## **PSYCHE**

VOL. XXXIII.

## APR1L 1926

## SOCIAL HABITS OF SOME CANARY ISLAND SPIDERS

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During the summer of 1925, while I was visiting the Canary Islands with my friend, Dr. David Fairchild, as a guest of Mr. Allison V. Armour on his yacht, the "Utowana," my attention was attracted by the peculiar gregarious or social behavior of two species of spiders, Cyrtophora citricola Forskal and Argurodes argyrodes Walker. The former was described and figured from the Canary Islands by Lucas as early as 1843 under the name of *Epeira cacti-opuntia*<sup>1</sup>. Simon<sup>2</sup> showed that this spider is the same as Cyrtophora opuntiæ Dufour, but in his later work<sup>3</sup> he adopts for it an earlier name, Cyrtophora citricola Forskål. He cites it as occurring in Corsica, Provence, Spain, Algeria, Sicily, Svria and the Island of Réunion "on cactus, aloes and more rarely on lentiscus." He also gives a brief but accurate account of its web and egg-cocoons, but says nothing about its social proclivities. In the former of the works cited (Vol. V, 1881 p. 16) Simon also mentions Argyrodes argyrodes as living "like a parasite on the web of Cyrtophora opuntia, more rarely on the web of Epeira adianta, Argiope lobata and Holocnemus rivulatus," and as inhabiting Corsica, Spain, Algeria, Sicily, St. Helena, Madagascar, etc.

Lucas merely records C. citricola from the Canary Islands, without mentioning particular localities. I saw both it and the Argyrodes on three of the islands, namely Teneriffe, Palma and Gran Canaria, but failed to find either of them on Lanzarote.

<sup>1</sup>In Barker-Webb and Sabin Berthelot: Histoire Naturelle des Isles Canaries ,1836-1844, p. 40 Pl. 6, Figs. 7, 7a. <sup>2</sup>Les Arachnides de Frances I, 1874, p. 34.

<sup>3</sup>Histoire Naturelle des Araignées, 2nd edit. II, 1892-1895. p. 771.

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The communal webs of the Cyrtophora are built over bushes or trees and often cover a considerable area. On Teneriffe I found a colony enveloping a long Pelargonium hedge in the garden of the Hotel Martianez at Puerto Orotava, and in front of the same hotel a huge web rising from the summit of a Lonicera hedge to the telegraph wires several feet above it. At Villa Orotava, in what was formerly the garden of the distinguished botanist Wilpret, there was a fine web about twelve feet high and four feet broad spread over the foliage of a cedar tree. On the island of Palma smaller webs were seen on the way-side Opuntia cacti near San Andres and Sauce. On Gran Canaria they were common in the banana plantations and on cacti at Telde, and on a beautiful myrtle hedge in the finca of Don Salvador Manriquez de Lara at Tafira. But the most extensive web was seen on this island near Puerto de la Luz. It completely enveloped a dense hedge of Opuntia fully one hundred feet long and six to eight feet wide. I estimated its area at somewhat more than 1000 square feet.

In all these cases the web was the joint work of dozens or, in the last instance mentioned, of thousands of Cyrotphoras. It consists of two parts, a very irregular structure or framework of long, coarse, yellow and somewhat glutinous threads, running in all directions and attached to the plants, and a variable number of suborbicular, horizontal webs, suspended side by side or one above the other in the frame work. These webs are three to eight inches in diameter and made of very even square meshes, of the size of those of mosquito netting, but consisting of exceedingly delicate, whitish silk. The Cyrphoras rest on the lower, convex surfaces of these webs. Individuals of all ages live together amicably and seem to feed in common on the prey that is caught in the webs, but the adult females. (15 mm. long) which are gray, with large, paired, silver spots on the dorsal surface of the abdomen, are usually few in number. The egg-cocoons are elliptical, about 15 to 20 mm. long, made of dense, coarse, gray-green silk, and are suspended vertically in or near the center of the whole structure. They vary from one to five in number and are attached to one another in a series, so that they resemble a string of minute sausages. The mother 1926

spider is usually found resting at the end of the lowermost cocoon.

The Argyrodes, which are black, with pale legs and extensive silver spots on the abdomen and are very much smaller than the adult Cyrtophoras (adult female only 4.5 mm.; adult male 3.5 mm.), were also present in all the webs which I examined. They seem to make no webs of their own but live in the coarse framework of the structure spun by the larger species. Like the latter, they are present in considerable numbers, of all sizes and of both sexes. They were seen feeding on midges and other small insects caught in the coarse vellow strands. When disturbed they quickly drop to the ground by letting out a thin silken filament, but the Cyrtophoras run off to the side and hide in the foliage of the plant supporting the web. The egg-cocoons of the Argyrodes resemble certain seed-capsules and are of the peculiar type seen in other species of the genus, being small subspherical or pear-shaped, yellowish brown, papery-walled structures. One pole of the capsule is prolonged into a stiff stem, or pedicel by which the capsule is suspended from the threads of the web and at the opposite pole there is a small circular, protruding rim.

The habits of Cyrtophora citricola and Argyrodes argyrodes thus resemble those of Nephilla plumipes and Argyrodes nephillæ, which Mr. Nathan Banks and I observed in Panama. In a volume soon to be published<sup>4</sup> I have described the behavior of these spiders and have cited the observations of others on similar gregarious or social habits in the species of Uloborus, Anelosimus, Epeira, Stegodyphus, Cœnothele, etc. in various parts of the world.

<sup>4</sup>Les Sociétés d'Insectes, Doin, Paris 1926.



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