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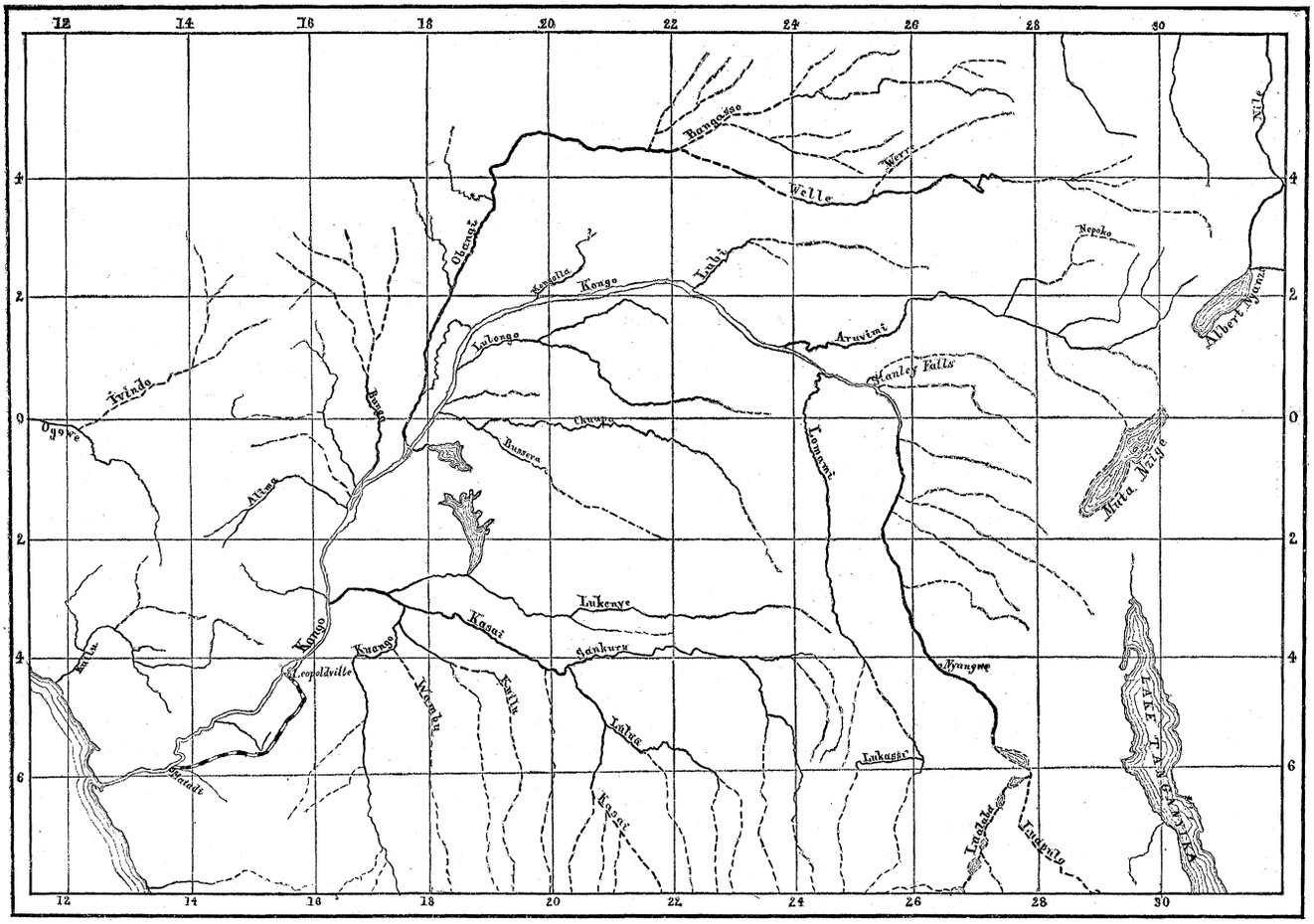
THE VARIOUS MEDICAL ASSOCIATIONS and the medical profession will be glad to learn that Dr. John S. Billings, surgeon in the United States Army, has consented to take charge of the "Report on the Mortality and Vital Statistics of the United States," as returned by the eleventh census. As the United States has no system of registration of vital statistics, such as is relied upon by other civilized nations for the purpose of ascertaining the actual movement of population, our census affords the only opportunity of obtaining any thing near an approximate estimate of the birth and death rates of much the larger part of the country, which is entirely unprovided with any satisfactory system of State and municipal registration. In view of this, the Census Office, during the month of May this year, will issue to the medical profession throughout the country 'physician's registers' for the purpose of obtaining more accurate returns of deaths than it is possible for the enumerators to make. It is earnestly hoped that physicians in every part of the country will co-operate with the Census Office in this important work. The record should be kept from June 1, 1889, to May 31, 1890. Nearly 26,000 of these registration-books were filled up and returned to the office in 1880, and nearly all of them used for statistical purposes. It is hoped that double this number will be obtained for the eleventh census. Physicians not receiving registers can obtain them by sending their names and addresses to the Census Office; and with the register, an official envelope, which requires no stamp, will be provided for their return to Washington. If all medical and surgical practitioners throughout the country will lend their aid, the mortality and vital statistics of the eleventh census will be more comprehensive and complete than they have ever been. Every physician should take a personal pride in having this report as full and accurate as it is possible to make it. All information obtained through this source will be held strictly confidential. It is equally important to the country that the returns in relation to farm-products and live-stock should be full and correct. The enumerator in the house-to-house visit he will make during the month of June, 1890, is constantly met with the fact that farmers keep no books, and hence returns are not infrequently guess-work. The census year begins June 1 next, and ends May 31, 1890. If farmers throughout the country would note this fact, and keep account of the products of their farms during the census year, it would be of material aid in securing reliable returns for the eleventh census.

SOME ONE RECENTLY SENT Professor C. M. Woodward, director of the Manual Training School, Washington University, St. Louis, Mo., a copy of a small periodical called "Microcosm," in which there was a prize essay by a Mr. Reuben Hawkins of Chillicothe, Mo., which has some interest. This article Professor Woodward picks to pieces in *The Teacher* for May. The author begins by quoting the familiar ideal experiment of firing a cannon-ball horizontally from the top of a tower, under the assumption that the force of gravity is constant, and that there is no resisting medium. The question is as to the time occupied in reaching a lower horizontal plane. Mr. Hawkins says that the common answer that the time occupied by the projectile is the same as the time occupied by a ball falling vertically from the muzzle of the gun to the same horizontal plane, is wrong, and his prize money is won by an argument in support of his assertion. Professor Woodward states that he has no idea who Mr. Hawkins is, nor does he know what facilities he has had for acquiring correct notions of mechanics and correct methods of reasoning, and had his essay not been indorsed by the editor, A. Wilford Hall, Ph.D., LL.D., in a commendatory note as well as by a prize, he should not have spent a moment on it. But when he sees such unspeakable trash commended and rewarded by a man who claims to have some understanding of the principles of physics, he feels constrained to protest. Mr. Hawkins's argument begins with some propositions in regard to the resultant of two forces acting on the same body, substantially as follows: If two equal forces act in direct opposition, the resultant is nothing. If two equal forces act in the same direction or in conjunction, the resultant is equal to their sum, or twice one of the component forces. Now, if one of the forces is turned to a mean position between the two just considered, that is, to a position at right angles to the second force, or in "half position" as Mr. Hawkins calls it, the resultant must be the mean of the former resultants. The mean of zero and two is one. Hence the resultant of two forces at right angles to each other is just equal to one of them. All this, and more of the same kind, Dr. Hall indorses as follows: "The foregoing article from the able pen of Mr. Hawkins was written substantially before our prize offer was published. From its highly scientific character, however, and from the fact that this number of the *Microcosm* will reach more than twenty thousand professors and teachers, we deemed it important to give it the position of Prize Essay No. 1." How far such teaching may do mischief is a question, but its existence is worthy of occasional note.

RECENT DISCOVERIES IN CENTRAL AFRICA.

THE results of Van Gèle's exploration of the Obangi, of Junker's discoveries on the Upper Welle, Stanley's great journey up the Aruvimi, and Delcommune's ascent of the Lomami, have materially added to our knowledge of Central Africa, the river systems of

which were, until a few years ago, one of the most baffling problems to geographers. On the accompanying sketch-map the rivers of Central Africa are shown according to the present state of our knowledge. The numerous large rivers south of the great bend of the Kongo offer an excellent means of communication, and will undoubtedly be of great help to the commercial development of that region. The hopes that were for some time entertained, of finding an equally valuable commercial route north of the Kongo, have not been fulfilled, navigation being interrupted by numerous rapids. Stanley's expedition has proved that there is no prospect of ever opening a trade-route from Stanley Falls to the Albert Nyanza, and hat the natural outlet of the lake region must be by way of the east coast. On the other hand, Mr. Delcommune's ascent of the Lomami has proved that the market of Nyangwe is easily accessible from the west coast, the river being navigable at a point only three



MAP SHOWING RECENT DISCOVERIES IN CENTRAL AFRICA.

days' journey distant from Nyangwe. The importance of this fact cannot be rated too highly. Stanley Falls seemed to be the terminus of navigation on the Kongo; and the countries Urua and Katanga, which were first visited by Reichard, appeared to be almost inaccessible. The Lomami, however, offers an easy means of access, and will lead to the opening of these remote regions. This is the more important, as, according to Reichard, the Lualaba above Nyangwe is navigable as far as Lake Upemba.

As will be seen from our map, there remains one great unknown country bounded by the Kongo on the west side, and by a line running from the north point of Lake Tanganyika to the south point of Lake Albert Nyanza on the east side. In this region the Arabs have recently made rapid progress, and villages are being devastated and depopulated. Trade is being organized at the cost of the well-being of the natives, and the great markets on the Kongo are supplied by the slave-caravans ravaging this region.

In the present map the planned railroad from Matadi to Leopoldville has also been indicated. The surveys have proved that no serious obstacles are found on the route, and that the cost of construction will be moderate. It is estimated that the journey from Matadi to Stanley Pool will occupy two days. Thus the termini of navigation on the upper and lower river will be connected by an easy route. The commercial examination of the interior seems to give good promise, and ere long we shall see a trade spring up sufficient to warrant the construction of a railroad. At present serious attention is given to the improvement of the caravan-route near the bank of the Kongo. The attempts at stock-raising are giving fair results, and soon transport on carts drawn by oxen, or on the back of oxen, will take the place of the caravans of carriers.

According to the *Mouvement géographique*, the general trade of the Kongo Free State amounts at present to 7,392,348.17 francs, or approximately $1,500,000, the staple produce being palm-kernels, ivory, and palm-oil. Coffee has recently attained considerable importance. The growth of the state is such, that, for administrative purposes, it had to be divided into eleven districts, each of which, two only excepted, has its chief station. Three of these districts comprise the Lower Kongo, five the Upper Kongo and the adjacent territory, one the Kasai, one the Aruvimi and Welle, and the last the Lualaba.

The rapid progress in opening Central Africa, starting from the west coast, is the more welcome, as there seems to be no end to the political complications in East Africa. Although Lieut. Wissmann has defeated the Arabs, their resistance has not been broken, and it is doubtful how far into the interior his influence will expand. Military expeditions into the interior of Central Africa are hardly possible, on account of the vastness of the territory and the difficulties offered by the climate, and the effects of long-continued wars must be to close the routes from Zanzibar to the lake region. If the Kongo Free State is successful in keeping the devastating slave-trade out of the greater part of its territory, it will doubtless

be successful in opening Central Africa to the influence of European civilization, to the benefit of both the African and the needs of our culture.

A SANDY SIMOOM IN THE NORTH-WEST.[1]

MAY 6 and 7, 1889, will long be remembered by the residents of the North-west. On those days culminated the violence of the dry, south-easterly wind which had prevailed in some portions of the North-west, particularly in central and eastern Dakota, for several days previous. The wind itself, while not specially violent, varying from twenty to forty miles an hour, and perhaps in some places fifty miles an hour, was remarkable for carrying with it clouds of dust and sand, which filled the air and penetrated into houses, and blinded the traveller who happened to be caught in the roads, and compelled the cessation of nearly all outside labor. The wind prevailed over a large area. It seems to have reached farthest east, and been most violent, on the 6th and 7th of the month. The newspapers gave telegraphic accounts of it in Nebraska, South and North Dakota, Iowa, and Minnesota. It probably also affected western Wisconsin and considerable portions of Missouri.

A strong south-easterly parching wind, prevailing for several days, about that time in the spring, is a familiar fact to old residents who have taken note of the peculiarities of the north-western climate. It more frequently comes after spring vegetation is more advanced than it was this season on the days mentioned; and its effect on small, tender twigs is disastrous. It is enervating to all animals, and merciless on the wilting vegetation. But prior to this wind, which was followed everywhere by copious rains, the spring of 1889 in the North-west had been dry; and this was intensified in its effect on young vegetation by the preceding dry and open winter. All springs and streams were unwontedly low: hence the soil was loose, and exposed to the attack of this wind. Grass was not so large as usual, and did not shield the soil. Extensive prairie and forest fires had recently denuded large tracts of much of the protection which vegetation otherwise would have furnished. Circumstances were favorable, therefore, for the air to become filled with flying particles, caught up from the ploughed fields, from the blackened prairies, from the public roads, and from all sandy plains. These particles formed dense clouds, and rendered it as impossible to withstand the blast as it is to resist the blizzard which carries snow in the winter over the same region. The soil to the depth of four or five inches in some places was torn up, and scattered in all directions. Drifts of sand were formed, in favorable places, several feet deep, packed precisely as snow-drifts are under a blizzard. It seemed as if there were great sheets of dust and dirt blown recklessly in mid-air; and when the wind died down for a few moments, the dirt, fine and white, almost seemed to lie in layers in the atmosphere, clouding the sun, and hiding it entirely from sight for an hour or more at a time. It was so fine, and penetrated the clothing so, that life was burdensome to those who must face the storm. Mr. C. W. Fink of Woolsley, near Huron, Dak., stated that it was almost impossible to live out of doors at some periods of the storm, and that he would "much rather take his chances in the big blizzard of two years ago." While on his way to St. Paul over the St. Paul, Minneapolis, and Manitoba Railroad, Mr. Fink said the train passed through what was apparently a storm of fine dust which seemed to be almost white. It looked much like a snow-storm, and the sun was hid. It was impossible to distinguish obstacles at a distance of more than a few feet away. These phenomena in their intensity did not appear at Minneapolis; but they were witnessed in the more open or originally prairie tracts, and are given on the authority of others. During a residence of seventeen years at Minneapolis, the writer has not before witnessed any thing that would compare with this simoom-like storm.

The occurrence of this storm has a bearing on theories of the origin of the loess. Its area is that over which the loess is abundant. It would not take long for any beholder to be convinced that there was enough material being transported in the wind to constitute, when deposited in water, or even piled up as dunes and spread as surface sheets, after a few years, a stratum as thick as, and constituted like, that of the Missouri-Mississippi Valley. Given such a wind over the same region, periodically, under the same parched condition of the surface, it would only require an expanse of water in which this dust could settle, to form a loess clay, or loam. With the accompanying and following rains, other particles would be washed down from the lands, mingling with some strata of sand or of gravel, and a transition from loess to drift-sand would be built up such as has been described in several places.

[1] From the American Geologist.

THE SPIDER-BITE QUESTION.

THE following item appeared in the *Evening Star* (Washington) for March 12, 1889, and is a fair sample of the newspaper reports in reference to spider-bites which are so common: "Mr. Tileston F. Chambers, son of Mr. D. A. Chambers of this city, came home from Princeton with several fellow-students to spend the inauguration holidays. On Saturday, March 2, he was bitten twice on the arm by what the doctor said must have been a black spider, with the most alarming results. Blood-poisoning and jaundice followed, but by careful treatment he is now rapidly recovering. The physician said that another bite would undoubtedly have proved fatal."

Learning by correspondence from Mr. D. A. Chambers that the physician in charge was Dr. Z. T. Sowers of Washington, a well-known and prominent practitioner, a representative of the Entomological Bureau, Washington, called upon Dr. Sowers, who stated that he knew little more than was given in the newspaper statement. He said that he had had several such cases in his practice, and that he was accustomed to attribute these bites to black spiders, for the reason that he knew of no other insect found in such localities which could produce the effect. The room in which young Mr. Chambers was bitten was one which had long been disused, and he occupied it on the night of March 2, for the reason that the rest of the house was full of inauguration visitors. Thus there is nothing special connected with this instance.

Professor Riley, United States entomologist, is under the impression that certain of these cases result from the bite of the blood-sucking cone-nose (*Conorrhinus sanguisuga*), — an insect which is occasionally found in houses, and which is able to inflict a very severe wound with its beak.

Evidence in regard to fatal bites is very weak, with the exception of the genus *Latrodectus*, and this genus is never found in outhouses or disused rooms. Dr. Elliott Coues calls attention to the fact, that, if the *Latrodectus* stories are true, we have a case in this creature of the most powerful poison known. With the most poisonous snakes an appreciable quantity of poison, say one or two drops, is injected into the wound, but with the *Latrodectus* an infinitely smaller quantity seems to produce as strong an effect.

In this connection the editor of *Insect Life* quotes an item for the reliability of which the *Scientific American* is responsible: "Professor Breeger has recently investigated the poisons of spiders. He found that the Russian varieties of spider, *Phalanchium* and *Trochosa* (*Tarantula*), are non-poisonous, but that a third, *Caracurt*, or 'black wolf,' secretes a powerful poison, forming twenty-five per cent of its whole weight. This substance is a peculiar unstable alkaloid, destroyed at 60° C. or by alcohol. Introduced into the circulation of warm-blooded animals, one-thirtieth of a milligram per kilogram of the animal treated was sufficient to cause death. It exceeds in power all known vegetable principles and prussic acid, being comparable in toxicity with the poison of snakes."

The following letter from Mr. R. Allan Wight of New Zealand, also bearing on the subject, is appended: "What Dr. Wright told you about the *Katipo* is perfectly correct. I was then living close by, and knew all the parties and all the circumstances, and my sons also remember it all. It was as clear a case of *Katipo* poisoning as possible; and the man said he saw the spider bite him, and minutely described the spider, which description tallied exactly with its proper one. A case occurred at Whangarei a few weeks ago, where a man was bitten and suffered a good deal, and I have written to the medical man who attended him, and will let you know the result. I am also going soon on another long tour