Welle, Nachtigal was the first to give some new information. In 1875 he published a map from his surveys and from information obtained in Dar For and Wadai. Junker explored, in 1876 and 1877, the western tributaries of the Bahr-el-Abiad. In the same years a Greek physician, Panagiotes Potagos, travelled over a great part of the district. As, however, he made no astronomical observations, and his itinerary is very primitive, the results of his journey are not reliable. This is still more the case with Bohndorff's journeys. This man, a goldsmith, who had been in the service of General Gordon, travelled in the region of the head waters of the Welle. Later on, when Junker started on his second journey, he took Bohndorff for his servant, and in January, 1880, they left Khartum. The first summer was spent in the Niam-Niam country, and since that time Junker has travelled in Mombuttu and in the district of the Welle and the other rivers running west. Lupton Bey and his agents made many important journeys, the expedition of Rafai Aga being of particular interest. He is said to have reached the lake on the Lokoi. The northwestern tributaries of the Bungu, as shown on the sketch-map, are from Flegel's reports, who learned about them on his journey in Adamaua. The central part between the regions traversed by Flegel, Nachtigal, and Junker, is still totally unknown.

THE HEALTH OF NEW YORK DURING JANUARY.

THE population of New York City at the beginning of 1887 may be approximately stated to have been 1,461,466. The deaths during the month of January from all causes were 3,507, which is but 5 more than during the preceding month, although the population was greater by more than 3,000. Of this number, 140 died on the 5th, the greatest mortality of the month (see page 228). Diarrhoeal diseases caused 48 deaths, a reduction of 17 as compared with December, and the lowest mortality from this cause since March, 1886. The deaths of children under five years of age amounted to 1,523, differing but little from the preceding month. Consumption caused 524, diphtheria 204, and scarlet-fever but 46 deaths. The mortality from the last-named disease was double that of December. In November there were recorded 166 deaths as due to measles. In December this increased to 271, and in January the mortality rose to 294, exceeding by no inconsiderable figure the combined deaths from diphtheria and scarlet-fever, emphasizing, what we have already directed attention to, that measles is not a trivial disease, but one in regard to which all precautions relating to isolation and disinfection should be promptly and thoroughly taken and maintained.

The maximum temperature of the month, 62° F., was reached at 4 P.M. on the 23d. This was nearly ten degrees above the average for the past ten years. The lowest point reached by the mercury was 4° F., at 12 P.M. on the 18th, and again on the 19th at 2 A.M. The average for the decade is 3.1° F., although during the same month of 1879 it fell to —4° F., and in 1882 to —6° F. The rainfall for January was 4.42 inches, included in which are 6.625 inches of snow. The average rainfall for this month for the ten years commencing 1878 is 3.82 inches, so that more than the average fell during January. The largest amount of snow which fell during this period in the same month was 17.5 inches, in the year 1882. Since then, in but one year, 1885, has less snow fallen than during January of 1887: the average has been nearly 10 inches. There were four snow-storms during the month. In that which occurred on the 5th and 6th, 2 inches fell; that of the 9th and 10th resulted in a fall of 4 inches; while the others were insignificant.

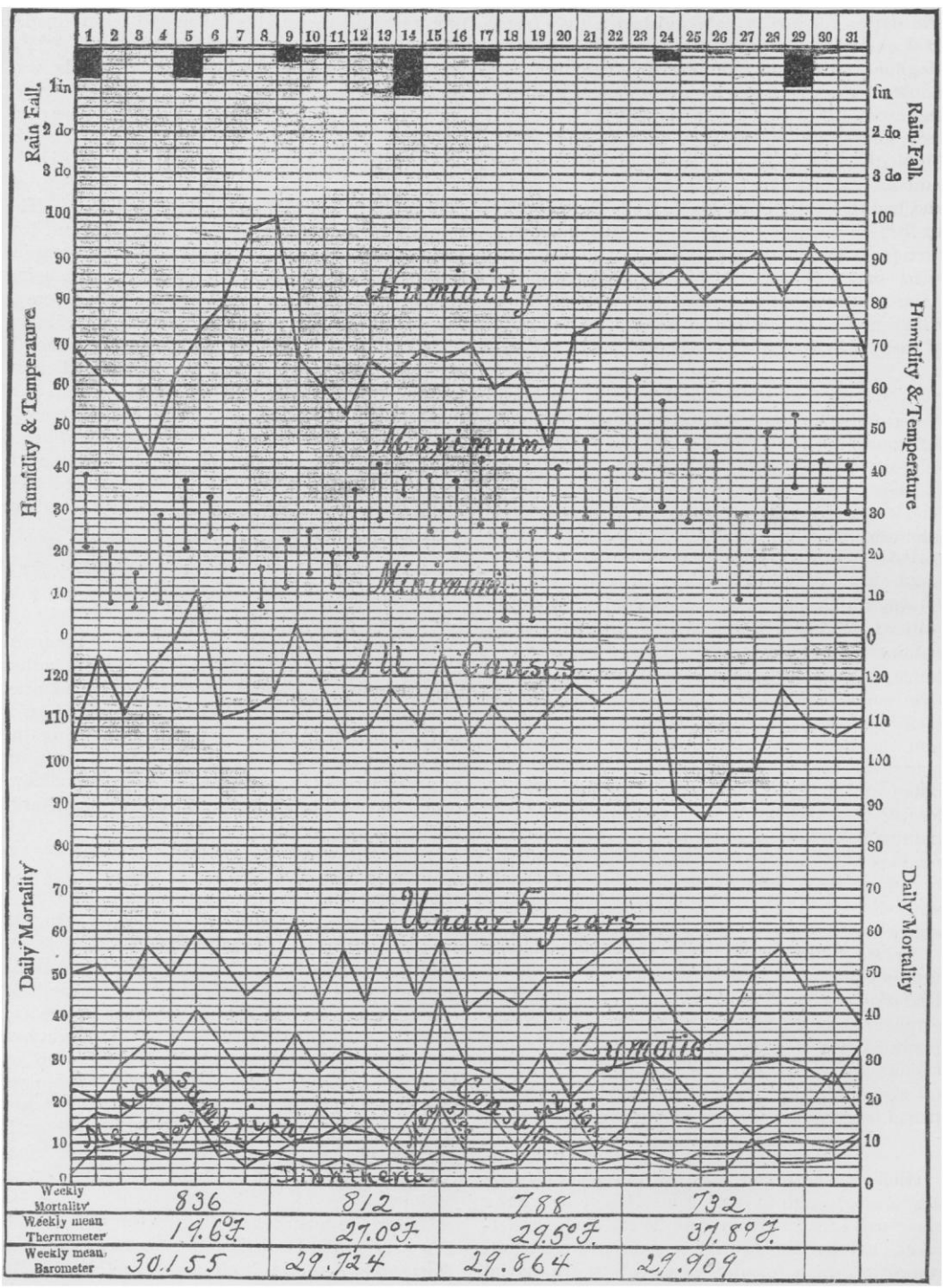
GEOGRAPHICAL NOTES.

Africa.

Dr. Hans Schinz gives the following report of the present state of Lake Ngami. The lake has not dried up, but is gradually decreasing in size. The Okavango, or Ombuenge, forms, north-west of the lake, an extensive swamp, and during the dry season the lake receives only a small quantity of water from it. During the rainy season, however, the small brooks swell up and form a large stream, which empties itself into the lake. The Tamulakan, which branches off from the Ombuenge in latitude 18° 40′ S., empties itself into the Botelet, not into the Zambezi.

Gottl. Ad. Krause has succeeded in entering the territory south of Timbuktu. Since Barth's expedition in 1853, no white man has visited this district. On the 7th of July, Krause left the large city of Salaga on the Volta, and later on reached Mosi, whence he started on Oct. 26 for Timbuktu. The district through which he has travelled has been known only through information obtained by Barth. Our knowledge of the district between the fabulous Kong Mountains and the most northern part of the Niger is still extremely imperfect, being founded only on information obtained from natives.

Under the auspices of the secretary of state of France, Camille Douls is going to explore the Wad Draa, which empties itself near Cape Noon. This periodical river runs at some distance along the


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Rain Fall.
1in
2 do
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Humidity & Temperature
100
90
80
70
60
50
40
30
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Humidity
Maximum
Minimum
All Causes
120
110
100
90
80
70
60
50
40
30
20
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Daily Mortality
Under 5 years
Zymotic
Consumption
Nervous
Diarrhœa
Rain Fall.
Humidity & Temperature
Daily Mortality
Weekly Mortality 836 812 788 732
Weekly mean Thermometer 19.6°F. 27.0°F. 29.5°F. 37.8°F.
Weekly mean Barometer 30.155 29.724 29.864 29.909

south side of the Anti-Atlas, and drains its southern slope. It was crossed by Leopold Panet in 1850, about fifty miles above its mouth; by Si Bu-Moghdad in 1861, about twenty-five miles lower. Rabbi Mordochai followed one of its tributaries, and crossed it at the same place where Lenz did in 1880, about 120 miles above its mouth. Panet and Bu-Moghdad travelled very hurriedly, with a large caravan coming from St. Louis, on the Senegal, and had no chance for making many observations. In 1828 Caillié ascended its upper part on his return from Timbuktu. Douls intends first to visit Wad Sus, which is situated between the Anti-Atlas and the High Atlas. Rohlfs ascended the valley in 1862, when he explored the upper part of the Wad Draa and the Oasis Tafilet.

America.

Letters from Europe give some more particular information of the object of Dr. K. von den Steinen's expedition to Brazil. Three years ago he and Dr. O. Clauss surveyed the whole length of the Xingu. Von den Steinen intends to complete this work by exploring its sources. He will start again from Cuyaba. As on his former expedition geographical researches formed the main object of the journey, he could not make a long stay among the interesting tribes of the upper Xingu. Nevertheless he obtained ethnological information of great importance. On the present expedition he proposes to live some time with the Indians of that district, who have never been in contact with whites, and therefore are of particular interest for ethnologists. Dr. P. Ehrenreich, who has studied the tribes of Rio Doce, and made valuable anthropological observations during his journey, and the painter Wilhelm von den Steinen, will be his companions. This expedition, which consists exclusively of scientists who are thoroughly acquainted with the field of their researches, will yield valuable results.

Mr. H. N. Ridley, assistant to the British museum, is going to visit Fernando Noronha, the lonely island off the Brazilian coast. The Brazilian government has granted him permission to make botanical and zoölogical collections on the island, though generally visits of strangers are prohibited on account of a colony of convicts being established there.

Polar regions.

Gilder has returned from his journey to Hudson Bay, and given up for the present his plan to reach the north pole by this route. We pointed out last week that the difficulties he would encounter were almost insuperable, and are glad to learn that he reached the same conclusion. Gilder arrived at Selkirk, near Winnipeg, March 2. According to his own account, after leaving Winnipeg last fall, he had a very unpleasant voyage to York Factory, occupying two months. He was unable to get a boat all the way, and had to proceed in a canoe, getting Indians to bring his supplies along. He reached Fort Churchill too late to catch a Hudson Bay boat for Nottingham Island, and, as he would have had to stay several months about Fort Churchill without occupation, he decided to return to New York to transact some business, after which he will leave in time to catch the next Hudson Bay boat, several months hence, or else take a whaling-vessel bound for the northern seas next summer. He left his companion, Griffith, at Fort Churchill, with instructions to take the stores and proceed to Nottingham Island by the first Hudson Bay boat. Gilder promised to join him there. It is to be hoped that he will give up the Hudson Bay route for good, and take a Scotch whaler going to Smith Sound instead. The route from Fort Churchill to Lancaster Sound by boat and sledge is impracticable, and ought not to be attempted by an explorer who wishes to visit the extreme north.

General.

Charles A. Schott has continued his study of the observations on terrestrial magnetism in America. In his former papers, which were published in the annual reports of the coast and geodetic survey for the years 1880–82, he treated the declination. The present paper — Appendix 6 to the report for 1885 — contains a large collection of observations on the magnetic dip and intensity. The collection of data is very complete and clearly arranged, so that it is easy to find the elements of any desired place. It will be of permanent value to the student of terrestrial physics. Schott discusses this large collection of data in order to ascertain the secular change of the magnetic dip and intensity, and uses the results of his researches, with due reserve, for the construction of charts of the United States showing the lines of equal magnetic dip and intensity. His scrutiny of the observations leads him to the conclusion that it is impossible at the present time to give a detailed map of this kind. The observations of most places are made at too long and irregular intervals, and are not sufficiently reliable. Therefore he gives only a general map of the course of these lines. The belts of stationary dip and intensity, which are indicated in the maps, showing the boundary between increasing and decreasing dip and intensity, are of special interest. The belt of stationary dip runs through the Strait of Florida, crosses the Mississippi just above its delta, and then turns again south, passes through central Texas, through

northern Mexico, crosses the Gulf of California, follows the coast of southern California, and passes out to sea off San Francisco. South of this belt the dip is increasing; north of it, it is decreasing. The curve of the secular change of the magnetic dip, though generally decreasing, had a secondary maximum about 1860. This subordinate extreme has been passed north of the belt, but has not yet been reached south of it. The magnetic intensity is also decreasing, and reached a subordinate maximum in 1870. Since then it is again decreasing. On the map showing the lines of equal horizontal force, Schott has marked the approximate situation of the region of stationary horizontal intensity. It runs from north-west Florida through Georgia, Tennessee, Missouri, Nebraska, Wyoming, and western Montana. South of this belt the horizontal force is decreasing; north it is increasing.

G. Hellmann has discussed the statistical data on damage done by lightning in Sleswick-Holstein, Baden, and Hesse, which are contained in the reports of the insurance companies. He finds the danger from lightning, though generally increasing, to be decreasing in certain districts. The danger becomes less the more closely the houses are clustered. The petrographical character of the ground is of great influence. If the danger from lightning upon calcareous soil be represented by 1, 2 will represent the danger upon marly, 9 upon sandy, and 22 upon clayey soil. No explanation can be offered for the fact that, among trees, oaks are struck most frequently. If the danger for beeches be 1, that for pine is 15, for oaks 54.

NOTES AND NEWS.

In a report by Passed-Assistant Surgeon T. H. Streets, U.S.N., of the U. S. coast survey steamer C. P. Patterson, surveying in the waters of Alaska, after referring to the vast forests of spruce, cedar, and hemlock which clothe the shores and mountains and islands of south-eastern Alaska with everlasting verdure, and alluding to the herring, cod, and halibut which inhabit the deep waters, the immensity of the schools of salmon is illustrated by the following account of what he saw at Naha: "To illustrate how immense are the schools of salmon, I will relate what I saw at Naha, where they crowded into a stream of fresh water in such numbers as to materially impede the progress of our canoe. Bruised, lacerated, and killed in attempting to surmount the falls that obstructed their course, suffocated in the jam below, where the water was awork with them, with backs and dorsal fins protruding, their dead bodies lay two and three deep along the shores of the stream, and for fifteen to twenty yards from the water's edge, where they had been left by the receding water. The mouth of the stream was obstructed by a wire trap held to the banks by a wire fence. The trap, at the time of our visit, was raised to allow the fish to enter the stream. The wire fence was broken down by the weight of the mass of dead fish drifting against it, and many must have been carried to sea by the tides and currents. The air was offensive with the odor of the decaying carcasses. Flocks of ravens and gulls fed upon the dead, and the bears fattened upon the living; yet sufficient numbers overcome the high falls yearly to provide for the annual return of the swarms. A large fishery is located there, which also does its part to reduce their numbers. It is a blind instinct which leads migratory fishes to return to the streams where they were hatched; and Nature is prodigal with her forces in carrying out her plans."

— The signal service will be seriously crippled by the failure of the deficiency appropriation bill. The chief signal officer says, "It is now impossible to remove a man, even to discharge or recruit him, or to replace those who are dead or dangerously ill." The term of service of a number of men has expired, but they must remain in the corps from lack of money to send them to their homes. The telegraphic reports of cold waves, storms, warnings, etc., must be discontinued at a number of important points, as the funds on hand for that purpose are nearly exhausted.

— The new German *Centralblatt*, devoted to bacteriology and parasitology, continues to furnish its readers weekly with records of recent researches on these subjects. We understand that Dr. G. Sternberg will confine himself to reporting American original work on micro-organisms, and that Prof. R. Ramsay Wright, Toronto, has undertaken to furnish a similar account of papers published in America on animal parasites and on epidemics occasioned by them. Professor Wright will be obliged to authors for extras of such papers, which will be promptly noticed in the *Centralblatt*.

— The annual consumption of cocoa is 80,000,000 pounds, produced principally in the West Indies and South America. France consumes 26,000,000 pounds; Spain, 16,000,000; England, 14,000,000; and the United States, 8,500,000. Since 1860 the consumption of cocoa in the United States has increased sixfold; during the same period, that of coffee and tea has not quite doubled.