

In 1833 Clausen made what appears a more likely suggestion, that the comet of July, 1819, was identical with the second comet of 1766, which was observed for a short time only by Messier at Paris, before perihelion passage, and after perihelion by La Nux in the Isle of Bourbon, though but roughly. Burckhardt found, in 1817, that the whole of the observations could be represented within their probable limits of error by an ellipse with a period of revolution little over five years. The planet Jupiter must have acted powerfully upon Winnecke's comet towards the end of the last century, and, so far as we can see, it appears possible that the perturbations occasioned at that time may account for the differences in the orbits of 1766 and 1819. If Burckhardt's elements for the comet of 1766 are approximately correct, as seems probable, it may have been detected at its first visit to perihelion in the actual form of orbit, perhaps at its first visit after being fixed in the system through the agency of Jupiter. We know that Brorsen's comet of short period was discovered under similar conditions.

### METEOROLOGICAL NOTES

SIX years ago we remarked (NATURE, vol. ix. p. 164) that what was required in order to describe and classify many forms of clouds, were accurate delineations of these forms in their different aspects, and systematic inquiries as to the relations of clouds to the mode of their formation, to the states of the aqueous vapour composing them, and to the varying elasticity, temperature, and electricity of the atmosphere. Since then but slow progress has been made, the great desideratum being the contribution of data in a form on which science can lay its hands. A contribution of data of this sort has just been made by Dr. Hildebrandsson, the director of the meteorological observatory of Upsala, in a memoir on the "Classification of Clouds employed at the Observatory," illustrated with sixteen photographs of clouds. The photographs, which are about nine by seven inches, are very fine ones, and well chosen out of a large number taken under the direction of Dr. Hildebrandsson, to illustrate the different forms of cloud and their more important modifications and transitional states. The series representing the more marked changes from the delicately-pencilled cirri of the flimsiest texture to the nimbus of a rain-cloud is a most instructive one; as is also the series showing the strato-cumulus as commonly observed during the winter season in Scandinavia. The relations of the varying forms of clouds to cyclones and anticyclones which pass over Sweden is just touched on, but this important phase of the inquiry we hope Dr. Hildebrandsson will again return to, seeing he can so readily refer to the observations of his observatory, which give so complete and satisfactory a record of the various fugitive phenomena of the weather changes of that part of Sweden. Dr. Hildebrandsson's photographs of clouds may be studied with equal interest and professional advantage by artists as well as by meteorologists, it being scarcely possible to point to any department of art standing more in need of a thorough reformation than the cloudscapes of our landscape painters.

THE Hydrographic Committee of the French Marine has at a recent sitting sanctioned the publication of the last four of the series of sixteen wind charts prepared by M. L. Brault. In these four charts the winds of the Pacific are dealt with, the winds of the North Atlantic, the South Atlantic, and the Indian Ocean being discussed in the twelve charts previously prepared. In preparing these sixteen charts M. Brault has made use of upwards of 3,000,000 observations made over the oceans and continents of the globe. The chief results referring to the circulation of the atmosphere show as regards the South Pacific, which presents the largest expanse of ocean least influenced by land, a belt of calm or light winds near the equator; then the well-known south trades; to these succeeds a belt of winds variable as regards direction, but blowing with a force at least as great as the trades; and lastly, westerly winds, varying little, though more than the trades, in direction, and incurring upon the South Pole the nearer they approach it, and blowing much stronger than the trades and variables. As regards the other oceans, the disturbing influence of the land is felt in proportion to the extent of the continents which surround them, the disturbing influence reaching its maximum in August and January, in other words in those months when atmospheric pressure of the continents is in greatest excess or defect compared with that of the ocean as shown by the isobaric charts of the globe.

M. L. TEISSERENC DE BORT has prepared isabnormal charts of the temperature and pressure of the atmosphere, with the view of comparing, with some exactness, these two all-important factors of atmospheric circulation. He finds that when any region presents an excess of temperature, either absolute or relative to that of places in the same latitudes, a barometric minimum tends to be formed, and that the coincidence between the minimum of pressure and the maximum of temperature is almost complete. The tendency results in either a well-defined area of low pressure, or in the less pronounced form of a simple distortion of the isobaric lines as they cross the region of relatively high temperature. On the other hand, barometric maxima tend to establish themselves over regions whose temperature is either absolutely high or relatively so to the latitude, and the tendency to an increased pressure is the more decided when the region in question is surrounded by regions of low pressure.

At a meeting of the Botanical Society of Edinburgh, held on Thursday, the 8th inst., Sir Robert Christison read a paper of very considerable importance on the relative growth of the trunks of trees during 1879 as compared with 1878. Upwards of two years ago Sir Robert set on foot a system of measurement of the girths of a large number of well-grown trees in Edinburgh and neighbourhood, the measurements being made by himself with the same measuring-line, and the same circumference to be measured secured by marking it at the time of the first measurement with paint. The inclement character of the summer months of 1879 as compared with 1878 was described by a reference to the daily maximum temperatures noted at the Edinburgh station of the Scottish Meteorological Society, from which it appeared that for the six months ending with September the mean for 1879 was fully 5° less than for 1878, and the deficiency of day temperature amounting to nearly 10°. Of 11 deciduous trees, exclusive of oaks, the deficiency of growth during 1879 as compared with 1878 was 41 per cent.; of 17 evergreens of the pine tribe, the deficiency was 20 per cent.; and of 7 oaks the deficiency was 10 per cent. The 7 oaks were of different species, but they all gave results closely agreeing with each other. We shall look forward with the greatest interest to the annual reports of this investigation, which may be expected to reveal novel and valuable results illustrative of the bearings of meteorology on the growth of our forest trees.

AN interesting account of waterspouts observed on November 10, 1879, off Cape Spada, west of Canea, by Herr Miksche, has been communicated by him to the Vienna Academy. About 9 A.M. some heavy thunder-clouds rose in the west in a clear sky, reaching the zenith only after noon. One in advance, very black, and low-hanging, gave, about ten minutes to one o'clock, the phenomenon of the waterspout, a thick descending column, of milk-white appearance, being formed from it. The amount of downward gyrating force may be approximately estimated from the fact that at the distance of some eighteen miles one could distinctly see with the naked eye, a high round pedestal, formed by the foaming sea-water, like the socle of a monument. After ten minutes' duration, the column lost its conical form and began to assume a rectangular one; while, at the extreme eastern point of the cloud, a second waterspout was formed, conical in shape and of the same hue and intensity as the first. To this column also the sea presented a pedestal visible to the eye. For fully five minutes the water discharge continued with like intensity in both trombes. Precisely at five minutes after 1 P.M., *i.e.*, about a quarter of an hour after formation of the first trombe, an angular discharge of lightning (without audible thunder) took place from the clouds at that part into the sea; then the trombe suddenly ceased, only the pedestal continuing some time to show where it had been. The second trombe remained unaffected five minutes longer, then was extinguished without lightning discharge, and without reverting to the original conical form (as the first did). This fine display of natural forces was quite finished at 1.16 P.M., the clouds then uniting and pursuing their course eastwards.

### GEOGRAPHICAL NOTES

At the meeting of the Geographical Society on Monday last, a letter was read from Mr. Thomson which had that day been received *via* Mozambique, announcing the arrival of the East African expedition at Mbungu, at the north end of Lake Nyassa, on September 22. Mr. Thomson was unable to discover the Urunga country and river, described by the late Capt. Elton as lying near Merere's town, but he believes the river to be the

Mbangala, which flows into the Ruaha. According to Mr. Thomson, the formidable range, called the Konde mountains, is simply the termination of a plateau which rises from an altitude of 3,500 feet in 8° 50' S. lat. to not more than 9,000 feet at the lake. Mr. Thomson was to leave for Lake Tanganyika on September 28, and we may fairly hope that by now he has completed his explorations, and is on his way back to the coast. The papers of the evening were "The Grand Canal and Yellow River of China," and "Hankow to Canton overland," by Mr. G. J. Morrison. During the journey referred to in the former, Mr. Morrison was enabled to examine some 200 miles of the Yellow River, a portion of which has materially altered since it was described by any traveller, and his observations are, therefore, very useful. Mr. Morrison, it may be noted, is of opinion that the Yellow River is now flowing in its natural channel, and that in former times it discharged its waters into the sea north of the Shantung promontory. His description of the condition of the Grand Canal is also interesting, as he looks at it from the point of view of a practical engineer. The other paper, from which only extracts were read, described a journey undertaken with the object of getting some idea of the country through which one of the great railway lines of the future may be expected to run, and a portion of which embraced the rich mineral field of Southern Hunan examined by Baron Richthofen a few years ago.

AN interesting piece of exploration has just been successfully accomplished by the Church Missionary Society's agents in Western Africa. In a small steamer they have ascended the River Binue from its confluence with the Niger to a point probably about 800 miles from the sea. The party penetrated 150 miles beyond Hamaruwa, which was reached by Dr. Baikie when in search of Dr. Barth in 1854, and a careful survey of the river has been executed.

M. PÉTRIMENT (*Bulletin* of Paris Anthropological Society, t. ii, fasc. 3), in confirmation of M. Madailac's assertion that a blonde race existed in Persia, had engaged a Persian doctor, Mirzâ Mohammed, some time resident in Paris, to obtain definite information on this point. According to this gentleman there are about 2 per cent. of blonde persons in the Persian population, blonde children appearing in brunette families after the lapse of a generation or two. According to local tradition, the white men came from the north, and were *sheitans*, or demons; this evil character is still attached to blonde individuals in Persia, where they are generally impetuous and artful, and seldom possessed of a lymphatic temperament.

M. DE UJFALVY, in his recent travels through the Russian territories of Central Asia, has visited the lands of the Galtchas, Sarts, and Tadjiks, where he found that caste and patriarchal authority were rigidly observed. The people are Mussulmans, and consequently polygamists, and the women are held in great subjection. The Galtchas in their nomadic wanderings ascend the mountain-slopes of Kohistan in search of pasture. To the east of their country we would seem, although close to the plains of Pamir, to be on the extreme limits of the Aryan race, for here in the Kuldja district the oblique-eyed Mongolians begin to predominate. At this point, where the Mountains of Heaven form a line of division, the white and yellow races meet, and even overlap one another to some extent, although the strict observance of caste has hitherto prevented their complete fusion, and has left the Aryan races to form isolated ethnic groups in the midst of an otherwise Mongolian population. M. de Ujfalvy is at present engaged in completing the narrative of his travels in this part of Central Asia, and his observations on the distinct characters of the Galtchas and other kindred races can scarcely fail to afford valuable aid in the solution of the vexed question of the limits of demarcation between the Mongolian and Aryan races.

In No. 83 of the *Zeitschrift* of the Berlin Geographical Society Dr. Hildebrandt concludes the narrative of his journey from Mombassa to Kitue, and this is followed by some remarks on his measurements of heights in the Wakamba land. *Apropos* of the recent Karl Ritter celebration, we have two papers on that geographer; one by Pastor Tallin on Michael Servetus as a predecessor of Ritter and Humboldt, and the other by Dr. Marthe on what Ritter did for geography. In a letter from Gerhard Rohlfs, that traveller maintains that none of the greater carnivora are found in the Sahara, while, in reply, Drs. Ascherson and Hartmann endeavour to show that this statement must be received with some modifications. The *Verhandlungen*

(Nos. 1 and 9, Band vi.) of the same Society contains a paper by Herr Schütt on his travels in Central Africa.

Two important congresses will be held next year by the French geographers. The first will be held at Lyons, and will deliberate on the means of regulating the explorations of Africa by French travellers or colonists. The second will be held at Nancy in Summer, at the conclusion of the meeting of the French Association, which will meet at Rheims, on general subjects.

A DEPUTATION waited on the Lord Mayor last week to bespeak his patronage in behalf of Commander Cheyne's elaborate and expensive scheme for reaching the North Pole. The Lord Mayor promised the use of the Egyptian Hall to have the scheme "thrashed out" at a public meeting.

IN connection with letters from Lieut. Bove on the work of the North-East Passage Expedition, the *Bollettino* of the Italian Geographical Society publishes several sheets of illustrations of the natural features along the routes, heads of the natives met with, sledges, implements, and weapons, native houses, &c., besides two excellent maps.

THE *Bulletin* of the Paris Geographical Society for November contains a translation, by M. Barrande, of the memoir by the Russian Grand Duke Nicholas on the Amu and Uzboi. Also an important paper by Dr. Lange, on the cartography of the Brazilian province of Santa Catharina, and the continuation of Admiral Fleuriot de Langle's article on African migrations.

THE new *Bulletin* of the Geographical Society of Oran, Algeria, is largely occupied with the Trans-Saharan Railway. The question is dealt with from a commercial point of view, and among the other contributions to the subject is a note on the western route and that proposed by General Colonieu.

THE new number of the *Bulletin* of the Société de Géographie Commerciale of Bordeaux contains the first portion of an address delivered by M. Soleillet on the Trans-Saharan railway project, in connection with which he is about to undertake explorations in West Africa.

THE publication of a new geographical journal is announced, the *Revista Geografica Internazionale*. It will appear fortnightly, and will contain original articles in Italian, English, French, and Spanish, not a happy group, we think; French, English, German, and perhaps Italian, would have been much more representative. The editor is M. A. M. Mizzi, and the journal is published at Malta.

#### PHYSICAL NOTES

AN attempt is made in *L'Electricité* by M. C. E. Séguin, fils, to claim for France the honour of the invention of the phonograph; firstly, by the plea that M. Léon Scott (who died only last July) patented the instrument under the name of the phonautograph in 1857, and secondly, by the statement that M. Charles Cros deposited before the Académie des Sciences, in April, 1877, seven months before the date of Edison's patent, a sealed packet describing the possible reproduction of sounds from recorded traces. In justice to Mr. Edison, we can hardly admit the validity of either of these claims. The phonautograph of M. Scott merely recorded the graphic traces of vibrations in sinuous scratches upon a smoked surface, which, therefore, was useless for the purpose of reproduction of the sounds; and, moreover, Dr. König, who worked upon the instrument with M. Scott, and perfected it, has stated to us most candidly that the idea of reproducing the sounds from the recorded traces never occurred either to M. Scott or to himself; and that neither of them attempted or proposed to obtain graphic traces in hollows and ridges in tinfoil or soft metal, or otherwise than as plane curves. And as for the claims of M. Cros, we have yet to learn that he constructed an actual phonograph, or that his sealed packet contained any descriptions of a sufficiently detailed or practical nature to enable any instrument to be made from them.

PROF. BORLINETTO, of Padua, has devised two very simple and effective pieces of apparatus for showing the passage of electric sparks through such non-conducting liquids as turpentine, petroleum, &c. They consist of U-tubes of glass, with or without an intermediate branch, and having platinum wires led down the two branches or introduced through the glass walls, so as nearly to meet, the other extremities of which can receive the discharge from a Leyden jar or from an induction-coil.