

A New Beneficial Insect  
in America.

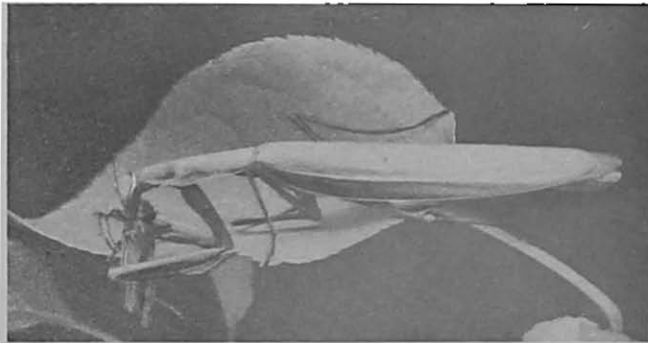
Bulletin 185.

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~~Cornell University Agricultural Experiment Station,~~  
~~ITHACA, N. Y.~~  
ENTOMOLOGICAL DIVISION.

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THE COMMON EUROPEAN  
PRAYING MANTIS  
A NEW BENEFICIAL INSECT  
IN AMERICA.



By M. V. SLINGERLAND.

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A NEW BENEFICIAL INSECT IN AMERICA.  
THE COMMON EUROPEAN PRAYING MANTIS.

*Mantis religiosa* Linnaeus.

Order ORTHOPTERA ; family MANTIDAE.

We too often forget that many kinds of insects are beneficial to man, either by helping him destroy his insect pests or, like the busy bee, visiting his blossoms and often leaving an insurance policy in the shape of tiny grains of pollen, which insures a crop of fruit that otherwise might be extremely uncertain. It is therefore with much pleasure that we are able to announce the advent of a new beneficial insect into New York State. In this case the insect was doubtless accidentally introduced or imported from Europe, and curiously enough, although it has inhabited Europe, Asia and Africa doubtless for centuries, it has apparently never before obtained a foot-hold on the American continent. In these days of rapid commerce between all nations of the globe, one can scarcely wonder that many insects are carried in various ways from their native home, and some of them often succeed in establishing themselves in far distant lands. Many of our worst insect pests, like the cabbage butterfly, the pear psylla, and the Hessian fly, were foreigners which unfortunately are now too thoroughly naturalized in our country.

In the case of insects injurious to fruits, the American nurserymen are often justly accused of importing these pests, and especially of spreading them broadcast over the country. That our nurserymen have also brought beneficial insects into the country must not be forgotten, however ; although the beneficial effects of these insect friends are very meagre compared with the losses inflicted by the introduced foreign insect pests. We are undoubtedly indebted to the nurserymen for the importation of the wonderfully interesting beneficial insect that has now established itself in New York, and to which the following account of its characteristics and interesting habits is addressed.

## HOW THE INSECT LOOKS.

The principal characteristics of this new insect friend are well shown in the reproductions from photographs taken from life, natural size, in figure 12. It is a large, slender, conspicuous insect, unlike any other insects in this country north of Southern New Jersey and Pennsylvania. It presents such a striking and rather ungainly appearance that one could scarcely fail to recognize it. But it might easily escape one's notice, for it often remains practically motionless for hours, and its peculiar attitude and shape, with the fact that some of the specimens are light brown in color while others are apple green, causes them to closely resemble the branch among the leaves of which they may be patiently waiting for their prey. Some other species of these extraordinary insects have wings which resemble the leaves of plants in form and coloring. The insect varies considerably in size, the females usually being the larger. The specimens shown at *c* in figure 12 are nymphs or immature forms; note that the wings are mere pads on the sides of the body. The most striking characters of the insect are the great length of the first segment of the thorax, it being the largest segment of the body, and the enlarged front legs, which are peculiarly fitted for grasping, and being armed with spines, to hold their prey when captured.

## ITS NAME.

These extraordinary insects were known to the ancient Greeks as *Mantes*, a word meaning a prophet. Mouffet writing over three hundred years ago says: "They are called *Mantes*, that is *foretellers*, either because by their coming (for they first of all appear) they do show the spring to be at hand, so Anacreon the poet sang; or else they foretell death and famine, as Caelius the Scoliast of Theocritus has observed; or lastly, because it always holds up its fore feet like hands praying as it were, after the manner of their Diviners, who in that gesture did pour out their supplications to their Gods." Another writer states that the name of *Mantes* was evidently bestowed upon these insects from their attenuated form; in one of the Idylls of Theocritus the word was employed to designate a thin, young girl, with slender elongated arms.

As Comstock says: "Certainly they are pious-looking fellows, with their front legs clasped together in front of their meek, alert faces, and it is no wonder that they are called Praying

Mantes in most countries. But the only prayer that could ever enter the mind of a Mantis would be that some unwary insect might come near enough for him to grab it with his hypocritical claws, and so get a meal. Devil-horses, rear-horses, and camel-cricketts are other names applied to these insects, because of the long, slender prothorax which makes them look like tiny giraffes. (Some of their characteristic attitudes are well shown in figure 12.) They are also called mule-killers, from the absurd superstition that the dark colored saliva they eject from their mouths is fatal to the mule. But they are absolutely harmless to man and beast."

In South Africa they are often called the Hottentot's God, and in other countries many call them soothsayers. The prayerful or begging attitude assumed by these insects suggested many of the specific, scientific names which have been applied to them, as *Mantis religiosa*, *pagana*, *sancta*, *supplicaria*, *oratoria*, *mendica*, *pauperata* and *superstitiosa*.

#### ITS DISCOVERY IN NEW YORK.

When this Praying Mantis arrived in this country is not known, but the honor of its discovery here belongs to Mr. H. F. Atwood, a noted microscopist at Rochester, N. Y.

In a letter dated October 20, 1899, he wrote us that "this past season I have taken a number of specimens of *Mantis*. My home is on the northern outskirts of Rochester and I have found many of them about my house and they were also taken about Charlotte and Summerville. I did not hear of any further south. Early in the spring I found a cluster of the eggs on a twig that had been blown from a tree. I indentified it but not to my satisfaction, for until I saw the perfect insect, I had no idea of their being found here. The specimens I observed were good feeders and in my opinion they should be encouraged as their diet was entirely insects." As none of our American Mantids breed normally north of southern New Jersey and Pennsylvania, we were naturally much interested in Mr. Atwood's discovery, and supposing, of course, that it was a case where our common southern Mantid (*Stagmomantis carolina*) had finally succeeded in establishing itself in New York, we published a brief note to this effect in Entomological News for December, 1899. We have raised this southern species and another from New Mexico here at the insectary from eggs received from these localities, and Glover states that the former "has been successfully raised as far north as the Hudson River, by bringing the egg-cases from the South. Several egg-cases were found fastened to trees the next autumn, but after that they entirely disappeared. It is said that the eggs probably could not endure our northern winters. As none of the

Mantids seen near Rochester in 1899 were preserved, we awaited the season of 1900 with much interest to see if the insect had survived the winter and to definitely determine just what species of Mantid it was. And we were not disappointed.

On March 13th, 1900, Mr. Atwood sent us two of the egg-cases which a little girl had found up under the water-table of a dwelling house. However, all the eggs they contained were dead and shriveled, indicating that the insect had not been able to survive the winter. But a month later came several more egg-cases and most of them were evidently alive; most of these were found attached to grass stems near the ground. We placed these in a breeding cage and on May 24th, 1900, we were delighted to find that young Mantids were hatching from the egg-masses, thus proving that the insect had established itself and was breeding freely near Rochester. July 7th, Mr. Atwood sent us a young Mantid about an inch long that he had captured near his home, and by July 21st several of ours in the cages had attained over half their growth, but a majority had succumbed to the cannibalistic habits of their brothers and sisters and to other vicissitudes of an insect's life. By the middle of August our few remaining specimens had become full grown, and Mr. Atwood sent us a female which by August 29th had laid an egg-case in our cage. He wrote that the territory of the insect seems to be enlarging, as it had been found across the river over Irondequoit, near Rochester.

It now remained to learn what species of Mantid had thus established itself in New York, 200 or 300 miles farther north than any such insect lived in this country.

#### ITS IDENTIFICATION.

Specimens of the adults were sent to an expert, Mr. Scudder, for determination, and the following reply came on September 20th, 1900. "The specimen you sent was very perplexing. I never for a moment thought it was anything but an American species, and all the tables for generic determination in the Mantinæ separated at one point the Old World from the New World forms *en masse*. Everything in the New World tables brought it down haltingly to *Stagmomantis* and yet it was no *Stagmomantis*, so I turned just now to the Old World series and there at once I brought it down to *Mantis* and, on comparing specimens, to *Mantis religiosa*, the common European form."

#### ITS DISTRIBUTION.

It is common in southern Europe, especially in France, and its northern limit is from 47 to 49 degrees north latitude or near Havre, Freiburg and Vienna; it also occurs in Asia as far as Hindustan and Java and in Africa as far south as Zanzibar. It

thus has a very wide distribution in the Old World, but has never before been reported in the New World.

Here it is apparently yet confined to a small area near Rochester, including the towns of Charlotte, Summerville and Irondequoit, where it has become quite common.

And Miss H. F. Samain, Principal of Public School No. 11, in Rochester, writes concerning some specimens she sent us recently: "I found them crawling by the side of an unused road just south of the Driving Park in the northwest part of our city. Others were found in the field which the road bordered, crawling up the grass stalks. One was found sunning itself in the middle of the day on the sidewalk near No. 34 school. The children who live in that vicinity told me that they had seen them come out of the grass onto the sidewalks and iron-work of the school-house. A great many were taken from that field a year ago, and there does not seem to be as many there this year. I know of one being found recently on the east side of the river, from Seneca Park, I think."

This beneficial insect is thus apparently well established in the vicinity of Rochester where it is slowly spreading. We shall endeavor to establish it at Ithaca. It will be a very welcome addition to the insect fauna of New York.

#### ITS HABITS AND LIFE-HISTORY.

The Praying Mantles, unlike most other members of the great order Orthoptera (the crickets, grasshoppers, walking-sticks and cockroaches), which are mostly vegetable feeders, are carnivorous, usually eating only living insects and other small animals. Mr. Atwood writes us that "their diet is not confined absolutely to insects, as a little girl in our neighborhood holds them by the thorax and gives them crumbs of bread which they take readily and eat."

As Mouffet quaintly said more than three hundred years ago: "They resemble the Diviners in the elevation of their hands, so also in likeness of motion; for they do not sport themselves as others do, nor leap, nor play, but walking softly, they retain their modesty, and shewes forth a kind of mature gravity." They move about rather slowly and ungainly, and often wait for hours in the attitude shown at *a* in figure 12 for some unwary creature to come within reach. When prey is sighted, they often creep up silently, much like a cat, and when close enough



make a quick dash, seizing their prey with their spined fore legs, as shown at *b* in figure 12. The power they can exert in holding their prey is surprising as we have learned when they grasped our finger when handling them.

Both sexes possess well developed wings, and the males are said to fly some after sunset, but the female does not fly, but sometimes uses her wings to ease herself from a higher to a lower elevation, also when in battle, or when pouncing upon her prey, at which time she hoists them very much as does a swan when irritated.

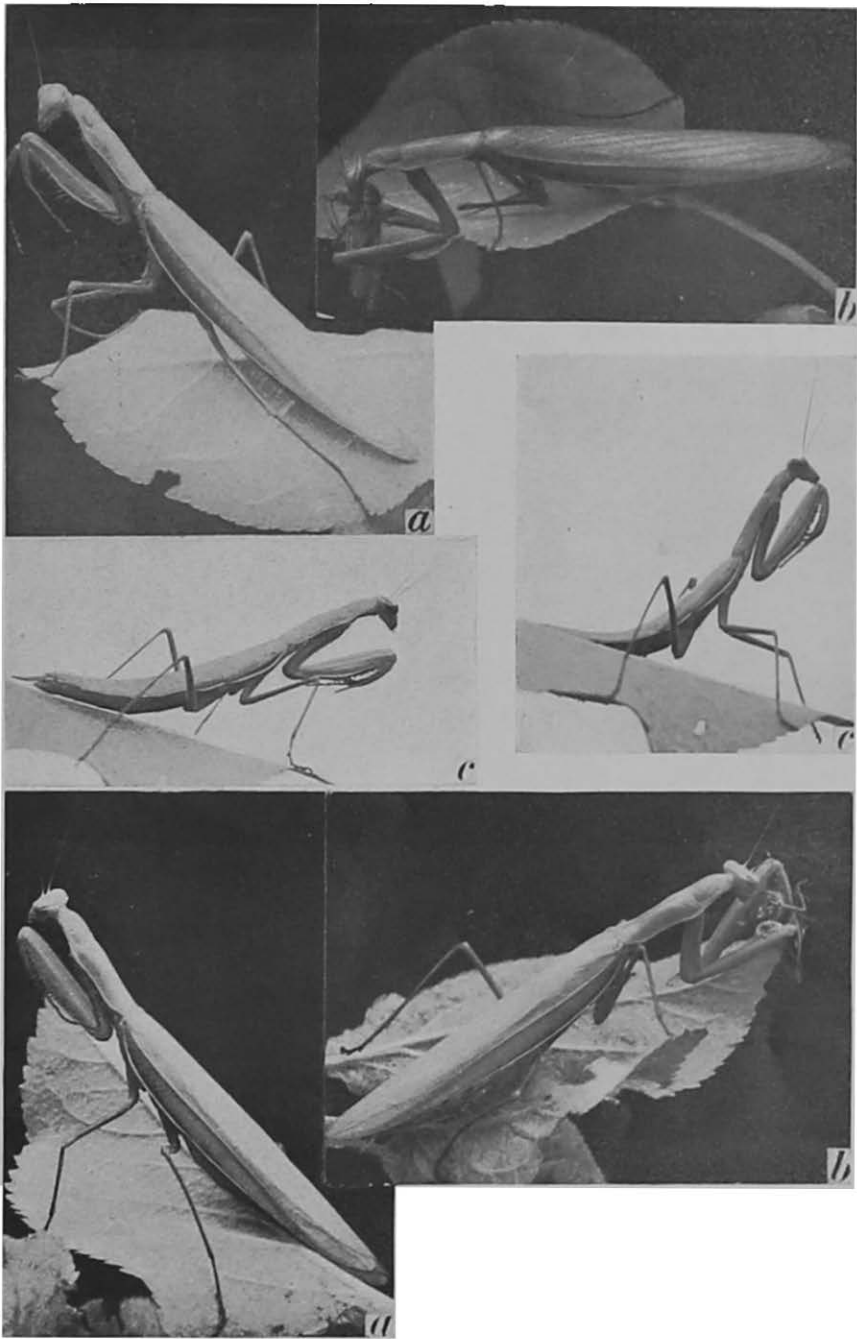
There are many interesting and sometimes startling accounts of the voracity and bloodthirstiness of these creatures.

Our common southern species (*S. carolina*) has been known to attack butterflies, grasshoppers, and caterpillars of various kinds, and in one case a female devoured eleven Colorado potato beetles during one night. Another record\* states that a female ate in a few days dozens of flies, several large grasshoppers, some young frogs, and finally a striped lizard three times as long as itself! In Buenos Ayres a species of Mantis is said to seize and eat small birds.

We quote from Mr. Atwood's letters the following interesting observations on the feeding habits of *Mantis religiosa* at Rochester: "They seem to be sociable, as I found one in my dining room. A friend was entertained by one of them that was inside of his window very busy trying to catch a spider that was on the other side of the glass. The window was opened and the Mantis went out and caught the spider. One Sunday a green Mantis ate three grasshoppers, each seven-eighths of an inch long, a daddy-long-legs, and then tackled another Mantis, and I was obliged to interfere between them. In a corner of my house I found the remains of a Mantis in the web of a large spider. I did not see the tragedy, but I imagine the spider caught the Mantis at a disadvantage. In eating a grasshopper, I notice that the usual rule is to commence with the head and nothing is left except the terminals of the two hind legs, the wings, and the contents of the alimentary canal. I have one black mark against the Mantis, as I find that it will assassinate and devour a honey bee as readily as a grasshopper. I fed four grasshoppers to a Mantid yesterday and all were devoured. I find that they are not disposed to indulge in luxuries and cast one side a minute parasite (probably *Trombidium locustarum*.) on one of the grasshoppers."

After many unsuccessful efforts in trying to get a Mantis to stop eating a grasshopper long enough to have its picture taken, we finally succeeded, when it stopped a moment to lick its jaws, in getting the pictures shown at *b* and *b* in figure 12. It is an

\*Zimmerman in Burmeister's Handbuch der Entomologie, II., 538.



12.—*The Common European Praying Mantis (Mantis religiosa)*. a, a, adult Mantids patiently waiting or "praying" for its prey; b, b, adult Mantids busily engaged eating live grasshoppers which they have captured with their strong spined front legs; c, c, Manlid nymphs or young Mantids ready to grab any unvary creature. All natural size from photos taken from life.

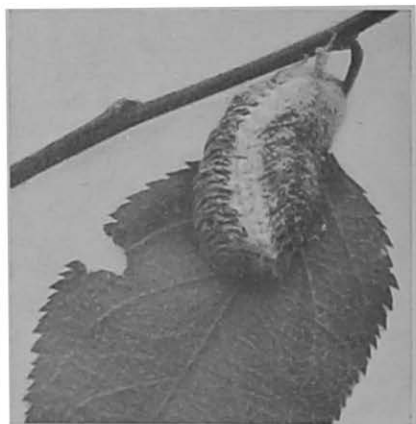
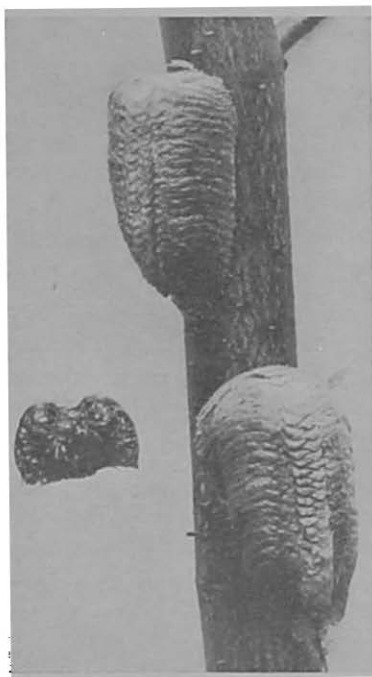
interesting yet cruel operation to observe; we have often seen the grasshopper struggle after it had been more than half devoured. It is said that in Melbourne, Australia, Mantids are often placed in windows so that the rooms may be cleared from flies by the indefatigable voracity of the creatures.

**They are also cannibals.**—Dr. Riley has graphically portrayed the cannibalistic habit of these bloodthirsty creatures which are forever quarreling and at enmity among themselves, as well as with all other insects. “Many a fierce battle is fought by the males in which neither eye nor limb is spared, and in which the winner ends by making a repast of the body of the vanquished. They are so void of feeling that the male risks his life in courting, and usually succeeds only by slyly and suddenly surprising his mate, who after accepting his embrace, often coolly seizes and devours him. So tenaciously do these insects fight that they will continue without cessation or inconvenience for some minutes after the loss of their heads. We have seen a female, decapitated and with her body partly eaten, slip away from another that was devouring her, and for over an hour afterwards fight as tenaciously and with as much *nonchalance* as though nothing had happened.” An instance is recorded in which the female Mantis first cut off the head of her mate, after which coupling took place, which was followed by the female devouring the male. In their mutual conflicts, one writer observes that their maneuvers very much resemble those of hussars fighting with sabres; and the Chinese, aware of their savage, pugnacious propensities, often keep these insects in cages and match them together in combats, as is done with fighting-cocks. Rösels, who published many interesting observations about these creatures nearly 150 years ago, states that they are, however, as cowardly as barbarous, for the instant that he introduced some ants amongst them, the Mantids endeavored to escape in every direction.

Dufour has recorded that *Mantis religiosa* possesses the power of producing a mournful sound by rubbing the extremity of the body against the wings. Mr. Atwood also writes us “that one day when two of his Mantids observed each other they made a whirring noise by rubbing a leg against a wing in order to frighten the other, and each watching the other very closely, and on the alert to give a spring.”

**The Eggs.**—In Europe this Praying Mantis lays its eggs in September and they hatch the following June. Our observations indicate that this statement is also true for New York, although one egg mass was laid in our cage August 29th and we had young Mantids hatch on May 24th last spring. Thus the insect passes most of its life in the egg and it winters in this stage.

The egg-case, or *oötheca*, as it is called, of this Praying Mantis is a very large, thick, elongate,



13.—Egg-cases or *oötheca* of Praying Mantis. Natural size.

light-brownish colored mass. Three of these curious egg-cases are shown in figure 13; the two on the left were found on the side of a house and we fastened them to the branch, while the other on the right was laid on the leaf in one of our cages. Two others, perhaps more typical egg-cases, are shown in figure 14 as they were found by Mr. Atwood in the field.

Mr. Atwood observed that in one case copulation between the sexes lasted 24 hours and was then broken up by a heavy rain. He did not get a chance to see the eggs laid and we were equally unfortunate. Rösell saw the operation 150 years ago, with a closely allied, if not identical, species and he states that it took the female two hours to complete the task. Sharp says "the eggs of Mantidae are deposited in a singular manner :

the female, placing the extremity of the body against a twig or stone, emits some foam-like matter in which the eggs are contained. This substance dries and forms the oötheca ; whilst attaining a sufficient consistence it is maintained in position by the extremity of the body and the tips of the elytra, and it is shaped and fashioned by these parts. The eggs are not, as might be supposed, distributed at random through the case, but are lodged in symmetrically-arranged chambers, though how these chambers come into existence by the aid of so simple a mode of construction does not appear. The capsule is hard ; it quite conceals the eggs, which might very naturally be supposed to be sufficiently protected by their covering : this does not, however, appear to be the case, as it is recorded that they are subject to the attacks of Hymenopterous parasites." This description of the egg-case well applies to the eggs of our *Mantis religiosa*, but as yet, fortunately there are no indications that any of its European enemies were imported with it.

It seems scarcely possible that one female Mantis could lay more than one of these egg-cases, yet Mr. Atwood says in sending us the two egg-cases shown in figure 14 : "Recognizing, as I do, the feeling between the specimens, I cannot but think that both these clusters were deposited by the same insect." This is possible, for Trimen records that a South African Mantid constructed four nests of eggs at intervals of about a fortnight. In our cages only one egg-cluster has been laid by a female, and the insect died soon afterward. But Zimmerman states that a specimen of our common southern species (*S. carolina*) which he captured on October 3d, laid one egg-case the next day, and instead of dying as he expected, it ate voraciously, its body enlarged and on the 24th of the same month it occupied several hours in laying another similar egg-case ; still the insect remained alive, was fed, its body again enlarged as though it would lay again, but it remained alive until December 27th and died without making a third egg-case. The eggs in the first mass hatched May 20th and those in the second mass three days later.

*Mantis religiosa* seems to lay its eggs in various situations near Rochester ; sometimes on the sides of a house, again on the twigs of trees, but apparently most often on the stems of grasses, as shown in figure 14.

Habits of the young Mantids or nymphs.—Sharp states that "the young have to escape from the chambers in which they are confined in the egg-cases ; they do so in a most curious manner ; not by the use of the feet, but by means of spines directed backwards on the cerci and legs, so that when the body is agitated advance is made in only one direction. The eggs last deposited are said to be the first to hatch. On reaching the exterior the young Mantids do not fall to the ground, but remain suspended, after the manner of spiders, to the oötheca by means of two threads attached to the extremities of the cerci ; in this strange position they remain for some

days \* until the first change of skin is effected, after which they commence the activity of their predatory life. When the young of *Mantis religiosa* emerges from the egg, it bears little resemblance to the future insect, but looks more like a tiny pupa; the front legs, that will afterwards become so remarkable, are short and not different from the others, and the head is in a curious mummy-like state, with the mouth-parts undeveloped and is unflexed on the breast; there are, says Pagenstecher, nine abdominal segments. The first ecdysis (shedding of the skin) soon takes place and the creature is thereafter recognizable as a young *Mantis*. Pagenstecher's specimens at first would only eat plant-lice, but at a later stage of the development they devoured other insects greedily: the number of ecdyses is seven or eight. The ocelli appear for the first time when the wing rudiments do so; the number of joints in the antennæ increases at each moult. Dr. Pagenstecher considers that this insect undergoes its chief metamorphosis immediately after leaving the egg, the earlier condition existing apparently to fit the insect for escaping from the egg-case."

The young or nymphs which we reared we first fed on plant-lice, and later on with all sorts of small insects which we could sweep up from grass with a net. At *c* and *c* in figure 12 are shown two nymphs which became adults at the next shedding of their skins. The nymphs have the same voracious and cannibalistic appetites as the adult insects. They are not difficult to rear from the egg if one keeps them supplied with living insects and isolated in individual compartments or cages so they cannot devour one another. The nymphs get their growth during June, July and the early part of August, in New York.

#### HOW THE INSECT WAS INTRODUCED INTO NEW YORK.

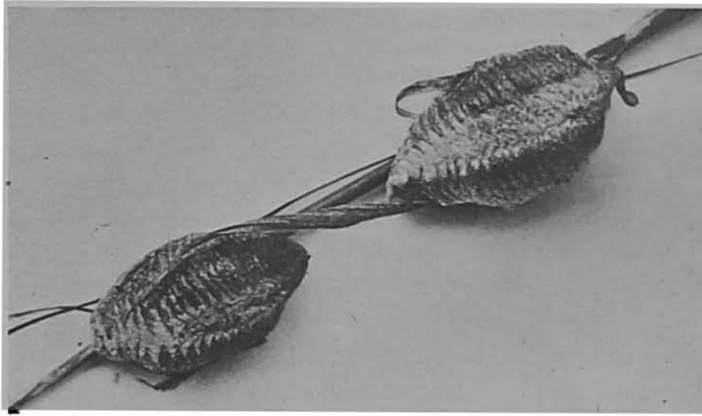
It will never be definitely known just how or when this Praying Mantis was imported from Europe. It is very probable that we have to thank the nurserymen for its importation. They import millions of stocks from Europe every year, especially from France where this insect is very common; and Rochester is a great nursery center, more young trees coming to that city than to any other within the borders of the United States, says Mr. Rouse.

It is possible for the insect to have been imported in the nymph or adult stage, but it is more probable that some egg-

\* We have made no careful observations on this point, but we doubt if the time they remain in this condition is more than a few hours, as Cockerell found in the case of a species of *Stagmomantis* in New Mexico (Am. Nat., 1898).

cases were attached to the stems of the straw or dried grass (see figure 14) used for packing material around the imported nursery stock; or possibly the eggs may have been attached to the branches of the trees. The insect must have come over five or more years ago, to have become so numerous near Rochester. It seems strange that it has not been imported and become established before, either in the same or in some other locality in America.

At Rochester, the insect is geographically five or six degrees farther south than the northern limits of its range in Europe,



14.—*Egg-cases of the Common European Praying Mantis laid on a grass stem near Rochester, N. Y. It is probable that the insect was imported into America in egg-cases laid in a similar situation in Europe.*

and as the climatic conditions of New York are not very unlike those of France this beneficial insect can doubtless maintain itself in this country indefinitely, now that it has become well established.

#### A SIMILAR IMPORTATION INTO PENNSYLVANIA.

This common European Praying Mantis is not the first member of this interesting family of insects to be brought into this country from foreign lands and to have established itself here.

Three or four years ago a specimen or two of a large Mantid were found in the nursery of Thomas Meehan & Sons at Germantown, Pa. More specimens were taken in succeeding years and in 1898 it was announced

(Ent. News, IX, 144) that the insect was a native of China and Japan, and bore the scientific name of *Tenodera sinensis* Saussure. As the Messrs. Meehans are constantly receiving plants from all parts of the world, the insect was doubtless introduced in the egg-state through this channel. Last year it was reported that there was no doubt that this large Oriental Mantid had gained a firm foothold in Meehan's nursery and was well established there.

### SOME SUPERSTITIONS ABOUT PRAYING MANTES.

Writing of one of these insects in the 16th century, Mouffet says: "So divine a creature is this esteemed, that if a childe aske the way to such a place, she will stretch out one of her feet, and shew him the right way, and seldome or never misse." A Mrs. Taylor gives a most interesting account (Harper's New Month. Mag., xxiv, 491, 2) of a Mantid which she petted and named "Queen Bess." This Mantid was fastened to the bed-post by a silk thread and at night it would capture all mosquitoes which ventured near. Mrs. Taylor states that she was not naturally a superstitious woman, but some of the experiences she relates when she tested Queen Bess's prophetic capacity soon led her to obey the insect implicitly. She says she "never in one single instance, knew her to refuse her opinion, and I never knew it to be wrong in whatever way she announced it." This Mantid disapproved by hanging her head beneath her front legs, and approved by standing more erect and spreading and closing her wings. We hope our New York Mantid may possess this prophetic power!

From the great resemblance of many species of Mantids to the leaves of trees, some early travelers declared that they saw the leaves of the trees become living creatures and take flight; the Indians of Surinam in the last century are said to have believed that these insects grew like leaves upon the trees, and when they were mature, loosened themselves and crawled or flew away. Piso, in his works, states that Mantids "change into a green and tender plant, which is of two hands' breadth. The feet are fixed into the ground first; from these, when necessary, humidity is attracted, roots grow out and strike into the ground; thus they change by degrees, and in a short time became a perfect plant." What strange fancies, these!

Cowan (Curious Facts in the History of Insects, p. 83) states that "the Mantis was observed by the Greeks in soothsaying; and the Hindoos displayed the same reverential consideration of its movements and flight. But, in modern times, the superstition respecting the sanctity of the Mantis begins in Southern Europe, and is found in almost every other quarter of the globe, at least wherever a characteristic species of the insect is found. In many localities it is considered a great crime to injure the Mantis, and, at least a very culpable neglect not to place it out of the way of any danger to which it seems exposed." We hope this idea may prevail in the minds of school children and others who may be fortunate enough to meet our New York Mantis. Cowan further states that "the Turks and other Mos-



lems have been much impressed by the actions of the common *Mantis religiosa*, which greatly resemble some of their own attitudes of prayer. They readily recognize intelligence and pious intentions in its actions, and accordingly treat it with respect and attention, not indeed as in itself an object of reverence or superstition, but as a fellow-worshipper of God, whom they believe that all creatures praise with more or less consciousness and intelligence.

Other superstitions with respect to the Mantis are : When the Mantis kneels it sees an angel in the way, or hears the rustle of its wings. When it alights on your hand you are about to make the acquaintance of a distinguished person ; if it alights on your head, a great honor will shortly be conferred upon you. If it injures you in any way, which it does but seldom, you will lose a valued friend by calumny. Never kill a Mantis, as it bears charms against evil."

Finally, the monkish legends tell us that St. Francis Xavier, seeing a Mantis moving along in its solemn way, holding up its two fore-legs as in the act of devotion, desired it to sing the praises of God, whereupon the insect carolled forth a fine canticle !

#### SOME SUGGESTIONS.

While this new addition to the insect fauna of America does not deserve to be revered by us as is apparently done in some parts of the Old World, yet, as it is decidedly an aid to man in his efforts to overcome his insect enemies, it should receive kind treatment, protection and thoughtful consideration. Its food consists almost entirely of other insects, and a large proportion of these are injurious species, like the grasshoppers, flies, etc. It will doubtless never attract much attention as a destroyer of injurious insects, yet it will materially help and thus deserves all the encouragement we can extend to it.

The curious creatures can often be kept alive in cages for a month or more, if well fed. Teachers will find a Praying Mantis a very interesting object lesson for Nature-Study, and its beneficial qualities should always be strongly emphasized. We would not advise that the children be encouraged to collect them, as the lesson they might learn from their cannibalistic or cruel ways could easily give them the wrong notion about Nature's ways ; and our farmers and fruit-growers need the aid of every Praying Mantis that can possibly safely escape the vicissitudes of an insect's life, to help them in their warfare against injurious insects.

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