowa and Parlovska, and using a very plain instrument prepared by M. Brauer on M. Zinger's principles, the difference has been determined with an error of only one-fiftieth of a second. M. Pyertsoff, in Mongolia; Gen. Stebnitzky, in the

Caucasus, who considers the determinations of time from corresponding heights of two stars quite as accurate as that deduced from zenithal distances taken with a Repsold circle, but far shorter and easier; the Russian officers in Bulgaria, who have determined with telegraphic signals the longitudes of thirty-seven places in less than seventy evenings, spending no more than three hours each evening for a determination which gave the longitude with an error of only 0.04 to 0.02 of a second; the measurements around Omsk in 1878; those of M. Gladysheff in the Transcaspian, and of M. Mionczyorski on the Ural in 1882-84—all these have been made on the same method of Prof. Zinger, which has now become the most familiar one with Russian astronomers. The measurements are usually made with a Repsold's circle, which is ready for work half an hour after the astronomer has arrived at the place whose longitude he proposes to determine; and in chronometrical expeditions five minutes to a quarter of an hour of a bright sky give the possibility of measuring the longitude with an accuracy quite sufficient for geographical purposes.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mr. James Fleming; a Common Badger (*Meles taxus*), British, presented by Mr. C. Ethelstone Parke; a — Wild Ass (*Equus taniopus* ♂) from the Island of Diego Garcia, Chagos Archipelago, presented by Mr. F. D. Lambert, jun.; a Common Squirrel (*Sciurus vulgaris*), British, presented by Mrs. G. A. Smith; four Red-faced Weaver Birds (*Foudia erythroptera*) from South Africa, a Grenadier Weaver Bird (*Euplectes oryx*) from West Africa, presented by Mrs. Herman Kuhne; a Dominican Kestrel (*Tinnunculus dominicensis*), a — Bittern (*Ardetta* —), three Martinican Doves (*Zenaidra martinicana*), two Moustache Ground Doves (*Geotrygon mystacea*), a Tuberculated Iguana (*Iguana tuberculata*) from the West Indies, presented by Dr. A. P. Boon; two Harvest Mice (*Mus minutus*), British, presented by Mr. G. W. Oldfield; two Demeraran Cock of the Rocks (*Rupicola crocea* ♂ ♂) from Demerara, presented by Mr. T. C. Edwards-Moss; two Mute Swans (*Cygnus olor*), British, presented by Mr. J. W. Gibson; a Horned Lizard (*Phrynosoma cornutum*) from Texas, presented by Master C. A. Greeven; three Common Vipers (*Vipera berus*), British, presented by Mr. W. H. B. Pain; four White-faced Tree-Ducks (*Dendrocygna viduata*), a White Gannet (*Sula piscata*) from Brazil, deposited; a Dark Green Snake (*Zamenis atrovirens*), South European, purchased.

GEOGRAPHICAL NOTES

THE following message from Col. Prjevalsky, dated Lob Nor, March 15 (probably O. S.), is published in the *Invalide Russe*:—"During the last autumn and winter we visited Eastern Zaidam as far as Lob Nor. The middle range of the Kuen Lun, hitherto unknown, has been examined with sufficient care. The ancient route leading from Khoten to China has been found and thoroughly explored. We have also discovered three enormous snow peaks, to which we have given the names of Muscovite, Columbus, and Enigmatical. The most elevated point of the first-named is Mount Kremlin, of the second Mount Djini, and of the third the Crown of Monomachus, which are all of a higher elevation than 20,000 feet above the sea. The Thibetan plateau, skirting the middle Kuen Lun, has an average height of 4000 feet. No inhabitants were met with except in the Southern Zaidam. Further to the west the flora and fauna of the desert are extremely poor. In the month of December the cold was so intense that the mercury froze. We passed the month of February and the first fortnight of March at Lob Nor. We are just about to set out again, with the intention of crossing Cherchen, for the purpose of reaching Kiria, in the district of Khoten. During the three months of summer we shall traverse Northern Thibet, if the Chinese do not oppose us, and in the autumn we shall return to our own Turkestan. We are all in good health."