Silk'-worm, *n.* (*Zoöl.* and *Sericulture.*) The ordinary name of the caterpillar of *Bombyx mori*, a lepidopterous insect, type of the genus *Bombyx*, family *Bombycidæ*. It was originally from China, and is of a white or cream color, with a brown fascia, and two or more waved lines of a deeper color crossing the upper wings. The males fly swiftly in the evening, but the females are inactive; they live but a few hours after the eggs are deposited on the mulberry trees. The eggs are about the size of mustard-seeds, and the young emerge in a few days, if the weather or air of the breeding-room be warm and dry; when first hatched, they are 1 or 2 lines long, of a dark color, and very soon commence eating voraciously, with short intervals of abstinence during the moultings, until full-grown, when they are about 3 inches long, of a light-green color, with darker marks, blackish head, and fleshy protuberance on the last joint but one; there are 12 segments to the body, 9 stigmata or breathing-holes on each side, and 16 legs, of which the anterior 6 are hooked, and the others, including the 2 on the last segment, end in disks; the mouth has a vertical opening with strong and serrated jaws; the stomach is very large, as would be expected in such a voracious larva. It lives exposed in the wild state, but none of the Chinese or European worms are allowed to incur the risks of life in the open air. According to the experiments of Count Dandolo, 100 newly-hatched silk-worms weigh 1 grain, after the first moult 15, after the 2d 94, after the 3d 400, after the 4th 4,628, and at full size 9,500 grains; each consumes an ounce of mulberry leaves during these stages, about 60,000 times its primitive weight, and its length increases from 1 to 40 lines during the same period; by calculation, the product of an ounce of eggs eats upward of 1,200 lbs. of leaves, and should furnish 120 lbs. of cocoons. The caterpillar *S.* is at first of a dark color, but soon becomes light, and in its tints much resembles the perfect insect. Its proper food is the mulberry, though it will sometimes eat the lettuce and some few other plants. The *S.* is about eight weeks in arriving at maturity, during which period it changes its skin four or five times. For about three days before casting its skin, it is lethargic, refusing its food. On the termination of this period, the old skin opens at the anterior end, the fore-legs are disengaged, and the new and delicately-attired worm escapes forth. Immediately after this renewal, the body of the worm appears gray

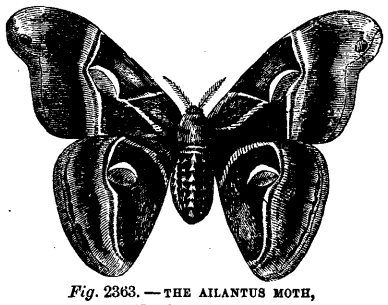

Fig. 2363. — THE AILANTUS MOTH, (*Bombyx cynthia.*)

and somewhat wrinkled, the new coat being made of full size, to admit of future growth; but the latter attribute speedily disappears. After the fourth or fifth casting of its skin, it measures from an inch and a half to two inches long, and for a continuous period of about ten days it eats voraciously, and increases greatly, both in length and thickness. On the expiry of this last-mentioned period it has attained the full size of a *S.*, being from two and a half to three inches long. Its desire for food abates; it nibbles and wastes its leaves; then ceases to eat, and becomes restless to eat and uneasy, seeking a quiet haven in which to spin its silken shroud. In the course of about twenty-four hours from the time of its having ceased to feed, the silky fluid becomes abundantly supplied to the interior reservoirs; the body becomes of a soft yellow, and somewhat transparent towards the neck. The beautiful silken covering, or *cocoon*, as it is called, is generally completed in three or four days. It is commenced by the formation of a loose, decomposed structure, of an oval form, made of what is denominated *floss-silk*. Within this, in the course of the ensuing days, the firmer cocoons are constructed. These are rounded, somewhat oval balls, varying in tint, some being of a golden tint, some of a straw color, and others, again, white. The included worm, having finished its labors, casts its skin once more, but never appears again as a caterpillar, as it now assumes that rounded, shapeless form termed *chrysalis*. In the chrysalis state it remains a fortnight or three weeks. It then bursts its horny cases, coming forth as a moth into the hollow chamber of the cocoon. The moth subsequently emits a fluid, which has the effect either of dissolving the gum or the threads at one end of the cocoon. The length of the thread in a cocoon varies from six hundred to a thousand feet. In 1856, another species of the same genus, *Bombyx cynthia* (Figs. 2363–'4), was introduced into Europe, which proved to be a happy rival to the mulberry-feeder. The Piedmontese Abbé Fantoni obtained its worms from the N. of China, and sent them to France, where they succeeded perfectly. This new silk-producer feeds on the *Ailantus glandulosa*, a hardy tree, which stands the severest winters and longest draughts without injury, grows well in any climate, thrives in almost any soil, and has been naturalized and widely propagated in this country as a shade-tree, where it is, nevertheless, rather an object of aversion than of real benefit, on account of the peculiar odor it emits when in blossom. The *B. cynthia* produces two crops per annum, and would easily produce three in such countries as California, where the season is longer, and the foliage

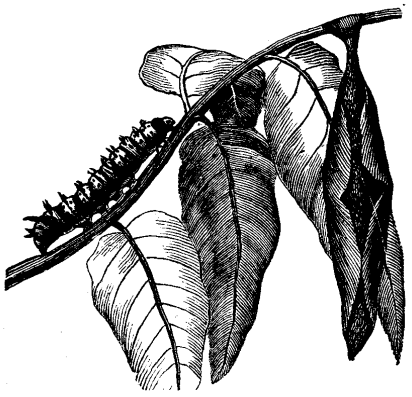

Fig. 2364. — AILANTUS SILK-WORM AND COCOON.

more plentiful in the autumn. Its eggs are nearly twice as large as those of the *B. mori*, equally large at both ends, and of a white color, with a black mark, caused by the germ inside the egg. The cocoons are elongated, of a pale-gray color, and are reeled off in one continuous thread. The Cynthia cocoon yields *floselle*, or floss-silk. It is manufactured in France under the name of *galette*, or *fantaisie*. According to French report, "the silk produced by the Ailantus lasts double that of the mulberry. It does not spot so easily; and it washes like linen."