

THE GIANT LOCUST.

There is no doubt that the order Orthoptera contains the strangest formed and the largest insects. We know, in fact, that the largest of all known insects is an orthopter belonging to the family Protophasma, and found in a fossil state in the coal schists of Comentry. This gigantic articulate, of the Carboniferous epoch, which was 28 centimeters (11 inches) in length, has recently been described by Mr. Charles Brongniart under the name of *Titanophasma fayoli*, the specific name having been given in honor of Mr. Fayol, directing engineer of the Comentry mine, and a gentleman to whom entomological palæontology is indebted for many valuable discoveries. The species living in our day, although of smaller dimensions, are nevertheless of very respectable size, as may be seen from the accompanying cut, which gives a faithful representation of a female *Platyphylum giganteum*, or giant locust of New Caledonia. The genus *Platyphylum* (from the Greek *πλατύς*, "wide," and *φύλλον*, "leaf") belongs to the group of leaping orthopters and to the family Locustidæ. It embraces insects that are remarkable for the size of their wings (the upper ones of which resemble green leaves), and includes several species native of North America, the Antilles, and South America.

The giant locust is green, has long antennæ, and its lower wings are in part transparent. It lives, it appears, at the top of palm trees, and is rarely met with elsewhere, and this makes hunting for it difficult. It has only been well known since the return to France of exiles from New Caledonia,

Agricultural Notes from Italy.

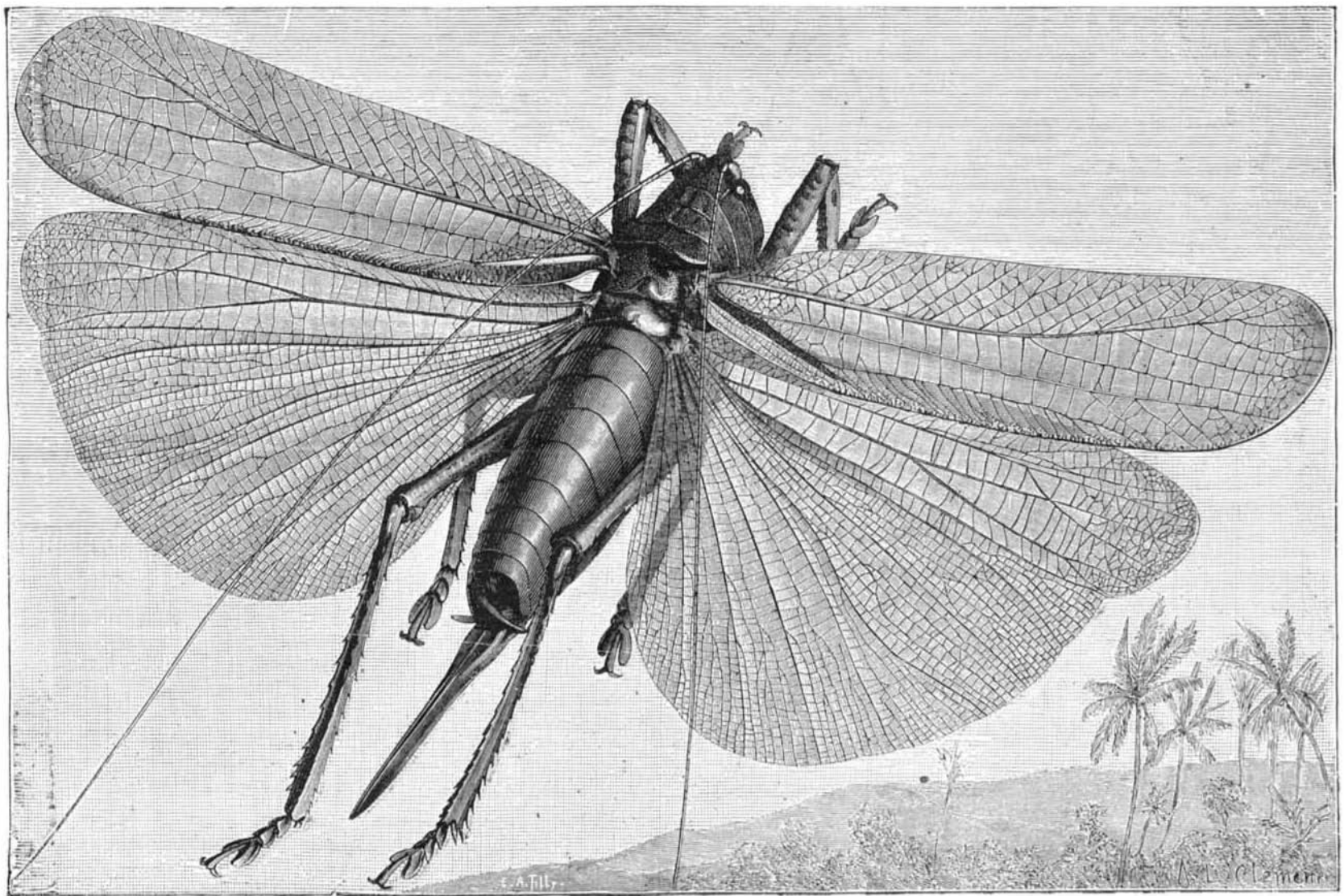
The black truffle at times is worth almost 150 francs (30 dollars) for 1 kilogramme (2.2 lb.), and in spite of all the expensive investigations made as to its growth its artificial reproduction has not been successful. It now appears, according to the *Gazzetta della Campagne*, that the truffle is an analogous product to the gall nut, with the difference that the gall nut appears upon the leaves and the truffle upon the roots. A little insect with blue wings appearing in certain districts during the months of July and August buries itself in the earth and stings the rootlets of the oak in depositing its eggs within them. Around this strange nucleus an excrescence arises which we call a truffle. Arriving at maturity, the egg opens, the larva emerges, and remains as a chrysalis until spring time, when it is transformed into a fly with blue wings and provided with the power of reproducing, by the same means, the coveted morsel. This accounts for the failure of attempts to plant truffles, and why they are only found in certain places and only in the oak. We have also in this an explanation of the poverty of the truffle harvest when the months of July and August are dry, the hardness of the ground not permitting the insect to make its way to the buried rootlets.

Hothouses are being widely introduced into Italy. In these generally the air is heated, which again warms the earth. A Turin inventor, M. Cirio, has reversed the procedure and has run hot water through the earth which he wishes to warm. The hot baths of Acqui are supplied by a

large number of white ants, males and females, are caught and roasted on the spot. They are considered a great delicacy, even Mr. Buchner finding them very palatable. A large, fat, subterranean cricket, as well as a large coleopterous larva, living in hollow trees, are equally sought for and roasted over fire. But it is especially a large caterpillar called "ugoungoo," which is harvested by the natives like a field crop. It is about five centimeters long, black, with yellow rings, occurs on the savannas, and "belongs perhaps to the butterfly *Crenis*." Whenever it appears in large numbers, the negroes march out in full force from their villages, camping out for weeks in the wilderness to gather and cure the crop. After the intestines have been pressed out, the caterpillars are dried before the fire and rolled up in packages of fresh leaves. To a civilized taste they are most disgusting, the smell reminding one of that of our cabbage worms. In view of this custom it seems to be strange that the Bantus refuse to eat snakes and amphibia of all sorts, even frogs and lizards not being touched by them in times of starvation.—*The American Naturalist*.

Explosions in the Production of Ozone.

A mixture of equal parts of binocide of manganese, permanganate of potash, and oxalic acid constitute Lender's powder. It is used for the generation of ozone in bedrooms. A well known pharmacist of Paris made up the above mixture. Five minutes later it exploded spontaneously. The



GIANT LOCUST OF NEW CALEDONIA.—(NATURAL SIZE)

who had captured a certain number of specimens of it. If we compare these enormous insects with their representatives in our own regions, we shall be astonished to see how small are the dimensions of the latter. Instead of giant locusts, we have our green grasshopper (*Locusta viridissima*), which may be seen flying in the fields and woods during fine weather, and the length of body of which does not exceed 4 centimeters, even in the largest individuals. This grasshopper is common in the environs of Paris, where the vulgar call it the *Oigale*, a name belonging to a singing insect of the order Hemiptera. The male sings his sharp and sonorous song in the evening. The female may be easily distinguished by the presence of an ovipositor, by means of which she deposits six elongated whitish eggs in the ground toward the end of summer or in autumn. In the spring there issue from these eggs small grasshoppers that resemble their parents but are devoid of wings, these being acquired after successive moultings. Our indigenous insects are, it is true, not so curious, not so large, and not so beautiful as those of tropical regions, but, as an offset, we can study them in detail, in their different stages, and make known their habits (which are often interesting) instead of limiting ourselves to a simple description, without any biological information, as we have just been obliged to do with regard to the giant locust.—*La Nature*.

ALTHOUGH Russia has vast beds of excellent coal, she imports nearly half of what she uses—chiefly through lack of internal communications.

hot spring. After the various purposes of the establishment have been served by it, this water still retains a serviceable amount of heat. M. Cirio has made at the side of the baths a garden inclosing 500 square meters, and by means of earthenware pipes has made the water leaving the baths to circulate under the ground in all directions. He has planted 10,000 asparagus roots, 4,000 chiccory, and 4,000 plants of Roman lettuce, besides strawberries. In passing it may be said that the Japanese have adopted similar methods; the waters of hot springs about Tokio are about to be experimented with in a similar way, and the volcanic heat of certain districts in Japan is also to be utilized, by conducting the heated air from subterranean wells and bringing it to the surface.

The sugar sorghum has been cultivated with success in Italy, but the high duty or rather government tax has so entirely swept away any possible profit that it is being abandoned.—*L. T. G., in Les Mondes*.

Insects as Food for Man.

Mr. Max Buchner's "Contributions to the Ethnography of the Bantus" contains the following interesting notes, which show that insects are by no means despised as food by this tribe of negroes, which inhabit a large portion of Southeastern Africa. Toward the end of the rainy season, in April, when the white ants are swarming, the conical buildings of these insects are covered with a dense matting of banana leaves, while, within this cover, vessels are placed with funnel-shaped entrances. In these vessels a

next explosion we describe was a more dangerous one. Some Germans had recommended ozone for the treatment of croup. An apparatus was tried in which ozone was produced by the action of sulphuric acid on permanganate of potash. The experimenters, two scientists of Paris, had placed the apparatus in a cabinet away from the general laboratory, knowing there was danger. Every possible care was taken to avoid an accident. The apparatus had worked quietly for some minutes, when the experimenters went to procure some iodide of starch paper, the ozone reagent. They were but six feet distant and with their backs toward the apparatus, when a terrific detonation took place, deafening them by the violence of the sound. The generating flask completely disappeared and the acid was scattered right and left. The probable explanation of the trouble is that some organic matter from the corks of the apparatus was introduced into the permanganate. It is also suggested that the sulphur of the rubber connections played a part in the explosion.

A method for the production of oxygen at ordinary temperatures has during the last few weeks been quite extensively circulated by the scientific press. It consists of a treatment of solid permanganate of potash with concentrated nitric acid. This mixture liberates oxygen in considerable quantity, and to evolve the last portions a gentle heating of the mixture is advised. The extreme danger of this experiment is well illustrated by the ozone explosions we have just described. The danger would be great enough normally, but is increased by the subsequent recommendation to heat the mixture. S. T.