

method for some years previously, and had communicated it to several mathematicians, but omitted it from my elementary "Geometry of Conics" (1872), hoping that I might soon have leisure to develop it more fully in a larger work. Shortly before the publication of my article in the *Messenger*, Mr. R. W. Genese rediscovered the circle and its properties. Mr. Day uses this circle in his work on the Ellipse (1868), but has overlooked one of its characteristic properties.

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Destruction of Flowers by Birds

"P. B. M.," in NATURE for April 1, refers to the destruction of the crocuses in a garden at Burton-on-Trent, by birds. This may also be observed in the flower-beds in Hyde Park, near Park Lane. It is remarkable, however, that while the yellow flowers are very extensively destroyed, the white ones remain uninjured. The reason for this is not very evident, and I should be glad to see it explained.

C. ROBERTS
Bolton Row, April 6

OUR ASTRONOMICAL COLUMN

RED STARS, &C.—We lately referred to the incompleteness of the first catalogue of isolated red stars formed in 1866 by Prof. Schjellerup of Copenhagen. In the last part for 1874 of the *Vierteljahrsschrift der Astronomischen Gesellschaft* is a second and much extended catalogue by the same astronomer. The first list, which was published in *Astron. Nach.*, No. 1,591, with additions in No. 1,613, contained 293 stars; in the new catalogue the number is upwards of 400. The notes attached have also been considerably extended. The author remarks that his first list was instrumental in the discovery of a number of variable stars, and that Secchi found in it many stars of his Type III. and the whole of Type IV. Those who are interested in the discovery and observation of variable stars will do well to provide themselves with Schjellerup's new catalogue. The same part of the *Vierteljahrsschrift* (which accidental circumstances have delayed in publication) contains an ephemeris of most of the variable stars for the year 1875; also a notice of Prof. Schönfeld's researches on S-Canceri from observations to April 1872; the period is found to be 9d. 11h. 37m. 45s., and the epoch of minimum is fixed to 1867, August 31, at 14h. 12m. 15s. Paris mean time. This star has long been known to resemble Algol in its law of variation; the diminution of light commences somewhat suddenly, $8\frac{1}{2}$ hours before minimum, and about 13 hours after minimum the star recovers the brightness at which it continues to shine for the greater part of its period.

THE COMET OF 1812.—Of those comets discovered during the present century which appear to have periods of revolution approximating to that of Halley's Comet, it is probable that the one detected by Pons at Marseilles on the 20th of July, 1812, will be the first to revisit these parts of space, and this visit may be looked for within a few years' time. We are indebted for our knowledge of the elliptical form of this comet's orbit to Encke, who, working when assistant at the Observatory of Seeberg under the guidance of his "great tutor Gauss," discovered early in the year 1813 that no parabola would represent the observations, and that an ellipse with a period of revolution rather exceeding seventy years was very far preferable. His further and definitive investigation of the elements is found in *Zeitschrift für Astronomie*, ii. p. 377. He made use of observations between July 23 and Sept. 27, taken at Paris, Marseilles, Vienna, Milan, Seeberg, Bremen, Berlin, and Prague, 110 in number, and finally arrived at an elliptical orbit, with a period of 70.69 years, the probable uncertainty of this result allowing of it being as short as 66.54 years, or as long as 75.27 years. Encke does not appear to have had the advantage of the original observations taken at Paris, which appear in the folio volume of observations 1810-20, nor yet of the original observations by Flaugergues at Viviers, which

were not printed until the end of the year 1820, when they found their way into Zach's *Correspondance Astronomique*. Mr. W. E. Plummer, of the University Observatory, Oxford, has reduced the Paris and Viviers observations with every care, and, making use of Leverrier's Solar Tables, has deduced an ellipse quite verifying Encke's computations; he has hopes of being able to assign limits to the period of revolution. We are also informed that the return of this comet is engaging attention at the Observatory of Strassburg, and that under Prof. Winnecke's superintendence sweeping ephemerides will be prepared there to facilitate the rediscovery of the comet. It approaches nearer to the orbit of Venus than to that of any other body in the planetary system, but there could have been no material perturbation from this cause during the last appearance. The comet was detected by Bouvard at Paris on August 1, 1812, and it was also independently discovered on July 31 by Wisniewski (the last observer of the great comet of 1811), at Novo Tcherkask, as stated in a letter from Von Fuss to Bode, though he is not credited with this discovery in our cometary catalogues. The other comets which appear to have periods of revolution of similar length are the comet of 1815, usually known as Olbers' Comet, which is the subject of a masterly investigation by Bessel in the Berlin Memoirs, 1812-15; the comet discovered by De Vico at Rome, 1846, February 20, of which the best orbit is by Van Deuse, in his "Inaugural Dissertation," Leyden, 1849; and the comet detected by Brorsen at Altona, 1847, July 20, which has been calculated by D'Arrest and Gould, but may yet admit of further investigation.

METEOROLOGY IN ENGLAND

THE address of the President and Report of the Council of the Meteorological Society of England for the present year will be read with a lively interest, awakened and strengthened by a growing conviction that the Society has reached a critical turning point in its history. Hitherto the Society has been regarded as little more than an association of amateur meteorologists,—the national work, falling properly within the province of such a society, of collecting the data of observation for the elucidation of the laws of the weather and climate of England, having been independently carried out by their late energetic, able, and popular secretary, Mr. Glaisher, whose great and in many respects valuable labours in this department are somehow passed over in the documents before us.

The Society, however, has now resolved to undertake the work of collecting meteorological statistics, and in carrying out this resolution has already established ten stations pretty well distributed over different districts of England. It is fitting that on private observers should fall the labour of investigating Climatic Meteorology, leaving the Government to look after the physical side of the science. In making it imperative on all their observers that verified instruments alone be used, consisting of at least a barometer, dry and wet bulb thermometers, maximum and minimum thermometers, and a rain gauge; that the adoption of Stevenson's Thermometer Box be a *sine quâ non*, and that it be not placed within ten feet of any wall; that the rain gauge has its rim placed one foot above the ground; and that the hours of observation be 9 A.M. and 9 P.M.—the Society deserves our hearty commendation.

We must, however, point to a serious omission in the system of observation which has been adopted. No imperative condition is laid down, and no recommendation made, so far as we can see, with reference to the vital question of the height of the thermometers above the ground. If this point be not definitely settled and made an imperative condition of observation, the Society will collect materials on which no scientific inquiry into the climate of England can be based, and on which little, if any, scientific value can be placed. The

point is of paramount importance, especially since temperature observations are not merely the most important popularly, but they form besides the very groundwork of meteorology.

It is a remarkable circumstance that no country in Western Europe could be named, with perhaps the single exception of Ireland, of the meteorology of which so little is known as of England. The meteorological institutes and societies of Scotland, Norway, Denmark, Italy, Austria, Holland, Belgium, &c., have published discussions of atmospheric pressure, temperature, rain, and other of the meteorological elements based on the observations of many years, but we look in vain through the pages of the Journal of the English Society for the discussion of a single one of these elements for England. For any information which is to be had on these matters we must have recourse to the Journal of the Scottish Meteorological Society, in which the barometric and thermometric observations for England have been partly discussed. It is scarcely necessary to say that this essential part of the work of a meteorological society can only be properly performed by its paid officials. Viewed in this connection, it may be worth the consideration of the Council of the Society whether the tendency of the arrangement entered into with the Meteorological Office to supply that office with copies of observations, thus constantly throwing on their officials an enormous amount of mere copying, be not to preclude the Society from properly discharging this part of its work and taking a position among kindred societies which it ought to occupy.

We dissent from the position assumed by Dr. Mann when he states that "the practical outcome of the recent Conference of Meteorologists at Leipsig, of the Meteorological Congress at Vienna, and of the Maritime Conference in London, is an unmistakable and most satisfactory movement on the part of the leading authorities of meteorological science towards concerted and uniform action in the prosecution of their favourite pursuit." We have already stated (vol. x. p. 56) that the Vienna Congress did good work in the treatment of certain details which lie on the outskirts of meteorology, but it would be a mistake to suppose that at these international assemblies of meteorologists any concerted action was taken which would lead to uniformity of observation of atmospheric temperature, pressure, humidity, or rainfall—anything, in short, that would place the observation of these phenomena on an international basis for the subservience of international objects; in truth, the Congress can scarcely be said to have got the length even of attempting any concerted action towards uniformity of observation of these elements which are the very life-blood of the science.

DR. BECCARI'S DISCOVERIES IN HERPETOLOGY*

NOT long ago we called the attention of our readers to the herpetological discoveries of a German naturalist and traveller in New Guinea and the adjoining islands. We are now indebted to the Marchese G. Doria, of Genoa, for an account of the investigations of an Italian explorer, Dr. O. Beccari, in the same countries, although not quite in the same localities. The memoir before us treats of a collection of Reptiles and Batrachians made by Dr. Beccari in Amboyna, the Aru Islands, and the Ké Islands, in 1872 and 1873, which contained altogether 670 examples referable to fifty-three species. As regards Amboyna, not much novelty could be expected, this island having been thoroughly explored years ago by the Dutch naturalists. But the two other groups of Papuan islands to which Dr. Beccari devoted

his attention were almost *terra incognita* as regards herpetology; Mr. Wallace, their previous explorer, having devoted himself mainly to birds and insects. Here, therefore, Dr. Beccari's collections prove to have contained much interesting material, of which our author gives us an excellent account, illustrated by some carefully executed plates.

The species actually new to science in Dr. Beccari's collection are not numerous, but it is of interest to find that the general character of the reptilian fauna of the Aru and Ké Islands is, like that of their birds, essentially Papuan. In the latter group, however, there is rather a stronger infusion of Indo-Malayan forms. In the Ké Islands the Australian Death-adder, *Acanthophis antarcticus*, which spreads over the whole of the Papuan region, is very abundant. In Aru the Saurians are more numerous in species than the Ophidians, but in the Ké Islands the contrary is the case. No Batrachian was met with by Dr. Beccari in the latter group of islands, whereas three were found in Wokan, the northernmost of the Aru group, one of which was the widely-spread *Pelodytes caeruleus* of Australia.

This memoir forms part of the sixth volume of the "Annals" of that young and flourishing institution, the Museo Civico of Genoa, of which its author is the originator and director; and, like most of the papers published in the five preceding volumes, contains much matter that is interesting to the naturalist.

ARCTIC GEOLOGY

THE following notes on this subject will be of some interest at the present time.

Greenland.—Glacial Phenomena.—An examination of the Chart of the North Polar Sea lately issued by the Government,* shows that Cape Bismarck, the most northern point reached by the German Expedition of 1870, on the east coast of Greenland, is in 77° N. lat., and about 2° south of land seen in 1690. On the west coast, the results of the American Expeditions, 1859—73, prove the continuation of Smith's Sound, through Kennedy Channel, Hall Basin, Robeson Channel, into Lincoln Sea, the broken and indented coasts of which in 84° N. lat. are only 40 degrees north-west of the land seen on the east coast in 1690, giving evidence of a series of islets forming the northern frontier of Greenland; the entire western coast is surrounded by a circling of bare bleak islets 2,000 feet in height, separated from each other by fjords, through which passes the overflow of the great *mer de glace* which covers the country to an unknown depth, and covers up all sight of the rocks of the inland districts. Here and there this "inlands is" of the Danes reaches the sea, and terminates in a steep cliff, *Sermik Soak* (ice-wall), of the Esquimaux, reaching 3,000 feet in height, where deep glens and fjords penetrate into the country. From the top of these ice-streams Dr. Rink found the surface rising by a series of steps, to the general level of the ice-field, which Dr. Kane describes as the "escaladed structure" of the Greenland Glacier. Once on the ice-field, and leaving the coast, the effect has been described as being similar to that of the land fading away when sailing out to sea—the ice rises gently and almost imperceptibly inland; Prof. Nordenskjöld, who travelled thirty miles inland, found its surface there to be 2,000 feet above the sea. Thus the surface of Greenland beneath the ice must be considerably lower than the islands surrounding it, between which and the ice-wall is the narrow strip of ground on which, and on the islands, the Danish settlements are situated. In summer the snow which covers the great ice-desert melts, and rivers of icy-cold water flow over the surface and fall into the crevasses of unknown depth. These are exceedingly numerous, and apparently increase in number, on penetrating into the

* "Enumerazione dei Rettili raccolti dal Dott. O. Beccari in Amboina, alle Isole Aru ed alle Isole Kéi durante gli anni 1872-73," per G. Doria. Estratto dagli Ann. del Mus. Civ. di St. Nat. di Genova. Vol. vi. 1874.

* Chart to accompany Paper and Correspondence relating to the equipment and fitting out of the Arctic Expedition of 1875.