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

in the north, where I shall be able to get many tales and reliable information from both natives and white men as to the *Katipo*, and will let you know when I come back. I drove over to a man who is said to have lost his arm through a *Katipo*, but I found that he does not know one when he sees it, did not see the bite inflicted, was in a place where the *Katipo* does not live, and when the arm was removed the bone was diseased (honeycombed). That is one of those tales people hear, and which make it difficult to believe any thing. I feel certain the *Katipo* is a very dangerously poisonous spider, but I never but once saw a case with my own eyes. It was many years ago, and I was out with a war party of Maoris. One night we found ourselves in an unpleasant position, as far as they were concerned. On our rear there were a number of nice hollow places to sleep in; but as these were Maori ovens, in which men had been cooked for a cannibal feast, the natives not only would not sleep in them, but they would not let me: so we lay down on the bare shingle beach, with no tent, in a high wind, and before us at a short distance was an island that is (they say) inhabited by evil spirits; so, with spirits both before and behind, we lay awake, talking in subdued whispers.

"I had my head on a rush bush; but they would have me shift it on to a rock, because they said the *Katipo* lived in the rushes by the seaside. I was anxious for them to sleep, knowing that tomorrow we would want all our strengh; but it was no use, for by and by a man screamed out that the *Katipo* had bitten him, and in a moment lights were brought, and, sure enough, the *Katipo* was there, within a foot of the wound, under his mat. The arm swelled, but not so much as to give alarm. What alarmed me more were his weakness and languor, and the lowness of his pulse and his heart-action. The poison certainly was a powerful narcotic, if symptoms go for any thing. I gave him all the brandy we had, and the natives pretty well burned his wound, and rubbed and rubbed at him till they got him into a perspiration; but he did not properly recover for several days, and, if one had only known, it would have been a mercy to have let him die (which I believe he would). So I thought when I saw him gasping his life away with blood and froth flowing from his mouth. Ugh! That is one of the several scenes I do not care to think about. By the by, I could not get the specimen. The Maoris burned it, as they said the *Katipo* is an 'evil spirit, and, if we did not burn it, the man would die.' I have many chiefs here, and I asked them only to-day, but no one ever heard of but one *Katipo*, — the black spider, with a vermilion spot on the abdomen."

BOOK-REVIEWS.

A Text-Book of Pathology, Systematic and Practical. By D. J. HAMILTON, M.B. Vol. I. London and New York, Macmillan. 8°. $6.25.

FROM the pen of the professor of pathological anatomy of the University of Aberdeen we should expect a text-book of pathology which would be both systematic and practical, and we are not disappointed. The first volume only has been published; but the second is in process of preparation, and will be issued with the least possible delay. The contents of the volume before us are divided into three parts. Part I. treats of the technique, including the *sectio cadaveris*, or autopsy, the preparation of tissues for detailed examination, and the microscope. In this portion of the work, practical bacteriology also is discussed. Part II. deals with general pathological processes, including infiltrations and degenerations, inflammation, suppuration, healing and organization, ulceration, and dropsy. In Part III. we find considered diseases of the various organs and tissues, new formations and tumors, diseases of the blood, the heart, and the blood-vessels. In an appendix are thoroughly described the methods of making casts and models, which are most important adjuncts to every pathological museum. The author promises us that in the second volume he will discuss systematic bacteriology *in extenso;* and, as this subject has now become so important, we shall look for this volume with great interest. The methods described in the volume before us are, as a rule, the most advanced and the best. We think that the method of making Esmarch's tubes might have received more attention than has been given to it, on account of its advantages over Koch's plate method. Nothing is said of rolling these tubes on ice, which is now done in most of the American laboratories, perhaps for the reason that the method is not known in the British Isles. It will be found by those who try it superior to cold water. Taken as a whole, we have nothing but praise for Mr. Hamilton's book; and, if it receives the attention of the medical profession of this country as it deserves, it will soon become the leading text-book of pathology in our medical colleges.

Elementary Text-Book of Zoölogy. By Dr. C. CLAUS. Tr. and ed. by Adam Sedgwick, M.A., and F. G. Heathcote, M.A. 2 vols. 2d ed. London and New York, Macmillan. 8°. $8.

MR. SEDGWICK, lecturer of Trinity College, Cambridge, and examiner in zoölogy in the University of London, undertook the translation of this work of Claus ("Lehrbuch der Zoologie") to supply a want, which had long been felt in England by both teachers and students, of a good elementary book on this subject. The reputation of Professor Claus's works on zoölogy in Germany, and indeed throughout the civilized world, naturally suggested this one to Professor Sedgwick as the one best adapted to supply the deficiency which existed, and in the two volumes before us we have the most complete elementary text-book on this subject in the English language. Others, to the extent to which they go in the treatment of special subjects, may be equally good; but none that we have seen can claim the same degree of excellence and completeness combined. The work is illustrated with 706 woodcuts; and as to its general excellence, we need but call attention to who its publishers are.

Pestalozzi: his Aim and Work. By BARON ROGER DE GUIMPS. Tr. by Margaret C. Crombie. Syracuse, C. W. Bardeen. 12°. $1.50.

THIS is a convenient biography of Pestalozzi by one of his own disciples; and Miss Crombie has rendered a service to English and American educators by bringing it out in their own language. The arrangement of the work is not always the best, and some points are not made so clear as might be wished; but nevertheless it gives a very fair account of Pestalozzi's life, and of his educational theory and practice. He was born in 1746, and quite early showed that interest in the education and moral elevation of the masses which was the ruling motive of his life. He first undertook to be a clergyman, but, not succeeding in that profession, attempted that of law, from which he was excluded by the Swiss authorities, to whom his political views were obnoxious. He then engaged for some years in farming, having in the mean time taken a wife; but his want of business skill led to ultimate failure, so that he was reduced almost to beggary. After this he tried his hand at authorship, in which he had some successes and some failures; and it was not until he was over fifty years of age that he found his true vocation of teaching, which thereafter continued to be his occupation most of the time during the remaining thirty years of his life. Every one of his schools ultimately came to a disastrous end, owing in great part to his own want of business skill and managing tact. Nevertheless, he was able to put in practice his new method of teaching, which, in the opinion of his admirers, is the greatest improvement ever made in education.

What this method was, his biographer does his best to explain yet he confesses in the end that "the world has not yet got a clear answer to the oft-repeated question, 'What is Pestalozzi's method?'" It seems evident, however, that it consisted mainly in what are now called object-lessons combined with drawing, while learning from books was almost totally excluded. He had, we are told, an utter contempt for book-learning, and he seems to have thought that the whole educational practice of the world for two thousand years had been wrong, and that nothing but a revolution would set things right. The accounts given in this book, however, do not justify any such inference. Pestalozzi tried his method first on his own son, with the result that the boy was not educated at all, but grew up an ignoramus. At the age of eleven he could not read, and when, at fourteen, he was sent to school, he made a complete failure in his studies, as he afterwards did in business. It is clear that Pestalozzi's method was only adapted to the earliest