careful estimates of body weight in calculating paralytic doses to be administered (by means of the projectile hypodermic syringe) for the purpose of safely inactivating wild, feral, or dangerous and unmanageable animals.

S. D. FEURT, J. H. JENKINS,
F. A. HAYES, H. A. CROCKFORD
Schools of Pharmacy, Forestry, and
Veterinary Medicine, University
of Georgia, Athens, and
Georgia Game and Fish Commission

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Number of Species of Black-Widow Spiders (Theridiidae: Latrodectus)

The last revision of the black-widow genus *Latrodectus* was that of O. P.-Cambridge in 1902 (*1*). Chamberlin and Ivie in 1935 (*2*) made a study of the black-widow spiders north of Mexico, establishing several subspecies names subsequently used by nonarachnologists in this country. Although there is a steady flow of papers on the toxicology and distribution of black-widow spiders, the taxonomists have not kept pace with their colleagues. The common black-widow spider of the United States is now revealed to include two separate species. As a result of this, the specific toxicological properties of the two have been confused consistently in the literature (a further example of the dependence of physiological research upon accurate determination of the experimental animal).

There are two catalogs listing all the species of spiders known. Roewer's *Katalog der Araneae* (*3*) lists 21 species of *Latrodectus*. Bonnet, who covered the arachnological literature to the year 1938 in his *Bibliographia Araneorum* (*4*), also lists 21 species. Since the completion of these works, *Latrodectus rivivensis* Shulov, 1948, has been described, from Palestine.

In my systematic revision of the comb-footed spiders (Theridiidae), in progress for the last 6 years, I have now included the genus *Latrodectus*. The anatomy of all species was studied in some detail, and for the first time the many names created by Dahl (*5*) and Badcock (*6*) could be evaluated.

Although the structure of the genitalia is the usual criterion for separating spider species, some authors (mostly those otherwise unacquainted with spiders) state that genitalia are not useful in differentiating species of *Latrodectus*. My researches indicate that wherever two forms seem to occur in the same locality there are also differences in the genitalia of these two. Coloration and spines, however, are variable characters.

From a study of large series of specimens it can be concluded that there are three species in America: *Latrodectus geometricus* C. L. Koch, 1841, the cosmotropical brown widow; *Latrodectus mactans* (Fabricius, 1775), also limited to the warmer regions and apparently found in all continents; and *Latrodectus curacaviensis* (Müller, 1776) [= *L. bishopi* Kaston, 1938], endemic in America from Argentina to Canada but possibly more common in the temperate zones of North and South America. The last-named species has been confused with *L. mactans,* and much of the *L. "mactans"* literature of the United States may refer to either or both of the species. No conspicuous morphological differences could be found between *L. hasselti* (New Zealand to India), *L. indistinctus* (Africa), *L. tredecimguttatus* (Mediterranean region), and *L. mactans*. It is possible that they all represent one species. *Latrodectus hystrix* Simon, 1890, from Yemen, and *L. pallidus* O. P.-Cambridge, 1872, from Palestine, Asia Minor, and southern Russia, seem to be distinct. All other names in use appear to be synonyms of the names listed above. It is possible, thus, that the 21 nominal species cited in the literature may have to be reduced to five species.

In the males of *L. curacaviensis,* confused with *L. mactans* in this country, the palpal embolus is wider than and about three-quarters as long as the embolus in males of *L. mactans*. The connecting ducts of the female genitalia have three outside coils in dorsal view, while in *L. mactans* there are four or five. The legs of females of the former species are longer, although the coloration and spines are similar. There are differences in habitat: *L. curacaviensis* lives in trees and shrubs, above ground, in Florida; *L. mactans* lives on the ground. In northern states, *L. curacaviensis* lives under logs and stones in woods and fields and probably gets into urban surroundings only rarely, while *L. mactans* is usually found in trash and near dwellings. The northernmost localities where *L. mactans* is found are Maryland, Indiana, Wyoming, Utah, and central California, although this species may be found also in houses in the larger northern cities. The common black-widow spider of New England, most northern states, and, probably, southern Canada is *L. curacaviensis*.

Latrodectus geometricus has only occasionally been found in this country, in cities of Florida. The females are usually gray in color. The palpal embolus is narrower and about one-quarter longer than that of *L. mactans* (*7*).

HERBERT W. LEVI
Museum of Comparative Zoölogy,
Harvard University, Cambridge,
Massachusetts

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7. A more extensive paper, demonstrating, with figures, the differences between species and mapping their distribution, is in press (*Trans. Am. Microscop. Soc.*). This taxonomic study was made possible by the generous cooperation of the individuals and museums who have loaned collections of *Latrodectus* from various parts of the world. The work is supported by a grant from the National Institutes of Health (No. E-1944).

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New Absorption Peak of Tyrosine

While we were investigating the possible adaptation of the Holiday (*1*) method for the determination of small amounts of tyrosine in sea water, we observed a hitherto unreported absorption peak of tyrosine. This peak, at 330 mμ, arose when dilute solutions of tyrosine (1 to 100 mg/lit) in artificial sea water were autoclaved at relatively high pressures (70 to 90 lb/in.^{2}) in the presence of alkali concentrations ranging from 0.12 to 5.0*N* (Fig. 1, curves 1 and 2).

A similar peak, displaced 10 mμ toward the ultraviolet, was found when tyrosine solutions were autoclaved either in artificial sea water or in distilled water alone. Tryamine, 3,5-diiodotyrosine, and *p*-hydroxybenzoic acid behaved similarly (Fig. 1, curves 3, 5, 7), while other amino acids tested, including phenylalanine, proline, hydroxyproline, histidine, and tryptophan showed no such spectral change. Both crystalline albumin and plasma albumin solutions produced the