Santa Lucia de Cosumalgapan, Guatemala, purchased for the Museum by Prof. Bastian when upon his American journey.

A SEVERE earthquake was felt three weeks ago in the southern part of the North Island, New Zealand. No lives were lost, but in some of the townships in the Manawater district scarcely a chimney was left standing. In Foxton, for instance, no less than 250 were thrown down. Fissures extending for many miles are reported to have been made, and the railway line was rendered unsafe in that neighbourhood, owing to the undulations of the earth alternately raising and depressing the rails. Since the large shock a good many of a slight nature have occurred. Two shocks of earthquake, each lasting from four to five seconds, were felt at noon on September 2 at Spalato in Dalmatia. The earthquake, which was accompanied by a subterranean rumbling, passed from the south-west to the north-east. It also made itself felt in the neighbouring islands of Brazza and Mascarsa, and in the town of Sebenico. A shock of earthquake was distinctly felt by several individuals at Courtown House, Gorey, Ireland, on August 27, at a quarter to five o'clock. Many heard a rumbling noise as of thunder, some noticed the rattling of doors and windows, and one experienced what he called a "shiver." Lord Courtown noticed a rumbling noise, coming apparently from the north, passing under the house, and so away to the south; the door of the room in which he was sitting rattled. A slight shock of earthquake was felt at Naples at eight o'clock on Saturday morning. At about the same hour severer shocks took place at Popoli, Pescara, and Orsogna, in the Abruzzi. The seismographic instruments on Mount Vesuvius show great activity. In the Abruzzi the earthquake shock has damaged several houses at Chieti and Castelfrentano, where some people have been wounded. At Lanciano two people were killed. At Orsogna one was killed and several were wounded. At Atessa the church of St. Giustina was seriously damaged. There is a great panic everywhere amongst the population. A shock of earthquake occurred at Sanpietro Brazza (Dalmatia) on August 29, at 9 p.m. It lasted four seconds. On September 2, at 10.48 a.m., two strong oscillations were felt at Sign, Spalato, and Brazza (in Dalmatia). Direction east-west. Over forty shocks of earthquake have been felt at Khoi, Persia, between the 28th ult. and September 11. Some houses were destroyed, but no lives have been lost. Most of the inhabitants have left the town, and are encamped outside. The direction of the earthquakes was from north to south. The shocks were accompanied by rumbling noises.

A TERRIBLE disaster has occurred at Elm, a village in the Canton of Glarus. The place has been almost destroyed by a fall of rock. It is believed that at least 200 persons are buried beneath the ruins.

THE German Ornithological Society held its annual meeting early this month at Hamburg. Prof. Landois (Münster) spoke on birds' nests and on the origin of egg-shells; Dr. Reichenow (Berlin) on the classification of ducks.

ACCORDING to the last report of the director of the Central Sanitary Bureau of Japan, the Central Government has granted the necessary funds for the establishment of a hospital in the capital for the special treatment of *kakke*, a disease which has been spreading more and more in the country, and one of the usual symptoms of which is œdema of the legs. It is intended to investigate carefully the causes and proper treatment of the disease at this institution. The average mortality, from all causes, is given at 10·43 in every 1000 of the population, and is stated to be lower than that of places in Europe and America under similar conditions. The director observes, however, that the registration of deaths is not efficiently carried out; but measures are being taken to render this as complete and accurate as possible. It is noticeable that deaths from diseases of the digestive organs and nervous disorders greatly preponderate over all others. In the former the proportion is 24·1 per cent., and in the latter 23·1. Small-pox was the most destructive epidemic of the year, but the number of annual vaccinations is largely increasing. During the year covered by the report it was 1,659,298.

THE second part of Dr. Lang's "Butterflies of Europe" is before us, and quite justifies our mostly commendatory remarks in a recent number. When the work more nearly approaches completion we may probably again find occasion to notice it.

FROM Surgeon-Major Bidie's Report on the Government Central Museum at Madras, we see the number of visitors during 1880–81 was less than in the previous years, due, however, to trivial and temporary causes. The total number of visitors was 173,898, of whom 39·36 were women and girls. Many of course go simply for curiosity, but a very considerable number visit the museum for the express purpose of obtaining information, and there seems no doubt that, under Mr. Bidie's energetic and intelligent management, the institution is doing much good. Very considerable additions have been made during the year, and the whole is in a fair way of being catalogued.

THE additions to the Zoological Society's Gardens during the past week include two Greater Black-backed Gulls (*Larus marinus*), British, presented by Mr. A. Allen; a Blue-shouldered Tanager (*Tanagra cyanoptera*) from South America, presented by Mr. Ernest L. Marshall; a —— Tanager (*Tanagra*, sp. inc.) from Brazil, presented by Dr. Arthur Stradling; a Green Lizard (*Lacerta viridis*), South European, presented by the Misses Parry; two Pantherine Toads (*Bufo pantherinus*) from North Africa, presented by Mr. R. E. Holding; six Common Lizards (*Lacerta vivipara*), two Smooth Snakes (*Coronella lævis*), two Sand Lizards (*Lacerta agilis*), British, presented by Mr. J. T. Mann; a Grey Parrot (*Psittacus erithacus*) from West Africa, four Passerine Parrakeets (*Psittacula passerina*), two Lineated Finches (*Spermophila lineata*) from South America, a Goffin's Cockatoo (*Cacatua goffini*) from Queensland, deposited; six Common Chamæleons (*Chamæleo vulgaris*) from North Africa, purchased. The additions to the Insectarium include larvæ of the Tusseh Silk Moth (*Attacus mylitta*); several larvæ of the Poplar Hawk Moth (*Smerinthus populi*), presented; an imago of the Death's-Head Moth (*Acherontia atropos*), presented by Mr. M. H. Temple, Warwick, and two specimens of *Ceratocampa ixion*, bred from pupæ received a short time since from South America; also many species of aquatic Coleoptera from Askham Bog, near York, presented by Mr. W. A. Forbes, including *Haliplus elevatus*, *Hyphydrus ovatus*, *Hydroporus rufifrons* and *lineatus*, *Colymbetes exoletus* and *grapei*, *Ilybius ater* and *uliginosus*, *Agabus dispar* and *abbreviatus*, *Noterus sparsus*, *Helophorus aquaticus*, *Hydrobius fuscipes*, *Philhydrus melanocephalus*.

OUR ASTRONOMICAL COLUMN

THE DEARBORN OBSERVATORY, CHICAGO.—The annual report from Prof. Hough to the Board of Directors of the Chicago Astronomical Society, dated May last, has been issued. The planet Jupiter has been made a special object of study with the great equatorial, the first observation having been secured on May 6, 1880, and the last on January 30, 1881. The observations made at the Dearborn Observatory do not support the idea that the surface of the planet is "subject to sudden and rapid changes, which may be accomplished in a few days or even a few hours." On the contrary, the observations in question show that all minor changes in the markings or spots have been slow and gradual. "In fact the principal features have been permanent, no material change being detected by micrometer measurement." With regard to the rotation of Jupiter, the discussion of the measures on the great red spot made from September 25, 1879, to January 27, 1881, or over a period of 490 days, gave

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for the mean value 9h. 55m. 35·2s., but when the individual observations are compared with it, a well-marked maximum displacement of the centre of the spot, to the amount of 1″·4, is exhibited, apparently indicating that it gradually oscillated to this extent in longitude, which on the surface of Jupiter corresponds to about 3200 miles. The observations however may be well represented by making the period of rotation a function of the time; thus the period 9h. 55m. 33·2s. + 0·18s. $\sqrt{t}$ is found to satisfy all the measures with a mean maximum error of 0″·5: the zero-epoch being September 25, 1879, and t the number of days after that date. The mean-rotation period derived from observations of polar spots is 9h. 55m. 35·1s., that deduced from the small spots indicating an average displacement during two months of 2″, or about 4600 miles. The rotation resulting from the observations of equatorial spots is 9h. 50m. 9·8s. with uniform motion. Prof. Hough states that the actual size of the great red spot, as seen with the Chicago telescope (18½ inches aperture) is—length, 29,600 miles; breadth, 8300 miles; and he remarks that smaller telescopes make the approximate length considerably less than the real value.

The nebula near Merope in the Pleiades, of which so much has been written, was not seen with the Chicago refractor in 1879, but as so many observers have described it, Prof. Hough, in conjunction with Mr. S. W. Burnham, made a thorough examination of the locality, with the result that they satisfied themselves that "the nebula did not exist, but that the appearance described by different astronomers was wholly an optical illusion, due to the glow from *Merope* and neighbouring stars." This opinion will probably be disputed in many quarters.

THE WASHBURN OBSERVATORY, WISCONSIN.—No. 1 of "Contributions from the Washburn Observatory, of the University of Wisconsin," has been received. The establishment is under the direction of Prof. Edward S. Holden, late of the Naval Observatory, Washington. Work was commenced in the latter part of April in the present year, with the Clark refractor of 15·56 inches aperture, and Prof. Holden has had the good fortune to secure the co-operation of that eminent observer, Mr. S. W. Burnham, who left Chicago at the beginning of April to accept a post in Washburn Observatory, and although the publication to which we refer is dated May 31, some five weeks after the commencement of operations, thirty-four new double-stars had been detected and measured by Mr. Burnham, and a number of other doubles, discovered in the course of zone-observations in which Prof. Holden took part, were also measured. In addition we have a list of new nebulæ detected in the zone-observations, several of which appear to deserve special attention. On May 2, in R.A. 18h. 8m. N.P.D., 168° 20′, a void space was remarked in the Milky Way; it is thus described: "This is a black circular hole (10′) in the Milky Way. The stars around it are excessively crowded, and inside there are but two stars, one 10 mag., the other very small."

The number of newly-discovered objects—double stars and nebulæ—of which we have the particulars in this first "Contribution" from the Washburn Observatory, is quite extraordinary, considering the few weeks over which observations have extended. We wish continued success to the Observatory of the University of Wisconsin.

SCHAEBERLE'S COMET.—The following meridian observations S.P. of Comet *c* 1881, made with the transit-circle at the Radcliffe Observatory, Oxford, have been communicated by Mr. F. J. Stone, the Radcliffe observer. The N.P.D. is uncorrected for parallax.

	G.M.T.		R.A.		N.P.D.
	h. m. s.		h. m. s.		° ′ ″
July 31,	9 54 47·5	...	6 28 21·6	...	44 3 46·1
(*a*) Aug. 2,	9 56 28·0	...	6 37 55·6	...	42 57 (36)
4,	9 59 56·5	...	6 49 17·7	...	41 47 13·3
6,	10 6 1·3	...	7 3 16·6	...	40 35 47·9
10,	10 29 50·1	...	7 42 55·6	...	38 21 31·6
(*b*) 19,	12 35 2·4	...	10 23 57·4	...	40 44 50·7

(*a*) Comet very faint. Only an approximate observation.
(*b*) Much brighter. Observation good.

ENCKE'S COMET.—The early observations of this body point to a negative correction of the mean anomaly to the extent of 3′, which corresponds to a retardation in the time of perihelion passage of about 0^d·169. The perturbations from the action of Jupiter during the last revolution have been much greater than between 1875 and 1878, in which latter year the necessary correction to the mean anomaly given by the calculations of the late Dr. von Asten, was about one-third as great, but in the same direction. The work of his successor, Dr. O. Backlund of Pulkowa, has been executed with a most thorough determination of the planetary perturbations, which is extended to the preparation of the ephemeris.

The first glimpse of the comet, so far as we know at present, was obtained by Dr. Hartwig and Prof. Winnecke with the six-inch comet-seeker at the Observatory of Strassburg on August 20. Five days later it was clearly seen in the same instrument as a nebulosity 4′ in diameter.

ELONGATIONS OF MIMAS.—The following Greenwich times of apparent preceding elongations of this difficult object depend upon the same elements as previously used in this column:—

h. m.	h. m.	h. m.
Sept. 19 at 15 36	Sept. 21 at 12 50	Sept. 23 at 10 4
20 at 14 13	22 at 11 27	24 at 8 41

GEOGRAPHICAL NOTES

THE International Polar Conference, which was held last year at Berne, and the previous year at Hamburg, met last month at St. Petersburg. The object of this Conference is the organisation of a series of stations around the Polar area for the continuous prosecution of scientific observations. Since its last meeting it has lost Lieut. Weyprecht, who was the originator of the idea of such a scheme. Delegates were present from all the leading European States except England, and from the United States of America. The first subject discussed was the time at which observations should be taken, and their frequency. Observations will begin for all the expeditions in the Polar regions, as also for observations in the temperate zones, as soon as possible after August 1, 1882, and will finish as close as possible to September 1, 1883. All the meteorological and magnetical phenomena will be observed hourly during all this time; and, besides, there will be taken on the 1st and 15th of each month magnetic observations every five minutes for twenty-four hours, and every twenty seconds during an hour of the day fixed on in advance, and that everywhere after the mean time of Göttingen. These latter observations have for their special end to obtain a perfect knowledge of perturbations or magnetic storms, and their connection with the aurora borealis. On the basis of a programme of observations to be made, already elaborated by the Hamburg Conference, the obligatory meteorological observations were discussed—*i.e.*, observations which all the stations must make in order to insure the scientific success of the enterprise. The result of the discussion was the fixing of the principles, and in part also of the methods and instruments of observation, to insure the accuracy and comparability of the meteorological observations to be made. Happily the Conference numbers among its members several distinguished men of science, who have acquired in former expeditions in the Polar regions very great experience of the difficulties to be met with in taking observations, who were able to give advice useful in obviating beforehand those obstacles, by the arrangement of the instruments, and by the method of taking observations. One day was devoted by the Conference to visiting the celebrated meteorological and magnetic observatory of Pavlovsk, and discussing there the choice of the best apparatus. The members visited in detail the provisional installations which have been made at the observatory for inspecting the magnetic instruments intended for the Russian expedition to the mouth of the Lena. At the third sitting of the Conference, the magnetic observations were discussed: these also meet with difficulties unknown in temperate zones. It is not only the great cold, but also the feebleness of the horizontal intensity of terrestrial magnetism, as also the frequency and greatness of the perturbations, which render observations very difficult and delicate. At the fourth meeting the Conference was occupied with observations on the aurora borealis, and with the question of facultative observations, those which are recommended to the expeditions, without being considered indispensable—as observations on the temperature of the soil, evaporation, terrestrial galvanic currents, atmospheric electricity, &c. The conference, among other things, decided to apply to different institutes to assure their co-operation, and to request magnetic observatories in the temperate zones, especially those in the southern hemisphere, to participate in the simultaneous observations, as also to ask the directors of the telegraphs of different countries to study more accurately terrestrial

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