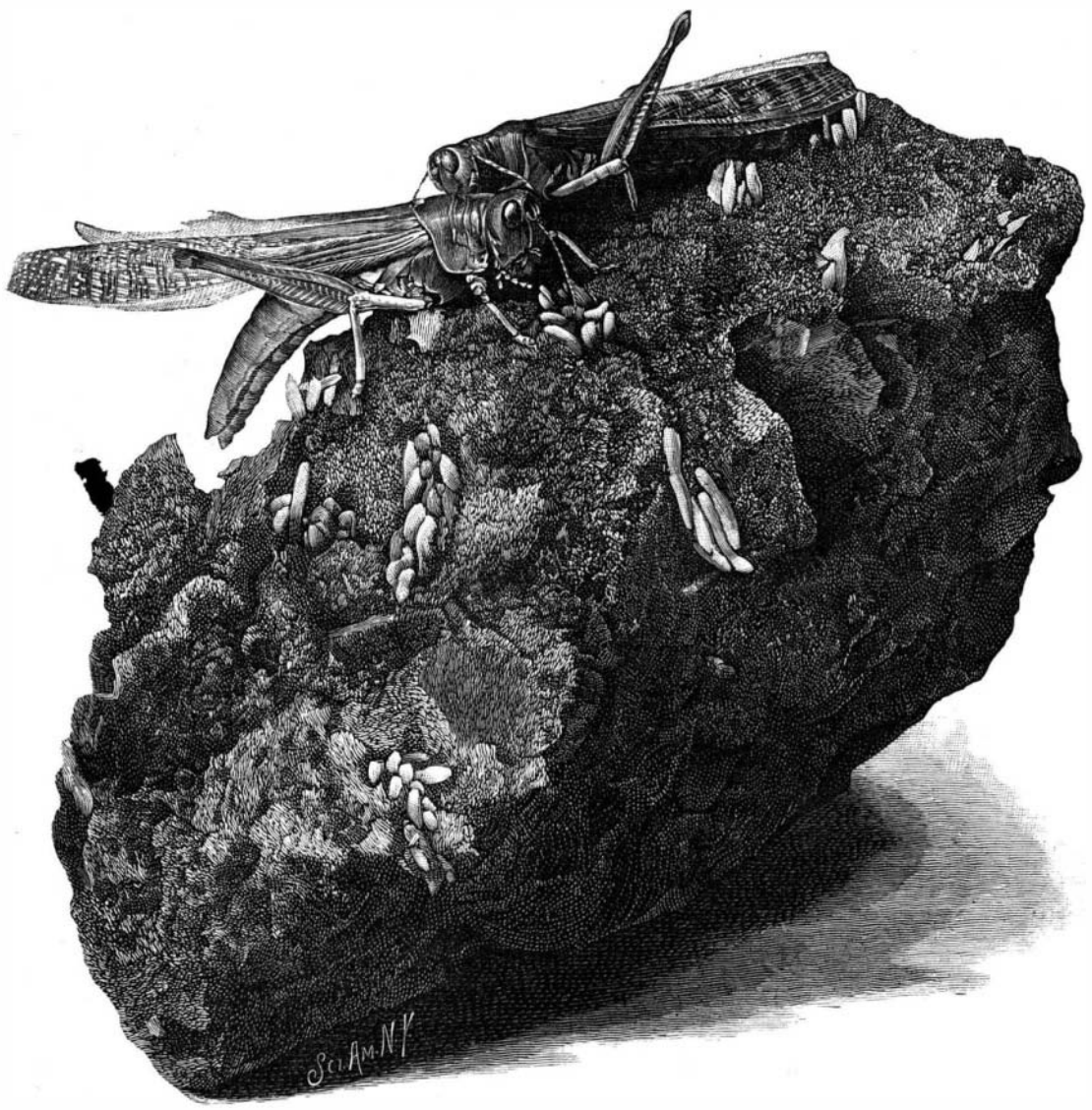
LOCUST VISITATIONS.

During the past three or four years the French government has been making strenuous exertions to beat down the armies of locusts coming from the south on to the fertile lands of Algeria, and during the present year they are also having a similar fight with these pests on the southern borders of Tunis. The cheap Arab labor obtainable for this purpose has made it possible to employ in the work a veritable army of men, the government ordering the tribes to form encampments along the line on which it is proposed to fight the oncoming army of locusts, and, in this way, the crops have been in a great measure protected from the ravages of this plague, although no permanent relief has been obtained. Our illustration, from *Le Monde Illustré*, Paris, gives a good idea of these destructive insects and also of their carnivorous instincts, always exercised upon the weak when there are no crops to feed upon, as well as the manner in which their eggs are deposited in pockets in the earth, the covering having been removed from the exposed bunches of larvæ.

The manner of fighting the locusts adopted in Algiers and Tunis has been to construct a ditch, or a ditch with a fence at one side, across the line of march of the insects, which come in such vast numbers that the ditch quickly becomes filled up, when the natives jump in and trample them to death at the same time thrashing the living mass with a heavy stick or log of wood. The fence at the side of the trench consists of long bands of cotton cloth or calico supported on sticks, such fences extending in some places across a mile or more of country, the material at the top having a slippery waxed border about four inches wide, kept moist by daily oiling. The insects cannot keep their hold on this waxed border, and inevitably drop back into the trench beneath, which is from three to four feet deep. When the insects have attained an age where all or a portion of them have wings, they are fought by a line of natives with long palm switches, a method of stopping their progress which, to be effectual, presupposes the simultaneous exertions of great numbers of the Arab palm wielders.

Prof. C. V. Riley, the entomologist of the Department of Agriculture, at Washington, has made a most thorough study of the locust as it occurs in several different varieties in the United States, with the best means of destroying them, and his widely published researches on the subject have undoubtedly been of great advantage to our farmers.



LOCUSTS AND LARVÆ ON A CLOD OF EARTH.—FROM A PHOTOGRAPH.

The locust, as is generally known, is of the family of grasshoppers and crickets, but differs from them in having shorter horns and feelers and a more robust body and limbs. The Rocky Mountain locust, which has been the most destructive pest that has appeared in this country, breeds every year in a large section, embracing most of Montana and Wyoming, western Dakota, and a part of Colorado, Utah, Idaho and Oregon, together with a large region in the British possessions. In a country directly to the east of this section is a considerable region where the locust is liable to breed for some years, multiplying in excessive numbers, but from which it in time disappears. Through a very much larger section, extending almost to the Mississippi and the Gulf on the east and south, and to the Pacific on the west, the locusts migrate in years of excessive abundance, and it is in such migrations that they are most destructive, although in these regions they seldom breed, and generally disappear within a year. The most disastrous invasion of this kind was in 1874, when Colorado, Nebraska and Kansas were overrun, and parts of Wyoming, Dakota, Minnesota, Iowa, Missouri, New Mexico and Texas were ravaged, vast swarms of locusts from Montana and British America sweeping over these sections in that year. In 1875–76–77, considerable damage was done by the locusts, but the boundaries of its depredations were narrowed each year, and they have not since visited any considerable area beyond the limits of their known permanent habitat.

Although the eggs of the locust may be laid in almost any kind of soil, they are by preference laid in bare sandy places, especially on high, dry ground, which is tolerably compact and not loose. The female forces a hole about an inch below the surface by means of two pairs of horny valves which open and shut at the tip of her abdomen, until, usually in a few minutes, nearly the whole abdomen is buried, when she commences ovipositing, there exuding from the tip of the body a frothy, mucous matter, which fills up the bottom of the hole, the mucous matter also being exuded to bind all the eggs in a mass, and when the last is laid, to fill up the neck of the burrow with a compact and cellulose mass, more or less impervious to water. When the locusts are abundant, they settle so thickly in favorable spots for depositing their eggs that the ground has been frequently seen darkened with them, the eggs deposited by a well developed specimen ranging from 100 to 150 each, while the holes are generally so well covered as to afford no evidence of the deposit.

The insects are hatched from the middle of March to the 1st of June, and when they are about half grown, and vigorous enough to bare the ground of vegetation, the habit of migrating in large bodies is developed, those which acquire wings traveling long distances, according to the wind, while those which do not seldom go more than a few miles from where they hatch. The remedies and devices proposed, and to some extent adopted, for the destruction of locusts have been very numerous. The protection and encouragement of birds, particularly by the paying of a reward for hawks, as is done in Colorado, is a natural agency not to be overlooked, but the destruction of the eggs has long been looked upon as the most efficient means of averting locust injury. This is effected by harrowing, plowing or spading, irrigation, tramping, or collecting. In 1874 and 1876 there were many locations where for hundreds of square miles it is said that scarcely an inch of the soil could be stirred without exposing these eggs, so that, although the task of getting rid of them would vary with the location and the means at hand, it was manifestly one of great magnitude. For the performance of this work in various ways a great number of novel machines have been introduced and numerous patents therefor have been issued, as also for the destruction of the young or unfledged and the mature or winged insects.

Some of these machines consist of a scraper with converging wings and with a removable canvas bag at the rear end. As the machine is moved over the ground by horses or other power, the locusts are scraped together and collected in the canvas bag, which may be readily removed and another put in its place. There is very little delay or loss of time by this method, and it is possible to clear large tracts of land without great effort. It would appear that this method is much cheaper and more certain and efficient than the oriental methods employed in the destruction of these pests in the northern coast of Africa.

Central American Timber.

Colonel E. H. Morrison, who has recently returned from Nicaragua, in an interview, in a Seattle paper, called attention to the fact that when the construction of the big canal got fairly under way, a large amount of lumber would be wanted from the Puget Sound mills. He pointed out that there was no lumber in Central America suitable for the purpose. The hard woods indigenous to that country are not found in such quantities as to be cheaply logged.

A mistaken impression is abroad in regard to the forests of that section. People have a general idea that great tracts of country are covered with splendid trees, so that one can go into the forests anywhere and cut good logs suitable for lumber. The fact is that, though the forests are thick, the majority of the trees are too small to be worth cutting. Here and there a large mahogany tree is found, and a man chops it down. In order to get it out he has to cut a trail through a quantity of worthless timber and run it down the nearest river. There will probably not be another tree worth cutting for a long distance. It is by the slow collection of logs cut from isolated trees in this way that the shipments are made. The cost of logging and of holding a stock of logs until there is enough to ship make these kinds of lumber so expensive.

"Many people have been fooled by the expectation of immense fortunes in lumbering in Central and South America. A friend of mine took a complete sawmill and logging outfit, with a party of skilled men, to one of the South American rivers, expecting to do wonders. He found the ground swampy, swarming with reptiles, and covered with such a dense jungle that traveling through the Puget Sound woods is a picnic by comparison. He also found that there was only a tree here and there worth cutting, and by the time he had cut a trail to it, the beginning of his trail was so thickly grown up with brush again that he could hardly find it. After one night's rain the brush would grow up to a height of six feet in a day. He was glad to get out of it again.

"There is one tree down there called the snakewood, which grows to a great thickness, but when you come to chop it down, you find that it is nearly all soft bark. When you do finally come to hard wood, it is extremely hard, but there will be only about four inches of it in a tree as many feet in diameter. It is used mainly for canes, which cost $3 or $4 in South America and several times as much in this country.

"There are a number of good kinds of lumber down there which would be useful, but have never been brought into use. I suppose they happen never to have become fashionable. Yet they are of fine shades and beautiful, fine grain, and would look well in furniture and interior decoration. They grow thicker than the better known hard woods, and would be much cheaper."

Frequency of Thunder Storms.

A German periodical gives statistics concerning the frequency of thunder storms in various regions of the world. Java has thunder storms on the average 97 days in the year; Sumatra, 86; Hindostan, 56; Borneo, 54; the Gold Coast, 52; Rio de Janeiro, 51; Italy, 38; West Indies, 36; South Guinea, 32; Buenos Ayres, Canada, and Austria, 23; Baden, Wurtemberg, and Hungary, 22; Silesia, Bavaria, and Belgium, 21; Holland, 18; Saxony and Brandenburg, 17; France, Austria, and South Russia, 16; Spain and Portugal, 15; Sweden and Finland, 8; England and the high Swiss mountains, 7; Norway, 4; Cairo, 3. In East Turkestan, as well as in the extreme north, there are almost no thunder storms. The northern limits of the thunder storms are Cape Ogle, northern part of North America, Iceland, Novaja, Semelja and the coast of the Siberian ice sea.