

course he loved his mate. Don't you s'pose my papa'd mourn some if my mamma should die? And was n't she Robin's little wife?"

Tom did n't say much, but somehow he could n't

forget the poor bereaved robin on the window-ledge.

And if Jessie should ask him to join the army of Bird-defenders, I believe he would do it.

THE LIFE OF A CLOTHES-MOTH.

BY PROF. A. W. RATTRAY.

YES, I am only a moth—a common clothes-moth. Some call me a “miller,” because I am mealy-looking, and flour the fingers of those who touch me. Well-informed people name me *Tinea Vestianella*, which I like better, because there's often a great deal in a pretty name. I am only a tiny, fragile insect; but for all that, every good and wise girl and boy ought to know the story of my life, which, in some respects, is a very curious one.

Moths are well connected, I assure you, and not ashamed of their pedigree. Butterflies are nearly related to us, though they may not own it. They are one branch of the *Lepidoptera* (or scale-winged) family of insects, and we are the other. But they are proud creatures, and regard us as country cousins, although themselves only gaudy, showy things, fond of admiration and of airing themselves in the sun. And all of them together could not give you silk for one of those pretty dresses, which the children of one of our family, the silkworm moth, can easily supply you with.

Is it not a pity that our little ones cannot live on leaves, as they do, but must eat the nap of cloth, blankets, flannels, carpets, and other woolen stuffs? For it is chiefly on this account that we, their parents, are hated, hunted, and killed, instead of being courted and petted, like the butterflies. But, after all, can we or our children be blamed? Like yourselves, we must eat to live.

No, we are not ashamed of our connections. But pray do not confound our family, the clothes-moths, with the fur-moths (*Tinea pellionella*), or with the hair-moths (*Tinea crinella*). We are closely related, and, in fact, cousins; but, as you may readily imagine, they are less refined in taste—altogether more common, and do not take the same standing in insect society as ourselves.

You may make our acquaintance any evening after the lights are lit, for we fly chiefly at night, and often burn our wings in the glare, which attracts and blinds us. Fig. 1 is my likeness. As you see, I am a very plain, small, flat, grayish insect. I do not hold my wings up, like the

butterflies, but fold them over my back; and my feelers (or *antennæ*) are pointed, and not club-shaped, like theirs. I would also like to show you the fur and the feather moths. But the differences in color, size, shape, &c., between them and ourselves are too slight to be detected by any but a good naturalist, or to be accurately shown in a wood-cut.

I was hatched last May. My first home was an egg, much smaller than a pin-head; and, when magnified by a microscope, something like those shown in Fig. 2. I cannot say how many little egg brothers and sisters I had, they were so numerous. But our mother took great pains to get a good home for us, so as to give us a fair start in

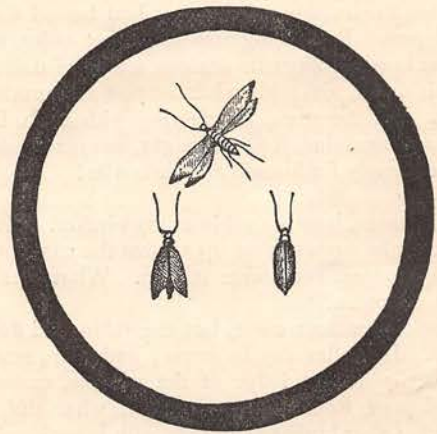


FIG. 1.—THE CLOTHES-MOTH.

life; and slyly crept through chinks and even key-holes, into hundreds of corners, to find a dusty, damp, and undisturbed spot, especially among woolens. She told me herself that she first tried a furrier's store, but neither dust nor damp was allowed there, and the owner aired and shook his goods very carefully twice a week. Seeing my mother, he flung his handkerchief at her, saying: “Be off, there's no room for you here.”

But moths are very active, and she was out of sight in a moment. Away she flew toward Fifth Avenue, and into the coach-house of an old lady, in which there was a cosy carriage, lined with fine blue cloth, and which was seldom used. Any

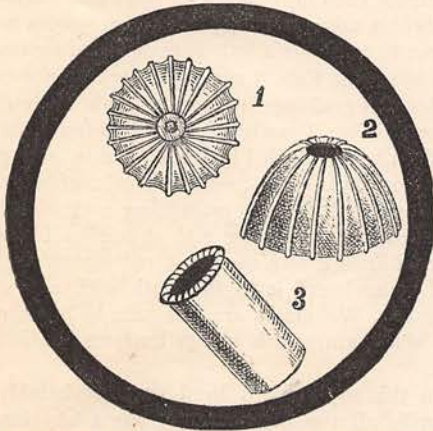


FIG. 2.—MOTHS' EGGS (MAGNIFIED). (1) EGG OF RUSTIC-MOTH. (2) EGG OF SHARK-MOTH. (3) EGG OF THORN-MOTH.

small crevice of this would have been just the thing; but the coach-maker had sponged the lining with corrosive sublimate water, which nearly poisoned my mother. And, besides this, the coachman smoked. This alone was enough to drive my mother away; we hate tobacco in every shape and form. Dense tobacco smoke will even kill us.

The old lady's open bedroom window, however, was just round the corner; and through this my mother made her way, it looked so tempting and pretty. Though kind-hearted, and one of those people who would not unnecessarily hurt a worm, the old lady had one serious fault. She hated moths, at least the house varieties, because one had, without permission, lived in and spoilt her muff, when she was a girl. She was fond of natural history, and often said: "It is not the moth itself which attacks our clothes, but its children, the little worms. Still, while we try to get rid of the latter, when we can catch it at work, and also to destroy the egg from which it comes, we should chiefly strive to drive away—or, still better, to kill—the moth-mother, the author of the entire mischief, and thus prevent her laying the eggs from which springs the worm which so annoys us."

Not a cupboard drawer or box could my mother find in the entire house that was not turned out, cleaned, and aired every week; and some vile-smelling stuff had been put among the clothes. The old lady liked, too, to make experiments, and, with this object, powdered her clothes with different things—some with black or cayenne pepper, others

with snuff, and so on. She even wished that some poison could be discovered to attract and kill us as they kill flies.

Her four daughters were certainly pretty, amiable, and accomplished, but they had been taught to dislike us, and always tried to starve us out, by frequently shaking and airing their jackets, furs, and woollens, lest any stray moths, moths' eggs, or caterpillars might have got in by chance. They then, after carefully wrapping them in linen bags and old sheets, which moths cannot get through, scented them strongly. Rosa, for example, sprinkled hers occasionally with a little abietine, a new moth abomination; Mary liked benzine or turpentine better (the vapor of the latter kills us); while Ella chose carbolic acid, and Bertha put chips of red cedar-wood, or a few matured horse-chestnuts, or shavings of Russia leather, or a little bitter-apple powder, or a handful of unwashed wool, or a bit of tallow, in each drawer, to find out which was the best of these things for driving us away. Moths never touch greasy or unwashed wool or cloth.

The housekeeper was just as careful with her carpets, which were taken up and beaten once, and often twice, during Summer, when we were about; and then sprinkled with salt, cayenne, black pepper, and occasionally a little carbolic acid; while the woolen curtains, when not in use, were well beaten, peppered, wrapped in linen, and laid in a dry place. And all of them, mistresses and servants, took particular pains to do this during the moth



FIG. 3.—HOUSE-MOTH, LARVA OR CATERPILLAR (NATURAL SIZE) AT WORK.

season. Not a moth could or would put its nose into that house; and if one did by chance find its way there, it was hunted and killed before it could lay a single egg. My mother herself barely escaped being killed by the chamber-maid with a long feather brush.

The neighbors of these enemies to our race, two old ladies, hated us still more; and the frequent airing, dusting, sweeping, cleaning, scenting, and

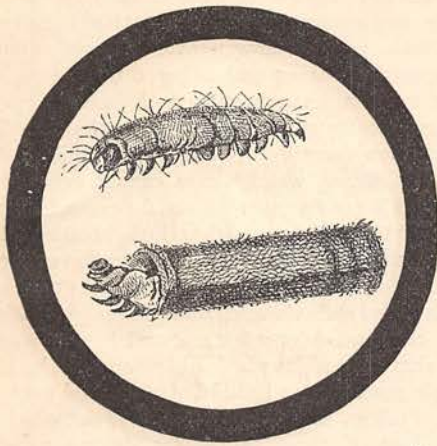


FIG. 4.—HOUSE-MOTH LARVA AND CASE (MAGNIFIED).

the linen bags, and what not, were enough to frighten away the most venturesome insect.

So, declining to visit them, my mother flew through an open window into a magnificent mansion near Central Park; and found just what she wanted in a large dusty cupboard in a seldom-used bedroom, into which the lady of the house tossed her dresses, usually after wearing them only a day or two. Here I was put between the folds of a fine black-cloth jacket.

In a fortnight I was hatched, and left my egg as

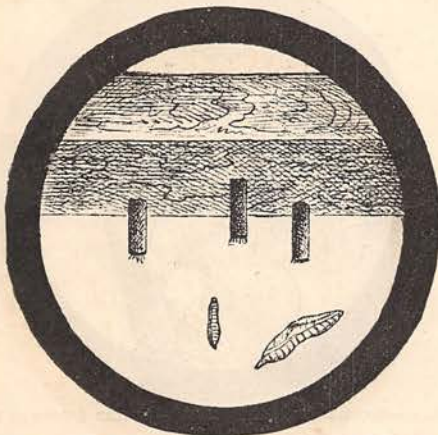


FIG. 5.—CLOTHES-MOTH PUPA (OR CHRYSALIS) AND CASE.

a little whitish larva, or caterpillar, with sixteen legs, six very small eyes on each side of my head, strong, sharp, scissor or scythe-like jaws, which cut sidewise, and on the middle of my lower lip a little conical tube, or "spinner," from which I could

squeeze out a sticky fluid, which soon hardened into the fine threads that you call silk. In Figs. 3 and 4 you have my likeness. Dozens of brothers and sisters were already busy at work near me; but our mother had scattered us, so that when born we might each have plenty of room and food.

Having taken a good meal of soft woolen nap, I began to construct a little case or house for myself,—a tube, like Figs. 3 and 4, longer than my body, and wider, enabling me to turn inside by doubling myself. This I made of nap, choosing long and straight hairs, which I laid side by side, and glued together and interwoven with silk of my own making; and so kept on adding and adding till my house was as long and strong as I wished. Then I lined it with the finest and purest silk, and tied or anchored it to the cloth with a few silk threads. We moths are not quite so luxurious as the silk-worm, which makes its house entirely of silk.

In this my house I lived very comfortably and happily all the Summer. It was a lazy kind of life. When I felt hungry, I had only to put my head out of my case to feed, as in Fig. 4. We are rather dainty, and usually prefer the short fibers and more compact body of the cloth for food, using the coarser, longer ones for house-building. Caterpillar appetites are very good; we eat heartily, perhaps you may say voraciously. Some of us can consume about twice our own weight in the twenty-four hours; but clothes-moth caterpillars are not quite so greedy as this. When I had used all the nap near me in food and for house-building, and made the cloth thread-bare and full of holes, all I had to do was to pull my house along to another place.

Thus to eat, to build, and now and then to repair my house, were all the work and amusement I had. But this last was my heaviest toil, for, like yourselves, small when born, I was at intervals compelled to enlarge my home. Now, how do you think I did this? Exactly as a tailor would! As I grew longer, I lengthened it by working in fresh hairs at the two ends; and as I got stout, I merely slit one side half-way up, and put in a patch; then did the same at the other side, and so at the other end. I did this so neatly that you could scarcely see the joining, and all with my mouth and silk of my own weaving, without needles or the help of a sewing-machine! In this way I made the same house last my whole caterpillar life. If I had used wool of different colors—red, blue, white, and so on—as I enlarged it, I could have made it of many colors, like Joseph's coat. This is the cause of the cross markings in the case sketched in Fig. 4. I changed my own skin several times as I grew; and when I had become a full-sized caterpillar, Winter came,

and put me into a sleep, which lasted till the warm Spring again revived me.

Upon waking, I found that a change had come over me. I did not seem like the same creature. My appetite had gone, and I entirely left off eating. I felt as if something was about to happen to me. I was about to undergo what naturalists call a "metamorphosis," or transformation. Some of my brother and sister caterpillars preferred to remain where they were, to undergo this change, and only tied themselves a little more firmly to the cloth; but I crept out of the cupboard, and up to a dark corner of the room, where, for safety, I closed up one end of my house with silken threads, and hung myself to the ceiling. I then spun a kind of shroud round my body, and, again becoming torpid, went to sleep. I had thereby altered

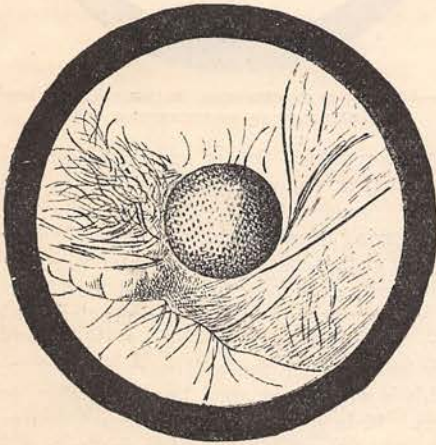


FIG. 6.—COMPOUND EYE OF THE CLOTHES-MOTH (MAGNIFIED).

my shape, was now like Fig. 5, and re-christened with a new and prettier name than my last, viz., *Pupa*, or chrysalis. I was shorter than before; apparently had no head, limbs or wings; but traces of them could be seen closely pressed to my sides, and as if cemented by a kind of varnish.

While in this state I took no food, and did not even move. But in about three weeks my case began to swell, and then contract, till the skin of my back rent; and from this my head, and by degrees my body, emerged as a perfect, fully-fledged baby-moth, or *imago*, with four wings, six legs, and everything else complete, as you see in Fig. 1. But I had lost the powerful jaws with which I had eaten the cloth, and had now a spiral, rolled-up tongue, to suck water and liquid juices into my stomach, which was now unfit to digest solids. My body was at first soft and weak, my wings small and crumpled up; but they soon grew, and I stretched them and flew for the first time. How light and lively I felt! and how unlike myself when

only a miserable worm, crawling slowly and darkly among old clothes, unable to see a yard ahead. It was a fine, warm, sunny day in April when I soared



FIG. 7.—PART OF CLOTHES-MOTH'S WING—MANY SCALES RUBBED OFF (MAGNIFIED).

over Central Park, and enjoyed a panoramic view such as probably no girl or boy has ever seen. How proud I felt, and how happy! These were the days of my childhood; the pleasantest in our life, as in yours. Thus had I undergone my second and final transformation.

You may think me a common insect, and perhaps despise me. Certainly I am not much to look at. But put me under your microscope, and you will soon change your opinion. How you will admire my compound eyes, with their hundreds of

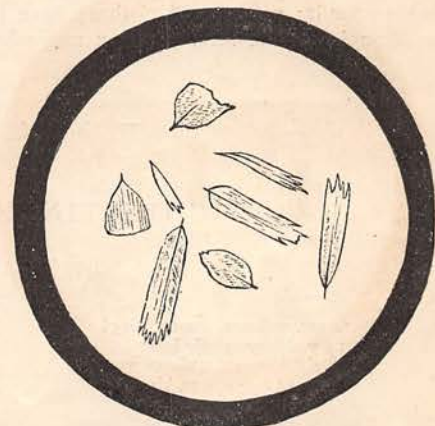


FIG. 8.—SCALES (OR FEATHERS) FROM WING OF CLOTHES-MOTH (MAGNIFIED).

lenses (Fig. 6); and my wings (Fig. 7); and the scales on them (Fig. 8), like birds' feathers, which make the dust that stains your fingers when you

touch me! Curiously, too, each different moth and butterfly has its own shape and size of scale, just as trees have different kinds of leaves, by which alone you can recognize them, as in Fig. 9. You ought to examine me for yourself. If you do, I am certain that the more minutely you look, the more wonderful you will consider me.

I have been a full-grown moth for a few days, and, as yet, have enjoyed myself very much. Our insect life is very different from your life. We have no brain with which to think and learn; and, therefore, no schools, lessons, teachers, or punishments for idleness. What we know and do comes to us naturally, by instinct. We have no memory to remind us of naughty behavior, or conscience to



FIG. 9.—SCALES FROM WINGS OF MOTHS AND BUTTERFLIES.

sting us. We find plenty to eat and drink, without working for it; never need clothes; have no anxious thought for the future, as you may when

grown up; and cannot imagine what death is, and therefore do not fear it. Our life is one long, happy holiday. Even our bad luck and misfortunes

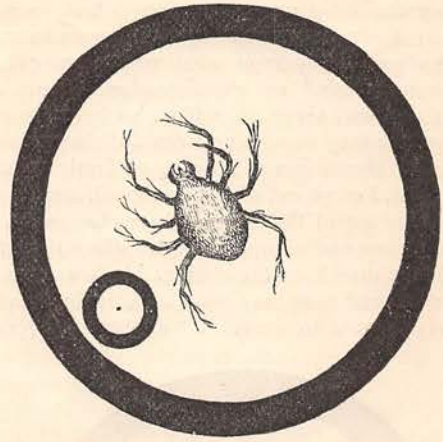


FIG. 10.—PARASITE OF CLOTHES-MOTH (MAGNIFIED). THE DOT IN THE SMALL RING SHOWS ITS NATURAL SIZE.

are soon forgotten. One of our chief worries is a tiny insect (Fig. 10), which, small as we are, sometimes lives on our skin.

Now, having heard my story, tell me—Don't you think that clothes-moths are quite interesting, after all, and that we are more to be pitied than blamed when we deposit the eggs and caterpillars which destroy your clothing? In doing this, we are merely looking after the welfare of our children, and this is what every good human mother does for hers. If, in spite of what I have said, you persist in catching and killing us, do not torture us, but spare us pain by doing the deed as quickly and thoroughly as possible.

CHRISTINCHEN'S ANSWER.

BY JULIA S. TUTWILER.

WELCOME, welcome, dearest King!
Here thy children gladly bring
Knots of flowers and garlands gay
To greet our monarch on his way.
May God bless the royal house!
King and queen, with man and mouse;
This is what we humbly pray,
For our sovereign every day.

CHRISTINCHEN was to say it. She was only six years old; but the teacher himself taught it to her very carefully. For two days all the spare

moments he could find during school-hours were given to the little Mädchen; for news had come that, on the third day, the King would pass through their village!

Now Herr Schunke would not for the world have had his revered monarch pass through Weseke without showing him that, although it was only a little village, and far removed from the great cities of his realm, yet here also they had intelligent folks who knew what was what, and how to receive a