

# THE MOTH BOOK

A POPULAR GUIDE TO A KNOWLEDGE OF THE MOTHS OF NORTH AMERICA

BY

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WITH FORTY-EIGHT PLATES IN COLOR PHOTOGRAPHY,  
AND NUMEROUS ILLUSTRATIONS IN THE TEXT, REPRODUCING SPECIMENS IN THE COLLECTION OF THE AUTHOR,  
AND IN VARIOUS PUBLIC AND PRIVATE COLLECTIONS



GARDEN CITY    NEW YORK  
DOUBLEDAY, PAGE & COMPANY  
1920

## FAMILY BOMBYCIDÆ

"And thou, the insect of an hour,  
O'er Time to triumph wouldst pretend;  
With nerves of grass wouldst brave the power  
Beneath which pyramids must bend!"

CARL GUSTAF AF LEOPOLD.

The *Bombycidæ* were originally confined to the Asiatic continent, and more particularly to the southeastern portions of that great land mass. The family is quite small and includes only a few genera. Of these the genus *Bombyx* is the only one which is well known. The family has been characterized as follows by Sir George F. Hampson, in "The Moths of India," Vol. I, p. 31:

"Proboscis absent, palpi rather small or absent; antennæ bipectinated in both sexes; legs hairy, without spurs. Frenulum absent; vein 5 of both wings from or from above the middle of the discocellulars; veins 7, 8, and 9 of the fore wing generally more or less bent downward; vein 1a forming or not forming a fork with 1b; 1c absent or present. Hind wing with two or three internal veins; vein 8 arising from the base of 7, or free from the base with a bar between them; the inner margin irregular and in part turned over.

*Larva* elongate and not hairy; dorsal humps on some of the somites, or a horn on the terminal somite, or paired dorsal spines.

*Cocoon* formed of fine silk of great commercial value."

### Genus BOMBYX Linnæus

#### (1) *Bombyx mori* Linnæus.

The silk-worm of commerce is not known to exist in a feral or wild state in the regions where it is now most commonly

### Bombycidæ

reared. In this respect it is like many other domesticated animals. The caterpillar, of which a figure is herewith given, feeds upon

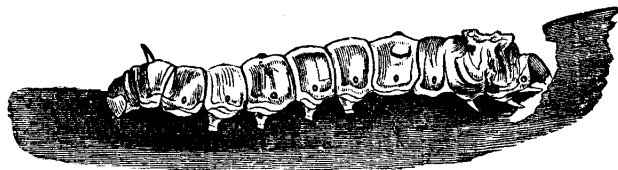


FIG. 191.—Larva of *Bombyx mori*. (After Riley.)

the leaves of the white mulberry, and will also feed freely upon the leaves of the Osage orange, an American hedge-plant. The

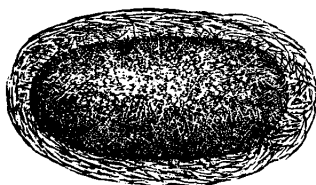


FIG. 192.—Cocoon of *B. mori*.  
(After Riley.)

insect was introduced at an early date into the American colonies, but its culture has not as yet risen in the New World to great proportions, though the manufacture of silk from imported material is at the present day an important American industry.

The culture of silk is an industry which might be best undertaken and maintained in the Southern States of the American Union, where climatic conditions are wholly favorable to it. The Carolinas and Georgia appear to furnish the best climate for the development of this industry, and it is believed by those who are most conversant with the matter that in time the rearing of the silkworm may become in these States an exceedingly important and profitable branch of industry. Southern California and Arizona are also likely to become centres in which the growing of raw silk may be successfully pursued.

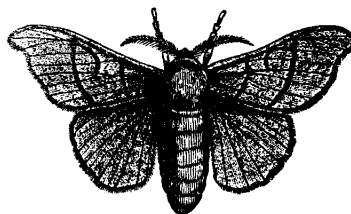


FIG. 193.—Moth of *B. mori*.  
(After Riley.)

### THE HISTORY OF SILK-CULTURE

The greater portion of the silk of commerce is produced by the larvæ of the moth known as *Bombyx mori*. The in-

#### Bombycidae

sect, through ages of human culture, has become thoroughly domesticated. It has been wrongly maintained that the moth known as *Theophila buttoni*, and which is found in China and western India, is the ancestral or feral form from which the domesticated *Bombyx mori* has been derived. The common silkworm does not exist in a wild state anywhere so far as is known, and is as much a domestic animal as the Jersey cow or the greyhound. Chinese literature clearly shows that the silk-industry originated in that country. The Emperor Hwang-Ti, whose reign was in the eighteenth century B.C., fostered the culture of silk, and his empress, Si-Ling-Chi, who gave her personal attention to the breeding of silk-worms and the manufacture of silk, was deified in consequence, and is reputed to be "the goddess of silk-worms." The methods of securing the silk and weaving fabrics from it were held secret by the Chinese for nearly two thousand years, and only after ages was a knowledge of the art transmitted to Corea, and thence to Japan. Silk in very small quantities was imported into Greece and Rome from China by way of Persia. Aristotle was the first writer in Europe to give a correct account of the manner in which silk is produced. He is supposed to have derived his information from those who had accompanied Alexander the Great on his victorious march into India. The price of silken fabrics in the West at the beginning of the Christian era, owing to the cost of transportation, was so great that only the very rich could possess garments of this material. Their use was restricted to wealthy women. For a man to use silken clothing was esteemed a sign of luxurious effeminacy. Under the reigns of Tiberius, Vespasian, and Diocletian the use of silken apparel by men was positively interdicted; but gradually, with the increase of importation of raw silk from Persia and its manufacture into stuffs in Asia Minor and elsewhere, the habit of using it grew, and its cost was slowly lowered. Under the reign of the Emperor Justinian, in the sixth century, positive steps to foster sericulture as an imperial monopoly were taken. Silk-looms operated by women were established in the palace at Constantinople, and Justinian endeavored, in view of the loss of the supply of raw silk brought about by a war with Persia, to induce the Prince of Abyssinia to secure to him supplies of the article by a circuitous route. Relief was finally

### **Bombycidae**

brought to the embarrassed imperial manufacturer when two Nestorian monks, who had lived long in China and had learned all the processes of silk-culture, were induced to go back to that far-away land and bring to Constantinople a stock of the eggs of the silk-worm. As it was among the Chinese a capital offense to reveal the secrets of the trade or to export the eggs from which the worms are hatched, the two priests had to proceed with the utmost caution. They concealed the eggs in the hollows of the bamboo staffs which they carried as pilgrims. From these eggs, thus transported to Constantinople in A.D. 555, all of the silk-worms in Europe, Africa, Asia Minor, and America until as recently as 1865 were descended. It was not until the last-mentioned year that any importation of fresh eggs of the silk-worm from China took place. Those two bamboo sticks held within themselves the germ of a vast industry, countless costly wardrobes, the raiment of kings, queens, and emperors, and untold wealth.

From the time of Justinian onward the growth of silk-culture in Greece and Asia Minor was rapid. It was introduced into Spain by the Saracens at the beginning of the eighth century. It found lodgment in Sicily and Naples in the twelfth century, and in the next century was taken up in Genoa and Venice. It was not begun in France until the latter part of the sixteenth century, but in the seventeenth century it made great progress in France, as well as in Belgium and Switzerland. The weaving of silk had begun at an earlier date than this in France, Germany, and England. Attempts made to introduce the culture of the mulberry-tree and of the silk-worm in Great Britain have always signally failed. The climate appears to be against the industry. James I, who had failed in his attempts to foster sericulture in England, undertook to plant the industry in Virginia in 1609. But the eggs and mulberry-trees he sent out were lost by shipwreck. In 1619 and the years immediately following the attempt was renewed, and the raising of silk-worms was enjoined by statute and encouraged by bounties. In spite of every effort, little came of the attempt, the colonists finding the growth of tobacco to be far more profitable. In Georgia and the Carolinas similar attempts were made, and from 1735 to 1766 there were exported to England considerable quantities of raw silk from these colonies. From

1760 onward the industry declined. Sericulture was at this time taken up in Connecticut and flourished there more than anywhere else for many years, though the raw silk was not exported, but woven on the spot into various fabrics. The production of raw silk in Connecticut for many years amounted to a sum of not less than \$200,000 annually. In 1830 an effort was made to introduce into the United States the so-called Chinese mulberry (*Morus multicaulis*). A popular craze in regard to this plant and the profits of silk-culture was begotten. Fabulous prices were paid for cuttings of the *Morus multicaulis*, as much even as five dollars for twigs less than two feet in length. Hundreds of people came to believe that the possession of a grove of these trees would be the avenue to fortune. But in 1839 the bubble burst, and many persons who had invested the whole of their small earnings were ruined. It was discovered that the trees would not withstand frost and were practically worthless, as compared with the white mulberry (*Morus alba*). "Colonel Mulberry Sellers" remains in American literature a reminder of those days, and of the visionary tendencies of certain of our people.

The manufacture of silk thread and of silken fabrics was begun in the United States at an early date. Machinery for reeling, throwing, and weaving silk was invented, and the importation of raw silk was begun. The industry has steadily grown until at the present time silk-manufacture has come to be an important industry, in which nearly a hundred millions of dollars are invested. The annual production of silken goods amounts to a sum even greater than the capital employed and gives employment to seventy-five thousand persons. So much for the industrial importance of one small species of those insects to which this volume is devoted.

"It was brown with a golden gloss, Janette,  
It was finer than silk of the floss, my pet;  
'T was a beautiful mist falling down to your wrist,  
'T was a thing to be braided, and jewelled, and kissed—  
'T was the loveliest hair in the world, pet."

CHARLES G. HALPINE.—*Janette's Hair*.