

research. After much search for general introductory text books, I used 'Spiders of the World' by R. and K. Preston-Mafham and the Golden Guide to 'Spiders and their Kin'. I limited enrollment to 40 students the first semester, and anticipate 50 to 80 students this coming fall when I offer it again. For further information about the structure of the course, contact Dr. Linda Rayor, Dept. Entomology, Cornell University, Ithaca, NY 14853, lsr1@cornell.edu, 607-255-8406.

— Linda S. Rayor

## THE SPIDERS OF HERNANDEZ'S NATURAL HISTORY OF NEW SPAIN

Christopher K. Starr and María Luisa Jiménez  
Department of Zoology Centro de Investigaciones Biológicas  
University of the West Indies de Baja California Sur, A.C.  
St Augustine, Trinidad Apartado Postal 128  
La Paz, BCS 23000, México

Francisco Hernández (1514-1587) was born in Montealban, Toledo, Spain and studied medicine at the University of Alcalá de Henares (Gortari 1980). At the request of King Philip II, at the age of 50 he undertook together with his son Juan to travel to Mexico to make the first floristic-faunistic assessment of Spain's overseas colonies. He returned in 1577, bringing 16 volumes titled *De Historia Plantarum Novae Hispaniae*, which he deposited in the library of the Escorial. The original of this work was lost in a fire in 1671, but Hernández had taken the fortunate precaution to leave a copy in Mexico. Together with other of his writings, these volumes have been of enormous importance in the history of biology (Rodríguez-Sala & Gomezgil 1992).

Hernández's natural-history writings of 1571-1576 were in this century brought together in Spanish translation in two folio volumes (see reference). More than 80% of the work is devoted to plants, with the discussion of animals and minerals forming part of volume 2. The section on animals is divided into five "treatises", of which the fourth deals with land invertebrates. This latter comprises 30 paragraphs (called "chapters"), mostly about insects, but with five devoted to spiders. Barrera & Hoffmann (1981) provide commentary on the fourth treatise, with special attention to suggested identities of the various animals.

Here we provide an English translation of Hernández's five chapters on spiders, summarize comments from Barrera & Hoffmann (1981), and add a few of our own. All Mexican linguistic notes are taken from Barrera & Hoffmann. Commentary is in square brackets.

New Spain at that time consisted of Mexico and the very recently colonized Philippine Islands. These latter were administered as a sub-province of Mexico, with little direct oversight from Spain. Native names from Mexico are mainly in Náhuatl, but some are in the Purépecha language of Michoacán. Those from the Philippines are all in Sebuano or a closely related language (C.K. Starr, unpublished wordlists). On this basis, Barrera & Hoffmann (1981) conclude that Hernández's notes from Mexico are mainly from the Cuernavaca area of modern Morelos state and we conclude that his Philippine notes came from the Visayas group of islands, probably from Cebu.

Chapter 1. On the *atócatl*, or aquatic spider.

The *atócatl* is red, golden yellow and black spider. It usually lives and builds its web in the plant known to the Indians as *metl*. Its bite is light and quite innocuous. One must admire the great trouble to

which it goes in spinning out its extensive lines, later laying down threads in geometrically regular circles, then spinning between these and finally dismantling them on the woof.

[Barrera & Hoffmann suggest that *Leucauge venusta* (Araneidae) fits the description of this spider. *Metl* usually refers to agaves, but may here refer to a waterside bromeliad.]

Chapter 3. On the *aoachtócatl*, or dewy spider.

This is a spider of extraordinary size, larger than a dove's egg, but not deadly poisonous. It lives in hot regions, such as Quauhnahuaca, and is most abundant where it is hottest. Some call it the *tlalhoéhoetl*. [Barrera & Hoffmann suggest that this spider is a theraphosid, possibly *Aphonopelma* sp. The alternative name can be rendered as "big soil-dweller", from *tlali* (soil) and *huéhuetl* (large, robust). *Quauhnauhauca* is a Náhuatl name for the region of Cuernavaca, Morelos.]

Chapter 4. On the *ecatócatl*, or wind spider.

This rotund spider resembles a hazel nut in size and shape, although it is sometimes more elongate. It has a tawny stripe and a series of yellow dots across the middle part of the dorsum. The rest of the body is scarlet, white and tawny. It seems not to be venomous. The feet are black and white, relatively short, but a little broader than in other species. It is very common in the fields of Tepoztlán [near Cuernavaca]. Some call it the *ocelotócatl* [= *ocelotócatl*; see below], on account of its appearance.

[Barrera & Hoffmann suggest that this applies to various araneids, including *Neoscona oaxacensis*, the name deriving from the wind shaking the spider in its web. The alternative name they attribute to striping of the body.]

Chapter 5. On the *hoitztócatl*, or spiny spider.

The bite of this spider produces dementia. The middle and upper parts of the body are black, the rest yellow. It is like an iron nail in shape with thornlike projections. The local name derives from this last feature, as *hoitztli* means "spine".

[This seems obviously to refer to one or more gasteracanthines, as noted by Barrera & Hoffmann. We likewise follow these authors in doubting that the bite "produces dementia." This belief would appear to be of a kind with those in West Africa about the deadly bite of chameleons.]

Chapter 25. On the various kinds of *tócatl*, or spiders.

The first kind of spider is the *tlazotócatl*, or dungheap spider. It is blackish brown and medium-sized. The second is larger, of about the same colour, and is called *tocamaxacualli*. Third is the *toatzintlauhqui*, smaller than the first two and black. The fourth is called *zintlatlauhqui* [*tzin* = hind end, *tlatlauhqui* = red] on account of having a red spot, although the body as a whole is almost entirely black. Yet another -- also called *tocamaxacualli* -- is large, hairy and tawny. The sixth, known as *tlalhoéhoetl*, is the largest of all and coloured black, yellow and ashy red. In addition, there are the *ocelotócatl* (so called because its variegated colouration has a certain resemblance to that of a jaguar), the *huitzócatl* (which takes its name from its spines), and the black, scarlet and yellow *atócatl* (so called because it is found by water). It is said that the largest spiders are found near the sea.

Some of the spiders named here have a noxious bite, but I cannot say whether the venom of any is very poisonous. The bite of the *tocamaxacualli* produces ulcers that are hard to cure and which, even if they end as scars, reappear at intervals in different parts of the body. Ulcers of this type are not caused by the animal's bite or sting but by its footfall or just the rub of its body, and by the faeces from its underside, which it casts into the affected site.

[*Tócatl* is evidently a generic term for spiders or perhaps for visible arachnids. Barrera & Hoffmann suggest the following identifications for spiders introduced spiders in Chapter 25: *tlazotócatl* as a salticid,

often seen hunting prey around dungheaps; *tocamaxacuali* as *Loxosceles boneti* and/or *L. misteca*; *tocatzintlahqui* as a theridiid; and *tzintlatlauqui* as *Latrodectus mactans*, very similar names still used in Náhautl for this spider.]

Chapter 28. On the *lualaua* spiders.

This spider is very small, golden yellow with red dots. Its bite is very serious, causing insanity in the victim and terribly painful swelling around the site. The remedy is to take three swallows of *tuba* and several of *tumbalaguisa* and *pilipoc* dissolved in palm wine, or to anoint the bitten site with the oil described in the section on plants. It is important that one should then abstain from drinking for three days; if one must drink, it should be palm wine or (preferably) grape wine. The victim must also avoid sunlight and the open air during recovery. The spider lives in the grassy meadows of the Philippines. [Barrera & Hoffmann plausibly suggest that Hernández's description fits *Latrodectus tredecimguttatus*. However, *lawa-lawa* (modern spelling) and cognates are a generic term for spiders in several Philippine languages. *Tuba* is fermented sap from the coconut-palm inflorescence, and Hernández's "palm wine" is most likely a translation of this same term. *Tambalaguisa* (sic) is the Sebuano name for a common medicinal plant, while *pilipoc* refers to a wild-type coconut tree; we thank Andres Duatin for explaining these two terms.]

#### References

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