

Norway or other interesting district, limited to association ticket-holders.

A handbook dealing with the natural history and archæology of the York district has been specially written for the occasion, and a copy will be presented to each member of the association.

It is anticipated that there will be a large amount of private hospitality, and as so many members were unable to visit South Africa last year it is expected that there will be a very large meeting.

THE ERUPTION OF VESUVIUS.

THE activity of Vesuvius, incessant for some time past, has culminated in an eruption which, making every allowance for newspaper exaggeration, stands in the foremost rank of historic eruptions, even if it is not already the greatest of all. It is not yet at an end; we cannot say that it has reached its climax; but the interest excited is so great that some forecast of the future, so far as this is possible, may be attempted.

The late Prof. John Phillips pointed out that the volcanoes of the Phlegræan fields have had two periods of activity, each lasting about four hundred years, and that Etna has also had two great periods of activity, the first of which lasted about 800 years, reaching its maximum in the second century B.C., while the second, commencing about the fourteenth century, had attained its maximum about the end of the eighteenth, after which eruptions declined in violence and frequency; from this he concluded that a period of 700 or 800 years may be assigned to the periods of volcanic activity of Etna. It is probable that in all cases of volcanic activity there is some such period, in which the eruptions, spasmodic at first, increase gradually in frequency until they attain a maximum, and then die out again, the length of the period being determined by the size of the reservoir of molten rock which gives rise to the eruptions; but there is not as yet any means of determining what will be the duration of the present series of Vesuvian eruptions, or whether it has reached its maximum; all that seems certain is that there are no signs of this being passed.

Between A.D. 79, when Pompeii was destroyed, and 1631, eleven great eruptions were recorded; the seventeenth century gave four, the eighteenth twenty-three, and in the nineteenth, up to 1869, the date of Prof. Phillips's work, twenty-four were recorded. After that date there was the great eruption of 1872, and an almost continuous condition of activity ever since. It may be that we have now reached the climax, or the future may have catastrophes in store still greater than that which we are now witnessing; but, if there is any virtue in analogy or inference, centuries must elapse before the mountain resumes that condition of quiescence which existed before our era, and for prolonged periods in the centuries which followed its commencement.

The length of these periods of volcanic activity and the difference between those of neighbouring volcanic centres shows that the cause lies deep in the earth, and that the conditions are beyond our ken. Prophecy must necessarily be vague, and can do no more than indicate the future course of events in the most general and guarded terms; yet mankind will always want to peer into the future. Attempts will be made to predict the time of coming eruptions, and not wholly without justification, for extra-mundane conditions must, to some slight extent, influence the manifestations of volcanic activity. Prof. Palmieri believed that there was a distinct increase in the activity of ejection from the cone and in the abundance of the lava at the new and full moon, and it is possible

that a connection exists with cycles of variation of climate, magnetic force, or the frequency and distribution of certain solar phenomena, but the relation may be only of the nature of the proverbial last straw that broke the camel's back. On occasion it may do so, but though sometimes the camel can bear many more straws, at others he has given way before even one was added to his load; and so it is with volcanoes. The cause of their eruptions is so preponderatingly mundane that any slight effect of extra-mundane causes must be elusive, difficult to establish, and only to be detected by the study of a long series of averages. For purposes of prediction they are of little use. There is, however, some comfort for the immediate future in the reported subsidence of Pozzuoli; if real, this probably indicates that the present paroxysm has reached its climax, and will now slowly cease.

From the Press reports of the eruption, the following particulars of scientific interest have been extracted and arranged as a diary of events:—

April 5.—Vesuvius in strong activity. Great blocks of rock hurled as far as the lower station of the funicular railway.

April 6.—The new crater began to emit lava in an abundant stream. The lava has arrived within three or four miles of the village of Bosco-Trecase.

April 7.—Bosco-Trecase destroyed. After midnight loud rumblings were heard, followed by a violent earthquake shock, which shattered the windows in the town. Then lava began flowing from Ciaramella, where a fresh fissure had opened up a few days previously. From the Ciaramella crater masses of incandescent rock were ejected, and a torrent of lava swept down at a terrific speed, flowing in two streams, one 200 yards broad moving towards the centre of the town. The town had hardly been evacuated when the lava invaded the houses, several of which were burned down, and soon Bosco-Trecase seemed to be enveloped in flames. At 6 a.m. Bosco-Trecase was completely surrounded by a stream of lava. The cone on the Pompeii side of Vesuvius collapsed, and on the opposite side a new crater opened at the base of the cone in the Atrio del Cavallo and vomited lava and stones. The principal crater was in violent eruption. Explosions were unceasing. A shower of grey-black ashes fell in the streets of Naples.

April 8.—Central crater of Vesuvius was again emitting quantities of lava. Repeated explosions were followed by subterranean rumblings and by earthquake shocks, which were distinctly felt in the villages at the foot of the mountain. At 12.31 a.m. a slight shock of earthquake was felt at Naples, and a second at 2.10 a.m., both disturbances being accompanied by rumblings. A telegram from Naples at 6.30 p.m. announced that Ottajano, Poggio Marino, and Somma had been entirely abandoned. At Ottajano the lava was flowing 7 feet deep through the streets. At 8 p.m. the flow of lava seemed to be generally somewhat slackening. A shower of black dust, like iron filings, fell throughout Montenegro, covering the surface of the country to a depth of a millimetre with an iron-grey layer. Prof. Mattucci, director of the Vesuvius Observatory, made the following report:—

"The eruption of Vesuvius has assumed extraordinary proportions. Yesterday and last night the activity of the crater was terrific and ever increasing. The neighbourhood of the observatory is completely covered with lava. Incandescent rocks are thrown up by the thousand to the height of 2400 feet, and even 3000 feet, and fall back, forming a large cone. Another stream of lava has appeared from a fissure the position of which is not well defined. The noise of the explosions and of the rocks striking together is deafening. The ground is shaken by strong and continuous seismic movements. The seismic instruments threaten to break, and it will probably be necessary to abandon the observatory, which is very much exposed to electric shocks. The telegraph is interrupted, and it is believed that the funicular railway has been destroyed."

April 9.—The stream of lava in the direction of Torre Annunziata has remained stationary since yesterday evening. The dynamic action of the volcano appears to be

diminished considerably, and the situation now seems to be more satisfactory. The shower of ashes has ceased to pour on Naples. The atmospheric conditions are unfavourable, and the seismic instruments last night registered several earthquake shocks. A steamer with 1000 persons on board left Capri this morning for Naples, but was unable to reach her destination, as when about a mile off the coast the passengers were nearly suffocated by falling cinders and ashes, and the vessel has anchored here so as to enable the passengers to witness the eruption.

Vesuvius Observatory, 6.30 p.m.—Report from Prof. Mattucci:—"The explosive activity of Vesuvius, which was very great yesterday and was accompanied by very powerful electric discharges, diminished yesterday evening. During the night the expulsion of rocks ceased, but the emission of sand increased, completely enveloping me and forming a bed more than ten centimetres deep, which carried desolation into this elevated region. Masses of sand gliding along the earth created complete darkness until 7 o'clock. Several blocks of stone broke windows of the observatory. Last night the earthquake shocks were stronger and more frequent than yesterday, and displaced the seismic apparatus. Yesterday afternoon and this morning torrents of sand fell. While I am telegraphing several balls of fire rise with loud rumbling from the enlarged craters and the new elevated crevasses."

April 10.—Report from Prof. Mattucci:—"Last night was calm except for a few explosions of considerable force from time to time. At 4 o'clock this morning the explosions became more violent. The seismic instruments of the observatory record strong disturbances in the interior of the mountain." The roof of the market of Monte Oliveto, Naples, fell in, on account of the accumulation of volcanic ash upon it.

NOTES.

At a meeting of the council of the Royal College of Surgeons of England held on April 5, the Walker prize of 100*l.*, founded by the late Mr. C. C. Walker to encourage investigation into the pathology and therapeutics of cancer, was awarded to Prof. C. O. Jensen, of Copenhagen. The committee appointed to advise the council in reference to the award of the prize was influenced, not merely by the actual work which Prof. Jensen has done in investigating the nature of cancer and the effect of treatment upon it, but also by the extent to which he has opened up a field of research to those engaged in the study of cancer on certain lines, enabling them to carry out their investigations over longer periods of time and under better and more determined conditions than have up to the present time been possible. The Jacksonian prize for 1905 was awarded to Mr. R. C. Elmslie for his essay on "The Pathology and Treatment of Deformities of the Long Bones due to Disease occurring during and after Adolescence." The prize-subject for the year 1907 will be "The Operative Surgery of the Heart and Lungs, including the Pericardium and the Pleura." The subject selected for essays to be submitted in competition for the Cartwright prize for the period 1906-1910 was "Prevention of Dental Caries." The honorary medal of the college was awarded to Lieut.-Colonel Sir Richard Havelock Charles, I.M.S., in appreciative recognition of his gift of anthropological specimens—an addition to the museum of special value and importance, not only on account of the number and variety of the specimens presented, but also because of the authentic particulars attached to them.

At a meeting of the Royal Geographical Society on Monday, Mr. Whitelaw Reid, the United States Ambassador, presented to Captain R. F. Scott, R.N., C.V.O., the gold medal of the American Geographical Society, in recognition of his sledge journey on Antarctic ice and the work of the National Antarctic Expedition.

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THE secretary to the Post Office has informed the Decimal Association that letters addressed to France and Germany, weighing more than $\frac{1}{2}$ oz. but not more than 15 grams, if only stamped 2½*d.*, are not surcharged. Although the difference in weight is but small (about 5 per cent.), still the fact should be generally known, because letters are frequently stamped with 5*d.* which, under this ruling of the Post Office, would go for 2½*d.*

COURSES of instruction in oceanic research will be held, as in former years, in Bergen, during the university vacation (August 8 to October 15), mainly on the lines previously adopted. The courses will consist partly of lectures, partly of practical instruction and assistance in laboratory work; excursions will also be made, during which the use of various appliances and instruments will be practically demonstrated. The course will be conducted by Dr. A. Appellöf, Dr. D. Damas, Mr. B. Helland-Hansen, Mr. E. Jørgensen, and Mr. C. F. Kolderup. Anyone desiring to attend the course should make application to the Oceanographical Institute of Bergen Museum, Bergen, Norway, before July 1.

A DEPUTATION waited upon Mr. Lloyd-George, M.P., President of the Board of Trade, on Monday to urge the necessity for further amendment of the patent law by legislation which would enforce in the United Kingdom the forfeiture of all British patents for inventions which were worked without, but not within, the United Kingdom, after the lapse of three years from the date of application in the country of origin unless the patentee could justify his inaction to the Board of Trade. In the course of his reply to the views placed before him by members of the deputation, Mr. Lloyd-George pointed out that the Patent Act of 1902 embodied the principle of compulsory working, and he wished to know where the Act had broken down. He thought it necessary to see that, while the commercial community was protected, protection was also afforded to those poor people who, while they have the brains, have not the cash to enjoy the full benefit of their ingenuity.

A COMMITTEE has been appointed to inquire into and report upon matters connected with the Department of Agriculture and Technical Instruction for Ireland. The committee is constituted as follows:—Sir Kenelm Digby, late Under-Secretary for the Home Department (chairman); the Hon. John Dryden, late Minister of Agriculture in Ontario; Mr. W. L. Micks, member of the Local Government Board for Ireland; Mr. F. G. Ogilvie, principal assistant-secretary for technology in the Board of Education; and Mr. Stephen Brown, chairman of the Kildare County Council. The committee is to inquire whether the provisions of the Agriculture and Technical Instruction (Ireland) Act, 1899, constituting the department, and the methods which the department has followed in carrying out those provisions, have been shown by experience to be well suited to the conditions of Ireland; whether any, and if so what, changes are desirable in those provisions and methods; and to report also upon the relations of the department to the Council of Agriculture, to the Agricultural Board, and to the Board of Technical Instruction; upon its relations to local statutory bodies; upon the funds at its disposal and the modes of employing them, and upon its position in regard to other departments, especially those charged with educational functions.

FROM the April number of the *Popular Science Monthly* we learn that the regents of the Smithsonian Institution have passed a resolution expressing their profound sorrow