GEOLOGICAL SURVEY OF ALABAMA

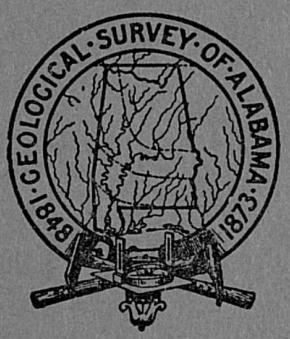
WALTER B. JONES, STATE GEOLOGIST

MUSEUM PAPER 30

ALABAMA MUSEUM OF NATURAL HISTORY
A STUDY OF THERIDIID AND MIMETID SPIDERS WITH DESCRIPTIONS OF NEW GENERA AND SPECIES

By

ALLAN F. ARCHER



UNIVERSITY, ALABAMA

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LETTER OF TRANSMITTAL

University, Alabama
June 28, 1950

Honorable James E. Folsom
Governor of Alabama
Montgomery, Alabama

Sir:

I have the honor to transmit herewith the manuscript of a report entitled "A Study of the Theridiid and Memetid Spiders With Descriptions of New Genera and Species," by Allan F. Archer. It is requested that this be printed as Museum Paper 30 of the Geological Survey of Alabama.

Respectfully,

WALTER B. JONES,
State Geologist

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A STUDY OF THERIDIID AND MIMETID SPIDERS WITH DESCRIPTIONS OF NEW GENERA AND SPECIES

BY

ALLAN F. ARCHER

INTRODUCTION

The purpose of this paper is to make available for use the results of a revisional study, particularly aimed at the genera of the theridiid spiders. Both the Theridiidae and the Mimetidae, particularly of the southern United States, have been the subjects of previous papers by the writer (1942, 1946, see bibliography). It is to be especially emphasized that in the Theridiidae the genus *Theridion,* a huge entity as it is now understood, was for the purposes of the Alabama Region broken down into a number of subgenera. A detailed study of the structural anatomy on the basis of abundant material both in the writer's collection and in collections housed in several large museums demonstrates that what we have in reality are not subgenera that serve a convenient but not very valuable purpose, but instead are valid genera that require concise definition. This procedure is not intended as a surrender to the vicious cycle of splitting taxonomic entities and raising the comminuted products to a higher status than they merit, but is a procedure resulting from a study of the phylogeny, developmental and genitalic anatomy of the spiders in question.

I wish to acknowledge my indebtedness to Dr. W. J. Gertsch and other members of the Entomology Department of the American Museum of Natural History for all sorts of assistance rendered in the study of this and other families of spiders as well as for a grant that made the completion of this study possible. I am also greatly indebted to Dr. Walter B. Jones for extending research facilities to myself and for the gift of material collected on the field by himself, particularly in his study of cave faunas. Mrs. H. E. Frizzell of Rolla, Missouri, has lent me the use of her very extensive collection of theridiid spiders from the northwestern United States, thus enabling me to study males of many holarctic genera, and to her I extend my gratitude as well as to Dr. C. Fr. Roewer of Bremen, Germany, himself a student of the Theridiidae, for the donation of species representing genera peculiar to Eurasia.

PHYLOGENY AND TAXONOMY

A glossary of anatomical and general terms can be found both in Comstock's "Spider Book" and in a new and excellent book by Gertsch, "American Spiders" (see bibliography). A study of the external anatomy of the Theridiidae and Mimetidae demonstrates the fact that the most comprehensive differences separating species, and higher taxonomic categories as well, lie in the genitalia. Both primary and secondary sex characters used in conjunction with other structural features, particularly the appendages, are of the highest value in the understanding of specific, generic, and familial differences. The characters generally used for the separation of categories above the specific level tend to overlook genitalia, and to dwell upon features of the eyes, chelicerae, and armature of the legs. Unfortunately these last structures are not consistently helpful (e. g. the leg spines in Mimetidae and the tarsal comb in Theridiidae), and tend to confuse the issue, when lacking as they are at times. On the other hand the genitalia, primary and secondary, are consistently helpful. It is certain that the genitalic anatomy must be relied upon as a clue to the differences in habits that characterize each genus and as a clue to the very intrinsic differences that separate the aggregations of species comprehended in one genus from those aggregations comprehended in any other genus. Finally the genitalic anatomy along with the increasing complexity of the structural dimorphism of the two sexes furnishes the pattern of the family tree on which genera in each family should be arranged, beginning with the more primitive genera and ending with the most derivative genera on the top branches. That genitalia should furnish an answer to this question is not surprising, for in considering the question of speciation (the differentiation of species from each other) we should be primarily interested in the phenomenon of speciation itself. Dr. J. M. Valentine regards this phenomenon as a sexual phenomenon, and his view is sound when we consider the fact that (1) the two sexes are dichotomous and that (2) the only valid and sure criteria for distinguishing species are to be found in the genitalia themselves.

The *Theridiidae* appear from all evidences at hand to have descended from a medium- or virtually medium-sized spider (they are themselves generally small) having a fourth tarsal

brush, a relatively narrow cephalon, and the palpal tibia of the male enlarged apically and elaborated (having apophyses). The characteristics of the family are as follows: No paracymbium on the male palpus. Genital bulb of the male palpus attached to the base of the cymbium. Tegulum very reduced in proportion to the large subtegulum. Terminal structures of the male palpus rarely folded down, but if so, not accompanied by a ventral flattening of the previous segments (the opposite is so in the Archaeidae and Symphytognathidae).

The *Mimetidae* do not present any very clear picture as to the ancestral type, but the family probably belongs close to the Linyphiidae and Argiopidae. The characteristics of the Mimetidae are as follows: Paracymbium present as a short lobe projecting from the retrolateral margin of the cymbium of the male palpus at a considerable distance above the apical face of the tibia. Attachment of the genital bulb eccentric-median. In this family the cephalon of the female is relatively wide.

The question of the tarsal comb as a characteristic of the first family in question, the Theridiidae, needs clarification. In the first place a brush, not a comb, is found in *Nicodamus*, a genus that occurs in the southern hemisphere of the Old World. Because of the presence of tibial apophyses on the male palpus as well as other peculiarities this genus has had a varying career, being placed in families other than the one in which it belongs. However, Dr. Roewer[1] correctly placed it in the Theridiidae and included it in a subfamily of its own. On the other hand we have one subfamily in which the presence of a tarsal comb is almost imaginary. The truth of the matter seems to be that the conservative southern hemisphere *Nicodamus* simply preserves the tarsal brush from which the comb is later derived as a specialized structure. A study of the male palpus of *Nicodamus* shows that its status is clearly that of a theridiid. In this connection it should be pointed out that there is another genus resident in the southern half of the Old World called *Hadrotarsus* which has been given a family status all of its own. Gertsch, American Spiders, pp. 169-170, says, "The spiders of the genus *Hadrotarsus*, known from the Australian region and ordinarily placed near the Oonopidae, are sedentary types similar to *Euryopis* that have become vagrant secondarily. Although they

[1]Mem. Mus. Royal Hist. Nat. Belgique, Aranae, 1938, 3 (10): 22-23.

have lost their unpaired claws, they still retain spurious claws and numerous other features that point to an origin from the comb-footed spiders." They are indeed theridiid (Comb-footed) as the male genitalia show in a study of specimens in the American Museum of Natural History made by the writer.

In the Mimetidae we are likewise posed with a problem arising from a complete reliance on nongenitalic characters. The commonly stated character, the first and second tibia and metatarsus provided with a long row of spines, the interspaces of which are occupied by a row of much shorter spines, Archer, Alabama Mimetidae (see bibliography), is valid in the subfamily Mimetinae but in the Melanosiinae of the Eastern Hemisphere this feature is lacking. Furthermore evidence is now at hand to show that the genera *Gnolus, Arcys,* and *Poecilarcys* are not Argiopidae, but have typical mimetid genitalia, and even exhibit the curious arrangement of the spines, to a greater or lesser extent, mentioned in the second sentence of this paragraph.

CLASSIFICATION, GENERA, AND SPECIES OF THERIDIIDAE

Simon in his Histoire Naturelle des Araignees, 2d edition (see bibliography) breaks the Theridiidae up into a number of tribes. Wiehle in Theridiidae, Spinnenthiere VIII (see bibliography) follows Simon to quite an extent in designating the genera under consideration under tribal headings. A modified classification of the subfamilies and tribes of the world Theridiidae is given below. An examination of representative males of two tribes, *Propostirini* and *Monetini,* is particularly needed in order that this scheme of classification may be at all conclusive. All tribes listed below are presumed to have been proposed by Simon or Roewer unless followed by the name of the writer in parentheses. **The latter are new.**

Subfamily Nicodamini. No median apophysis of the tegulum of the male palpus. Tibial apophysis present. A fourth tarsal brush present (at least in the female).

Subfamily Lucarachninae. No median apophysis of the male palpus. No tarsal brush or comb.[2]

Subfamily Episininae. No median apophysis of the tegulum of the male palpus. A tarsal comb present, leg IV.

Tribe Synotaxini
Tribe Oetini
Tribe Hetschkiini
Tribe Propostirini
Tribe Monetini
Tribe Episinini
Tribe Euryopini
Tribe Achaeini (Archer)
Tribe Theridulini (Archer)
Tribe Histagoniini

Subfamily Theridiinae. Median apophysis of the tegulum of the male palpus present, lateral in position (sometimes subapical also). Tarsal comb generally present, leg IV.

Tribe Latrodectini (Archer)
Tribe Dipoenini
Tribe Theridiini
Tribe Asagenini
Tribe Spintharini
Tribe Pholcommatini
Tribe Phoroncidiini

Subfamily Conopisthinae. Median apophysis of the tegulum of the male palpus present, extending around to the ventral side of the genital bulb. Tarsal comb abortive.

In the treatment of genera heavy emphasis is laid upon the male genitalia. Generic distinctions based on female genitalia are rather unsatisfactory in this family. However, Wiehle (see bibliography) and others have figured transparencies of the female epigynum, and generic characters can be detected in

[2]Bryant makes **Lucarachne**, 1940, a metine argiopid, but it is most certainly a Theridiid, lacking a paracymbium on the male palpus. The "abortive paracymbium" of figs. 116-117 is located on the wrong side of the palus, even for an infolded paracymbium. Cuban Spiders, Bull. Museum Comp. Zoology, 1940, 96 (7): 349-352.

these. This line of investigation should be followed up. In all cases the genera described here for the first time along with resurrected genera or subgeneric names raised to the generic rank pertain to species placed by Simon and others under the very comprehensive genus Theridion. As it now stands this genus contains generic elements belonging to two subfamilies, Episininae and Theridiinae. It is hoped here that genitalic studies have enabled us to get away from such bizarre results. It is regrettable but absolutely necessary to divorce the true genus *Theridion* from its association with what must now be known as *Allotheridion,* and to place it with what has been known as *Enoplognatha.* It is indeed remarkable that *Theridion ovatum* (Clerck) should not have been seen as identical with the species of *Enoplognatha,* but such is the case.

Subfamily *Episininae*

Tribe Episinini. Origin of the embolus without any particular acompanying apophysis from its base, as far as known. Cymbium apparently undivided. Palpal tibia of medium width apically. Abdomen frequently having spines of other appendages. Including *Meotipa* and *Episinus.*

Chindellum, new genus

Plate I, figure 1

Cymbium of the male palpus surmounted by an apical prolateral spine; genital bulb having a blade-like embolus accessory process, and conductor. Abdomen of the female cordate, indented on the dorsal margin, and having many short dorsal spines or hairs. Epigynum forming ovate or curved patterns on the external plates. Male with prominent stridulating organ, the lunate plate being complete. Chelicerae geniculate.

Genotype: *C. intervallatum* (Emerton)

The species of this apparently Nearctic genus were formerly assigned to *Theridion,* and two of them were listed in my paper on Alabama Theridiidae, 1946 (see bibliography). Besides the genotype the following species are also known to the writer: *C. detractum* (Gertsch & Mulaik), *C. magnificum,* new species.

Chindellum magnificum, new species

Plate I, figure 2

FEMALE: Total length, 4.3 mm. Carapace, 1.4 mm. long, 0.8 mm. wide.

Carapace dark yellow with a black patch anterior to the junction of the cervical grooves. Sternum dark yellow with 3 black marks on each side and one on the caudal end. Abdomen creamy white. A longitudinal triangular, median black patch on the anterior margin. Dusky patches lateral and anterior to the widest lateral curvature of the dorsum. Dorsum light except for two transverse rows of very scattered dots, and black hairs, spines and points all over the surface. Patches of black above and behind the spinnerets. Legs yellow, subannulate. Leg formula, 1243.

First leg: Femur, 2.2 mm., patella, 0.4 mm., tibia, 2.0 mm., metatarsus, 1.9 mm., tarsus missing.

Epigynum as shown in Plate I, figure 2.

TYPE LOCALITY: Female holotype, Centreville, Wilkinson County, Mississippi, 1944 (A. F. Archer). Archer Collection.

Tribe Euryopini. An apophysis from the origin of the embolus in all known cases. Embolus notched or lobate subapically, or having dorsal apophyses. Palpal tibia wide apically or reduced.

Euryopis Menge, 1869

Cymbium having a shallow sinus and often a slightly subapical lobe. Stridulating apparatus of the male reduced to a small plate on either side of the pedicel, a condition rather usual in this tribe (*Euryopini*). Chelicerae non-geniculate. A very characteristic genus.

Genotype: *E. flavomaculata* (C. L. Koch)

Parasteatoda Archer, 1947

Plate I, figure 5

Cymbium of the male palpus having a very shallow subapical sinus or notch. Embolus short to long, carried along by a curved, slanting, punctate or denticulate (laminated) conductor. Margin

of palpal tibia entire, equal on all faces. Epigynum an open elliptical vault. Male small but not minute, one-third to two-thirds the stature of the female. Stridulating apparatus of the male present as a partial lunate plate on either side of the pedicel. Chelicerae non-geniculate.

Genotype: *P. tepidariorum* (C. L. Koch)

The species of this genus have been included under *Theridion*, and have been regarded as at least characteristic of it, which they are not at all. *Parasteatoda* was originally established as a subgenus by the writer,[3] but is now recognized as a distinct genus. Besides the genotype the following species are known: *P. formosum* (Clerck), *P. umbraticum* (L. Koch), and *P. camura* (Simon). The first is probably Eurasian, the second is Alpine, and the third occurs in the Papuasian Region, and the male palpus is shown in Plate I, figure 5. In the latter the embolus is very long and looped.

Cryptachaea Archer, 1947

Margin of cymbium of male palpus having a sinus near the apex, and at times lobate. Embolus strongly converging with the short, erect, diagonally truncate conductor. Margin of the palpal tibia on the apical level having a sinus on the ectal side, as though truncated, to receive the base of the cymbium. Epigynum much less ample than that in *Parasteatoda*. Male somewhat smaller than the female, but not minute. Stridulating apparatus of the male present in the form of partial lunate plates, one on each side of the pedicel, and surmounted with the usual pick. Chelicerae geniculate.

Genotype: *C. catapetraeum* (Gertsch & Archer)

The species of this genus have been placed under *Theridion*. In 1947 *Cryptachaea* was described by the writer as a subgenus,[4] but it is very distinct. No figures of the genitalia are published in this paper, but the reader is referred to some very clear ones given in the 1942 paper by Gertsch and Archer and by Dr.

[3]Archer, Ala. Mus. Nat. Hist., 1947, Mus. Paper 22: 35, 38.
[4]Archer, Ala. Mus. Nat. Hist., 1947, Mus. Paper 22: 35, 36.

Wiehle in 1937 (see bibliography). As a guide to the identity of species included in this genus the following known species are listed in addition to the genotype: *Cryptachaea* undescribed species from California, *C. porteri* (Banks), *C. rupicola* (Emerton), *C. saxatilis* (C. L. Koch), and *C. serenoae* (Gertsch & Archer). All species listed are North American except for *C. saxatilis* from Europe. *C. porteri* was listed in my 1947 paper[5] as *Theridion redemptum* Gertsch & Mulaik under *Parasteatoda*.... The male genitalia show clearly that this species is a *Cryptachaea*.

Tidarren Chamberlin & Ivie, 1934

Cymbium of the male palpus having an antero-dorsal apophysis composed of a ridge with aculeate denticles or thorns on the summit. Embolus a narrow, wire-like structure located in an apical inset along with the short conductor. Epigynum a prominent, projecting plate. Male minute. Stridulating apparatus present, one small plate on either side of the pedicel. Chelicerae non-geniculate.

Genotype: *T. sisyphoides* (Walckenaer) (*fordum* Keyserling)

An example of peculiarities of the male palpus is shown in Plate II, figure 2, *T. minor* Chamberlin & Ivie, whose male has never been figured before.

Tholocco Archer, 1947

Plate I, figure 7

Apex of cymbium tending to be flattened dorso-ventrally and more or less truncate. A large suberect ectal apophysis arising from the base of the very short embolus. Embolus converging with an overhanging conductor, and its tip inserted into the tip of the latter. Apical margin of the palpal tibia very wide. Epigynum having a very small, somewhat prominent external plate. Both sexes contrasting little in stature. Stridulating apparatus of the male present, consisting of a definite lunate plate on each side of the pedicel.

[5]Archer, Ala. Mus. Nat. Hist., 1947, Mus. Paper 22: 38.

Genotype: *T. amputata* (Keyserling)

The species of this genus were originally placed under *Theridion*. *Tholocco* was described by the writer in 1947 as a subgenus,[6] but is, of course, very distinct. Besides the genotype the following species are known: *T. unimaculata* (Emerton), (=*liliputanum* Keyserling, preoccupied), *T. pallida* (Emerton) (=*wallacei* Gertsch & Archer), *T. maderae* (Gertsch & Archer), *T. edinburgensis* (Gertsch & Mulaik), and *T. guanicae* (Petrunkevitch). The inclusion of *dividuum* Gertsch & Archer under this genus is a mistake, for it is really an *Allotheridion* (q. v.).

Tribe Achaeini. Embolus slender, thread-like or at least aculeate, if short; no accessory apophysis from its base or origin. Cymbium more extremely modified as a rule than in the *Euryopini*, having at least a subapical sinus, and with the apex often very much produced, or else a subapical lobe present. Subadult male palpus with an apical apophysis. Palpal tibia very short and very wide at the apical margin.

Kochiura, new genus

Plate I, figure 3

Apex of cymbium deeply divided but unequally so, the dorsal process being the lesser of the two. Embolus thread-like, forming a coil. A single apical patellar spine. Epigynum having a transverse atriolar hood anterior to the common aperture.

Genotype: *K. aulica* (C. L. Koch)

The species of this genus has been placed under *Theridion*. It occurs in Southern Europe, the Mediterranean Region, and to a limited extent in Western Europe.

Hentziectypus Archer, 1947

Plate I, figure 4

Apex of cymbium forming a sort of horn projecting from the rest of the structure. Genital bulb having a spur on its apex, constituting the embolus and conductor together at the

[6]Archer, Ala. Mus. Nat. Hist., 1947, Mus. Paper 22: 36, 49-50.

end of the duct. Palpal tibia not only wide but short. Epigynum forming a more or less prominent boss. Little contrast in the stature of the sexes. Stridulating apparatus present in the male as a pair of plates, one on each side of the pedicel.

Genotype: *H. globosus* (Hentz)

This genus was described by the writer in 1947.[7] Besides the genotype the following species is known: *H. credulus* (Gertsch & Davis). For comparison with this genus a species of the Australasian (Papualand) genus *Hadrotarsus* (already mentioned in this paper) can be seen in Plate I, figure 6.

Achaea O. P. Cambridge, 1882

Plate II, figure 1

Apex of cymbium more or less deeply divided, each division a very marked structure having one or more subacute tips. Embolus very narrow, more or less linear, forming a loop, and ending in a marked projection in conjunction with the conductor. Palpal tibia and patella about as usual in the *Achaeini*. Plate of epigynum forming a low, transverse aperture. Stridulating apparatus present in the male, and about as in *Hentziectypus*.

Genotype: *A. trapezoidalis* (Taczanowski)

This genus has been extensively misunderstood, for elements of the genus *Coleosoma* and perhaps other genera have been included under it.

Subfamily *Theridiinae*

Tribe Theridiini. Tip of cymbium of male palpus regularly and gently curved, or else drawn out as a projecting horn. Median apophysis of the tegulum not in a strictly apical position, instead being quite lateral. Stridulating apparatus either weakly developed or rather well developed and forming a pick on either side of the pedicel but not a ring on the dorsal side connecting the lobes on which the pick is mounted.

[7] Archer, Ala. Mus. Nat. Hist., 1947, Mus. Paper 22: 31, 35, 51.

Chrysso O. P. Cambridge, 1882

Plate II, figures 3, 4

Median apophysis elongated, the apical portion somewhat enlarged, the endal portion only hidden inside of the margin of the cymbium. Embolus linear and looped. Tibia short and wide apically.

Genotype: *C. albomaculata* O. P. Cambridge

Besides the genotype there is, of course, *C. davisi* Bryant, found in the extreme southern United States and the Greater Antilles.

Allotheridion Archer, 1947

Plate II, figures 4, 5

Median apophysis longer than high, slanting to some extent, a considerable portion of the main piece, including the endal end, lying well within the margin of the cymbium; ectal end blunt to acute, single, bifid, often deeply so, or even trifid, the resulting spurs being short to long, horizontal, suberect, or vertical (in this case even serrate). Embolus arising at the base of an apophysis, its origin often enlarged, even oval, rather short and tubular throughout the main piece, sometimes very elongated and hair-like. Conductor a rather fleshy flap, sometimes folded over. Apical margin of the palpal tibia wide. Palpal patella with or without an apical dorsal spine. Epigynum consisting of a single or paired apertures below or within a plate. Male ½ to ¾ the stature of the female. Stridulating apparatus present in the male, consisting of a lunate plate on either side of the pedicel. Male chelicerae not modified for clasping; basally geniculate to very weakly so, if at all. Immature male palpus, at least in the instars immediately preceding the penultimate one, having a slender terminal claw.

Genotype: *A. murarium* (Emerton)

This is a very widely spread genus containing very many species, that was included under *Theridion*, and in the minds of many workers is typical of the genus. In 1947 the writer

erected *Allotheridion*[8] as a subgenus, wrongly including in it a few species that belong to genera fully described in the present paper. In a number of respects *Allotheridion* differs strikingly from *Theridion* (q. v.). In the first place it is not properly assignable to the same tribe. Moreover, in the immature male palpus there is a terminal claw (except in the penultimate moult where a mere point as in *Latrodectus* may be present), while in *Theridion* the claw is missing. It lacks the clasping structures of the chelicera as found in *Theridion,* and the median apophysis of the male palpus is set partly inside of the margin of the cymbium, while in *Theridion* all of the structure except an endal strip lies entirely outside of the margin.

Allotheridion is divisible into two subgenera, *Allotheridion* and *Phylloneta.* In the former differences of a general type may be seen in the details of the male palpus, with *A. zelotypum* (Emerton) bridging the gap. The ectal end of the median apophysis of the palpus consists of a single prone or erect spur or lobe, while the margin of the tegulum (with exceptions like *A. dorsatum* Banks) is little elevated above the border of the subtegulum. The typical species is *A. murarium* (Emerton).

Phylloneta, new subgenus

Two or three ectal spurs or lobes on the median apophysis, prone or suberect and curving. The margin of the tegulum opposite the median apophysis raised and curved, containing loops of the duct visible from outside.

Typical species: *A. pictipes* (Keyserling)

Members of this subgeneric group comprise showy species that are customarily referred to *Phyllonethis* Thorell, 1870, but there are also some less showy species to be included here such as *A. montanum* (Emerton), North America, *A. ornatum* (Hahn), Eurasia and western North America, *A. bosenbergi* (Strand), *A. varians* (Hahn), and *A. pinastri* (L. Koch), Eurasia. Besides the species listed in the writer's 1947 paper,[9] including *A. frondeum* (Hentz) and *A. albidum* (Banks), there

[8]Archer, Ala. Mus. Nat. Hist., 1947, Mus. Paper 22: 36, 41.
[9]Archer, Ala. Mus. Nat. Hist., 1947, Mus. Paper 22: 40-41.

are such species as *A. thorelli* (Keyserling), *A. electum* (O. P. Cambridge), *A. evexum* (O. P. Cambridge), and *A. longipedatum* (Roewer, Katalog, p. 494), all neotropical.

In the 1947 paper the writer stated that *Allotheridion* comprises species that in the female carry the egg-sac around before fixing it to the nest. In spite of the statement that the species listed on pages 40 to 41 fix the egg-sac to the nest instead of carrying it around at first, this appears not to be so, for members of both subgenera are known to carry the egg-sac before it is fastened down. It will be of some interest to note that the list of species of the typical subgenus *Allotheridion* is very large, and includes such species as members of the *A. lyricum* group. *A. flavonotatum* (Becker), the *A. differens* group, the *A. punctosparsum* group, *A. arcadicum* (Gertsch & Archer), *A. dulcineum* (Gertsch & Archer), *A. dividuum* (Gertsch & Archer), all from North America, *A pictum* (Walckenaer), *A petraeum* (L. Koch), *A. blackwalli* (O. P. Cambridge), *A impressum* (L. Koch), all Eurasian.

Allotheridion orlando, new species

Plate III, figure 3

FEMALE: Total length, 2.5 mm. Carapace, 1.2 mm. long, 1.0 mm. wide. Abdomen, 1.7 mm. long, 1.3 mm. wide.

Carapace hirsute, very dusky brown. Abdomen pinkish on the dorsum with a longitudinal chalky line on either side of the folium; outside of these, three pairs of black dots. Lateral and posterior margins of the spinnerets bordered by black. Legs yellowish brown, dusky at the joints.

First leg: Femur, 1.6 mm., patella, 0.3 mm., tibia, 1.7 mm., metatarsus, 1.3 mm., tarsus, 0.6 mm. Fourth leg: Femur, 1.3 mm., patella, 0.3 mm., tibia, 1.0 mm., metatarsus, 1.0 mm., tarsus, 0.4 mm.

Epigynum as shown in Plate III, figure 3.

TYPE LOCALITY: Female holotype, Orlando, Orange County, Florida, August 15-30, 1944 (Marshall Nirenberg). American Museum of Natural History Collection.

Neottiura Menge, 1868

Plate III, figure 8

Median apophysis an elongated prone, stout strip, a substantial portion of the endal part hidden inside of the margin of the cymbium; ectal end an expanded, bluntly curved blade. Apex of cymbium forming a low, projecting, curved horn; apical corner of cymbial margin provided with a spur. Palpal tibia only moderately expanded apically. Palpal patella having a small apical spine. Epigynum presenting a raised, multiple, branched plate. Stature of both sexes similar, the male being relatively large. Stridulating apparatus present in the male, being similar to that in the previous genus, but the lunate plates a bit weak. Base of the male chelicera very convex, but not typically geniculate. Femur IV of the male having a clasping structure in the form of a basal, ventral spur.

Genotype: *N. bimaculata* (Linne)

This very distinct genus was described by Menge,[10] is apparently monotypic, and is a resident of the warmer regions of Europe. The writer has been able to examine this genus on the basis of specimens donated by Dr. Roewer.

Anelosimus Simon, 1891

Plate II, figures 5, 6

Median apophysis, although lateral in position, as high as wide, resembling a little that found in the Phoroncidiini. Embolus arising from the base of an erect subtruncate apophysis, slender and forming a loop, joining a short conductor; an apical enlargement of the genital bulb containing an excessively convoluted and elongated duct which eventually enters the origin of the embolus. Palpal tibia expanded distally on the prolateral side, the apical margin receding on the retrolateral side to receive the base of the cymbium. Palpal patella having an apical spine. Epigynum a rather simple, transverse aperture. Males about one-third smaller than the females. Stridulating apparatus present in the males, about the same as in the preceding genera.

[10]Menge, Schr. Ges. Danzig (N. S.), 1868: 162.

Chelicera of the male geniculate. Paturon of the chelicera of both sexes truncated at the apical end.

Genotype: *A. eximius* (Keyserling)

This genus has often been included under *Theridion*, but is strikingly distinct from all other genera. Besides the genotype the following species of *Anelosimus* are known to the writer: *A. textrix* (Walckenaer) (=*studiosus* Hentz), *A. cynicus* (Gertsch & Mulaik), all American. The writer was able to examine the male holotype of the last species in order to confirm its status. In the palpus the apical enlargement is very extreme, and the embolus does not form a loop around it as in the other species, for the loop is isolated.

Tribe Asagenini. Tip of cymbium of male palpus tending to be produced, subacute, widely or diagonally truncate, subtruncate, and in the latter two cases having the apical curvature of the margin close to the apex. Median apophysis lateral in position, most of the structure being outside of the cymbial margin. Stridulating apparatus strongly developed bordering the lateral and dorsal sides of the pedicel as a continuous ring, the pick being very conspicuous.

Nesticodes, new genus

Plate III, figures 7, 8

Median apophysis naviculate, nearly as high as wide, taking into consideration the erect endal spur. Embolus a stout tube joining an overhanging conductor. Boat-shaped cymbium having a subtruncate apex. Apical margin of palpal tibia very slanting, the prolateral side receding to receive the base of the cymbium. Palpal patella having a distal apical spine. Epigynum a lobate plate. Male somewhat smaller than female. Stridulating apparatus strikingly developed in the male. Male chelicera without a basal geniculation. All male coxae having a distal retrolateral cone and each trochanter, especially I and II, provided with a median retrolateral, transverse ridge.

Genotype: *N. rufipes* (Lucas)

This remarkable monotypic and cosmotropical genus has been included under *Theridion,* but is very distinct in structure and habits. It is a house spider in southern Florida. Mrs. Frizzell has collected specimens from Seattle, Washington, taken in lumber shipped from Australia.

Theridion Walckenaer, 1805

Plate III, figures 6, 7

Median apophysis a rather deep, transversely slanting strip, the main body entirely outside the margin of the cymbium, and the endal portion an elongated rib extending from the lower corner well inside of the cymbial margin. Embolus rather stout, tapering and curved, joining with and included in the fleshy conductor. Apical curvature of the cymbial margin at about the level of the slightly subtruncate tip. Palpal tibia having a somewhat expanded apical margin, quite obconical. Palpal patella having an apical spine. Epigynum an irregularly subovate opening, wider than high. Male somewhat smaller than the female. Stridulating apparatus in the male strongly developed. Male chelicera modified for clasping, there being an endal spur or a pair of spurs above the promargin of the long, curved, diverging paturon.

Genotype: *T. ovatum* (Clerck) (=*redimitum* L.)

This is an old genus in the family, and it is indeed remarkable that along with the genotype only a few species have been properly associated, while another group of species was isolated under *Enoplognatha* Pavesi, 1880. The latter is an absolute synonym of *Theridion,* and there is no doubt that the genotype has the same pronounced stridulating apparatus in the male as is to be found in *Enoplognatha,* while the genitalia of both sexes are also of an identical type. The clasping structures of the male chelicera are striking, though not exactly of the same arrangement throughout, and not lacking anywhere in the true genus *Theridion,* as revised in this paper. Other synonyms besides *Enoplognatha* include *Phyllonethis* Thorell, 1869 and *Rugatha* Chamberlin & Ivie, 1942 (hardly an outstanding sub-

genus but merely a species group). Among the typical species are *T. rugosum* (Emerton), *T. wyuta* (Chamberlin & Ivie), *T. joshua* (Chamberlin & Ivie), all of North America, *T. thoracica* (Hahn), *T. maritima* (Simon), all of Europe. The subgenus *Marmatha* Chamberlin & Ivie is a valid convenience for the reception of dusky species that live in leaf litter. Here the cheliceral spurs occupy a very basal position. Included in this subgenus are the American species *T. marmoratum* (Hentz) and *T. tectum* (Keyserling) (=*puritana* Chamberlin & Ivie).

Rugathodes, new subgenus

Plate III, figures 6, 7

Conductor a blunt lobe, receiving the rather stout, weakly curved embolus. Spur on the endal margin of the paturon of the chelicera very stout, single, and dentate, and rather close to the promargin.

Typical species: *T. sexpunctatum* (Emerton)

The difference between this subgenus and the other two can be seen in the conductor and in the clasping structure of the chelicera of the male, as stated above. The embolus is less curved than is the case in *Theridion* and *Marmatha.* Besides the genotype (North America) the following species are known: *T. aurantium* Emerton, North America, *T. bellicosum, T. instabile* O. P. Cambridge, both from Europe.

Little detailed comment is required here concerning the other genera of the tribe Theridiini. Some of the important genera are *Ctenium, Crustulina, Coleosoma, Teutana, Steatoda, Asagena,* and *Lithyphantes.* In the male palpus of *Teutana* the cymbium has a general resemblance to that of the primitive *Nicodamus,* but it is remarkable that in some species the margin of the cymbium is entire, a condition found in families more primitive than the Theridiidae.

Tribe Spintharini. Median apophysis with an erect, curved, acute or subacute endal spur. Origin of embolus a lobate mass; embolus conspicuously looped over the ventral face of the genital bulb. Palpal tibia expanding at the apical margin. Stridulating apparatus of the male very reduced, almost rudimentary.

In this tribe as in the next two the basic pattern of the embolus of the male palpus is about the same, forming a marked loop including a large part of the ventral aspect of the genital bulb above the margin of the subtegulum. In fact the apical portion of the genital bulb in the three tribes under consideration is so enlarged as virtually to conceal the subtegulum in most known cases.

Liger O. P. Cambridge, 1896

Plate II, figures 9, 10

Median apophysis higher than wide, forming an erect curved spur.

Genotype: *L. incomta* O. P. Cambridge

The figures shown are adapted from O. P. Cambridge.[11] This genus is of interest in being evidently related to *Spintharus*.

Spintharus Hentz, 1850

Plate III, figures 1, 2

Median apophysis wider than high and with an erect endal spur. Pattern of embolus exceedingly typical. Little more than the margin of the subtegulum visible in ventral view.

Genotype: *S. flavidus* Hentz

This species is very abundant in hammock woods along the Gulf Coast, for example in Baldwin County, Alabama.

Tribe Pholcommatini. Median apophysis located high laterally, a vertical or horizontal plate. Embolus forming the loop typical of this and related tribes. Cymbium either simple or subapically divided. Abdomen of both sexes having dorsal or ventral **plates** or both, or else lacking them entirely.

[11] O. P. Cambridge, Biol. Centrali-Americana, Arachn. Aran., **1896**, 1: 210, Pl. 21, fig. 6.

Paidiscura, new genus

Plate IV, figure 6

Median apophysis an erect plate, lobate at the summit. Origin of the embolus a rather small lobe; embolus forming the usual pattern. Palpal tibia expanded at the apical margin. Palpal patella having an apical spine. Epigynum a subovate opening. Abdomen of both sexes soft and without corneous plates. Stridulating apparatus rudimentary.

Genotype: *P. pallens* (Blackwall)

This European genus has been included in *Theridion,* but its lobate, suspended egg-sacs are very distinct from the rounded ones made by members of the lattern genus, and have been described more than once.

Paidisca Crosby & Bishop, 1926

Plate IV, figure 1

Median apophysis a transverse rhomboid or suboblong plate, located very high up the genital bulb and just outside of the margin of the cymbium. Embolus converging with a low, fleshy conductor. Margin of the tegulum elevated, lenticular on the side opposite the median apophysis, and containing part of the duct. Palpal tibia low, wide, expanding at the apical margin.

Genotype: *P. marxi* (Crosby)

In this American genus as in the European *Pholcomma* there is a tendency towards developing dorsal and ventral plates on the abdomen, but these plates are not invariably present.

Tribe Phoroncidiini. Median apophysis located high laterally, a vertical or horizontal plate. Apex of cymbium simple or divided subapically. Abdomen of both sexes chitinized throughout, with or without appendages consisting of laminated spurs or narrow aculeated spurs, or simply humps and lobes; the surface often pitted or having sigilla arranged in a pattern.

Ulesanis L. Koch, 1872

Plate IV, figures 2, 3

Median apophysis wider than high, having an elevated crest or lobe. Conductor of the embolus rather small and inconspicuous. Apex of the cymbium subapically divided, forming a sort of lobe on the outer side of the sinus.

Genotype: *U. chelys* L. Koch

Median apophyses of the male palpi of an American and southern Asiatic species are shown in the figures.

Wibrada Keyserling, 1886

Plate IV, figure 4

Median apophysis higher than wide, subtriangular. Apex of cymbium curved and regular. Palpal tibia short, expanding at the apical margin. Palpal patella apparently without an apical spine, lobate at the apical margin. Eyes of the male mounted on a short turret. Male abdomen chitinized and without traces of dorsal plates, the sides margined with sigilla.

Genotype: *W. longiceps* Keyserling

Phoroncidia Westwood, 1834

Plate IV, figure 5

Median apophysis a vertical plate located very close to the apex, and partly concealed by the margin of the cymbium. Embolus forming a very deep loop bordering the entire apical division of the genital bulb. Cymbium unmodified. Palpal tibia cylindrical, expanding a little at the apical margin. Patellae of the male bearing distal, ectal, aculeate spurs or retrolateral lobes, one on each patella. Ocular turret of the male quite produced. Abdominal spurs in both sexes aculeate, thin.

Genotype: *P. aculeata* Westwood

Subfamily *Conopisthinae*

At the present time Mrs. H. E. Frizzell (Harriet Exline) is working on the North American members of this subfamily. It has received much attention from her and earlier workers in the past. The writer believes that a careful analysis of the various parts of the genitalia will prove of great value in throwing light on the species involved. There is no question that the male palpi possess reliable characters for the separation of species. Both the armature and the embolus-conductor complex are readily available for diagnosis. The median apophysis of the tegulum of the palpus should be given very careful attention.

In the genus *Conopistha* we find at least two groupings that belong to the subgeneric level. One of these comprises typical *Conopistha* in which the male has an ocular turret projecting over a hair-bearing clypeal prominence, and in which the cymbium of the palpus is widely and unequally divided in the apical region. Frizzell has shown that in one American group the clypeal prominence is depressed, overhanging the base of the chelicerae. The other subgenus, apparently unnamed, lacks the striking modifications of the cephalon and the clypeus, while the cymbium of the male palpus lacks the division of the apex. In this paper the median apophysis of the genotype of *Conopistha* is shown, the genotype itself belonging to the subgenus *Conopistha*. Almost without exception armature of the male palpus of species of the Eastern Hemisphere, such as the median apophysis, has not been figured in publications, and in most cases has not even been indicated, so that a person is apt to get the erroneous impression that no such structures exist.

Conopistha bonadea Karsch

Plate IV, figure 8

Conopistha Bona Dea Karsch, Berlin Ent. Zeitschr., 1881, *25*: 39.

This is the genotype, and was discussed by Frizzell[12] with citations.

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[12]H. Exline, Ann. Ent. Soc. America, 1942, 38 (4): 507.

Conopistha gracilis (L. Koch)

Plate IV, figure 7

Ariamnes gracilis L. Koch, Arachn. Austral., 1871, p. 252, Pl. 21, fig. 3.

This is a very remarkable species from the Southwestern Pacific. It is a relatively gigantic member of *Conopistha* with an elongated subtriangular abdomen (in profile). Measurements of the male: Total length, 6.6 mm., femur I, 7.3 mm. Measurements of the female: Total length, 9.6 mm., femur I, 8.3 mm. This contrasts with the stature of many members of the subgenus *Conopistha,* such as *C. nephilae* (Taczanowski) and *C. argyrodes* (Walckenaer) of the Mediterranean Region as well as the genotype, for here the females exceed 2.0 mm. by only a little, and the males rarely reach that figure as a total length. Another rather sizable species is a member of the same subgenus from eastern Asia and Australasia called *C. miniacea* (Doleschall), the female of which is excellently illustrated in Saito, Rep. First Sci. Exped. Manchoukuo, Arachnida Jehol, 1936, Sec. 5, Div. 1 (3): 25-26, fig. 6. A female in the Archer Collection measures 6.0 m.. in total length.

THE MIMETIDAE

The characteristics of this family have already been detailed earlier in this paper. It is structurally closely related to the Argiopidae and Linyphiidae, and must have evolved from stock constituting the common ancestry of all the Argiopoidea. Such an ancestral stock should have much in common with the modern but more primitive Uloboroidea whose cribellum is still extant. The Mimetidae have departed from the pattern of the Theridiidae in that the male palpus possesses a paracymbium, but the zone of attachment of the genital bulb and the very make-up of the bulb resembles closely that of the Uloboridae. Its condition of primitiveness is, of course, at about the same level as pertains to the most primitive members of the Argiopidae and Linyphiidae. In Petrunkevitch's classification of families[13] based on internal anatomy and on the status of the spinnerets, the nature

[13]A. Petrunkevitch, Trans. Conn. Acad. Sci., 1940, 33: 144, 160-161.

of the tarsi, the chelicerae, and the distribution of the tracheal system, we find a series of families belonging to another set of superfamilies scattered through the list. Of course, by using the scheme outlined in the above mentioned paper it is possible to arrive at no arrangement other than the one proposed by Petrunkevitch, but it appears as though there has been a great deal of convergence among certain families which are not intimately related, as witnessed by the evolution of their most conservative appendage structures.

Since the publication of the writer's paper on Alabama Mimetidae[14] species have come to light that were either recorded very scantily or are entirely new to the region. The list given below applies equally to both Alabama and Mississippi as regards members of the genus *Mimetus*.

M. hesperus Chamberlin. Como, Panola County, Mississippi, under a bridge, fall 1943 (A. F. Archer).

M. notius Chamberlin. Abundant. ALA, MISS.

M. puritanus Chamberlin. Occasional. ALA, MISS.

M. syllepsicus Hentz (=*interfector* Hentz). Abundant. ALA, MISS. Bryant shows that the above name is the oldest one usable for this species, and is also by consequence the genotype.[15]

M. tillandsiae Archer. Female from Spanish moss, hammock woods, Shell Bank, Gasque, Baldwin County, Alabama. October 28, 1949 (A. F. Archer).[16]

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[14]Archer, papers Michigan Acad. Sci., 1942, 27.

[15]E. B. Bryant, Psyche, 1946, 53 (3-4). Since this name was proposed in 1832, it has the effect of knocking out the use of **Epeira dissimulata** Walckenaer, 1841. See Chamberlin & Ivie, Bull. Univ. Utah, 1944, 35: 58.

[16]For the benefit of those who have not seen the writer's 1942 paper on Mimetidae (see bibliography) it can be here pointed out that the abdomen of the female has longitudinal stripes and is hirsute and oval, unlike the very wide abdomen of most North American species. The epigynum looks most like that of **M. syllepsicus**, but in caudal view the caudal border has three denticles and no dorsal strip visible.

Mimetus nelsoni, new species

Plate IV, figures 9, 10

FEMALE: Total length, 2.4 mm. Carapace, 1.6 mm. long, 0.8 mm. wide. Abdomen, 1.0 mm. long, 1.3 mm. wide.

First leg: Femur, 2.4 mm., patella, 0.6 mm., tibia, 2.7 mm., metatarsus, 2.1 mm., tarsus, 1.2 mm.

Epigynum as shown in Plate IV, figure 9.

TYPE LOCALITY: Female holotype, under bridge, Duncanville, Tuscaloosa County, Alabama, January 14, 1949 (A. F. Archer).

This is an unsually small species of *Mimetus* whose epigynum most closely resembles that of some of the Western species. It is dedicated to Nelson B. Jones who accompanied members of the Alabama Museum of Natural History over a period of years on many field trips.

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PLATE I

Fig. 1. *Chindellum intervallatum* (Emerton). Ventral view of male palpus. Shelbyville, Wilson County, Tennessee, 1943 (A. F. Archer).

Fig. 2. *Chindellum magnificum*, n. sp. Epigynum. Female holotype. Centreville, Wilkinson County, Mississippi, 1944 (A. F. Archer).

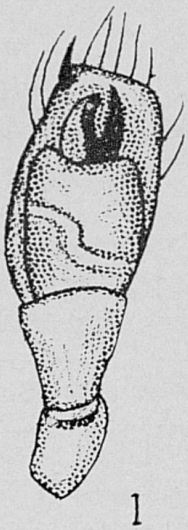
Fig. 3. *Kochiura aulica* (C. L. Koch). Ventral view of male palpus (adapted from Wiehle). Europe.

Fig. 4. *Hentziectypus globosus* (Hentz). Prolateral dorsal and ventral views of male palpus. Tuscaloosa, Alabama (A. F. Archer).

Fig. 5. *Parasteatoda camura* (Simon). Apical view of male palpus. Kiriwina, Trobriand Islands, October 14, 1943 (W. B. Jones).

Fig. 6. *Hadrotarsus fulvus* Hickman. Dorsal and ventral views of male palpus. The Domain, Hobart, Tasmania, May 1948 (V. Hickman).

Fig. 7. *Tholocco expulsa* (Gertsch & Mulaik). View of apophysis of the male palpus. Centreville, Wilkinson County, Mississippi, 1943 (A. F. Archer).



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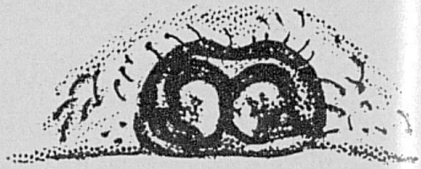

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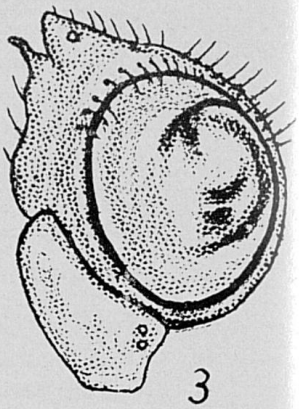

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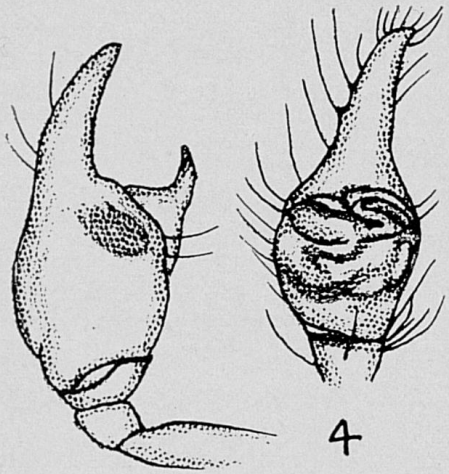

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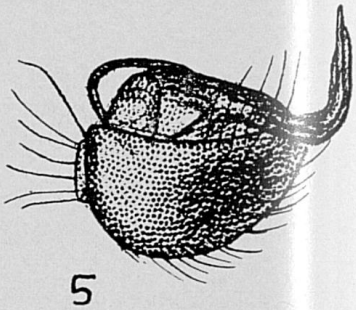

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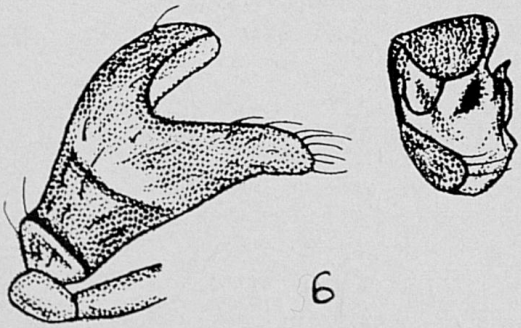

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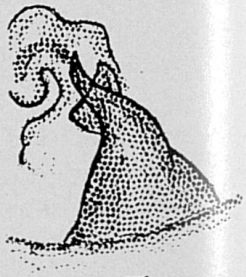

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PLATE II

Fig. 1. *Achaea trapezoidalis* (Taczanowski). Ventral and subapical views of male palpus. Alto Parana, Paraguay. AMNH Collection.

Fig. 2. *Tidarren minor* Chamberlin & Ivie. Apical view of male palpus. Mount Meigs, Montgomery County, Alabama, July 28, 1946 (A. F. Archer).

Fig. 3. *Chrysso davisi* Bryant. Prolateral and apical views of male palpus. Lagoon, Baldwin County, Alabama, March 1949 (A. F. Archer).

Fig. 4. *Chrysso davisi* Bryant. Median apophysis of male palpus. Same as Fig. 3.

Fig. 5. *Anelosimus textrix* (Walckenaer). Median apophysis of male palpus. Orlando, Orange County, Florida, November 11-14, 1946 (A. F. Archer).

Fig. 6. *Anelosimus textrix* (Walckenaer). Ventral view of apical division of male palpus. Same as Fig. 5.

Fig. 7. *Nesticodes rufipes* (Lucas). Ventral view of apical division of male palpus. Tahiti, Society Islands. Archer Collection.

Fig. 8. *Nesticodes rufipes* (Lucas). Median apophysis of male palpus. Same as Fig. 7.

Fig. 9. *Liger incomta* (O. P. Cambridge). Ventral view of apical division of male palpus (adapted from Cambridge). Central America.

Fig. 10. *Liger incomta* (O. P. Cambridge). Median apophysis of male palpus. Panama.

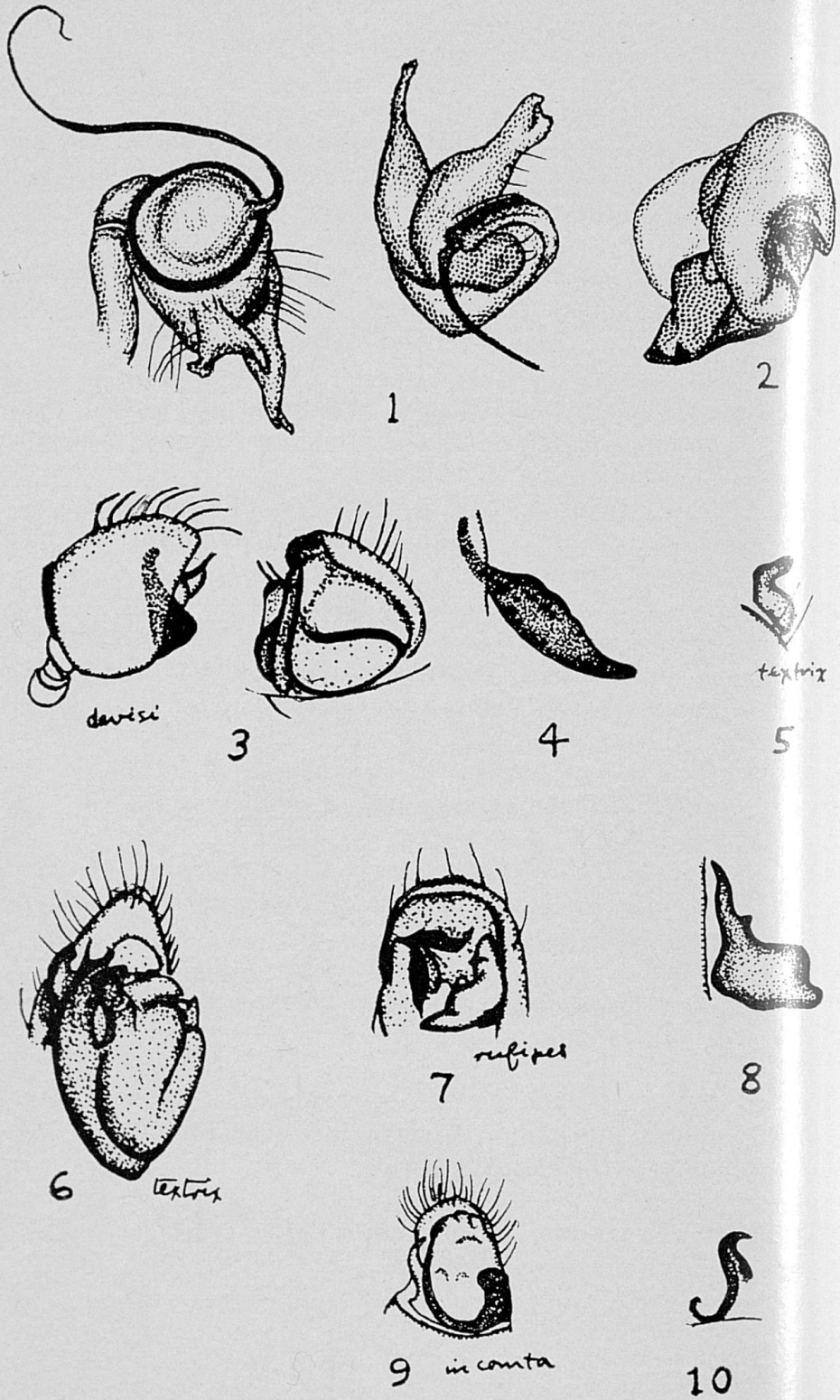
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PLATE III

Fig. 1. *Spintharus flavidus* Hentz. Ventral view of apical division of male palpus. Royal Palm State Park, Dade County, Florida, December 1940 (A. F. Archer).

Fig. 2. *Spintharus flavidus* Hentz. Median apophysis of male palpus. Same as Fig. 1.

Fig. 3. *Allotheridion orlando,* n. sp. Epigynum. Female holotype. Orlando, Orange County, Florida, August 1944 (M. Nirenberg).

Fig. 4. *Allotheridion.* Apical divisions of male palpi of various species.

Fig. 5. *Allotheridion.* Median apophyses of male palpi of various species.

Fig. 6. *Theridion.* Apices of cymbia and apical portions of male palpi of two species.

Fig. 7. *Theridion.* Median apophyses of male palpi of three species.

Fig. 8. *Neottiura bimaculata* (Linne). Prolateral view of apical division of male palpus showing the median apophysis; ventral view of apical horn of cymbium. Simontornya, Hungary (Kulczynski).

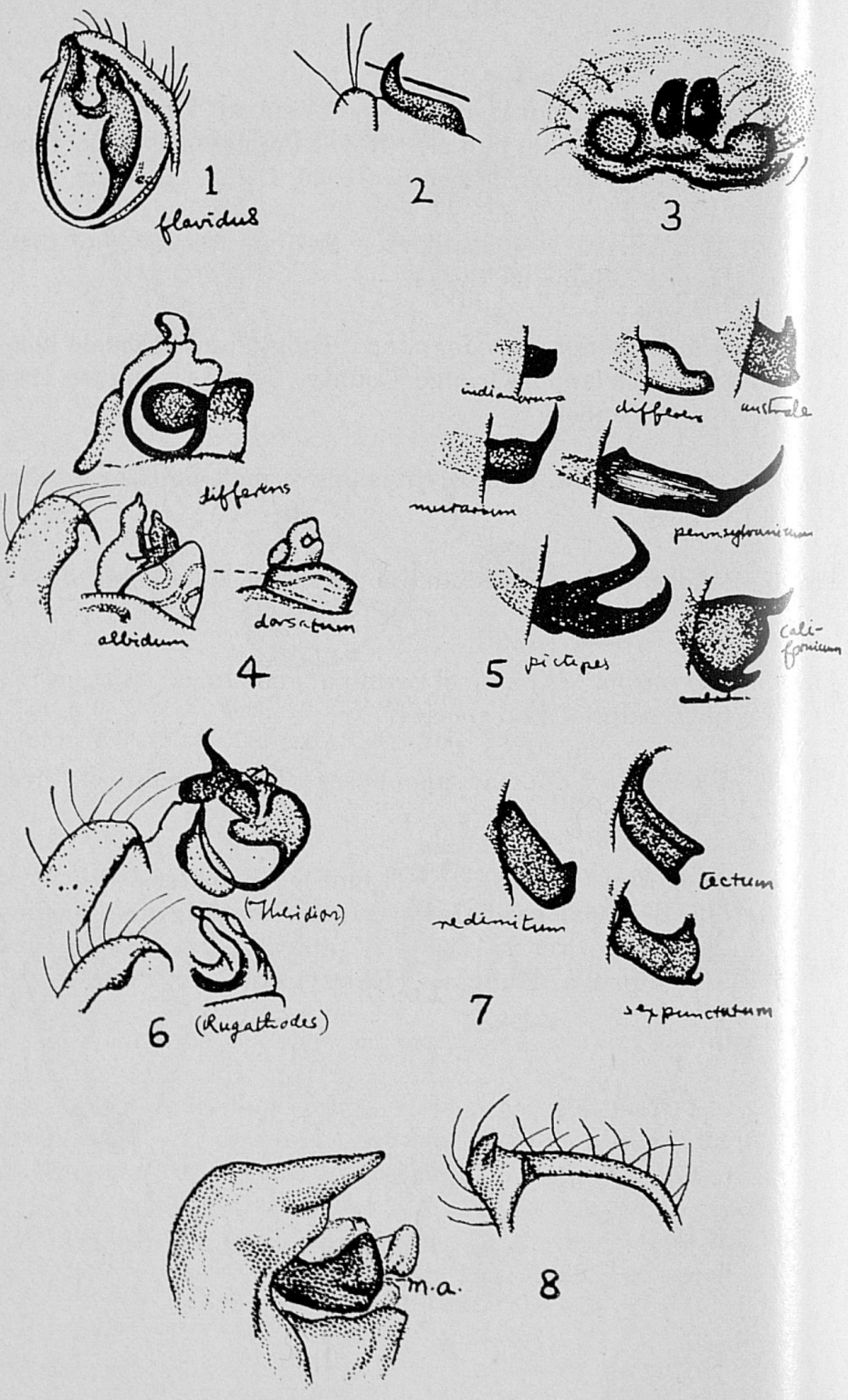
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PLATE IV

Fig. 1. *Paidisca marxi* (Crosby). Median apophysis of male palpus. Tuscaloosa, Alabama (A. F. Archer).

Fig. 2. *Ulesanis americana* (Emerton). Median apophysis of male palpus. Little River State Park, Escambia County, Alabama, October 19, 1939 (A. F. Archer).

Fig. 3. *Ulesanis testudo* (O. P. Cambridge). Median apophysis of male palpus. South India. MCZ Collection.

Fig. 4. *Wibrada longipes* Keyserling. Ventral view of male palpus. Moyobamba, Peru, December 1946 (J. C. Pallister).

Fig. 5. *Phoroncidia lygeana* (Walckenaer). Median apophysis of male palpus. Iseri, Lagos Colony, Nigeria, December 1948 (B. Malkin).

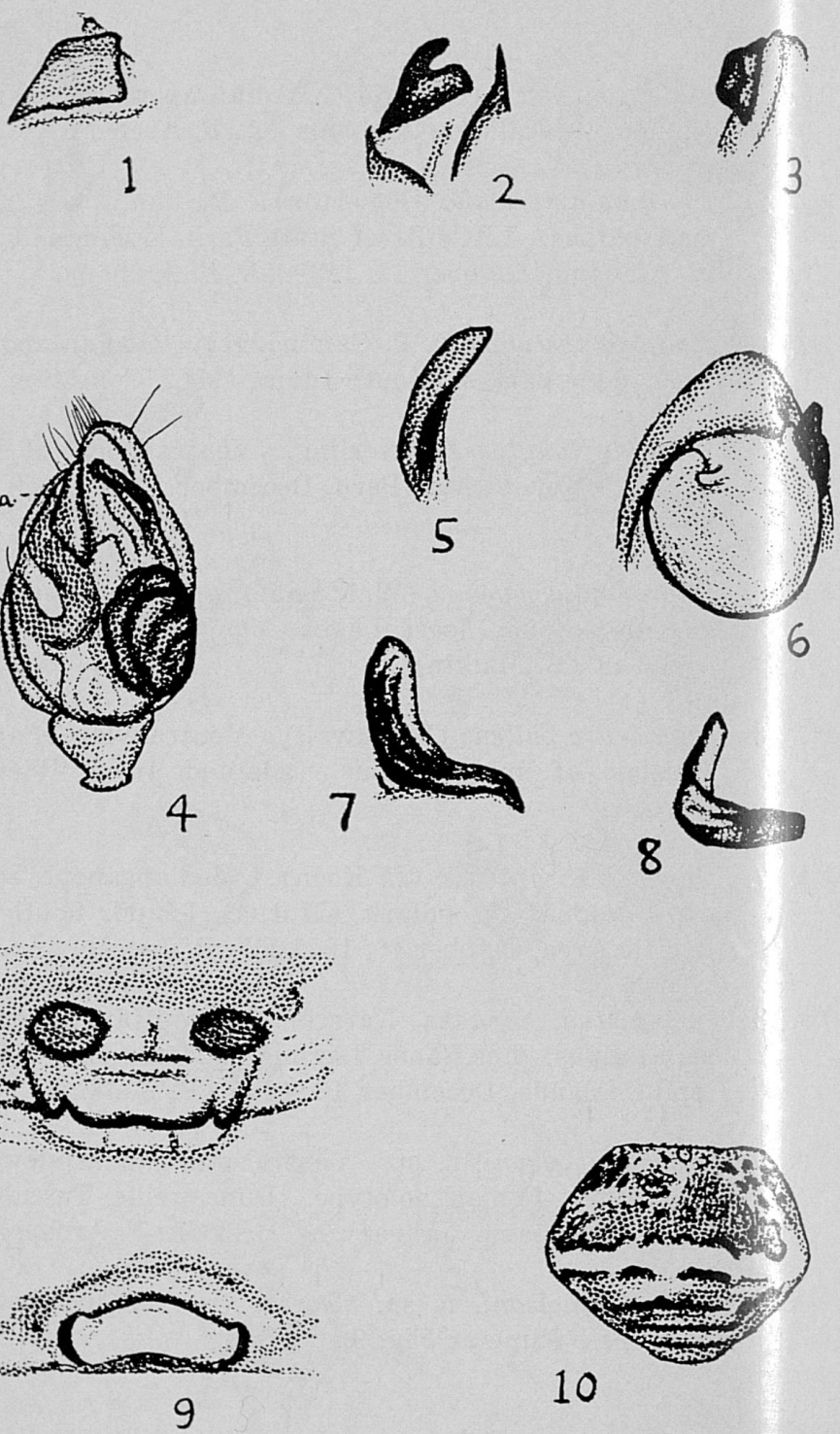
Fig. 6. *Paidiscura pallens* (Blackwall). Ventral view of apical division of male palpus (adapted from Wiehle). Europe.

Fig. 7. *Conopistha gracilis* (L. Koch). Median apophysis of male palpus. Woodlark (Murua) Island, Southwest Pacific Area, October 10, 1943 (W. B. Jones).

Fig. 8. *Conopistha bonadea* Karsch. Median apophysis of male palpus. Los Banos, Laguna Province, Luzon, Philippine Islands, December 16, 1945 (B. Malkin).

Fig. 9. *Mimetus nelsoni,* n. sp. Ventral and caudal views of epigynum. Female holotype. Duncanville, Tuscaloosa County, Alabama, January 14, 1949 (A. F. Archer).

Fig. 10. *Mimetus nelsoni,* n. sp. Dorsal view of abdomen of holotype. Same as Fig. 9.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