

SOME SPIDERS OF THE GENUS TETRAGNATHA

EDWARD KINTNER, Manchester College

At various times spiders of this genus have been studied by the writer at Indiana University Biological Station at Winona Lake. These spiders are characterized by three peculiarities that serve to identify them rather readily—they prefer a location over or near water (a few other spiders share this with them); they have comparatively long, rather cylindrical bodies; and they have chelicerae that are extremely large for the size of the spider. The main impression they give as to color is one of varying shades of gray or yellowish-gray, marked by fine, wavy, longitudinal lines and stipples of darker colors. Even those of the same species are quite variable as to color, some being very light, while others have darker shades predominating and they thus present a very dark, grayish-black appearance. The above applies to the females, but the males display few markings or none at all. They are a fairly uniform color in a given specimen varying from a light fawn in some, to a deep rufous in others. Six species have been found, located for the most part on rushes that grow in the shallow water at various places along the shore. These rushes grow out to considerable distances from shore at some points, and the spiders were distributed out about as far as the rushes. *Tetragnatha elongata* and *T. extensa* were found in a few cases on shrubs overhanging the water, but the other species were found only on the rushes.

They are well adapted to live on the rushes. Their first pair of legs is longest, being in some of the larger females of *T. elongata* nearly an inch and a half long. These are frequently used much as an insect would use its antennae. The second pair of legs is slightly over half the length of the first, the third pair one-fourth this length, while the fourth pair is approximately the length of the second, or twice the third. When they locate on the heads of the rushes, they sometimes assume the position commonly taken by some other *Argiopidae* with their legs drawn up till they are somewhat sickle-shaped; but the more characteristic pose is one in which the first two pairs of legs are stretched straight forward, lengthwise of the rush, the fourth pair straight back, while the third pair clasps the stem. Occasionally one may observe them make their hold more secure by slipping the claw of a chelicera under one of the threads they usually have running lengthwise of the rush. In this position they are difficult to see as they blend very well with their surroundings.

The following species have been identified: *T. elongata*, the largest species, specimens having been found that measured rather more than two inches when fully extended; *T. extensa*, smaller than the preceding but like it in having prominent chelicerae; *T. vermiformis*, probably the most numerous; *T. laboriosa*; *T. straminea*; and *T. palidula*.

Because no spring observations were made, the time of their moving out onto the rushes was not determined, but by July 1, egg-cases may be seen on the stems of the rushes, many of them empty. Molt-skins testify to the same thing—that the earlier laid eggs have already hatched and the young have grown up, or nearly so. The latest observation was made October 23 of this year, and at that time none of these spiders were to be found on the rushes. They had evidently returned to the shore for the winter.

The female lays her eggs in a flat mass about an eighth of an inch in diameter, and covers it with a small amount of fluffy silk and over this a much denser covering. This is somewhat spindle-shaped, as a rule, and is closely attached lengthwise to the side of the rush. Sometimes two or three more of these are added on the same rush. They may be strung along at intervals of half an inch or so, but sometimes they partly overlap. On the whole, they have a characteristic appearance and are rather easily seen. Females of the first two species named above are not often found with their egg masses, but those of the other species are usually faithful in keeping a watch over their eggs. Their favorite position is to extend lengthwise of the rush, head down, just below the egg-mass with their last pair of legs reaching up over it. Occasionally they will assume a similar position above the eggs so their front pairs of legs extend over them. If they are disturbed, they will move away, but soon return to their former position, where they remain a considerable time. One was observed daily over a period of three weeks and during this time she did not appear to leave her rush except possibly when she may have constructed an orb. At least, she was always at her post in daytime regardless of weather conditions.

At the beginning of this three-weeks period, this female had captured another spider of a different genus and had made a meal of it. A week later a small orb was attached to her rush, but the other side of the web was attached to a rush on which another female was located and it was not possible to say to which it belonged. On it were three or four small gnats, but other than this there was no evidence available as to her food during this period, as this orb lasted but one day. It is probable that she may have captured insects that alighted on her rush. In all she laid three masses of eggs at weekly intervals and maintained her size, so she was evidently securing food in some manner.

While these are orb-weaving spiders, very few orbs are to be seen and they must depend on other means to secure their prey. Occasionally remains of mayflies and other insects are to be seen on the rushes where they have been fastened by a thread or two of silk, but it is probable that they capture some insects after the manner of the *Attidae* and then drop them into the water below after they have sucked them dry. The webs they occasionally weave are very weak, flimsy affairs. An ordinary house-fly was killed and dropped on one of these, but no matter how carefully it was placed on the web, it always broke through. No cases of cannibalism in the same species was observed, but it is not uncommon to find where one dined on another of a different genus or even another species.

The sexes get along very amicably, in general. On numerous occasions a male and a female were found on the same rush, and either might move about at will without disturbing the other. If the moving one came in contact with the other, but little notice was given it, though sometimes the one at rest would move slightly to give the other opportunity to pass without change of path, and sometimes the moving spider would go straight ahead over the other as it would have gone over any other obstacle of similar size.

The sexes in *T. elongata* and *T. extensa* were less inclined to be friendly, and members of unlike species are openly hostile. If a spider of another species came along where one was quietly extended, the latter usually dashed at the intruder. Sometimes the one thus threatened retreated rapidly, but if he stood his ground, there were usually a few moments of rapid movement and wildly flying legs after which they moved quickly apart. The favorite method of injuring an opponent is to seize one of its legs between the basal parts of the chelicerae. The fight is soon over when this happens, for the victim then bends every energy to escaping.

In addition to what might be considered the usual enemies of spiders, these have at least three others of interest. In one count at least fifty per cent of the egg-masses were parasitized by certain insects. As a rule, all of the eggs or young spiders are devoured by their larvae, but nests were found where a few escaped. One of these parasites is *Pleurotropis wilderi*, one of the *Chalcidoidea*, and a single nest will sometimes contain fifteen or twenty of these. A second is a small fly much resembling a common house-fly in appearance except that it is very much smaller. Neither of these was observed as it parasitized the egg-mass, but they could be secured from the nests. This fly belongs to the genus *Siphonella*, but its species is undetermined. The third is one of the *Ichneumonidae* of the genus *Arachnoleter*, an undetermined species. One of these was observed as it inserted its ovipositor into the egg-case of the spider while the latter sat facing her not over an inch away. These are not as numerous as the two preceding, but they are not infrequently found in the egg-cases.

I am indebted to the National Museum for the identification of these parasites.