mountains quaking and bursting in fissures, volcanoes casting out stones, ashes, and mud, and in some instances flame and hot lava. Smoke and steam from Asamayama have been visible from Yedo, several times this winter. In addition to the eruptions in Yechiu, Mito and Higo, the latter being especially severe and damaging to the cultivated land around it,—another mountain is reported as being affected with volcanic symptoms. Kurokami-yama, near Nikko, which has, so far as is known, always been very quiet, was shaken with a great shock on March 12, at 3 P.M. The shock was accompanied by loud noise, and a strong smell of sulphur, which remained about six hours.

ADDITIONS to the Brighton Aquarium during the past week : a Porpoise (*Phocæna communis*) from Rye Bay ; a Sturgeon (*Acipenser sturio*), 6 feet long, captured by the Bognor fishermen ; Smooth Hounds or Skate-toothed Sharks (*Mustelus vulgaris*) ; White Hound or Toper (*Galeus canis*) ; Thornback Skate (*Raja clavata*) ; Sting Rays (*Trygon pastinaca*) ; Grey Mullet (*Mugil capito*) ; Flounders, fresh-water variety (*Fleuro-nectes flesus*) ; Butterfish or Gunnel (*Centronotus gunnellus*) ; Allis Shad (*Clupea alosa*) ; Salmon (*Salmo salar*) ; Ballan Wrasse (*Labrus maculatus*) ; Crabs (*Cancer pagurus*) ; (*Portunus puber*) ; (*Polybius Henslowi*) ; (*Carcinus Menas*) ; Zoophytes (*Actinoloba dianthus*) ; (*Tealia crassicornis*) ; (*Sagartia miniata*) ; (*S. nivea*).

THE additions to the Zoological Society's Gardens during the past week include a Bengalese Cat (*Felis bengalensis*) and two Indian Crows (*Corvus splendens*) from Arracan, presented by Mr. W. Dunn ; a New Caledonian Rail (*Ocydromus lafresnayanus*), presented by Dr. G. Bennett ; an Indian Porphyrio (*Porphyrio indicus*) from the Navigator's Islands, presented by Rev. J. Whitmee ; a dwarf Chameleon (*Chameleon pumilis*) from South Africa, presented by Miss Siddons ; an African Tantalus (*Tantalus ibis*) ; three Molucca Deer (*Cervus moluccensis*) ; a Vociferous Sea Eagle (*Haliaetus vocifer*) from Africa ; a European Lynx (*Felis lynx*), and a Glutton (*Gulo borealis*) from Norway ; a collared Amazon (*Chrysotis collaria*) from Jamaica ; two common Spoonbills (*Platalea leucorodia*) from Europe, and two Wattle Cranes (*Grus carunculatus*) from South Africa, purchased ; an American White Crane (*Grus americana*), received in exchange ; three American Mocking Birds (*Mimus polyglottis*) hatched in the Gardens ; and an Australian Thicknee (*Oedipodius gallinarius*) deposited.

SCIENCE IN ITALY

THE Transactions of the Academy of Sciences of the Institute of Bologna for the academical year 1871-2 contains twenty-nine memoirs read by members at the sittings of the Academy and several communications from without. I find it quite impossible to do justice to these without exceeding permissible limits, but will briefly refer to a few.

In a paper on a probable connection between solar eclipses and terrestrial magnetism, Dr. Michez, after describing the magnetic phenomena observed in Italy and more especially in Sicily during the eclipse of December 22, 1870, and pointing out the difficulty of separating the disturbances due to the eclipse from those otherwise produced, states the result of his laborious and careful study of the Greenwich magnetic records in relation to the passage of the lunar shadow over any part of the earth. Having determined the average ordinary declination and amount of agitation for the particular hour and season corresponding to that of each eclipse, he compares these with the declination and agitation observed while an eclipse was in progress, and collecting all these results and averaging the deviation of the eclipse periods from those of ordinary corresponding times, he concludes that an eclipse of the sun exercises a real influence on the declination needle, that this influence extends through several hours before and after the period of greatest solar obscuration, and that it is manifested by a greater agitation of the needle, and an

eastward deviation. Upon theoretical considerations, Dr. Michez shows that the moon's shadow regarded in its relations to humidity should always produce an eastward deviation, but as regards the magnetic properties of oxygen should produce either an eastward or westward deviation, according to the position of the place of observation in relation to the shadow. Assuming that the latter, on a sufficiently large average, will neutralise each other, the residual phenomenon should be a slight eastward deviation.

In a paper on "The Climate of Europe during the Glacial Epoch," Dr. Bianconi, following De la Rive and Villeneuve, shows that the glacial extension of that period may have been due to greater humidity of climate rather than a lower mean temperature. Dr. Bianconi's conclusions are almost identical with those I suggested about fourteen years ago when describing a curious summer accumulation of ice in a previously unvisited Norwegian valley, where the snow line is actually lowered to an extent of about 3,000 feet, simply by a local increase of atmospheric humidity caused by the drifting spray of a double waterfall.* The subject was subsequently treated by Dr. Frankland in a lecture at the Royal Institution.

Prof. Filopanti contributed an interesting paper on the movements of the atmosphere, in which, after referring to the conclusions of Maury, that on both sides of the equator up to about the 30th parallel constant easterly winds prevail, from the 30th to the 35th variable winds, but still with the easterly predominating ; from the 35th to the 40th, variable wind, with a commencement of westerly prevalence ; and from the 40th to the Pole westerly winds decidedly prevailing. The object of Prof. Filopanti was to find a theoretical reason for these particular limits. To do this he regards the atmosphere as subject to the operation of two forces, viz. the resistance of the earth, and the mixture of aerial columns due to variations of temperature of the earth's surface. If only the first of these influences operated, the atmosphere would ultimately partake in every part of the velocity of the terrestrial parallel on which it rested, and there would be no sensible winds ; if only of the second, the atmosphere would ultimately acquire throughout an absolutely equal velocity of rotation. He works out mathematically the amount of this velocity, and finds it equal to that of the surface of the earth at the latitude $35^{\circ} 50' 52''$, which is a close approximation to the 35° of Maury. This he considers would be the uniform velocity of the air if the land and the sea were perfectly smooth, and he therefore designates the parallels of 35° on either hemisphere the "neutral parallels." Hence we are justified in theoretically anticipating that between the neutral parallels and the equator actual mean rotatory velocity of the air will be less than that of the earth, that is, the prevailing winds will be easterly, and that between the neutral parallels and the Poles the prevailing winds should be westerly, as there the mean rotatory velocity of the air should exceed that of the earth. The friction of the earth will be continually struggling to correct these differences of velocity, while the north and south movements, due to differences of temperature, will contest for their maintenance and augmentation. Prof. Filopanti goes further into details of special atmospheric currents to illustrate and confirm the above, but space will not permit me to follow him there. I have, however, so far sketched in abstract his leading idea as it appears to be an important contribution to the theory of atmospheric movements, and as far as I know is original. To some extent it is applicable to the vexed question of ocean currents.

The "Hermaphroditism" of eels has occupied a good deal of the attention of the Bolognese Academicians. Prof. Ercolani described a number of his own observations and experiments, showing that this hermaphroditism is "perfect," and the subject was further discussed at two subsequent meetings, when the results of previous researches of Vallisneri, Valsava, Allesandrini, Mondini, and others, were stated and compared. Besides the above and some others on subjects of general interest, are a few purely mathematical papers, and several on pathological, medical, and local subjects, which I must pass over.

Considering that Bologna itself is but a provincial town, and that the whole province of Bologna contains a population about equal to that of Birmingham, these Transactions of the Bologna Academy of Sciences indicate an amount of scientific activity in the highest direction of scientific research that we are unable to rival in any corresponding provincial district of Great Britain.

W. MATTIEU WILLIAMS

* "Through Norway with a Knapsack," Chap. xv.