THE GREAT HARLEQUIN BEETLE OF CAYENNE.

Among the Coleoptera which present the most singular forms may be mentioned the Longicorns, so called on account of the extraordinary length of their antennæ.

Any one who takes a walk in the oak woods on a summer evening may see the largest representative of this family in Europe flying about. It is called the Great Capricorn (*Cerambyx heros, Linn.*), and is of a brown color, almost black. The larvæ, called wood worms, bore large passages in the interior of the oaks, and often spoil the most beautiful timber. The Parisian amateurs go in search of this beautiful insect in the old oaks which border the pool of Auteuil.

Many of these oaks were cut down during the war of 1870, but there are still some in the fields which conceal the larvæ of the Longicorns in their old perforated wood.

The small Capricorn beetle (*Cerambyx cerdo, Linn.*) is black, and very much like the preceding one, but less than half the size, and lives in a larval state in apple and cherry trees. They may often be caught in July warming themselves in the sun upon the classic cherry trees of Montmorency. In very warm weather they fly at mid-day and feed, as if intoxicated, upon the odorous umbels of the leek and onion.

Walking in a warm evening under willow trees, one is often astonished by a strong perfume of rose. It is produced by the secretions of a very beautiful Longicorn of a rich metallic green, the larva of which lives in the wood of the willow. It is the *Aromia moschata.*

Often at the end of winter a Longicorn with black antennæ may be seen running along the floor of the room; it appears to be dressed in the richest red velvet. The larvæ of this blood colored beetle live in the logs of the beech tree.

The most curious European Longicorn, from the length of its antennæ, is the one called by entomologists *Astynomus edilis.* It is from twelve to fifteen millimeters long, a little flattened, ash colored, cloudy, with yellowish hairs, and two arched irregular brownish bands upon the elytra.

The antennæ are almost three times as long as the body in the females, and about five times as long in the males.

Such appendages are very troublesome in flying. These insects may be found in April and May upon the trunks of the pine and fir, in the interior of which they have passed their larval state; they are found in the wood of all the coniferous trees.

The passage of a Longicorn from the larval to an adult state requires a very complex modification of the organs. The larvæ are whitish worms, with the thorax more or less swelled, and a form which resembles a prism with six faces.

They really possess no limbs, the small scaly legs being of no use in locomotion, the movements of the grub being performed by the contraction and extension of the ringed body. The segments are furnished above and below with strong retractile tubercles; these aid the larvæ in moving along the passages which they have bored out in the interior of the trunks of trees.

The Longicorns are also found in warm regions, as in Europe, some of them of considerable size corresponding with the enormous trees of a luxurious vegetation. The most singular kind is a large insect, which seems to be found in all tropical America, and where the exaggeration of the appendages appears not only upon the antennæ, but also upon the feet, principally the anterior ones.

The *Acrocinus longimanus*, which is shown in the engraving, has antennæ nearly twice as long as the body, black, with the base of the long joints ash colored. The corselet is black with oblique red lines. It has above near the sides two small black spines, and upon each side another very strong spine. The elytra have a spine at the base and two at the extremity; they are of an oblong form, black and silky, varied by watered spots, red, and of a greenish gray.

This variety of colors has given this insect the name of the "Great Harlequin of Cayenne," a commercial name under which it has been known for at least two centuries, in the boxes of curiosities from America sold by the merchants.

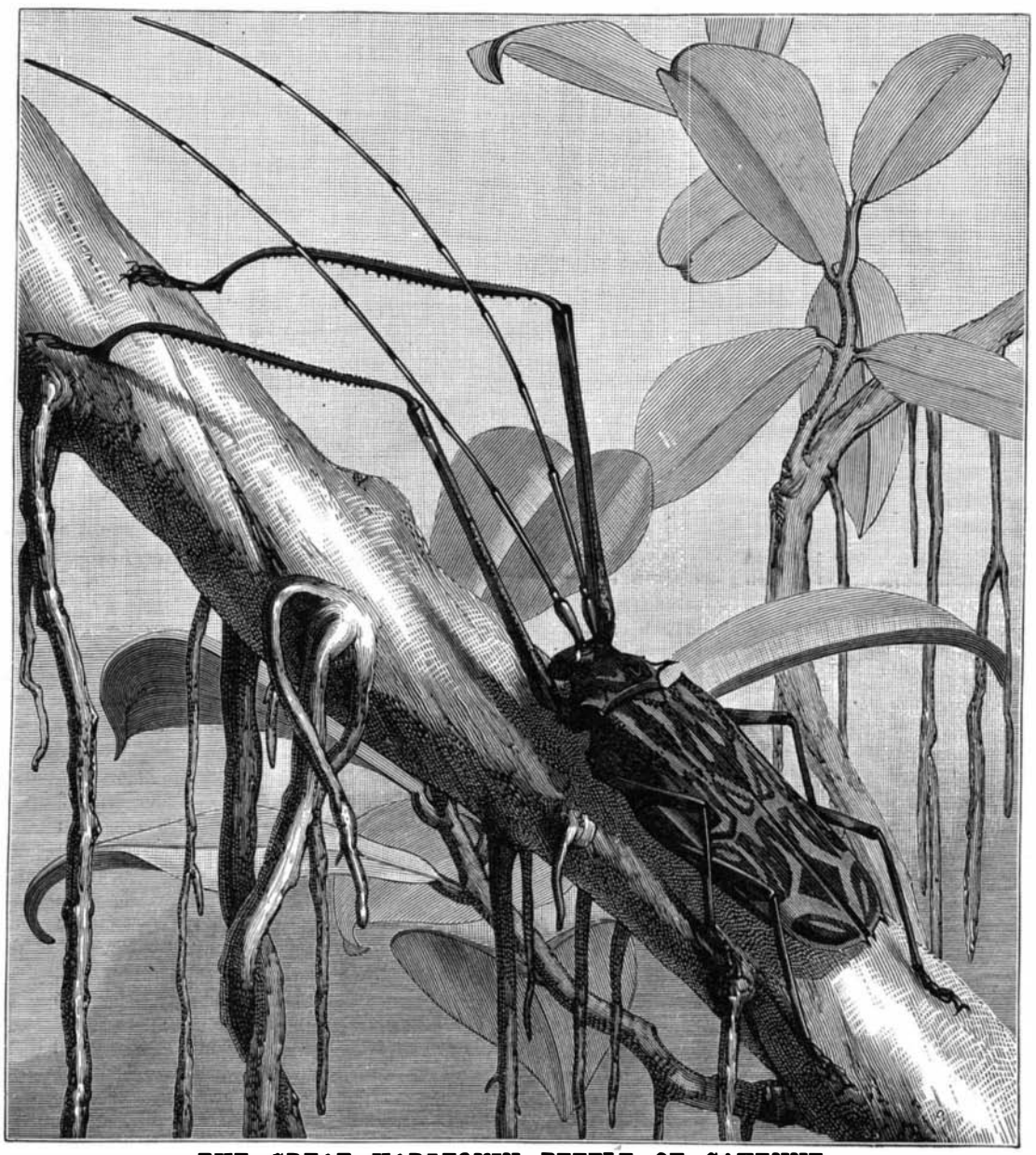
The thighs are long, sleek, and black, with a reddish ring near the joining with the leg. The anterior legs are black, furnished below with strong spines—all the others are bare, with rings of ash color. In the male the anterior thighs are the length of the body. The anterior legs, of the length of the anterior thighs, are spinous, bent back from the top, and terminate there in a strong spine on the inner side. There is less disproportion in the female.

It may be said that the larva of the *Acrocinus longimanus* is entirely different from the adult. Its legs are absolutely useless, its antennæ extremely small.

The body is divided into thirteen segments besides the head, is eighty millimeters long, with a very large overlapping prothorax, from sixteen to eighteen millimeters long, protected in the upper part by a large shield, very wrinkled and granulated. The segments of the abdomen in the middle from ten to twelve millimeters large, lengthened gradually; diminishing in size from the first to the sixth, the seventh and eighth are enlarged.

The first seven segments of the abdomen are furnished with large flattened tubercles covered with blackish granulations, and divided by creases. This larva is white, the under part yellowish, the upper shield of an obscure brown. The anterior of the head and the mandibles is black. The middle part of the head is almost smooth, the two extremities having scattered golden hairs. This larva has been found by M. Salle in Mexico, at Cordova, under the bark of a large tree of the species Ficus.

In Venezuela this same species has been observed by M. Rojas. It is said that this beetle lives in cold climates (that is to say, at a high altitude), upon the *Ficus glabrata*, from which the Coleoptera sucks the milk. The larva is found in the interior of this tree, and the perfect insect, which also inhabits it, comes out regularly in the morning to fix itself upon the Ficus, and feed upon the milk or descending sap. M. Rojas found them there, and also in their retreat, by cutting away the trunk where he saw the entrance to their dwellings, always large and opening outward.—*La Nature.*



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A California Tree.

There was recently felled in Sonoma County, California, a tree which cut up as follows. The Petaluma *Argus* says that the details can be relied upon. The standing height of the tree was 347 feet, and its diameter near the ground was 14 feet. In falling, the top was broken off 200 feet distant from the stump, and up to the point of breaking the tree was perfectly sound. From the tree saw-logs were cut of the following lengths and diameters: 1st, 14 feet long, 9 feet diameter; 2d, 12 feet long, 8 feet diameter; 3d, 12 feet long, 7 feet 7 inches diameter; 4th, 14 feet long, 7 feet 6 inches diameter; 5th, 16 feet long, 7 feet diameter; 6th, 16 feet long, 6 feet 10 inches diameter; 7th, 16 feet long, 6 feet 6 inches diameter; 8th, 16 feet long, 6 feet 4 inches diameter; 9th, 16 feet long, 6 feet 3 inches diameter; 10th, 18 feet long, 6 feet diameter; 11th, 12 feet long, 5 feet 10 inches diameter; 12th, 18 feet long, 5 feet 6 inches diameter. It will thus be seen that 180 feet of this remarkable tree was converted into saw-logs.

The Metal Cæsium.

Bunsen and Kirchhoff, when working on the method of spectral analysis, which they completed in 1860, hit upon two metals which gave lines in the spectroscope that were quite new to them. They were called rubidium and cæsium. The salts and the metal itself, in the first case, were soon prepared and studied; the second metal has only just now been obtained in a free state. It has been accomplished by Dr. Carl Setterberg, whose paper has been communicated to the Academy of Sciences at Stockholm, and the work was done at Marquart's laboratory in Bonn, where, as a by-product from the manufacture of lithia from lepidolite, the alums of these metals were to be obtained in hundreds of hundredweights. By allowing a hot concentrated solution of the alums of the two metals and of potash alum—for of these it consists—to stand, all the alum of the rare metals first separated out; the process is repeated several times, and in this way 40 kilogrammes of rubidium alum and 10 kilogrammes of cæsium alum were crystallized out. Boiling water dissolves much more of the rubidium alum than of the cæsium alum—at 0 degree 3·74 times as much, and at 80 degrees 4·08. To get the hydrates of the metals from the alum they are treated with barium hydrate, which throws down both the alumina and the sulphuric acid. This was then, in the case of the cæsium, converted into cyanide by passing perfectly dry hydrocyanic acid into a solution of the hydrate of cæsium in alcohol. It is absolutely necessary that the materials should be quite anhydrous. The reduction of the cyanide was conducted in a little clay cell, as described by Professor Bunsen in his paper on the isolation of other metals, like lithium, calcium, etc., and a mixture of four parts of cæsium cyanide with one of barium cyanide, and a current of the intensity 25, expressed in absolute measure, employed. The actual reduction of the metal from the cyanide was effected at Heidelberg in the laboratory of Professor Bunsen; and here it was that the long desired view of the curious metal was first obtained. The metal closely resembles the other alkaline metals in appearance; it is silver white in color, can be drawn out, and at ordinary temperatures is very soft. It may be stated here that Professor Bunsen told the writer of these lines some fifteen years ago that he expected cæsium would be, like mercury, a liquid metal; for in this group of metals the temperature of fusion falls as the atomic weight increases. Though not liquid, it melts at a low temperature, between 26 degrees and 27 degrees Cent.—at about 26·5 degrees Cent. In contact with water it swims on the surface, flame being evolved, as do potassium and rubidium; when exposed to the air, it soon takes fire. Two determinations of the density of the metal showed it to be 1·88 and 1·87. All experiments made with a view to reducing the chloride were attended with difficulty, and led to the employment of the cyanide instead. A curious point in connection with the history of cæsium was the analysis by Pisani, of Paris, of a specimen of the mineral pollux from Elba, which he published in 1863. Plattner held it to be a silicate of alumina and potash, but his numbers fell short to 92·75 per cent, and finding the result inexplicable, he published it. It was afterward found that the supposed loss was due to the oxide present being, not potash but cæsia, of which it contained 34·07 per cent, and thus brought the analysis up to the 100, and made it come right. This shows the importance of setting down the results of an analysis conscientiously without making up the "loss."

Oil Bath.

In order to render silk which has been dyed black more lustrous and shining, Mr. A. Gillet recommends the use of the following bath: Two parts soda crystals are dissolved in 100 parts water, the obtained solution being of 2° B. Olive oil is added to this bath until the oil begins to remain at the top of the solution. Soap can be added. The addition of citric, tartaric, or acetic acid to this bath is not recommended, as any acid would only diminish the alkaline strength of the bath. If it is required to remove the white reflection the silk has acquired in the above bath, the silk can be washed in water containing citric, tartaric, or acetic acid.