

### NEW INVESTIGATIONS UPON SCORPIONS AND THEIR VENOM.

Some interesting and novel investigations have recently been made by Doctor De Belleme into the nature and effects of scorpion venom upon the blood. We may here observe that, although the name of the scorpion is common enough, it has become so more through connection with groundless fables and superstitions than from any knowledge of the manners and habits of the insect. There are various species, of many of which the sting produces a painful wound; and among which there is one variety, however, the *scorpio occitanus*, which, it is stated, is capable of inflicting a deadly injury upon man. This insect is found in the south of Europe and probably in portions of Central America. It is nocturnal in its habits, avoiding the light and living in moist places, frequently under large stones, in little cavities dug in the earth.

While the sting of the less harmful variety of the insect results in no more pain than the similar wound of the wasp or hornet, that of the *occitanus* is followed by inflammation, swelling, and tumefaction around the lesion, together with strong nervous convulsions, often resulting in death. The insect strikes with its tail, or, more properly speaking, a prolongation of its abdomen, composed of a number of rings, the sixth and last of which constitutes the venom sac, terminating in a sharp curved point, from which the poison escapes through two connecting glands. The mere bite of the scorpion is harmless since there is no connection between the venom organs and the mandibles. When quiet, the insect lies upon its side, as shown in our engraving, where it is represented of its natural size. Once aroused, however, its whole aspect changes; the prehensile claws project forward, and the tail is carried in advance beyond its head, striking in every direction with lightning rapidity.

The natural prey of the scorpion is small insects and especially spiders, which it kills by its poison. The latter is its most useful weapon in its repeated struggles with other venomous insects, to the bite of which it would itself succumb.

Dr. De Belleme finds that when the scorpion is aroused, as above described, the venom appears at the extremity of the sting in a very minute drop. By collecting an infinitesimal portion of the substance daily, he was enabled to obtain a sufficiency for his experiments. He noted that if the orifice in the scorpion's tail were closed with a drop of varnish, the sting became harmless, and, further, that the venom, once collected, preserved its poisonous qualities indefinitely.

A large number of experiments were conducted upon frogs, dogs, and pigeons; 0.009 of a grain of fresh venom, injected into the thigh of a frog, caused the skin to become violently inflamed and the animal to die in great agony in fifty-seven minutes. On examining microscopically a drop of frog's blood, in connection with a minute portion of venom, the investigator found that the globules became deformed and agglomerated into a viscous mass. Fig. 2 represents this effect. At 1 are the normal globules; 2, the same beginning to undergo alteration, and 3, their appearance after five minutes' action of the poison.

The globules appear to lose their normal properties and to run into each other, forming clots which stop the circulation of the blood. The sting of the scorpion is, therefore, of a very serious nature, since there is no known remedy which will cause the globules, when thus agglomerated, to return to the condition necessary for the sustenance of life. We are indebted to *La Nature* for the engravings referred to above.

#### The True Course for Employees.

The *Mercantile Journal*, of this city, has a sensible editorial on this subject, which we copy in part as follows:

The true question for an employee is not how much he can get forthwith, but how he can keep steadily employed. The man who get rich are not usually the strikers who refuse to work for particular wages. Strikers are apt to waste in idleness, in the course of a year or two, time wherein they could have earned more than the amount for which they strike. Those who increase their income are the men who accustom themselves to regular industry, who keep steadily at work for such compensation as they can get, live within their means, save money, and invest it. Thus they keep up a good income and increase it from year to year; quite as fast, in most cases, as they become able to manage it with judgment. The em-

ployee who takes the most pains to find out exactly what service his employer wants, to render that service carefully and generously, and who, having mastered the details of his work, does not leave it to go into some other employment where a larger but uncertain compensation is promised, is the man who is morally certain to rise. When hard times come, or when his employer is unfortunate and is compelled to retrench, he is the man who will not be dismissed, and who will not lose time in seeking work, when he would, of necessity, be eating up his savings till he finds it. When vacancies occur in the establishment, he is the one who will be intrusted with the most valuable work, which commands the highest pay. When his employer wants a partner, he is the man likely to be chosen. When others are discharged for

upon it, by means of which it is fastened into the spindle and bearings. Another form of cutting apparatus may be formed from a flat bar of steel, with saw teeth along both of its outer edges, and so twisted that the toothed edges are formed into spirals. By this arrangement the cutter readily clears itself from the slack which it cuts away. A revolving cutter of this kind may be worked in two ways. It may be caused to sweep in the arc of a circle into and out of the coal, so as to cut out a groove in it, the spindle of the cutter being for that purpose carried by a frame turning upon an axis, such axis being also traversed forward from time to time in a line parallel with the face of the coal operated upon. Alternatively the frame carrying the spindle of the cutter may simply be caused to move forward continuously in a line parallel with the face of the coal, in which latter case a groove will be produced of a depth equal to the length of the cutter. But if the cutter is caused to sweep round in the arc of a circle, a groove of any desired depth can be cut, irrespective of the length of the cutter itself.

The cutters can be driven either by hand power or by compressed air.—*Iron.*

#### Bugs.]

It is said that a chemical firm in Indianapolis has recently advertised for 100 lbs. of potato bugs. The insects are stated to possess qualities which render them a good substitute for the Spanish fly. This is interesting but, unfortunately, not authenticated. The man, however, who does discover a mode of utilizing the potato bug may rest assured that his fortune is made.

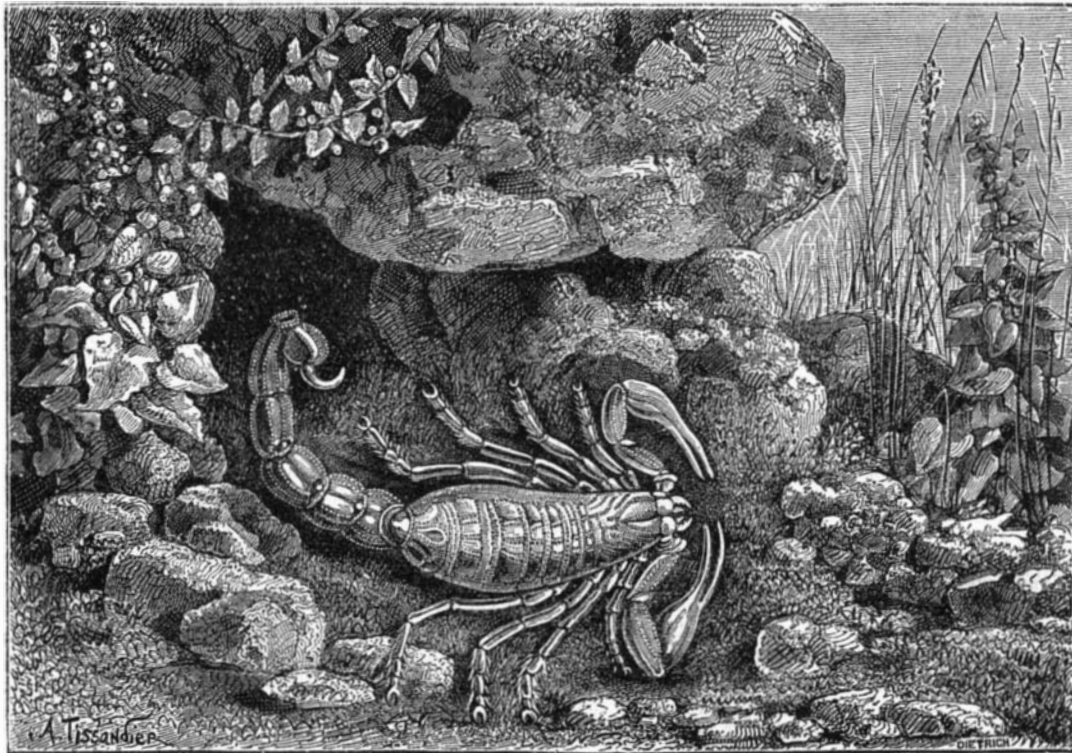
Another "shaky" item which is traveling the rounds of the press is about an insect which eats up iron pillars. This remarkable bug is about the size of a common housefly, and finds no difficulty in boring its way

into solid iron, ejecting the chips from the place of its entrance.

Speaking of bugs reminds us of a pleasant little anecdote told of Canon Kingsley, the celebrated English author, who has been lecturing through the country. While at Colorado Springs, in the midst of the delivery of a discourse, a bug, of some species of *coleoptera* new and strange to the speaker, alighted on his manuscript, and at once attracted his attention. Mr. Bug sat still for a moment or two, during which time Canon Kingsley—who is an enthusiastic and very clever naturalist, by the way—quietly proceeded to study its form and structure; but while these investigations were in progress, and his language rolling forth to the delight of his hearers, the insect began to expand its wings as if to fly away. The reverend speaker saw the motion, and deftly caught the bug in his hand. Going right on with his line of argument, he continued his examination for several moments, until, having settled everything to his own satisfaction, he let the insect buzz away about its own business. To any ordinary man the presence of such an intruder would have resulted in its being quickly brushed away; but the great English divine, trained to such close habits of observation and thought, could not forego the opportunity, even in the midst of his lecture, to study the points in a new species of bug, his mental discipline enabling him to carry on in his mind two trains of ideas at the same time.

#### Salt as Manure.

Various experiments, says the *Journal of Horticulture*, have been made by M. Peligot and others, to test the value of salt as a manure. The following summing-up seems to have been arrived at: Salt should never be applied other than in a pulverous state, and never employed on impervious, cold, and humid soils. The best manner to use it is to combine it with other manures, a dose of two hundred weight to the acre being sufficient. When selected to destroy insects, it should be applied before sunrise. In the case of cereals, salt strengthens the stems and causes the ears to fill better, and favors the dissolution and assimilation of the phosphates and silicates. It acts vigorously on potatoes, and can be detected in their ashes to the extent of one half or one per cent. Asparagus is a veritable glutton in the presence of salt. A dose of three cwt. per acre acts without fail on beet, injuring its value for sugar purposes, but enhancing it for the feeding of cattle. Colza has as marked a predilection for salt as asparagus; and in Holland, where the culture of peas is so extensive, salt is something like a necessity. Mixed with hay in the proportion of 4 ounces to a 100 weight, the fodder is more appetizing; but the best way to feed it to animals is to allow them to enjoy it in the form of rock salt.



THE VENOMOUS SCORPION—(SCORPIO OCCITANUS).

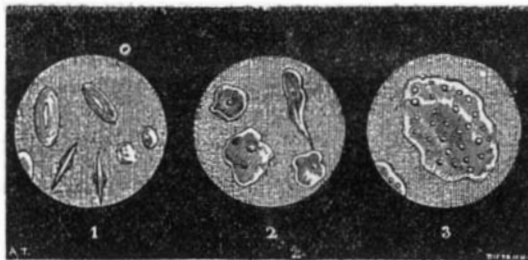
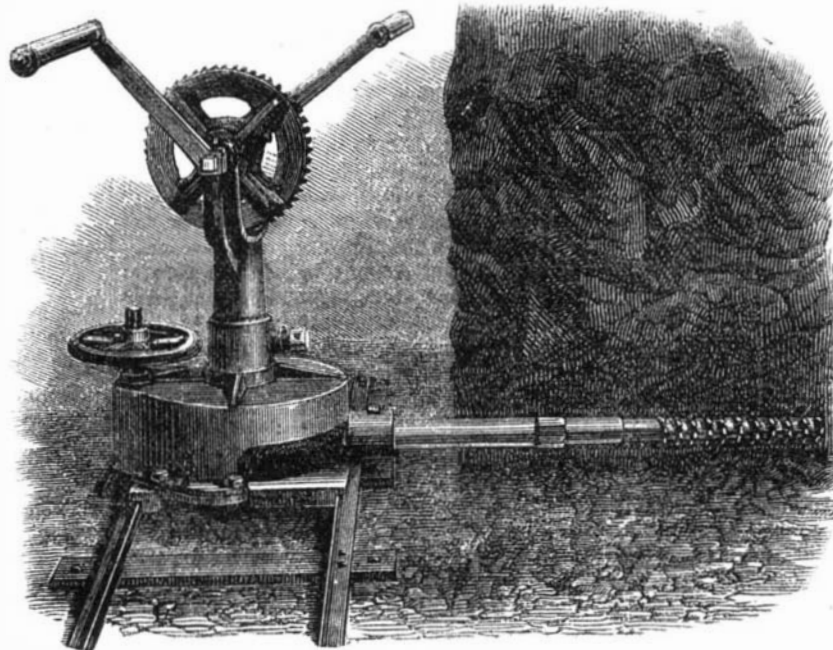


Fig. 2.—FROG'S BLOOD ENVENOMED.

incompetency, he will be retained; for his knowledge of the work and his known reliability make for him a good position in which he is sure to be able to do well. True, this way of life is not always easy; it requires self-control, conscience, and steadfastness; but it is the way to self-respect, honorable standing, legitimate wealth, and happiness.

#### A HAND COAL CUTTER.

This machine is practically a combination of inclined circular saws mounted upon a revolving rod, so that the groove cut by each saw runs into the groove cut by the next, thus



JONES' HAND COAL CUTTER.

thoroughly under-cutting a seam. The saws are set on the rod obliquely, and provision is made for retaining them at a proper distance from each other, and in the most suitable position on the rod, the end of which has a screw thread cut