

alluded to by our correspondent Mr. A. B. Meyer in NATURE for January 18. The Batavia *Handelsblad* of Sept. 25 states that on the afternoon of Aug. 7 a violent earthquake was felt, of which the exact direction was unknown. The Ternate mountain had from 9 A.M. caused a dull, rumbling sound to be heard, varied at intervals by loud reports, and began in the course of the day to cast out streams of lava. The sky looked dark, and the whole country round about was darkened by the down-coming clouds of smoke. Luckily a southerly wind sprung up, which gave another direction to the glowing lava-streams flowing landwards, and led the fire in seven currents to the ravines. This frightful natural phenomenon held on during the night between the 7th and the 8th. The inhabitants, thinking their island to be doomed, could not sleep, and passed the night outside their houses looking up anxiously at the furious volcano which seemed to threaten them all with certain destruction. At day-break the outburst became still worse, and the population began to fly to the islands of Tidore and Halmahera. The eruption of fire and stones held on for about twelve days, after which it became less. The damage done to houses and plantations is enormous, but has not as yet been accurately ascertained. This outburst was the most violent known at Ternate within the memory of man. The whole island shook from the underground motion. A moment of rest was followed by another explosion, which shook the houses to their foundations. There were, luckily, only some slight earthquake-shocks felt. On Aug. 28 the volcano was again at rest, at least, only a small cloud was seen coming out of the crater.

WE take the following from the *Times of India*:—"The *Western Star*, which is *par excellence*, the journal for marvels, tells the following story of a murder:—The manner in which the murderers were detected would, our contemporary adds, if true, go far to prove the Darwinian theory. The story briefly told is this: A Madrassee had a monkey which he was very fond of. The man had occasion to go on a journey, and took with him money and jewels, and his chum the monkey. Some rogues determined to rob him of everything he had; accordingly they lay in wait for him and murdered him. Having secured the money and jewels they threw the murdered man into a dry well, and having covered it up with twigs and dry leaves, they went home. The monkey, who was on the top of a tree, saw the whole of the proceedings, and when the murderers departed he came down and made tracks for the Tahsildar's house, and by his cries and moans attracted the attention of that functionary. Inviting the Tahsildar by dumb signs to follow him, the monkey went to the well and pointed downwards. The Tahsildar thereupon got men to go down, and of course the body was discovered. The monkey then led the men to the place where the jewels and money were buried. He then took them to the bazaars, and as soon as he caught sight of one of the murderers he ran after him, bit him in the leg, and would not let him go till he was secured. In this way all the murderers were caught. The men, it is said, have confessed their crime, and they now stand committed for trial before the Tellicherry Court at the ensuing session. That monkey, we think, ought to be made an inspector of the police."

THE Panama papers report an increasing demand for the Colombian gaucho, and urge the Government to the enactment of regulations to prevent the entire destruction of the forests of these trees in Darien, where they are most abundant. Instead of simply treating the trees for the juice, as the maples are managed in the United States, the tree is cut down, and, of course, no further benefit can be derived from it. In illustration of the extent to which this vegetable product is now being collected, the *Panama Star and Herald* informs us that 160 tons had just been brought to that city as the cargo of a single vessel, mostly from the vicinity of Guayaquil.

SCIENTIFIC SERIALS

THE *Scottish Naturalist* for January.—This number is mainly occupied by a number of short papers illustrative of various subjects of interest or novelty in the natural history of Scotland, among which we may notice especially the British species of *Crambus*, a genus of moths, by the Editor; on the Cachalot or Sperm-whale (*Physeter macrocephalus*) of the north-east of Scotland, by Robt. Walker, with plate; and the commencement of the Editor's "Insecta Scotica," an essay to catalogue the insects inhabiting Scotland, with a map to show the natural divisions of the country into the 12 districts adopted in the list. The introductory remarks to the Editor's catalogue of Lepidoptera are valuable, and the article, when completed, promises to be an important contribution to British zoological literature.

THE *American Journal of Science and Art* for November 1871 opens with a continuation of Prof. Le Conte's elaborate paper on "Some Phenomena of Binocular Vision." Prof. Dana, in an article on the position and height of the elevated plateau in which the glacier of New England in the glacial era, had its origin, considers that the idea of one central glacier source for the whole continent is without foundation. The icy plateau he locates at the watershed between the St. Lawrence valley and Hudson's Bay at an altitude at least 4,500 feet above the present level. With the exception of a preliminary catalogue of the bright lines in the spectrum of the chromosphere, by Prof. C. A. Young, which we propose to reprint, the remaining papers in this number are chiefly chemical, and of varied interest, but of which it would be impossible to give the substance in the form of a brief abstract.

The first article in the December number treats of the geological history of the Gulf of Mexico, and is accompanied by a map, which is, unfortunately, not coloured, and is hence somewhat obscure. The article is divided into three portions, treating respectively of the cretaceous period, the tertiary period, and the quaternary beds. This is followed by an article by Asaph Hall, on the Astronomical Proof of a Resisting Medium in Space. It will be remembered that one of the main proofs of the existence of the interstellar æther is the retardation of Encke's Comet. So long ago as the year 1819 Encke calculated that the periodic times of the comet had diminished to the extent of more than half a day during thirty-three years. Thus the periodic time between 1786 and 1795 was 1,208.112 days, while between 1805 and 1819 it was 1,207.424; and in order to account for the diminution, Encke adopted the hypothesis of a resisting medium in space. From later observations of this and other comets, Mr. Hall is led to the conclusion that comets furnish no proof of the existence of the æther, and that the retardation of Encke's comet is due to some unknown cause, possibly to the fact of its passing through streams of meteoric matter, which may influence its motion.—Mr. Southworth gives an account of a new Micrometric Goniometer eye-piece, formed by means of a micrometer capable of measuring to the $\frac{1}{25000}$ of an inch.—Dr. Dawson contributes an article on the bearing of Devonian Botany on questions as to the Origin and Extinction of Species, in which he expresses a hope that the further study of fossil plants may enable us thus to approach to a comprehension of the laws of the creation, as distinguished from those of the continual existence of species. The other articles relate to the American Spongilla, a Craspedote, Flagellate Infusorian, by Professor H. James Clark; description of a Printing Chronograph, by the use of which it has been proved that "for three observers, twice as many observations can be reduced in the same time as when a recording chronograph is employed." The next paper was read before the American Association at Indianapolis, and discusses the longitude determination across the Continent. This embodies results obtained by the Coast Survey, in their endeavours to determine the longitude of San Francisco and various intermediate points by telegraphic exchange of clock signals with the Harvard Observatory.—The remaining papers treat of the Invertebrata dredged in Lake Superior in 1871; and of Kilauca and Mauna Loa.

In the number for January 1872, the commencement of Vol. iii. of the new series, we find a valuable article on Alpine geology by Prof. Sterry Hunt, in the form of a review of Favre's *Recherches Géologiques*. Mr. John De Laski notices the evidence of glacial action on Mount Katandin, the highest land in Maine, and of the Devonian formation, now 5,000 feet above the sea, the top of which he believes to have been overridden

by the glacier. The total thickness of the glacier he estimates at not less than 8,000 feet, and believes that by the slow grinding motion of this ice-sheet all the surface of New England became broken up to great depths. We have again a number of chemical articles, and an interesting contribution to geology by Mr. C. H. Hitchcock, on the Norian or Upper Laurentian Group of New Hampshire. In this number there is also, as usual, a variety of miscellaneous information on the various branches of physical and natural science.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, January 25—"On the Action of Low Temperatures on Supersaturated Solutions of Glauber's Salt." By Charles Tomlinson, F.R.S.

"On the Elimination of Alcohol." By A. Dupré, Lecturer on Chemistry at Westminster Hospital. Communicated by W. Odling, F.R.S.—Obviously three results may follow the ingestion of alcohol. All the alcohol may be oxidised and none be eliminated, or a portion only may be oxidised and the rest be eliminated unaltered; or, lastly, all may be eliminated again unaltered. Assuming the last to be the case, it would follow that, if a certain quantity of alcohol be taken daily, the amount eliminated would increase from day to day until, at last, the amount eliminated daily would equal the daily consumption, be this time five, ten, or more days. If, on the other hand, all the alcohol consumed is either oxidised or eliminated within twenty-four hours, no increase in the daily elimination will take place in consequence of the continuance of the alcohol diet. Guided by these considerations the author undertook two series of experiments, in which the amount of alcohol eliminated by both kidneys and lungs was carefully estimated. The analytical process employed are described in detail. First series:—After a total abstinence from alcohol for eleven days, the urine and breath were examined, after which, from the 12th to the 24th day, both inclusive, the author took 112 cub. centims. of brandy daily (equal to 48·68 grms. absolute alcohol). The urine and breath were examined on the 12th, the 18th, and the 24th day. The urine was also examined during the five days following the cessation of the alcohol diet. The analytical results obtained are given in a table. Second series:—After having again abstained from the use of alcohol in any shape during ten days, the author took 56 cub. centims. of brandy (same as above) at 10 A.M. on March the 29th. The urine was collected from three to three hours up to the 12th, from the 12th to the 24th, and during the next succeeding two days. The alcohol eliminated in the breath was also estimated during the same intervals. The analytical results are also arranged in a tabular form. The results of both series may be summed up as follows:—The amount of alcohol eliminated per day does not increase with the continuance of the alcohol diet; therefore all the alcohol consumed daily must, of necessity, be disposed of daily; and as it certainly is not eliminated within that time, it must be destroyed in the system. The elimination of alcohol following the ingestion of a dose or doses of alcohol ceases in from nine to twenty-four hours after the last dose has been taken. The amount of alcohol eliminated, in both breath and urine, is a minute fraction only of the amount of alcohol taken. In the course of these experiments, the author found that, after six weeks of total abstinence, and even in the case of a teetotaler, a substance is eliminated in the urine, and perhaps also in the breath, which, though apparently not alcohol, gives all the reactions ordinarily used for the detection of traces of alcohol, viz., it passes over with the first portions of the distillate, it yields acetic acid on oxidation, gives the emerald-green reaction with bichromate of potassium and strong sulphuric acid, yields iodoform, and its aqueous solution has a lower specific gravity and a higher vapour tension than pure water. The presence of a substance in human urine and the urine of various animals, which yields iodoform, but is not alcohol, had already been discovered by M. Lieben. The quantity present in urine is, however, so small that the precise nature of this substance has not as yet been determined. Finally, the author points out an apparent connection between this substance and alcohol. It was found that, after the elimination due to the ingestion of alcohol had ceased, the amount of this substance eliminated in a given time at first remained below the quantity normally excreted, and only

gradually rose again to the normal standard. A careful study of this connection may perhaps serve to throw some light upon the physiological action of alcohol.

"The Absolute Direction and Intensity of the Earth's Magnetic Force at Bombay, and its Secular and Annual Variations." By Mr. Charles Chambers, F.R.S., Superintendent of the Colaba Observatory.—The observations discussed in this paper were taken at the Colaba Observatory during the years 1867 to 1870, and consist of observations of Dip, Declination, and Horizontal Intensity. The principal results deduced by the author from these observations are shown in the following statement:—

Magnetic Element	Epoch.	Value at epoch.	Value at common epoch, January 1st, 1859.	Secular change. Per annum.	Semiannual inequality. Excess of April to September over mean of year	Calculated probable error of a single observation.
Declination	April 1, 1868	0° 46' 47" E.	0° 48' 56" E.	+2 5	+1	±20
Dip	Oct. 1, 1868	19° 4' 12"	19° 4' 7"	+1 9	+5·3	±0·25*
Horizontal Force.	April 1, 1869	8·059x	8·058z	+·0040	·0000	±·0043*
Total Force	Jan. 1, 1869	8·5264	8·5264	+·0059	+·0003	—

In column 2 is entered the mean epoch to which the mean value of each element, entered in column 3, corresponds.

The absolute observations were taken at a height of 38 feet above the ground, and by comparing them with observations taken with differential instruments at a height of 6 feet above the ground, they are shown to indicate distinctly a diminution of terrestrial magnetic action with increase of height, with respect both to secular variation of Declination and Horizontal Force, and to diurnal inequality of Horizontal Force.

Royal Geographical Society, January 22.—Sir H. C. Rawlinson, president, in the chair.—Mr. C. R. Markham, secretary, read, at the request of the president, the following statement regarding the proposed Exhibition for the Search and Relief of Dr. Livingstone:—"Letters were received from Livingstone, dated at Lake Bangweolo, on July 8, 1868, and the last that have come to hand were dated Ujiji, May 30, 1869. He announced that the work still before him was to connect the lakes he had discovered; and he intended to explore a lake to the westward of Tanganyika, in the Manyema country, and thence to complete his labours, but he was sorely in need of men and supplies. The Arab traders interested in the slave-trade were anxious to thwart him, and no one would take charge of his letters. He mentioned having written thirty-four letters which had been lost. This is the last positive news from Dr. Livingstone. There was one Arab report in November 1870, that he was at the town of Manakoso, with few followers, waiting

* In English units.