A Revision of the Typical Crab-Spiders (Misumeninae) of America North of Mexico

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Article VII.—A REVISION OF THE TYPICAL CRAB-SPIDERS (MISUMENINAE) OF AMERICA NORTH OF MEXICO[1]

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INTRODUCTION

This paper treats of some of the Nearctic representatives of a large group of spiders, the Misumeninae or typical crab-spiders. Although the subfamily has not been neglected by taxonomists, it is unfortunately true that the classification of the world fauna is still in a very unsatisfactory state. The nitial work on the American species consisted almost exclusively of the description of species and the building up of a relatively large faunal list. An effort has been made here to clarify the position of many of the doubtful species and assign them to their proper genera. A representative collection of Palearctic species has made possible a consideration of the American forms on the basis of a related fauna. A very large collection of endemic species has been accumulated at The American Museum of Natural History during the past few years, and practically all the material in institutions in the United States has been examined. Nearly all the types known to be in the United States have been studied.

In the biological discussion I have given a brief summary of what little is known about the life histories, habits and peculiarities of the crab-spiders. The taxonomic section has been limited to the subfamily Misumeninae and a synopsis of the genera and species is given for America north of Mexico.

It is a pleasure at this point to acknowledge with sincere thanks the coöperation of individuals in institutions throughout the United States who have made available

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to me material for study. I am indebted to Mr. Nathan Banks and Miss Elizabeth B. Bryant of the Museum of Comparative Zoölogy for the privilege of studying the large, important collections in their charge. The late Professor C. R. Crosby kindly sent me all the specimens of the family deposited in the collection of Cornell University. Dr. Ralph V. Chamberlin and Mr. Wilton Ivie of the University of Utah placed unreservedly in my hands very interesting material for consideration. To numerous other individuals I offer my thanks for smaller, though in many cases very desirable, collections from many points within the United States and Canada. To Miss Elizabeth B. Bryant I further extend my appreciation for numerous favors in the way of specimens, figures and notes on many species.

BIOLOGY

The Habitus of the Thomisidae

True spiders may be grouped in two categories on the basis of their general activity and method of capturing prey. On the one hand we have an enormous assemblage of sedentary species many of which are known by their large size, bright color patterns and the conspicuousness of their work in silk. These forms are dependent to a large extent on a silken snare to gain them a livelihood. On the other hand we have a multitude of vagrants that, having forsaken a slavish devotion to silk, have come to rely almost entirely on their ability to capture their insect food by the chase or by strategy. It is to this last group that the misumenids belong. They are hunting spiders that wander about freely on the ground and on plants or lurk in crevices, beneath stones and in natural débris. The superficial resemblance of some of these creatures to crabs has earned for them the name of "crab-spiders," and their ability to move backward or sideways with great facility enhances the pertinency of this common name.

The existing misumenids are simply more or less completely masked replicas of a more generalized ancestral type. To understand more adequately the present characteristic aspect of these animals it is desirable to be cognizant of the changes that have been undergone in perfecting them to the present mode of life. In other words we should know something of the heritage of the animal and the evolutionary path it has followed. Paleontology has given us little direct aid in determining the time of origin and the intermediate form from which the misumenids originated. The group is an old one, however, for we find representatives in the Tertiary that seem different in few or no important particulars from our recent forms. None have been found in the Carboniferous from which strata we have our earliest fossils in the Araneae. The time of origin of the true crab-spiders was presumably during the Mesozoic. The almost complete absence of fossil spider remains during this era, a condition true for other groups of animals as well and possibly due to unfavorable conditions for fossilization during the time, seemingly precludes the possibility or puts far into the future the actual discovery of intermediate forms. However, the position of the Thomisidae becomes clear when one considers the family in relation to other families of the Dionychae. In a natural taxonomic scheme, the salient points of which are gleaned from morphology in the broadest sense, we have a clear-cut racial history of a group. What do we know and what can be inferred about the phylogeny of the crab-spiders?

The development of spiders has been determined largely by changes in a number of internal and external morphological features. Of great importance is the third or unpaired claw of the tarsi, for the loss of it precludes the possibility of spiders ever again becoming habitual web forms. A successful venture on silken strands is absolutely dependent on the presence of this claw. The loss of the third claw, possibly directly occasioned by the wandering habit, marks the point of divergence of the misumenids and other vagrant two-clawed forms from the more conservative line of Dipneumonomorph spider evolution.

However, this loss was compensated by the development of an adhesive tarsal pad, the claw tuft, which gave the spider a freedom of movement not enjoyed by sedentary species. A less complete reliance is now placed upon silk with the consequence that the cribellum is lost and the silk glands and the accessory spinnerets become increasingly less important. From this point on the various families of the Dionychae have become distinctive by changes in less fundamental structures. The majority of hunting spiders retained the more primitive prograde locomotion, but the first two legs in the Thomisidae and their allies became laterigrade. This new attitude was due to the lateral extension and the twisting of the legs off the normal axis, the prolateral surface of the joints being near dorsal in position.

The combination of characters present in the Thomisidae may be tabulated as follows:

(1) The respiratory system consists of one pair of book lungs and a single tracheal spiracle placed near the spinnerets.
(2) Three pairs of spinnerets are present; and the colulus (the homologue of the cribellum in cribellate spiders) is obsolete or represented by a mere vestige.
(3) The heart has three pairs of ostia.
(4) The legs are laterigrade, the first two pairs being much longer than the last two except in the Philodrominae where the legs are all essentially equal in length. The tarsi are provided with two claws, are without true claw tufts except in the Philodrominae and the Dietinae, and are scopulate only in the Philodrominae.
(5) The chelicerae are unarmed on the promargin except in the Stephanopsinae.
(6) The eyes are small, homogeneous, placed in two transverse rows.
(7) The metatarsi have a rounded, sclerotized, dorsal lobe at the distal end which lacks membranous branches.
(8) The palpus of the male lacks a conductor of the embolus.

It seems quite probable that the laterigrade ancestor of the Thomisidae was a spider approximating in form the recent Heteropodidae. In fact there are no characters of very great importance separating the two families when the extremes of each group are considered. The heteropodids retain a greater number of characters deemed primitive while in the true crab-spiders several distinct advances have been made. That the Thomisidae represent a successful group is well attested by a general distribution throughout the land areas of the world and in the development of scores of genera. They are the most highly developed branch of the laterigrade section of the wandering dionyich spiders.

Within the limits of the family Thomisidae there is some diversity. On the one hand is the Philodrominae, a group in which all the legs are essentially equal in length and in which the tarsi are usually provided with a scopular brush of varying distinctness. The retention of these characters fits them eminently for an active, vagrant life. They are swift runners and are able to move actively on precipitous surfaces. As in all crab-spiders their eyesight is notoriously poor but they have a keen discernment of their environment in a well-developed sense of touch. As a group they seem to be nearly as successful as the Misumeninae for there are numerous species and their distribution is equally as extensive. Contrasted with them are the remaining subfamilies of the Thomisidae, all agreeing in having the posterior legs greatly reduced in length. They form a very distinct series with relatively few radical departures from the Dietinae and Stephanopsinae to the Misumeninae, the group in which the line finds its highest expression. The characters on which claims for specialization in the Misumeninae may be based are the short body form, the great reduction in size of the last two pairs of legs, the lack of denticles on the lower margin of the chelicera and the loss of the tarsal claw tufts. Their dominant trait of lurking in ambush to surprise insects has minimized their need for speed. They have sacrificed ease of movement but the strong body and the robust front legs make them formidable creatures which will attack insects or spiders much larger than themselves.

Mating Habits

The copulatory habits of the crab-spiders have been influenced decidedly by a number of factors of a physical and ecological

nature. Of prime importance is the shape of the body, particularly of the abdomen of the female, which often determines or prohibits the assumption of a particular attitude of embrace. The relative sizes of the sexes, the length of the legs and the male palpi, and the possession of peculiar ornamental spines or protuberances have much the same effect. The normal habitat and habits of species are also important in modifying the physical relations during courtship and copulation. Species blessed with good eyesight, as the Salticidae and the Lycosidae, have developed a relatively complicated prenuptial procedure, a definite courtship, which has expressed itself in various ways. Correlated with this behavior in some degree is the presence of various epigamic structures, such as brushes or ornaments on the legs and tufts of hair on the head. Spiders with poorer eyesight are ordinarily much more conservative in their prenuptial routine, though occasionally epigamic structures may be present in this group as well. However, there are numerous intergrades between a well-marked courtship, as exemplified in the bizarre love dances of the jumping spiders, and no courtship at all.

Relatively few workers have devoted time and space to the elucidation of the details of courtship and mating or a consideration of the problems that go with an adequate understanding of the phenomenon. The splendid papers of the Peckhams on the jumping spiders and of Montgomery on a variety of species are almost the only early studies worthy of mention. Within the last decade, however, considerable work on this subject has been done by Gerhardt in Germany, Bristowe in England and Kaston in the United States. The mating of species of crab-spiders has been described in more or less detail by workers throughout the world as given in the following list.

Philodrominae

Thanatus fagei (Gerhardt, 1933)

Tibellus oblongus (Gerhardt, 1926; Kaston, 1936)

Tibellus maritimus (Bristowe, 1926)

Philodromus dispar (Menge, 1849; Bristowe, 1930)

Philodromus pernix (Kaston, 1936)

Philodromus aureolus (Gerhardt, 1926; Bristowe, 1929)

Philodromus fallax (Bristowe, 1929)

Philodromus fuscomarginatus (*Artanes*) (Gerhardt, 1926)

Misumeninae

Diaea dorsata (Bristowe, 1926)

Misumena vatia (Bristowe, 1926)

Misumenoides aleatorius (Montgomery, 1909)

Xysticus audax (Prach, 1866)

Xysticus cristatus (Bristowe, 1922, 1926)

Xysticus ferox (*stomachosus*) (Montgomery, 1903)

Xysticus funestus (*nervosus*) (Montgomery, 1909)

Xysticus kochi (Gerhardt, 1926)

Xysticus krakatauensis (Bristowe, 1931)

Xysticus lanio (Bristowe, 1931; Gerhardt, 1924)

Xysticus pini (Thomas, 1930)

Xysticus triguttatus (Emerton, 1889: Kaston, 1936)

Xysticus tristrami (Gerhardt, 1933)

Xysticus striatipes (Sytschewskaja 1935)

Coriarachne versicolor (Kaston, 1936)

Mating in the crab-spiders is preceded by nothing that approximates true courtship. The eyesight in all the species is so poor that "recognition" is possible only through tactile and tacto-chemical stimuli. When a male discovers the female of his species, he immediately climbs upon her back or seizes her carapace or an appendage with his chelicerae should she try to escape. He is much the more agile and usually has little difficulty in effecting a contact of his palpus with her epigynum. The interplay of legs and bodies between the two sexes and the activity of the male while covering the female with silk result in some tactile stimulation which Savory refers to as a "sort of courtship" but which is far from the province of true courtship as defined by Montgomery, "a rhythmically repeated set of motions on the part of the male for some time before copulation."

The copulatory attitudes assumed by the crab-spiders are essentially alike in fundamentals and represent slight modifications of the lycosid type of embrace. The diversity is occasioned by the shape of the body and the relative leg lengths. In *Tibellus*, an elongate spider with long legs all subequal in length, the male lies above the dorsum of the female, with the head pointed nearly in the opposite direction from that of the female, and applies his palpi from either side by pulling her over on one side or the other. In species of *Philodromus* and some of the midumenoid species with relatively long legs the embrace is intermediate between that found in *Tibellus* and that of the majority of the species of *Xysticus*. In the stocky misumenoid species, characterized by a very broad, rounded abdomen and short legs, the male is obliged to climb around the side of the female to the venter, the resultant position of coitus being such that his ventral surface is appressed to or projects beyond the caudal part of the female, their heads pointing in the same direction. The right palpus is introduced into the right side (atriobursal orifice) of the vulva, the left one in the left side, a fact which further establishes this attitude as merely a derivation of the lycosid embrace. The structure of the male palpus makes it imperative that this procedure of contacting the proper orifice be invariably followed for successful pairing. The shortness of the palpal appendage is such that it would be impossible to reach the vulva from above. The palpi of the Philodrominae are long enough to effect a contact from the side or from above.

Certain species of spiders have interpolated at some point in the sequence of their courting or mating activities an habitual act that tends to set them apart from other species. In some of the Pisauridae the presentation to the female of a swathed fly always precedes mating. Females of certain minute spiders carefully place the claws of their chelicerae in the cephalic pits on the carapace of the male preparatory to copulation. Only one habit in the Misumenidae seems to be unique for the group. In 1922 Bristowe reported that the male of *Xysticus cristatus* fastened the female to the substratum with numerous strands of silk, a virtual "bridal veil." The same habit was discovered independently by Gerhardt in *Xysticus lanio* and *kochi*. In 1931 Bristowe recorded a similar procedure in *Xysticus krakatauensis*, a species slightly abnormal in the posture assumed during mating. And finally, Kaston in 1936 has shown that this habit of laying down threads over the female is also true of some American species of *Xysticus*, of *Coriarachne versicolor* and even of *Tibellus oblongus* (= *parallelus*) in the Philodrominae. It seems certain now that the use of silk to tie down the female is more common in the family than is generally known and that the process has simply been overlooked. It is not as yet certain that it is an invariable procedure even within a species.

A description of the mating of *Xysticus ferox* is given below. It may be regarded as typical of this activity in the genus, though the spinning of the "bridal veil" may not be a characteristic of every species. A male *ferox* was placed in a glass cage that harbored a female. The male, at first greatly disturbed, moved about aimlessly. In the course of his wandering his front legs brushed the legs and abdomen of the female, whereupon he immediately "recognized" the presence of a mate. Without hesitation he moved toward her but was repulsed, the female retreating. The male seemed able to perceive the moving female when fully an inch away and followed her. This time he was able, after a vigorous sparring with the long front legs, to orient himself upon her back. For fully a minute the female was intractable and the male was able to maintain his seat only with difficulty, but finally she became quiescent, hanging vertically from the side of the cage. The male wasted no time but was unable to get beneath her in spite of every effort. After a brief pause the male spun a very thin web over the female, attaching the tiny silken lines from her abdomen and legs to the glass substratum. This web was so thin that it seems doubtful that it could have impeded the female to any great extent had she

chosen to move her powerful front legs or shift her broad body. A moment after the web had been spun, the male managed to get beneath her and after the preliminary scraping of the expanded palpus over the sclerotized vulval area to orient the embolus (not an exercise for stimulation as is often stated) he introduced the right embolus into the right orifice of the vulva. From the side view could be seen the gradual appearance of a glistening globule, the swollen hematodocha, and then the spasmotic dissipation of the globule, indicating that some semen had been forced through the ejaculatory duct. This was accompanied by a sudden twitching movement in the second pair of legs. The first pair of legs was touching the left third leg and the right fourth leg of the female and showed no such movement. The swelling of the hematodocha occurred at intervals of from fifteen to twenty seconds and was also accompanied by an occasional twitching of the abdomen. Fifteen minutes later the male disengaged the palpus with a little effort, manipulated it for a moment and then applied it again for five minutes. After a considerable period during which both palpi were scraped through the chelicerae, the left palpus was applied for eight minutes, accompanied by the usual twitching of the legs and the abdomen. Copulation continued for more than an hour and a half but was interrupted when the male disengaged himself and moved over to one side of the cage. A few minutes later the female freed herself with ease from the silken threads of the "bridal veil."

Montgomery failed to see the male spin a web over the female in this same species (as *stomachosus* Keyserling) though he watched a single pair copulate six times. I observed this phenomenon in several instances with *Xysticus ferox* and with two other species of the genus, *Xysticus fraternus* and *X. triguttatus*. Inasmuch as most of my observations on mating in the Thomisidae were made before I was aware of this curious habit, it is quite probable that other instances were overlooked.

The embrace of *Misumenoides aleatorius* is in all essential respects identical with that of *Misumena vatia* and *Xysticus*. Montgomery's statement that the male of our common *Misumenoides* introduces both palpi simultaneously into the vulva of the female is undoubtedly erroneous. It is unthinkable that the very short palpi of *aleatorius* could accomplish this, for it would mean the crossing of one over the other to reach the appropriate orifice.

The mating of species of *Misumenops* has never been described but I found that in *M. asperatus* the process was in no important way different from that of *Diaea dorsata* as described by Bristowe. Three females were captured on the first of June and were placed in boxes containing the heads of the common white daisy. The spiders appeared to be much at home, moving readily all over the substratum and sitting on the petaliform flowers or in the center of the head. Flies were accepted readily by all the females but only when the victims crawled over the bodies of the spiders. On June 4 a male was introduced into each of the boxes and in all cases he was quickly dispatched on coming within reach of the female. On June 7 an injured male was placed with a female and though he immediately approached her and followed her around, mating did not occur. On several occasions the female touched him with her long front legs but in each case threw herself back in a defensive gesture, and as the male remained quiescent, she made no attempt to harm him. On June 11 an active male was introduced into the cage with the same female and within ten minutes he was mounted on her back. The female was apparently unperturbed by his presence and his activity and walked around with him clinging to her broad abdomen. She finally became quiescent when a foothold was secured on the side of the cage, hanging with her venter uppermost. While the male was on the dorsum of the female, his long front legs were clasped around her in the region of the pedicel. As soon as she had taken up her position and was quiet, the male swung around to her venter on the right side, his head facing in the same direction. His two long left legs were still visible on the dorsal aspect, clasped around the pedi-

cel. His efforts to place the embolus were unsuccessful for several minutes but finally the palpus was oriented and movements of the hematodocha were observed. After about ten minutes the palpus was removed, manipulated and drawn through the chelicerae, and again inserted for fifteen minutes. The male then used the other palpus, swinging completely around the abdomen to the other side. One pair of *Misumenops asperatus* mated for five hours, from 5:30 in the afternoon until 10:30 that night. In many cases the male walked directly in front of the female and climbed over her carapace and legs to the abdomen. The disparity in size between the sexes in this species is considerable. On the average the female paid little attention to the activity of her tiny, long-legged mate. The male is sometimes killed when he precipitates himself upon her without a preliminary tactile sparring. Occasionally the female lies in such a position that insertion is possible only from one side. In such a case a male was observed to try to effect contact on that side several times, but after each unsuccessful attempt returned to the other side for repeated insertions.

The male charges his palpi with semen when he becomes sexually mature and at intervals during the mating season, often immediately following coition. The building of the sperm web and the process of "sperm induction" have been observed only twice in the Thomisidae, in *Xysticus cristatus* and *Philodromus dispar*, in each case by Bristowe. I quote from his account of this phenomenon in *P. dispar*. "Twenty-five minutes later I noticed he was busy spinning a small ribbon-shaped web across an angle of the box. This, with intervals during when he chewed his palps, continued for 20 minutes. Then he jerked his body up and down several times and a tiny drop of sperm appeared on the web. Without changing his position he reached his palps round the web and inserted them in turns in the drop beneath. Absorption lasted 10 minutes during which each palp was inserted sixty-two times." (Bristowe, 1931, Proc. Zool. Soc., London, II, p. 1049.)

The span of life of the sexually mature male is relatively short. During this brief period he may be accepted by one or several females, for polygamy is the rule if he is able to escape the female and find another mate. In captivity males copulate with the same female many times. It is doubtful that more than a small percentage of the males fall victim to their mates under natural conditions. The males are mature for some time before the females but they seem to disappear suddenly.

After an initial copulation the female may reject forcibly any male that approaches her or submit to one or more for any number of times, often even after her eggs have been laid. When the eggs in the ovaries have matured, whether fertilization has occurred or not, the female will lay the eggs and enclose them in an egg sac. It is not definitely known just when the eggs are fertilized. There is a natural supposition that the sperm make their way into the oviduct and the ovaries from the fertilization canals of the female genital organ. On the other hand there is the possibility that the eggs are fertilized as they are forced into the uterus from the oviducts and pass in close proximity to the fertilization canals. As the eggs are deposited, a milky liquid is thrown over them, lending weight to the suggestion that fertilization is not effected before that time.

Spinning Activity

The majority of spiders are inveterate spinners of silk. Some of the sedentary forms have gambled their all on the use of this material and are helpless when not in actual contact with their webs. The orb-weavers rely almost entirely on the sense of touch and have developed elaborate systems of web building to broaden their scope of touch perception or "touch vision." The use of silk in the vagrant species is much more limited.

Crab-spiders are able to spin after the first molt, but little use is made of this ability until after emergence from the egg sac. Wherever the spiderling goes, he always plays out behind him a silken thread, the dragline, which is attached at intervals

to the substratum. This line is effective in saving the tiny spinner from many a fall from precipitous surfaces. Draglines are spun by crab-spiders of all ages.

On certain favorable days in the fall numerous crab-spiderlings throw out two threads from the spinnerets and are wafted through the air by the wind, a phenomenon called ballooning. Preparatory to taking off, the spiderlings are impelled to seek a promontory in their environment, a fence, a stone or a stalk of grass. Tremendous distances have been covered by spiderlings on their silken filaments, and the distribution of certain species seems to have been determined largely by this habit. However, the dispersal is usually only a few yards.

The spinning activity of the Thomisidae is best expressed in the construction of their cocoons or egg sacs. These are relatively easy to find and have been described a number of times. The egg sacs of *Misumenoides*, *Xysticus*, *Synema*, *Misumenops*, *Philodromus* and *Tibellus* are much alike in form and texture but there is some variation in size. The egg sac can scarcely be considered apart from the retreat in which the finished product is to be housed. A few preliminary silken strands, spun on September 12 in the corner of a small glass cage, represent the beginning of a domicile for the cocoon of *Misumenoides aleatorius*. The egg sac itself, constructed during the night, was suspended on a horizontal plane in the angle formed by the glass. It is relatively enormous as compared with the size of the spider, the diameter being 14.00 mm., the length of the female 5.00 mm. The sac is a strongly convex, lenticular object made up of two discs or valves which are firmly fastened together on the margins with strands of silk. The discal silk substratum was laid down first, the eggs deposited upon it and then the roofing spun over the mass. The cocoon takes its characteristic form when the margins are sewed together. The texture of the silk making up the valves is very fine, closely woven, the finished fabric much like fine lawn. The color is chalk-white. McCook has estimated that it takes about two hours to construct such a cocoon. The next day after the sac had been completed the spider, her abdomen greatly shrunken in size, did little to further the work on the retreat. The day following, however, she spun a very heavy roof over the retreat and added many more strands to the sides, leaving only a small aperture on the left side. Thereafter the female spent most of her time seated upon the dorsal surface of the retreat. Contrary to various records regarding the failure of the female to feed after making the cocoon, I found that females of *aleatorius* ate on several occasions. The day after the cocoon was spun this female ate a fly. Others were caught and eaten on September 14 and 21 and on October 3 and 12. After October 20 the female was not offered flies for she was near death and had refused some previously. Death probably occurred during November. The fact that death occurs with the advent of cold weather is sufficient refutation of the popular fallacy that in the Thomisidae the female aids the young to escape from the cocoon by cutting the threads of the marginal seam. The young of *Misumenoides* emerge from the egg sac in the very late fall or in the spring.

The cocoons of other females of *aleatorius* were considerably smaller than in the case of the one described above. The females were much less active immediately after the spinning and refused all flies that were offered to them for several days. Flies when introduced into the cages moved about actively, sometimes climbing over the females and the coccons but the spiders refused to catch them. In no case did a female appear concerned that the flies, one of which was a large *Tabanus*, would disturb her precious burden and was unperturbed by the commotion occasioned when they became entangled in the silk of the retreat. The statement that *Diaea dorsata* while guarding her cocoon assumed a menacing attitude when any insects approached and fought them off, biting them and casting their bodies aside, would seem to be too strongly colored by anthropomorphism and in need of corroboration.

It must be remembered that these

cocoons were spun in a situation not normal for the species. In nature the spot chosen is usually a leaf, the margins of which are folded over to completely cover the sac. Occasionally the egg sac is placed beneath a stone, in cracks in buildings and fences and under the loose bark of trees. The amount of silk given to the retreat and the care with which it is made vary considerably among the species and the genera. Most species of *Xysticus* spin a superficial retreat beneath a stone or some other object on the ground. After the egg sac has been constructed, the spider remains with it, clutching it with the long front legs. In such cases the sac is not usually firmly attached to the substratum and, if the spider is moved, the sac goes with her. Other species of that genus make a retreat in bushes or low plants. Generally speaking, such nests are much more substantially built. The providing of an adequate roof may involve the tremendous task of bending or folding one or more leaves, the spikes of sedges or stalks of grass in such a manner that a more or less spacious retreat is afforded for the egg sac and the watcher.

An egg sac of *Tibellus oblongus* was much less regular in outline than usual in the family and due to the choice of a small sagittate leaf nearly six times as long as broad for the retreat. The distal half of the leaf had been folded back to cover most of the basal part and the margins drawn together. As a result, the cocoon, which was broadly attached to the substratum by the lower valve, was very much longer than broad and the surface of the upper valve was much more extensive, virtually covering the whole floor of the nest. Other retreats of this species were placed in the folded leaves of a fern and one at the base of a bundle of dried pine needles.

Female spiders are known to make a number of cocoons in succession after an initial fertilization. The variation in number is considerable among the different families and even among the species of a genus. Fifteen have been recorded for *Cyclosa* (*Cyrtophora*) by McCook, ten for *Aranea cornuta* by Bonnet, eight and nine for *Marpissa muscosa* by Bonnet and lesser numbers in other species of various families by these and other workers. As a general thing misumenids spin a single cocoon but this statement is subject to exceptions. Those species (*Xysticus*, *Ozyptila*, etc.) that spin a relatively superficial retreat undoubtedly make only one egg sac. However, those species that hide the egg sac in a folded leaf sometimes spin more than one. The only recorded instance in the Misumeninae is that of *Thomisus onustus* which spun three sacs (Bonnet, 1927). There is a good possibility that some of our forms comparable to that species in habits do the same, but I have seen few of their egg sacs. Apparently the first record of a like tendency in the Philodrominae is that of Montgomery (1903) for *Philodromus aureolus*. Neilsen has reported double cocooning in *Philodromus aureolus*, *elegans* and *emarginatus* and states that in later cocoons "the eggs were fewer in number and not so well wrapped up in web as in the first brood."

Two instances of this habit are known to me. A female of *Philodromus imbecillus*, confined in a small glass cage, appropriated a fern leaf for a nest and spun her first egg sac during the night of July 1. About three weeks later the spider and the whole retreat were placed in alcohol for preservation. A study at a later date revealed the fact that two separate cocoons had been spun. The first was a well-built structure that was placed in the deepest part of the retreat and fastened to the substratum by a few threads. The valves were as heavy as usual and the margins were fastened firmly with silk strands. In this cocoon were ten spiderlings that had undergone at least one molt. The second cocoon was much larger and consisted only of a very thin basal disc on which the eggs had been deposited and an expansive filmy roofing so thin that the young could be easily seen through it. This cocoon had seven spiderlings in it that had probably quite recently emerged from the egg, for the legs were still closely appressed to the body and the spiderlings were otherwise still physically imperfect. Whether the female would have deposited more eggs and spun more cocoons is doubtful. Another

instance of a like nature concerns *Philodromus keyserlingi*. A female and her retreat, a folded leaf, came in as part of a collection from New Mexico for identification. On investigation it was found to harbor two cocoons, one very large (7.00 mm. in diameter) containing 36 spiderlings, the other with a diameter of 3.25 mm. and containing 14 spiderlings. The ones in the smaller cocoon were obviously younger. The smaller cocoon, structurally well done, was attached to the base of the larger one by numerous threads.

When multiple cocoons are spun by a single female, the structure of the latter ones is often inferior and the number of eggs decreases. A female of *Aranea cornuta* that made ten sacs laid a total of 1210 eggs, deposited in the following order: 234, 218, 182, 140, 112, 87, 81, 72, 51 and 33. In instances of this kind all the eggs may be fertile or some of the latter infertile. In any case it is a well-known fact that the fertility is often due to a single impregnation. The semen remains viable for long periods, either in the oviducts or in the receptacula of the genital apparatus. In some long-lived species fertile eggs have been laid two years after the initial coition.

The number of eggs laid by a single female varies enormously. Bonnet records a total of 2292 eggs in the four cocoons of a female of the European *Dolomedes fimbriatus*. Large numbers are also given for females of the Argiopidae, Lycosidae and Salticidae. On the other hand, the Peckhams state that *Peckhamia picata* and *Synemosyna formica* make three or four cocoons, each of which contains three or four eggs. Their explanation of this fact is colored by their firm belief in mimicry and is best stated in their own words. "We have elsewhere called attention to the low fertility of the ant-like spiders (some species of the Attidae lay 180 eggs) and have suggested that if there is an inverse variation in every species between its birth-rate and its powers of maintenance, we must accept the conclusion that these small, weak and defenseless spiders derive an immense advantage from their imitation of ants, their mimetic form enabling them to escape from their enemies." (Occas. Papers Nat. Hist. Soc., Wisconsin, II, p. 75; idem, XVI, p. 367.) The first part of this statement is the important one and is to the effect that the better the chances for hatching and survival of the young, the less will be the number of eggs and vice versa. This, however, is a general rule that is subject to many exceptions. The factor of size has been little mentioned in this connection, though it seems to me to be of great importance. The size of spider eggs does not vary directly with the size of the adult spider, but this seems to be true for the number of eggs. In other words, a tiny spider like *Oonops* or *Leptoneta* is physically incapable of producing more than a few eggs of a size necessary to contain sufficient food for the growing embryo. Conversely, a large pisaurid like *Dolomedes* or *Pisaurina* can produce hundreds of eggs. Scheffer's statement that the number is greater when the eggs must pass the winter unhatched or when they are not guarded by the mother is subject to many exceptions, some of them noted by that author, to serve as a general rule. *Pisaurina mira* and *brevipes*

Species	Eggs	Spiderlings
Tibellus oblongus (Walck.)	186–162–135–85	
Philodromus imbecillus Keys.		17 (10 & 7)
Philodromus keyserlingi Marx		50 (36 & 14)
Philodromus aureolus (Clerck)	104	
Misumenops asperatus (Hentz)		31
Synema bicolor Keyserling	34	
Misumenoides aleatorius (Hentz)	100–87–106	
Xysticus ferox (Hentz)	88	24
Xysticus fraternus Banks	76	
Xysticus montanensis Keys.	34	
Xysticus elegans Keys.	138	
Xysticus gulosus Keys.	146–185	
Xysticus luctans (C. Koch)		23–34–68
Xysticus apachecus Gertsch	194–188–249	

of the eastern United States build a nursery and stand guard over their hundreds of tiny spiderlings for a considerable period. The maternal solicitude in the Lycosidae is well known and yet their cocoons often have hundreds of eggs. The crab-spiders, which lay an average number, usually guard their cocoon until death and are reluctant to leave it even when mutilated.

The preceding data represent actual counts of the eggs or spiderlings from cocoons of several species of American Thomisidae. The number of eggs laid by the crab-spiders is seemingly near the average for all spiders.

Postembryonic Development

After the laying of the eggs and their encasement in a silken sac, the essential work of the female has been accomplished. However, in the crab-spiders the precious cocoon is guarded until death, natural or otherwise, occurs. This "maternal instinct" quite possibly results in some little protection to the eggs. In the Misumeninae the protection is for the most part a passive one, for the female is content simply to lie on the egg sac, securely grasping it with her legs. She will resist strenuously any efforts to separate her from it but will not attack an interloper that may destroy or pilfer the contents of the sac while she is holding it. Those species that make more than one cocoon remain with the last one that they spin. Contrary to the general conception, the females of certain species eat insects after their cocooning work has been completed. According to some workers it is this additional food that prompts the female of *Diaea dorsata* to lay a second lot of eggs.

Two or three weeks after coition occurs the female deposits her eggs. If we assume that their fertilization takes place at this time, we can tell exactly the number of days before they hatch. A female of *Misumenoides aleatorius* spun her egg sac on the night of September 21 and on October 22 the young had hatched, a period of about a month. This length of time is excessive for all species except those that lay their eggs in the late fall, in which case the young ordinarily do not emerge from the cocoon until April or later of the next year. No doubt the season and the normal rhythm of the species have much to do with the length of time required. Most crab-spiders are mature in the spring and deposit their eggs in early summer. The young emerge shortly after, undergo a variable number of molts, hibernate during the winter as immatures and become adult the following spring. In the southern United States development is accelerated and two generations may be the rule. Consequently, mature spiders can be found in that region at any time during the year.

We have practically no exact data on the number of molts undergone by the Thomisidae or, what is more important, the morphological changes that occur during the cycle of development. In 1927, Gabritschevsky recorded the time intervals between molts for *Misumena vatia* as a part of his paper on the change in pigmentation of that species. The synopsis is as follows: mating, July 18; deposition of eggs, July 28; hatching, August 8 (my estimate); first molt, about August 12; emergence, August 14; second molt, August 24; third molt, September 5; fourth molt, September 23; fifth molt, October 17; sixth molt, January 5; last molt, a time after January 5 that was not indicated. The number of molts in other spiders is quite variable and the same thing is to be expected in the crab-spiders. As a general rule the males undergo one less molt than the females, a fact which may account for the occurrence of adults of that sex at an earlier date.

The number of molts is of much less importance than the morphological changes accompanying them. In the early postembryonic development of spiders we have potential data that may be of the greatest importance in establishing the fundamental criteria of our taxonomic system. The presence of a third claw on the tarsi of very young spiders that are two-clawed as adults is a point that establishes that number as the original, primitive condition of all spiders. Young wolf spiders have the eye formula of the Pisauridae. The degree of this recapitulation is deter-

mined by the comparative specialization of a family.

The newly hatched crab-spider is clearly recognizable as a member of the family, for the legs are laterigrade and the whole aspect of the spiderling associates it with its group. The young of *Tibellus oblongus*, a greatly elongated species, have the general body form and the eye relations of species of the more conservative *Thanatus*. Thus, what we have inferred from the adult structure is directly corroborated by a consideration of the young. In the Misumeninae, seemingly the most highly developed members of the family, we can point to no instances of that kind for indicating the developmental sequence of characters. A fuller study of the young of a large number of genera will undoubtedly bring to light significant points which may aid in establishing the chronological sequence of some of our generic characters.

The newly hatched spiderlings of *Misumena*, *Misumenoides*, *Xysticus* and presumably other genera are without dark coloration of any kind, the carapace usually being milky white and the abdomen somewhat duller. The term larva has been applied to this stage because of various imperfections but that is clearly a misnomer. The spiderling is unable to feed or spin, for only the internal structures of the digestive tube and the spinnerets are developed. The tarsal claws are completely lacking. The shape and the size of the eyes are indicated even at this stage but they are colorless and without function. No setae or hairs are present on any part of the body. In the abdomen is an abundant food material on which the spiderling can subsist until able to feed.

The first molt, always undergone while in the egg sac, brings with it numerous changes. The legs are longer, more slender, and the tarsi are armed with two small black claws. The spiderling is now able to spin and to feed, and the eyes assume an appearance not unlike that of the adult. If the weather is favorable, the spiderlings become active, finally effect an opening at the seam of the sac and emerge. However, in those species that lay the eggs late in the fall, the young often remain in the egg sac until the next spring. Cannibalism probably does not occur in the cocoon but is often practiced after emergence. It is extremely doubtful that the female aids the young to escape by cutting the strands of the seam of the sac as generally supposed, and is certainly not true for *Misumena vatia* and *Misumenoides aleatorius*.

The second or third molt may bring out a definite color pattern that serves to place the spiderling in its genus or occasionally even to its species. After the third or fourth molt the males of *Misumena vatia* can be recognized by the presence of bands on the front legs. The white clypeal carina of *M. aleatorius* is visible after the first molt. However, the sex of the spiderling is not definitely indicated until five or more molts have been undergone and the tarsi of the palpi of the males are enlarged. Thereafter the males increase little in size or may actually decrease in size in the species where sexual dimorphism is marked. In all species of *Ozyptila* and many species of *Xysticus* the male resembles the female in size and color pattern. In most of the other genera of the Misumeninae there is a pronounced sexual dimorphism, the female often being very much larger than the male. Occasionally, males occur that resemble their large mates in size and color even in those genera in which sexual dimorphism is the rule.

Emergence may occur in the spring as in *Misumenoides* but in most cases the spiderlings leave the cocoon in the summer or early fall. As in most other families of spiders, they immediately disperse by actively moving in all directions from the retreat or, if the weather conditions are favorable, by casting out threads from their spinnerets that are picked up by the wind and then sailing away for varying distances. In this dispersion they have a protective device that is of great importance to the species and prevents a wholesale cannibalism among the spiderlings. It is a practice that is invariable, because the young spiders are positively phototropic after emergence. Soon, however, a negative phototropism manifests itself for some of them and they hide under leaves or débris.

Others become vagrants and actively pursue their prey over vegetation or associate themselves with particular flowers in a semi-sedentary existence. Their habits become those of the parents. They hibernate as immatures or, in rare cases, as adults.

Food and the Capture of Prey

The food of the crab-spider is comprised exclusively of the body juices of living invertebrates, chiefly of insects. No true chewing or sucking external mouth parts have been developed as in most other arthropods, so the prey must be crushed by means of the strong chelicerae and endites. Ingestion of the juices is then effected by the enlargement of a portion of the foreintestine, the sucking stomach. Entrance of solid particles into the oesophagus is prevented by a screen of hairs.

Crab-spiders will accept as food a large assortment of insects of all orders. Exact data on their preferences are for the most part lacking. Obviously the microhabitat of the species will determine the type of prey that may become available for food. The vagrant species that are found through various strata will enjoy a greater variety of insect food material. Forms like *Xysticus nigromaculatus* and *Regillus* that never leave the ground or those species that lie in wait in the heads of flowers must be content with a less variable fare. To illustrate more graphically the food habits and the exercise of obtaining food, I will give some data on a female of *Misumenops asperatus* (Hentz). This species conforms fully to the specialized misumeniform pattern as to size and shape and might easily be mistaken for species of *Misumena*, *Misumenoides* or *Synema*. I first observed this female on a branch of a cedar tree which was about four feet in height. Seven tips of the branch in the near proximity of her showed signs of her activity, for numerous silken dragline threads had been bound around them. On Tuesday morning she captured a winged ant and the insect was still struggling when I discovered her. She sat head downward, with her short last two pairs of legs grasping the substratum and held the ant, which was much longer than she, in her long front legs. Her chelicerae were fixed in the abdomen of the victim which soon ceased its struggling. In fifteen minutes the body of the ant was visibly shrunken, and at that point the spider turned it around and sucked at the end of the abdomen. Shortly afterward she sucked at the juncture between the femur and the trochanter of the third leg. About an hour was consumed in reducing the ant to a shell. An hour later the remains were seen hanging from one of the lowest branches of the tree after having been discarded. The spider was perched motionless on the same branch on which the ant had been caught. The capture of prey in a situation of this kind must have been wholly fortuitous, for the possibilities of an insect coming within reach were not good. The next day a cranefly hovered within a few inches of the spider and finally came to rest three inches away. The spider gave every evidence of being aware of the presence of a prospective victim, for she moved about within the confines of her domicile whenever the insect was active. To hasten the process the fly was caught and offered to her in a pair of forceps. In spite of the great activity of the insect, she seized it immediately when it came within reach of her front legs. Her chelicerae were applied to the point where the forceps had injured the abdomen and later at a point between the head and the thorax. The spider had no difficulty in maintaining her foothold by means of her short third and fourth legs in spite of the violent struggling of the cranefly. The victim was manipulated by means of her first legs and her chelicerae. Other insects fed to this same spider were flies of various kinds, a very small measuring worm (Geometridae) and a small stonefly. Once she had the victim securely held in her arms, she began feeding, apparently without using the venom as a means of quieting it. Only on large insects do the crab-spiders resort to a use of this potent product.

The length of time required to satiate the appetites of spiders is dependent on a number of factors. A female was able to ingest all the juices of a fly in thirty minutes but it was noted that the males required consistently a much longer period, about

two hours, a fact probably due to their much smaller size.

The food habits of other ambushing crab-spiders are better known. A few of the unusual insects that make up the prey of *Misumena vatia* and *Misumenoides aleatorius* have been recorded in various places. The following list, which is taken from literature for the most part, is presented for what it is worth.

ODONATA
Celtithemis eponina
Perithemis domitia
Lestes sp.
HEMIPTERA
Lygus pratensis
LEPIDOPTERA
Colias philodice
Brenthis myrina
Papilio asterias
Heodes americana
Phyciodes tharos
Skipper
Larva of Geometrid
HYMENOPTERA
Bombus sp.
Vespa germanica
Apis mellifica
Andrena sp.
Colletes sp.
Formicid
HOMOPTERA
Tibicen sayi
Jassid
DIPTERA
Tipulid
Lucilia caesar
Eristalis transversus
Hematobia serrata
Musca domestica
Pseudopyrellia cornicina
Syrphus sp.
Chrysops sp.
Tabanus sp.
Sarcophagid
Asilid
Dolichopodid
Archytas sp.
Desmometopa latipes
COLEOPTERA
Carabid

The capture of prey by the ambushing species has been described many times by naturalists. The spider takes up a position in any part of the flower and sits patiently with its long front legs extended upward. If the spider is not hungry, it pays no attention to insects and will allow them to crawl all over its body. However, if it is hungry, it immediately seizes the insect in its strong front legs and buries the chelicerae in its body. A honey bee or large insect is quickly subdued by the powerful venom, but it seems certain that only on such prey is the venom used. The victim is seized by any part of the body, no matter how large or dangerous it may be.

One of the most unusual sites utilized by the crab-spiders as a retreat in which to place their cocoons is the pitcher plant. A number of species have been recorded as living in the vessels of these plants and feeding on the insects that are captured. In some pitcher plants the whole interior of the vessel is covered with cells capable of producing an enzyme that breaks down the bodies of the victims. In other plants, however, there is a zone just below the peristome where no cells of this type occur, and it is here that *Thomisus nepenthiphilus* and *Misumenops nepenthicola* place their cocoons. The spiders are intimately associated with the plant. Pocock has reported that *M. nepenthicola* falls into the liquid at the bottom of the vessel when it is disturbed, but is in no way affected by the potent enzyme. This is explained by the fact that the liquid acts only on dead tissues. According to the reports on these misumenids, they are to be considered not as occasional but as habitual inhabitants of pitcher plants in all stages of their postembryonic life. However, it would be surprising if these spiders were not found in other situations as well. Collections from one species of our native pitcher plants, *Sarracenia flava*, in North Carolina show that a number of species of several families of spiders use this plant occasionally as a retreat. Not one of the species, however, is found exclusively in such a situation.

ENEMIES

The enemies of the crab-spiders are in general the enemies of all spiders and include a large number of vertebrates and invertebrates. Of the vertebrates may be enumerated fishes, toads, lizards, birds, monkeys and man. Spiders have been described from the stomachs of various small vertebrates. A large assortment of birds use spiders as food but only in the hummingbirds is the number more than a small percentage of the total food supply.

The invertebrates are the chief enemies of spiders and accomplish their end of destruction in an open or an insidious manner. Marauding ants and beetles use spider food, but the spider, which is better prepared to combat these animals, reciprocates with even a greater slaughter. Mantids accept spiders as food and other large predaceous insects, as the asilids, occasionally eat them. Various flies and ichneumons are parasitic on the eggs or bodies of many spiders.

In the Hymenoptera, however, we have certain groups that depend almost exclusively on spiders as food for the larvae,

the Pompilidae and the Sphecidae. These wasps provision their nests with paralyzed spiders which provide a fresh food supply for the carnivorous larvae. The orb-weavers and the crab-spiders make up a large part of the larval food of the mud-daubers. In many instances the contents of the cells are made up exclusively of representatives of one of these groups or even of a single species. In southern Texas approximately 95 per cent of the number of spiders found in the nests belong to three species, *Neoscona minima* Cambridge, an argiopid, and *Misumenops dubius* (Keyserling) and *M. celer* (Hentz), two thomisids. Some cells examined at Norwalk, Connecticut, contained only *Neoscona arabesca* (Walckenaer) and *Misumenops asperatus* (Hentz). On the other hand a single cell may contain a large variety of species. A cell of *Sceliphron* sp. from Corvallis, Oregon, was filled with thirty-two spiders, representing eight species: Thomisidae—*Tibellus oblongus* (Walckenaer), *Xysticus cunctator* Thorell and *Misumenops celer* (Hentz); Argiopidae—*Aranea displicata* (Hentz), *Aranea trifolium* (Hentz), *Argiope aurantia* (Lucas) and *Metepeira labyrinthea* (Hentz). The number of species found in a single cell varies considerably, the variation usually being due to the size of the prey. Hentz states that *Sphex cyanea* places twenty to forty spiders in each tube. It is well within the limits of conservatism to say that at least fifty per cent of the prey of these wasps consists of misumenid spiders, particularly the females. A representative cell of *Sceliphron* sp. from Kingston, Tennessee, contained the following spiders.

THOMISIDAE

Misumenops oblongus (Keyserling)	14 females

ARGIOPIDAE

Aranea marmorea (Clerck)	3 females
Aranea displicata (Hentz)	2 females
Metepeira labyrinthea (Hentz)	1 male
Neoscona arabesca (Walckenaer)	1 female

CLUBIONIDAE

Clubiona abboti C. Koch	1 female
Total	22

Of no small consequence is the toll that spiders take upon their own kind. The crab-spiders are ferocious little beasts that do not hesitate to attack spiders much larger than themselves. A net that is forcibly swung through vegetation will usually bring to light these animals which, not at all disturbed by the battering, come out of the débris with a fly or a spider held in their chelicerae. In some families cannibalism occurs in the cocoon, but this is not true for the thomisids. After emergence the spiderlings often prey upon each other and also become the prey of other spiders. After the male is mature, he will not attack a female of his own kind but often succumbs to the strength of his mate.

AUTOSPASY AND THE REGENERATION OF LOST APPENDAGES

The crab-spider shares with many other arthropods the ability to drop an appendage on occasion without great inconvenience. That this habit constitutes a device of great importance from the viewpoint of protection seems certain. The stout front legs of the thomisids are at the same time organs of sight and offensive weapons but, nevertheless, they are usually the ones that are lost. If a misumenoid crab-spider is grasped by one of the legs and the animal has a good hold on the substratum, the leg will break loose at a point between the coxa and the trochanter. The break is accomplished only when there is a considerable tension. On the other hand, if the spider is unable to exert some countering force by grasping an object, if held in the air, for instance, it is unable to drop the leg. When held in a pair of forceps, the animal usually twists around, grasps the forceps and literally pulls the body loose from the leg. The speed with which this is accomplished varies with the species but is more or less instantaneous once the spider begins to effect an escape. If two legs are held, some of the stocky misumenoid forms are unable to free themselves or require considerable time.

It has been shown by Wood (1926) and confirmed by Bonnet (1930) that autotomy in the strictest sense, "the act of reflex self-mutilation," does not occur in arach-

nids. The leg is dropped only after a visible effort on the part of the spider. This method, dubbed "autospasy" by Piéron in 1907, involves "the separation of an appendage from the body at a predetermined locus of weakness, when pulled by an outside agent." The locus in spiders is between the coxa and the trochanter, a point which was determined by Wood in *Lycosa carolinensis* to be able to resist only 7 per cent of the stress that the next weakest juncture, the metatarsal-tarsal, in the leg could withstand. In true autotomy the point of break is not necessarily at the leg's weakest point.

The reaction of the spider to the loss of appendages varies considerably. The loss of one, two or three appendages in the Philodrominae resulted in little inconvenience to the spider. Misumenoid species that had lost their first two pairs of legs took up a position in which the short third legs were directed forward as in the normal animal and were able to move about with some ease. However, the ability to catch flies was seriously impaired, and only in one or two instances was the spider successful. Males that had lost one, two or three of the long front legs made efforts to mate that in some cases resulted in the death of the spider. A female of *Misumenoides* with one long leg spun an egg sac that did not appear to be inferior to that of a normal female.

If a leg is lost, it is replaced by a smaller, imperfect replica at the next molt. This regenerated appendage increases in size with successive molts but never attains the size of the normal appendage. Gabritschevsky's notes on *Misumena vatia* are of great interest, for in them is suggested a general rule regarding the phenomenon in spiders. The females of that species have white legs and, when one is lost, the appendage that appears is shorter, unmarked as is to be expected and deficient in the number of spines that characterize the normal appendage. In the male, however, the first two pairs of legs are banded after the third or fourth molt, and in each successive molt the amount of pigment in the dark annulae increases. If the male loses a leg during the third instar, when the leg is still white, after the next molt the regenerated leg is wholly white but the other normal front legs show the beginning of the annular pigmental areas. If a leg is lost in a molt after the fourth, the regenerated leg is annulate but the depth of the chromatism is much less than in the normal leg. In other words, in *Misumena vatia* a regenerated leg takes on the normal coloration of the leg at the previous instar and never quite approximates the normal leg in size or color. If the palp in the male is lost before maturity, the appendage is regenerated but the copulatory apparatus is always reduced in size, imperfect and altogether useless for copulation.

Protective Resemblance in the Thomisidae

Under this heading may be included the general resemblance in form and color of the crab-spider to its inanimate surroundings and those cases of parallelism in which the animal has come to simulate animate organisms of its habitat. These resemblances manifest themselves in color agreement, change of color, peculiar body form and in so-called "mimicry." One soon discovers that there is a striking harmony in the color of these animals and the habitat that they prefer. A critical study will also show that there are numerous exceptions and contradictions to any rule that may be formulated regarding their occurrence in particular situations.

All the crab-spiders are forced, at least in the northern United States, to live part of their lives on the ground or on some other substratum of a similar nature, such as a tree or a house. As soon as plants begin to appear many of them desert the ground for the leaves or flowers. Many others, however, remain on the ground, running in the open or, more commonly, hiding beneath stones, leaves or débris. These species are invariably dull in color and conservative in pattern. The species of *Ozyptila* and *Xysticus* are preëminently spiders of the ground and their colors are correspondingly dull, usually grays, browns and blacks. An interesting example of this type is *Xysticus nigromaculatus*, a dark brown species that is thickly clothed with short spatulate setae.

The few specimens that have been taken are remarkable in that they are invariably covered with small particles of dust and débris, which disguise makes them difficult to find. The spider is extremely sluggish and makes no effort to escape when picked up bodily. Certain species of *Regillus* from Africa, which belong to a different subfamily, are always found on the ground in moist situations and always have their rugose bodies covered with débris. Many of the thomisids mingle their drab colors with the leaves and organic débris on the ground and are rarely discovered except by a routine sifting of these materials. The flat bodies of the misumenoid species make it possible for them to hide in fences, in cracks in rocks and in houses. The greatly flattened species of *Coriarachne* usually are found on the bark of trees, the colors of which are simulated to a remarkable degree.

Most of our actively vagrant forms belong to the Philodrominae. These interesting spiders have all the legs long, clawtufts on the tarsi and have an elongate body form that adapts them for the chase. They run over the ground, hide at the bases of plants and grasses or move on or over vegetation of all kinds. The greatly elongate species of *Tibellus* have been mentioned on many occasions as furnishing an example of so-called "flash" coloration. They frequent the grasses in meadows and when at rest are parallel to and closely appressed to a stem. They are easily seen when in movement, but when they stop, and they do it quickly, they literally vanish from sight. The same is true for many species of *Philodromus* and *Thanatus*. *Philodromus virescens* is a common western species that is often found on sagebrush and which in life has the same bluish-gray color of the shrub. A tiny species of *Ebo* is common on the sand along the margins of streams and lakes in the Midwest. It matches the sand almost exactly in color and is unnoticed until it is disturbed, whereupon it runs a few inches and again lies perfectly still. The other common *Ebo* is often found on short grass, rarely on the ground in the open. It is much brighter in color and has the legs lined with black.

The crab-spiders that live on vegetation and in flowers are much more brightly colored than the ground forms. As a general rule it can be stated that there is a considerable conformity of their colors with those of the substratum. *Synema viridans* lives on foliage and is always a delicate green in color. The philodromid species blend perfectly with the vegetation on which they hunt. Many species of *Xysticus* are occasionally found on flowers but a few are distinctly flower forms. An investigation of the common imported white daisy of the East will almost invariably disclose the presence of females of *Xysticus triguttatus*, a species almost wholly white in color. In the western United States *Xysticus cunctator* is found during the spring in white flowers, particularly in the corollas of the various species of *Calochortas*.

The most notorious flower spiders of the United States are the so-called "golden-rod spiders." This common name is usually given to *Misumena vatia* but should be applied to a number of related species of *Misumena*, *Misumenops* and *Misumenoides*. Structurally there is little difference between them and, because their dominant traits are much alike, the spiders have often been confused. All are ambushers and obtain a livelihood by strategy. They are usually found in the corolla or heads of yellow or white flowers, where they lie in wait for insects that come to the flower for pollen or honey. Although capable of some activity, they have become semi-sedentary, similating the species of *Reduvius*. In keeping with this habit of deception, they are known to change in color from white to yellow to conform with the substratum.

These species are not confined by any means to species of goldenrod and may be found on many different kinds of flowers of various colors. In fact, Rabaud, working in France on *Misumena vatia*, found only sixteen spiders out of seventy-five in a flower that agreed in color with the spider. His actual results are of great interest. In the cases in which the spider and the substratum were homochromous, fourteen were on white flowers and two on yellow flowers. On the other hand, the

spiders were heterochromous on red flowers (39 individuals), on violet (7 individuals), on green (4 individuals), on blue (2 individuals) and on yellow (1 white individual). The same worker got comparable results on *Thomisus onustus* and was forced to conclude that there was little basis for believing that these spiders chose a substratum because of its color. On the other hand Pearse, working in the United States on *Misumenoides aleatorius* and probably *Misumena vatia* as well, found that 84 per cent of all the white spiders collected were on white flowers and 85 per cent of the yellow spiders were on yellow flowers. From 6 to 10 per cent of the spiders were found on flowers other than white or yellow. The differences in the results of these two workers are not at all irreconcilable when the recent discoveries of Gabritschevsky are considered. As this latter worker was concerned mainly with the change of color, that will be considered at this point.

The ability of *Misumena vatia* to change color to conform with the substratum of its habitat has engaged the attention of naturalists for sixty years. The fact has led to numerous erroneous interpretations of the phenomenon and to the application of the same principle to other spiders on little evidence. The fantastic results obtained on *Thomisus onustus* by Heckel may be characterized as due to superficial study and hasty conclusions (Rabaud, p. 43). The remarkable changes of *Thomisus onustus* to white, yellow, rose or green lightly tinted with red in four hours, when placed on flowers of those respective hues, have no basis in fact. On the other hand it has been demonstrated by several workers (Packard, de Kerville, Pearse, Rabaud and Gabritschevsky) that various species change from yellow to white when placed on white flowers or vice versa. Gabritschevsky's results are significant because he reared the spiderlings and subjected them to color tests during a number of instars and as adults. His discovery that only sexually mature spiders are able to change their color is a fact that goes far to explain the various irreconcilable data of other workers. Young females of *Misumena vatia* are always white and may be found on flowers of any color. When they become mature, these same individuals will change, in the course of one to ten or ten to twenty days, from white to yellow on a yellow flower or an artificial yellow substratum. The action is reversible and yellow individuals will change in the course of only five or six days to white on a white substratum. "The white color of *Misumena* is due to a layer of cells which is located under the hypodermal cells. These cells are filled with guanin crystals, which reflect the light through the usually translucent hypoderm (except in the places where there is a hypodermal black or red pigment)."—"Another pigment, of an entirely different nature, makes its appearance in mature females (after the last molt) under the influence of reflected yellow light. It is a fluid yellow pigment which, present in certain cells, gives the spider a shining yellow color. Its origin and its chemical nature are not fully understood at present." (Gabritschevsky, pp. 254–255.) Pearse's experiments were made in the fall when yellow flowers predominate and the spiders, having attained maturity, are able to assume the yellow color. Rabaud's studies, on the other hand, must have been made at an earlier date, when yellow flowers do not predominate and when many of the spiders were doubtless immature. The spiders that are credited with this reversible change in the pigment are *Misumena vatia*, *Misumenoides aleatorius* and *Thomisus onustus*. I have found that the same thing is true for *Misumenops asperatus* and no doubt other species of these genera have the same ability. Yellow females of *asperatus* may be found in early May, but the other species mature at a much later date.

Because of a peculiar body form, certain crab-spiders have been pointed out by workers as receiving some sort of protection from their natural enemies by a resemblance to inanimate objects. *Phrynarachne rugosa* (Latreille) is said to resemble in form and color the fruit of a common tree in its forest home. Another spider of the same genus, *Phrynarachne decipiens* (Cambridge), described under the appropriate name of *Ornithoscatoides*, is reputed to

resemble the excreta of a bird, and the illusion is complete when the spider has fashioned its characteristic web. Forbes' account of his first discovery of this and a second species of like habits has been quoted many times and need not be repeated here. Other thomisids have been compared to dried seeds, leaf buds and various flower parts.

The term "mimicry" is usually applied to those instances in which the superficial body form of an animal simulates to a more or less striking degree the body form of another animal, which, because of some attribute, is considered a protected species. Spiders are said to mimic such animals as caterpillars, snails, beetles, leafhoppers, ants, pseudoscorpions and scorpions. The crab-spiders present few instances of such "mimetic" body forms. A thomisid spider is credited by both Bristowe and Hingston with carrying the shell of an ant about with it to secure protection. In South America the ant-like spider *Aphantochilus*, with a constricted, spined carapace and a spherical abdomen, simulates in a striking way certain ants of the genus *Cryptocerus*. Species of *Amyciaea* have a superficial resemblance to an oriental tailor-ant, *Oecophylla smaragdina*, but the similarity is in a reverse order. "When the spider escapes by running backwards, which is its usual habit, it mimics the ant running forward." In other families of spiders, particularly in the Salticidae and Argiopidae, scores of instances of mimicry have been recorded.

TAXONOMIC SECTION

The family Thomisidae is co-extensive with the genera *Thomisus* and *Philodromus* of Walckenaer and includes for the most part those species placed in the "Laterigrades" by Latreille in 1817. As conceived by most modern authors the family embraces a closely integrate assemblage of small laterigrade spiders which are distinguished from allied families in having the eyes in two rows of four each and, excepting the Stephanopsinae, in having the lower margin of the chelicera unarmed. In 1913, Friedrich Dahl, using as an index the distribution of the trichobothria, the so-called "auditory-hairs," attempted to establish ten families for the group. His separation of such closely allied genera as *Xysticus*, *Synema* and *Misumena* from each other into distinct families on the basis of the mere placement of superficial structures of which the biological importance and significance are as yet imperfectly known has little to recommend it. In fact, when the world fauna is considered, F. Cambridge's proposition in the Biologia Centrali-Americana is a nearer approximation to the truth. His statement, based on a study of large collections, is to the effect that "It is extremely probable that all the misumenoid forms, including *Pistius*, *Thomisus* and *Diaea*, will some day be merged under the genus *Thomisus*, while the others, such as *Synema*, *Ozyptila*, etc., will run together under *Xysticus*." On the other hand there is considerable merit in the elevation of the Philodrominae to family rank by Dahl, but as this innovation has not as yet received general acceptance and as that group is considered only incidentally in this paper, I have regarded that group only as a subfamily. Mello-Leitao lists 1600 species of the Thomisidae for the world.

THOMISIDAE

"Laterigrades," LATREILLE, 1817, Cuvier, Régne Animal, III, p. 91.

Laterigradae, LATREILLE, 1825, Familles naturelles du Régne Animal, p. 315.

Thomisides, SUNDEVALL, 1833, Conspectus Arachnidum, p. 27.

Thomisoidae, THORELL, 1870, On European Spiders, p. 170.

Thomisidae, THORELL, 1870–1873, Remarks on Synonyms of European Spiders, p. 229.

Thomisidae, SIMON, 1892–1895, Histoire Naturelle des Araignées, I, p. 949.

Misumenidae, Diaeidae, Xysticidae, Urarachnidae, Strophiidae, Bomidae, Amyciaeidae, Platythomisidae, Mystariidae and Philodromidae, DAHL, 1913, Vergleichende Physiologie u. Morphologie der Spinnentiere, pp. 15–18.

Two of the six recognized subfamilies of the Thomisidae are known to occur in America north of Mexico. They may be separated by the following chart, which has been adapted from Petrunkevitch.

Labium comparatively short, truncated or rounded at the end. Tarsi and claws normal. Lower margin of the furrow of the chelicerae (retromargin) unarmed..... .....(INDIGENOUS SUBFAMILIES).

Integuments with plumose or squamose hairs. True claw-tufts present. Legs about equal in length.....Subfamily PHILODROMINAE.

Integuments with simple hairs. Claw-tufts, if present formed of simple hairs. Third and fourth legs much shorter than first and second .....Subfamily MISUMENINAE.

Labium and maxillae long, acuminate (Strophinae); tarsi of first leg longer than the metatarsus, the claws minute or rudimentary (Stiphropodinae). Lower margin of the chelicerae armed (Stephanopsinae). Integuments with simple hairs, true claw-tufts present (Dietinae).....(EXOTIC SUBFAMILIES).

Misumeninae

Misumena, LATREILLE, 1804, Nouv. Dict. d'Hist. Nat., XXIV, p. 135.

Thomisus, WALCKENAER, 1805, Tableau des Aráneides, p. 28.

Thomisinae, THORELL, 1869–1870, On European Spiders, p. 181.

Misumeninae, SIMON, 1892–1895, Histoire Naturelle des Araignées, I, p. 968.

Misumenidae, Diaeidae, Xysticidae, Amyciaeidae and Platythomisidae, DAHL, 1913, Verg. Physiol. u. Morph. der Spinnentiere, pp. 15–18.

Misumeninae, PETRUNKEVITCH, 1928, Systema Aranearum, pp. 55 and 166.

This is by far the largest of all the subfamilies and includes, according to Mello-Leitao's recent list, 1062 species that are widely distributed in all the faunal regions of the world. Species of the Misumeninae and the Philodrominae make up the complete thomisid fauna of the Palearctic region and of America north of Mexico. However, in the southern most extremity of the Nearctic region a third subfamily, the Stephanopsinae, is represented in the genus *Isaloides* and possibly others. In this connection it should be noted that the species described from Cuba by Banks as *Misumessus echinatus* is an *Isaloides*, so the possibility of that or other species occurring in Florida or the southwestern states is good.

Of the seventy-five genera of the Misumeninae listed for the world, nine are known from the United States. Of these only *Coriarachne* may be considered as pertaining exclusively to the Holarctic region, though several of the other genera (*Xysticus*, *Ozyptila* and *Philodromus*) have their highest development in the temperate zone. To give a more graphic picture of the genera and the number of species endemic to the Holarctic region, the following list is presented. Data of a like nature for the Philodrominae are appended for comparison. Five genera of both of the subfamilies are peculiar to the Americas but seven listed for the Palearctic region have no representatives in the New World. It should be remembered that the inclusion of the part of Mexico referred to the Sonoran subregion would tremendously increase the number of species and genera from the comparable temperate faunal zone of the New World. In this connection I may state that the placing of the European *Diaea tricuspidata* and several oriental species in *Misumenops* seems certainly erroneous. A very high percentage of the species from these respective regions belong to the same genera and some that are peculiar to the Americas are in final analysis simply New World expressions of Old World genera.

GENERA	NUMBER OF SPECIES		
	Palearctic	France	United States
Tmarus	6	4	5
Monaeses	1	1	
Firmicus	1	1	
Pherecydes	1		
Thomisus	3	3	
Heriaeus	9	3	
Pistius	3	1	
Runcinia	3	1	
Misumenoides			2
Misumena	3	3	1
Misumenops	1 ?	1 ?	11
Diaea	4	1	2
Synema	5	1	5
Ozyptila	40	17	11
Xysticus	79	32	45
Coriarachne	2	2	4
Total	161	71	86
Philodrominae			
Philodromus	53	18	40
Titanebo			4
Ebo			4
Thanatus	23	10	7
Apollophanes			3
Paratibellus	1	1	
Tibellus	8	3	4
Total	85	32	62
Grand Total	246	103	148

The close faunistic relationship of the temperate zone of the Old and New World is further shown in the number of species common to both regions. Eight species of the Philodrominae and one of the Misumeninae are characteristic forms of the Holarctic region. In addition, many of the other species are very closely related structurally. The list of identical species with the names they have received from American workers follows:

Philodromus aureolus (CLERCK), 1757. (*P. canadensis* EMERTON, 1917)
Philodromus rufus WALCKENAER, 1825. (*P. pictus* EMERTON, 1892)
Philodromus alascensis KEYS., 1883. (*P. varians* KULCZ., 1887)
Thanatus formicinus (CLERCK), 1757. (*T. lycosoides* EMERTON, 1892)
Thanatus coloradensis KEYS., 1880. (*T. alpinus* KULCZ., 1887)
Thanatus striatus C. KOCH, 1845. (*T. walteri* GERTSCH, 1933)
Tibellus oblongus (WALCK.), 1802. (*T. maritimus* (MENGE), 1874)
Tibellus parallelus C. KOCH, 1845. (*T. oblongus*, AUCT.)
Misumena vatia (CLERCK), 1757. (*M. calycina* (LINNAEUS), 1758)

The misumenoid genera are based on various characters of which the most important are the height and slope of the clypeus, the size and arrangement of the eyes and their tubercles, the presence and relative development of a clypeal and an ocular carina, the proportions of the carapace, the relative leg lengths and the armature of the tarsal claws. As is to be expected, the study of a very limited fauna finds these generic categories discrete and not at all intergradent. When a wide faunal area is taken into consideration, their separation on the basis of one, two or many characters presents numerous difficulties. Genera are, after all, only mileposts, placed at more or less well-separated intervals from each other, that indicate relationships on the basis of what appeals to the worker as characters more fundamental than those assigned to the species. The inherent difficulty in establishing these boundaries is the fact that they do not actually exist in nature and that they fade out as soon as enough material is accumulated from the world for comparison. Even in the limited area chosen for this paper characters of some of the genera become uncertain at some point. Species turn up that combine the characters of two related genera and can be correctly assigned only because the whole aspect of the spider is that of one of the categories. *Xysticus*, *Ozyptila* and *Synema*, so distinct in their genotypes, do not admit of separation when the world fauna is considered. The same is true for many of the other genera. Nevertheless, the usefulness of these categories is obvious and, as relationship can be shown whether they be genera, subgenera, groups or what not, their retention is absolutely necessary.

KEY TO THE MISUMENOID GENERA

1.—Clypeus strongly sloping or horizontal. Abdomen rather high, with a caudal tubercle ..... *Tmarus*.
Clypeus vertical. Abdomen broadly rounded behind, without a caudal tubercle ..... 2.
2.—Tubercles of lateral eyes connate ..... 3.
Tubercles of lateral eyes discrete, usually well separated ..... 5.
3.—Eyes of anterior row subequal in size. Carapace and abdomen devoid of strong spines. Legs without dorsal or lateral spines .... 4.
Anterior lateral eyes larger than the medians. Carapace and abdomen spinose. Legs more spinose, especially on the prolateral surface of the first femora ..... *Misumenops*.
4.—Carapace rather flat, with a distinct white clypeal carina ..... *Misumenoides*.
Carapace more strongly convex, without a clypeal carina ..... *Misumena*.
5.—Lateral eye tubercles broadly separated ... 6.
Lateral eye tubercles contiguous at their bases ..... *Diaea*.
6.—Median ocular quadrangle usually much longer than broad. First tibiae with two pairs of ventral spines. Integument armed with spatulate spines ..... *Ozyptila*.
Median ocular quadrangle broader or as broad as long. First tibiae with three or more pairs of ventral spines. Integument armed with setaceous or filiform spines .. 7.
7.—Carapace strongly convex, the eyes of the first row subequidistant (*virescens* and *parvulum*) or nearer the larger laterals. Tarsal claws of the first legs with six to twelve teeth ..... *Synema*.
Carapace relatively flat above, the anterior median eyes much nearer the larger laterals. Tarsal claws of first legs with less than six teeth ..... 8.
8.—Carapace rather high, the sutures virtually obsolete, the first row of eyes moderately recurved ..... *Xysticus*.

Carapace very flat, the cephalic sutures well indicated, the first row of eyes nearly straight..... *Coriarachne.*

Species are based on characters that are less fundamental than those of the genus. As their relative value is to a great extent opinional, it is often the case that in the description of one author points may be omitted that to another worker seem of the greatest significance. Size and coloration stand near the bottom of the list as characters of value and yet they have been the principal criteria of some workers for the establishment of species. Such a superficial study has led to the description of specimens of a single species under three names in the same paper. Too often variation is underestimated or differences of great importance are ascribed to it. Numerous errors have crept into the taxonomy of this group because of statements of relationship that are not corroborated by measurements. The fact that the eyes of the median quadrangle form a figure that is broader than long or vice versa can only be determined by actual measurement of the relations under a good microscope. In this paper, whenever statements of such relationships are necessary, actual measurements in millimeters or ratios not reduced to this standard are given in the descriptions of the species. For the most part, there are numerous good characters and, when correlated with the very significant differences in the genitalia, identification is easy. The variation in shape and morphology of the palpus and the vulva affords characters for the separation of species, distinctions that, allowing, of course, for intraspecific disparity and irregularity, are most constant for segregation within the group.

The Male and Female Genitalia

In the external genitalia of the male spider, the highly developed palpi, we have what is unquestionably the most unusual intromittent organs that have been developed in any group of animals, structures that are paralleled only in the hectocotylized arms of male cephalopods, in the penis at the base of the abdomen in dragonflies and in the modified third legs of the rare arachnids of the order Ricinulei. The unique characteristic of these organs is the relative remoteness and the absolute separateness of the genital bulb, which is analogous to the penis, from the opening of the vas deferens. Treviranus in 1812 proved conclusively that there was no internal connection between the copulatory mechanism and the genital opening. We are indebted to Menge for the first description of the method of transfer of the semen to the receptaculum seminis of the palpus. In 1843, Menge discovered that before copulation the male constructs a delicate sperm web and ejects a drop of semen upon it. The palpi are charged by alternately applying the embolus or stylus to the globule. The same thing is accomplished in male dragonflies by applying the genital opening at the end of the abdomen to the penis on the second abdominal segment.

Spiders have gone one step farther than other animals and have developed in the female a complementary organ, incorrectly termed the epigynum, that has much the same relation to the internal reproductive organs as has the palpus of the male. This organ is symmetrically divided into two receptacles for the two palpi of the male and is, in its simplest form, two variously modified tubes that receive and store the semen preparatory to the fertilization of the eggs.

The genitalia of spiders have been used extensively by arachnologists for a great many years as a means of segregating spiders into species. In most cases no effort was made to understand the organs themselves or to establish the homologies of the parts. In his excellent paper of 1910, Dr. J. H. Comstock reviewed the literature relative to the palpi, decidedly amplified our knowledge by a critical comparative analysis of the types found in the various families, and gave us a sound nomenclatorial basis for reference to homologous parts. The terms adopted by that writer are now generally accepted by arachnologists and will be used in the consideration of the genitalia of the Thomisidae.

The palpus in all spiders is a leg-like appendage that consists of the following joints: coxa, trochanter, femur, patella,

tibia and tarsus. Barrows (1925) regards the joint called the tarsus as the metatarsus. It is on the terminal joint that is developed the complex copulatory organ in spiders, a structure that is fully unfolded only after the last molt. The all important element of the palpus is the receptaculum seminis, the container of the seminal fluid. This is made up of three more or less well-defined parts, a basal expanded portion termed the fundus, a coiled intermediate tubular, more strongly sclerotized portion called the reservoir and the delicate terminal ejaculatory duct.

Around the receptaculum seminis has been developed a sclerotized protectory cover, the bulb. Specialization in the palpus has taken place in a number of ways: by a ventral excavation of the tarsus to form a receptacle, the cymbium, in which the unexpanded bulb lies; the development of muscles and hematodocha for the ejection of the semen; and the elaboration of the median and terminal portions of the bulb by various apophyses. Some of these advances are obviously of a protective nature as suggested by Nelson in 1909, but they are also concerned with the facilitation of coition. It seems clear that the development of the female genitalia has gone hand in hand with the increase in complexity of the palpus and has been directly the result of its specialization, or vice versa.

The palpi of the Thomisidae have been mentioned casually by a number of workers but in no case has a comparative study of these organs in various genera been presented. The proximal joints are stout, very much shortened, more or less spinose, subcylindrical sections in all the subfamilies but the Philodrominae, in which group they may be greatly elongated (*Titanebo*, *Philodromus*, etc.). The femur is about as long as the patella and tibia taken together and is usually not much longer than twice the width in the Misumeninae. The patella is as broad as long, equal to the tibia or exceeding it in length. In the tibia we find the first evidences of specialization to facilitate coition by the development of apophyses. The tibia in *Xysticus* and allied genera is a much shortened, often much broader than long, joint which is armed with processes as follows: a curved ventral spur that varies somewhat in shape among the species and which may be ended as a truncate, rounded, bifid or weakly emarginated process; a curved or straight retrolateral process more uniform in shape but variable as to length, the terminal part little modified. In other genera, for example, *Misumenops*, the retrolateral apophysis is subject to considerable elaboration and the ventral apophysis is virtually obsolete. The interval between the processes is usually very much excavated and in certain forms (*Xysticus concursus*, *moestus*, etc.) a definite apophysis is present, which I have called the intermediate apophysis. In some species of the Philodrominae the tibia is completely unarmed (*Tibellus duttoni* and *chamberlini*), though in other species of the same genus a small retrolateral apophysis may be present (*Tibellus macellus* and *paraguensis*). The presence of two apophyses probably represents the generalized condition from which basis specialization has taken place by an elaboration of the details of these processes, the development of an intermediate spur or the complete obliteration of the processes. This is well borne out by a consideration of other parts of the palpus.

Broadly joined to the tibia is the tarsus (or metatarsus, according to Barrows) which is much modified from the normal form as exemplified in the female. This joint may be as broad as long, suborbicular, or more elongated. Generally speaking, it is a moderately deep, cup-like structure, the cymbium, the concave depression of which, the alveolus, holds all the palpal parts when unexpanded. The outer side of the cymbium is clothed as the legs and the basal joints of the palpus with setae of various types and long spines that are regularly set in much the same position as on the other members of the palpus. The misumenid cymbium is interesting in that on it has been developed a protective groove or surface as a substitute for the conductor of the embolus present in other spiders. This structure, termed the tutaculum by Comstock, is well developed in many of the misumenoid genera and finds its best expression in *Xysticus*. The tutaculum (Fig.

231) is normally a shallow groove on the retrolateral margin of the cymbium and is made up of two distinct elements, an outer cymbial portion set with hairs and an inner alveolar portion, a ventral expansion of the smooth inner surface of the cymbium. A striking development of the tutaculum is seen in the genus *Misumenops*. The generalized forms, with the terminal part of the embolus short and straight, have a shallow, inconspicuous furrow on the retrolateral side to receive it, but in the species in which the embolus is spiraliform the outer surface of the cymbium is modified for the reception of the spirals. The limits of the tutaculum may far exceed the possibility of its effective utilization by the embolus. In *Xysticus benefactor* and other species the embolus is much shortened, a specialization, but the tutaculum has remained much as in the species in which the embolus is much longer. However, there is a striking correlation between the development of the embolus and the tutaculum. In most species in which the embolus is long or large the tutaculum is correspondingly better developed. The outer face of the cymbium in such forms is modified into a prominent spur which, with a like process of the inner portion of the cymbium, provides a resting place for the truncus of the embolus.

The three divisions of the genital bulb defined by Comstock are at the most arbitrarily chosen distinctions, but they serve as valuable landmarks. The basal division in the unexpanded palpus lies entirely within the alveolus and is completely covered by the tegulum. The basal hematodocha is attached within the alveolus and distally is broadly attached to the subtegulum. Apically the basal division of the bulb is terminated by a well-defined annular sclerite, the subtegulum, the outer surface of which is broadened, the lunate plate. The tegulum makes up most of the median division of the bulb and in an unexpanded palpus appears to make up a large part of the palpus. Through it traverses the reservoir of the receptaculum, making a full turn round the periphery and connecting with the embolic portion. The median division is unarmed in most misumenids but in the genera *Xysticus* and *Tmarus* a median apophysis may be present. In *Xysticus* this apophysis is extremely variable in shape and serves as an excellent character for the separation of species. In the group of species of which *Xysticus cunctator* Thorell is representative, the median apophysis is greatly reduced in size or is represented by an inconspicuous spur. The process has been lost secondarily in many species of *Xysticus*. The most striking characteristic of the distal division of the bulb is the loss of the conductor of the embolus. A distal apophysis is developed only in *Xysticus*. The proportions of the apophyses are of primary importance in the identification of the species of *Xysticus*. The embolus in the Thomisidae is a composite of two or three more or less well-defined parts, an outer portion, the truncus, which is a highly sclerotized black band or tube that margins the embolus; a thin transparent supporting membrane through which courses the seminal duct, the pars pendula; and rarely a terminal dark, highly sclerotized thickening of the pars pendula that is termed the apical sclerite. These three parts are variously expressed among the genera and only in some species of *Xysticus* (Fig. 235) are all three elements clearly defined. In most of the genera the embolus is of the spiral type, the truncus and the pars pendula the conspicuous parts. In some cases the three parts are intimately fused into a single strong spur (for example, *Tibellus*) that is broadly attached to the tegulum. Within a single genus may be present emboli that are attached to the median division of the bulb near the distal end or at any point around the periphery. A short embolus is obviously specialized and quite as much so is an embolus that terminates in a spiraliform tube. In most of the species of *Xysticus* the truncus is a long black spine (Fig. 232) without an apical sclerite. The ejaculatory duct is easily visible in the pars pendula in the basal half of the embolus, but in the distal half the delicate tube may be completely retained within the truncus.

Nothing has been written about the female genitalia of the Misumeninae. As in all spiders the oviducts join to form a

tube, the uterus, which opens externally through a transverse slit in the middle of the epigastric furrow at the base of the abdomen. In front of the genital opening in most dipneumonomorph spiders is a more or less well-developed organ which is usually referred to as the epigynum. Inasmuch as this name should be restricted to a median finger-like appendage found in the genitalia of some spiders, the external part of the genital apparatus is called the vulva in this paper. Only the vulva is visible from a ventral view, the remaining parts being imbedded within the body wall. The genital organ is developed from and is continuous with the sclerotized integument. It can be studied internally by tearing the apparatus loose from the body wall. Any adhering tissue can be removed by the use of fine dissecting needles or by immersing the organ in caustic potash.

The figures of the female genitalia in this paper illustrate the variability of this organ among the various genera as seen in ventral view. In the more typical forms of *Xysticus* the vulva is delimited by a well-defined margin or rim which is commonly oval or elliptical in outline. Within the confines of this rim is a shallow to deep atrium which in most species of *Xysticus* is divided by a median longitudinal septum, the sides of which are often elevated and revolved into separate dark bodies. In extreme cases the atrium is completely obliterated and only two distinct atriobursal orifices remain. In *Ozyptila* and some species of *Misumenops*, *Synema*, etc., the rim has been lost except in front where it persists as a hood or excavated tubercle. The probable use of this elevation and of the well marked rim of other species seems to be that of a guide or articulating point for an apophysis of the male palpus. The median septum presumably also serves this purpose. In applying the palpus the male moves the partially expanded bulb and the tibial apophyses across the face of the vulva as if endeavoring to find an orientation point from which the embolus can effect contact with the appropriate atriobursal orifice. Once the orientation is attained, the embolus is introduced through the orifice into the recess of the receptaculum seminis by a rotary turning of the bulb.

The female genital system is composed of two essentially symmetrical, independent units, each of which serves as the recipient of the embolus (of its particular side) of the male palpus and further provides an avenue for the exit of the sperm into the uterus. Each unit is a highly modified tube which is variable to length, form and relative position of the parts among the species. The internal appearance of the organ is quite similar among the various genera, though the external appearance is often quite different. The atriobursal orifices vary in size and may be placed close together or relatively far removed from each other. They communicate with the bursa copulatrix through a tube of variable length. In *Xysticus cunctator* and *X. ferox* (Figs. 233 and 234) the bursa is an expanded tube which is broadly joined to the receptaculum seminis. No clear distinction is evident between the portions which serve for copulation and fertilization for the latter is simply the apical continuation of the part that serves as the bursa copulatrix. The fertilization canal opens into a shelf just in front of the opening of the uterus. The embolus of the palpus of *cunctator* (Fig. 235) is broad and heavy, provided with a large apical sclerite. The size of the embolus is correlated with the relatively short, heavy bursa copulatrix of the female genital organ. In species in which the embolus is very long, as in *gulosus* (Fig. 232), the bursa of the female is correspondingly much longer as shown in Fig. 230. The bursa is often very long and slender and greatly convoluted and in those cases the receptaculum seminis may be considerably expanded.

The internal details of the female genital organ are often of considerable aid in differentiating closely allied species and may be the determining factor in establishing the assignment of certain females to their respective males when other data are lacking. However, in general, it seems to be true that the external structure is sufficient in the Thomisidae for ordinary taxonomic purposes.

The Misumeninae of America North of Mexico

Tmarus E. Simon

Tmarus E. Simon, 1875, Les Araignées de France, II, p. 259.

Tmarus Keyserling, 1880, Die Spinnen Amerikas, Laterigradae, I, p. 137 (part).

Carapace as long as or longer than broad, strongly convex above, the clypeus broad, usually sloping but occasionally horizontal (*unicus*), all the spines setaceous. First row of eyes essentially straight, equidistantly spaced or the medians nearer the much larger laterals (see Figs. 1 and 2). Eyes of the second row recurved, equidistantly spaced or the medians nearer the larger laterals. Median ocular quadrangle broader than long, slightly narrowed in front, the eyes small. Lateral eyes on conspicuous, elevated tubercles, the posterior ones larger. Clypeus almost as high as the height of the median ocular quadrangle. Retromargin of the chelicera without a long band of hairs on the inner side.

Genotype.—*Tmarus piger* (Walckenaer).

Tmarus and *Monaeses*, two genera of the curious misumenoid spiders which were placed in a special group, Tmareae, by Simon, are found in the Holarctic region, where they are represented by few species. The first species described below combines to an extent the characters of both genera. Only *Tmarus* occurs in the Western Hemisphere. Less than a dozen species have extended their range into the temperate zone. The most common Nearctic member of the genus, *Tmarus angulatus* (Walckenaer), is found throughout the United States. Four other species occur in the southern states but, though possibly not uncommon, few specimens have found their way into collections. The following key will aid in the separation of our five species.

1.—Tibiae of the legs without ventral spines. Carapace longer than broad, flat, the posterior declivity abrupt.....2.
Tibiae of the legs with paired ventral spines. Carapace about as long as broad, convex, the posterior declivity sloping.....3.

2.—Clypeus horizontal. First femur longer than the carapace. First metatarsus with more than two ventral spines.....
.....*T. unicus* Gertsch.
Clypeus sloping. First femur shorter than the carapace. First metatarsus with two single distal spines.....*T. minutus* Banks.

3.—Palpus with a conspicuous median bulbal apophysis. Retrolateral tibial apophysis longer than the ventral apophysis. Vulva with two separate, strongly sclerotized, semilunar plates. *T. floridensis* Keyserling.
Palpus without a bulbal apophysis. Tibial apophyses subequal in length. Vulva an inconspicuous oval depression.....4.

4.—Embolus of the palpus with a terminal hook. Vulva of female with a well-marked median septum. Spines on the legs robust
.....*T. rubromaculatus* Keyserling.
Embolus of the palpus without a terminal hook. Vulva without a well-developed median septum. Spines on the legs weak
.....*T. angulatus* (Walckenaer).

Tmarus unicus Gertsch

Figures 12, 13 and 14

Tmarus unicus Gertsch, 1936, American Mus. Novit., No. 852, p. 14.

Length of female holotype, 4.00 mm., from the clypeal margin to the end of the caudal tubercle.

Carapace gray to light brown, marmorate, the dorsum paler, with three white streaks that converge at the posterior declivity, the sides light brown. Clypeal margin and eye region with small brown markings. Sternum and mouth parts dusky over a pale base. Legs dull yellow, thickly maculate with small brown spots. Abdomen marmorate above, the spinal tubercles yellow, the sides lined with white, the venter with a median longitudinal dark band which encloses a paler streak.

	Length	Width
Carapace	1.57 mm.	1.15 mm.
Front	0.32	0.75
Sternum	0.87	0.50
Labium	0.36	0.17
Endite	0.20	0.50
Abdomen	2.50	1.00

Carapace much longer than broad (Fig. 14), subquadrangular in outline, the caudal margin subtruncate, the sides weakly rounded, the truncate clypeus two-thirds as wide as the greatest width. Carapace as seen from the side (Fig. 12) moderately high, about equally high from the posterior eye row to the posterior declivity, which drops rather abruptly. Clypeus on a slightly lower plane than the rest of the carapace but practically horizontal, with the usual seven spines, six of them marginal and one slightly above the margin. Other spines on the carapace as in the other species. Sternum much longer than broad, clothed with fine black hairs. Labium twice as long as broad. Abdomen two and one-half times as long as broad, highest caudally, very rugose, the spines on elevated tubercles, the caudal tubercle of moderate size.

First row of eyes narrower than the second (9/12), straight, the medians separated by more than two diameters (7/18), as far from the laterals. Second row of eyes recurved, the medians separated by nearly three diameters (10/28), farther from the laterals (28/33). Median ocular quadrangle broader than long (20/24), narrowed in front (16/24). Ratio of the eyes: ALE:AME:PLE:PME = 17:7:14:

10. Clypeus about as broad as the height of the median quadrangle (19/20).

Leg formula, 1243. First femur one and one-half times the length of the carapace. Legs clothed with fine black hairs, the first and second metatarsi with three pairs of ventral spines, the last pair apical (Fig. 13).

	I	II
Femur	2.25 mm.	2.10 mm.
Patella	0.75	0.75
Tibia	1.62	1.57
Metatarsus	1.40	1.35
Tarsus	0.75	0.75
Total	6.77	6.52

	III	IV
Femur	0.75 mm.	1.17 mm.
Patella	0.37	0.37
Tibia	0.80	0.80
Metatarsus	0.42	0.42
Tarsus	0.40	0.40
Total	2.74	3.16

Type Locality.—Immature female holotype from Edinburg, Texas, March 3, 1934 (S. Mulaik), in The American Museum of Natural History.

Tmarus minutus Banks

Figures 7, 8, 9, 19, 20 and 90

Tmarus minutus Banks, 1904, Journ. N. Y. Ent. Soc., XII, pp. 112–113, Pl. v, fig. 10.—Banks, 1910, Bull. U. S. National Museum, LXXII, p. 50.—Petrunkevitch, 1911, Bull. American Museum Nat. Hist., XXIX, p. 435.

A female from Atlanta, Georgia, is 3.62 mm. long, from the clypeal margin to the end of the caudal tubercle.

Carapace dark brown, the sides variegated with yellow streaks, the dorsum with three lines that orginate at the lighter eye region and converge caudally at the dorsal declivity. Eye tubercles yellow. Sternum, mouth parts and legs bright yellowish brown. Abdomen gray, somewhat marmorate, the sides lined with white stripes, the dorsum with an indistinct pale median longitudinal stripe, the venter gray, margined in white. The following measurements are for the female.

	Length	Width
Carapace	1.50 mm.	1.15 mm.
Front	0.37	0.75
Sternum	0.80	0.55
Labium	0.31	0.17
Endite	0.45	0.18
Abdomen	1.80	1.05

Carapace longer than broad (Fig. 8), subquadrangular in outline, widest at the second coxae, nearly as broad at the posterior declivity (8/9), the front two-thirds as broad as the greatest width. Carapace as viewed from the side rather high (Fig. 7), equal in height from the posterior eyes caudal to a point five-sixths of the total length, the posterior declivity very abrupt. Clypeus strongly sloping, weakly convex as seen from the side. Spines on the clypeal margin long, seven in number, the median slightly above the margin. Other spines on the carapace as in the other species but shorter and weaker. Sternum and mouth parts clothed with fine black hairs. Abdomen longer than broad, equally high throughout its length, with a small caudal tubercle.

Eyes of the first row straight, narrower than the second row (9/12), weakly procurved as seen from in front, the medians separated by two diameters, scarcely as far from the laterals (15/18). Second row of eyes recurved, the medians separated by about two diameters (12/27), farther from the laterals (12/30). Ratio of the eyes: ALE:AME:PLE:PME = 17:8:14:12. Median ocular quadrangle broader than long (51/43), narrowed in front (51/34). Clypeus about as high as the height of the median quadrangle (41/43), five times as high as the diameter of an anterior median eye.

Vulva as illustrated in Fig. 90.

Leg formula, 1243, the first two pairs equal in length, the last two pairs subequal. Femur of the first leg about two-thirds as long as the carapace. Legs clothed with fine black hairs, the first metatarsus with a distal and a single spine behind on the outer (prolateral) margin (Fig. 9).

	I	II
Femur	1.10 mm.	1.10 mm.
Patella	0.47	0.47
Tibia	0.85	0.85
Metatarsus	0.60	0.60
Tarsus	0.45	0.45
Total	3.47	3.47

	III	IV
Femur	0.75 mm.	0.92 mm.
Patella	0.35	0.35
Tibia	0.60	0.62
Metatarsus	0.35	0.35
Tarsus	0.32	0.35
Total	2.37	2.59

A male from Falls Church, Virginia, is 2.61 mm. in total length.

General coloration lighter than in the female described. Structure essentially as in the female but the clypeus slopes more abruptly and the carapace is proportionately shorter. Abdomen more evenly rounded caudally, the tubercle less pronounced.

	Length	Width
Carapace	1.23 mm.	0.92 mm.
Front	0.30	0.61
Sternum	0.65	0.49
Labium	0.23	0.15
Endite	0.34	0.16
Abdomen	1.40	0.96

Eyes of the first row narrower than the second (75/100), straight, the medians separated by

two diameters, as far from the laterals. Second row of eyes recurved, the medians separated by three diameters, a little farther from the laterals (26/24). Ratio of the eyes: ALE:AME: PLE:PME = 15:6:13:8. Median ocular quadrangle broader than long. Clypeus as high as the height of the median ocular quadrangle.

Leg formula, 1243, the femur of the first leg two-thirds as long as the carapace. Legs clothed with fine black hairs, the first metatarsus with a distal ventral spine and a single ventral one behind on the prolateral side.

Palpus (Figs. 19 and 20) as in *Tmarus angulatus* but the embolus much shorter, the terminal portion directed laterad.

	I	II
FEMUR	0.94 mm.	0.92 mm.
PATELLA	0.34	0.31
TIBIA	0.70	0.63
METATARSUS	0.51	0.49
TARSUS	0.46	0.43
TOTAL	2.95	2.78

	III	IV
FEMUR	0.56 mm.	0.79 mm.
PATELLA	0.31	0.30
TIBIA	0.48	0.50
METATARSUS	0.29	0.31
TARSUS	0.31	0.31
TOTAL	1.95	2.21

TYPE LOCALITY.—Male and female cotypes from near Washington, D. C., May, originally deposited in the Museum of Comparative Zoölogy (N. Banks collection). The male type is lost.

DISTRIBUTION.—Virginia. Georgia. District of Columbia.

RECORDS.—VIRGINIA: Falls Church, 2 males (Banks). GEORGIA: Thompson's Mills, female. Atlanta, May, 1899, female (J. H. Emerton).

Tmarus floridensis Keyserling

Figures 15, 16 and 23

Tmarus floridensis KEYSERLING, 1883, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXIII, pp. 673–674, Pl. XXI, fig. 21.—MARX, 1890, Proc. U. S. National Museum, XII, p. 558.—BANKS, 1904, Proc. Acad. Nat. Sci. Philadelphia, LIV, p. 133; 1910, Bull. U. S. National Museum, LXXII, p. 50; 1913, Proc. Acad. Nat. Sci. Philadelphia, LXIII, p. 179 (appears to be *T. griseus*, a mature female but legs all pale).—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 434.

Females average 5.75 mm. in total length.

Carapace marmorate, gray to brown, the dorsum and sides with white streaks, the ocular area and clypeus mainly white, spotted with small brown markings. Posterior declivity with a more or less distinct black marking on each side. Eye tubercles often tinged with orange. Sternum and mouth parts white. Legs yellow to light brown, sometimes unmarked but often irrorated with black markings. Bases of spines ringed in black. Abdomen mainly gray above, marmorate, the caudal half with two narrow transverse white stripes, the sides heavily marked with black and white spots, the venter white or gray.

A female from Sanford, Florida, 5.65 mm. long, was used for the following structural diagnosis.

	Length	Width
CARAPACE	2.25 mm.	2.12 mm.
FRONT	0.57	1.25
STERNUM	1.12	0.92
LABIUM	0.57	0.30
ENDITE	0.82	0.42
ABDOMEN	3.50	2.25

Carapace nearly as broad as long, strongly convex, the sides broadly rounded, the sutures obsolete. Carapace moderately high, equally high from the posterior eye row to the rounded posterior declivity. Clypeus strongly sloping. Spines on the carapace as in *angulatus*. Sternum and labium longer than broad, clothed with fine black hairs. Abdomen set with rows of short stout spines, with a well-developed caudal tubercle, highest at that point, broadest just in front of it.

Eyes of the first row narrower than the second (18/23), straight, the medians separated by more than two diameters (14/37), nearer the laterals (14/32). Second row of eyes recurved, the medians separated by nearly three diameters (19/52), about as far from the laterals (19/54). Median ocular quadrangle broader than long (90/67), narrower in front in the same ratio. Ratio of the eyes: ALE:AME:PLE:PME = 30:14:25:19. Clypeus as high as the width of the quadrangle in front.

Vulva as illustrated in Fig. 23.

Leg formula, 1243, the first two pairs subequal. Legs clothed with fine black hairs and strong spines. Femur of the first leg about one and one-fourth times as long as the carapace, with two single dorsals and four strong prolateral spines. First tibia with three prolateral, three retrolateral, two dorsal and three pairs of ventral spines, the last pair not apical. First metatarsus with two prolateral, two retrolateral and four ventral pairs of strong spines, the last pair apical.

	I	II
FEMUR	2.90 mm.	2.80 mm.
PATELLA	1.25	1.25
TIBIA	2.42	2.12
METATARSUS	2.00	2.00
TARSUS	1.00	1.00
TOTAL	9.57	9.17

	III	IV
FEMUR	1.62 mm.	1.80 mm.
PATELLA	0.75	0.75
TIBIA	1.42	1.37
METATARSUS	0.75	0.75
TARSUS	0.50	0.50
TOTAL	5.04	5.17

MALE.—The male agrees in size and general structure with the female. The species is characterized particularly by the palpus which is illustrated in Figs. 15 and 16. Femur of palpus about as long as the subequal tibia and patella. Tibia armed with a curved ventral apophysis and a retrolateral spur which is twice as long. Tegulum as broad as long. Median apophysis boot-shaped. Embolic division articulating with the tegulum near the base of the bulb, the pars pendula a lamelliform plate, the embolus proper a long heavy black spur which is set at an oblique angle to the pars pendula.

TYPE LOCALITY.—Male and female cotypes from Florida in the United States National Museum (Marx collection).

DISTRIBUTION.—Extreme southeastern United States.

RECORDS.—FLORIDA: Runnymede (Banks, 1904). Enterprise and Miami, April (Banks, 1904). Sanford, females. Royal Palm Park, March 29, male. Ten miles south of Zephyrhills, April 7, 1938, female (Gertsch). Miakka River State Park, near Sarasota, April 6, 1938, two males (Gertsch). Hillsborough River State Park, April 8, 1938, two males (Gertsch). Highland Hammock State Park, near Sebring, March 24, 1938, female (Gertsch). GEORGIA: Fargo to Billy's Island, Okefenokee Swamp, May 28, 1912, two females (Crosby). Billy's Island, Okefenokee Swamp, June, 1912, female (Crosby). LOUISIANA: Chastine, May 20, 1915, female (K. P. Schmidt). MISSISSIPPI: Lucedale, April, 1930, female (Dietrich). Idem, February, 1930, two females (Dietrich). TEXAS: Houston, June 11, 1937, female (D. and S. Mulaik). Liberty, June 12, 1937, male (S. Mulaik).

Tmarus angulatus (Walckenaer)

Figures 11, 21, 22 and 25

Thomisus angulatus WALCKENAER, Ins. Apt., 1837, I, p. 537.—MARX, 1890, Proc. U. S. National Museum, XII, p. 557.

Thomisus caudatus HENTZ, 1847, Journ. Boston Soc. Nat. Hist., V, p. 447, Pl. XXIII, fig. 9. Reprint, Spiders U. S., p. 80, Pl. x, fig. 9.

Tmarus caudatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 155–156, Pl. III, fig. 84.—MARX, 1890, Proc. U. S. National Museum, XII, p. 558.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 59.—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, pp. 376–377, Pl. XXXII, figs. 3–3*d*.—BANKS, 1895, Journ. N. Y. Ent. Soc., III, p. 90 (*Tmarsus*); 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 537; 1902, Proc. U. S. National Museum, XXV, p. 216; 1904, Proc. Acad. Nat. Sci. Philadelphia, p. 133.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 61.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 50; 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 452.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., V, p. 248.—BARROWS, 1918, Ohio Journal Science, XVIII, p. 312.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV (1), p. 29.

Tmarus angulatus PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 433.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 63.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—CHAMBERLIN AND WOODBURY, 1929, Proc. Biol. Soc. Washington, LXII, p. 136.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., LXI, p. 428.

Tmarus magniceps KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 156–158, Pl. III, fig. 85.—MARX, 1890, Proc. U. S. National Museum, XII, p. 558.—BANKS, 1901, idem, XXIII, p. 587; 1904, Proc. California Academy Sci., (3) III, p. 352; 1910, Bull. U. S. National Museum, LXXII, p. 50.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 435.

Tmarus griseus WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 63 (not *griseus* Keys.).

Males average 5.00 mm. in length. Mature females, with a larger, stouter abdomen, vary little in size, the average being about 7.00 mm. for the total length from the clypeus to the end of the caudal tubercle.

Carapace in the female marmorate, gray to light brown in color. Sides variegated with numerous small white markings, sometimes flushed with pink, often with three or four indistinct light streaks that originate at the median suture. Cephalic portion with a median and side streaks that converge to the median suture. Clypeus and eye region thickly maculate with small round dark spots, the area often suffused with pink, the ocular tubercles silvery gray to yellowish brown. Sternum nearly white, thickly marked with small black spots, from the center of which originate fine black hairs. Coxae and mouth parts white to dirty gray. Legs light yellow, thickly covered with black spots. First and second metatarsi usually with a narrow black apical ring. Abdomen marbled, the dorsum mainly gray, with a series of orange spots from which short spines originate; with three transverse white bands, an indistinct median and two in the caudal half that are continuous with a

large white marking on the side. Venter white, with a median longitudinal dark stripe.

The male is somewhat darker in color but has the same pattern as the female.

A female from Norwalk, Connecticut, 6.75 mm. in total length, exclusive of the chelicerae, was used for the following structural analysis.

	Length	Width
Carapace	2.10 mm.	1.97 mm.
Front	0.75	1.10
Sternum	1.12	0.81
Labium	0.52	0.25
Endite	0.70	0.37
Abdomen	4.50	3.50

Carapace slightly longer than broad, suborbicular as seen from above, strongly convex, moderately and equally high behind the eyes for half the length from that point to the convex, not abruptly sloping posterior declivity. Clypeus strongly sloping, nearly flat, the truncate front scarcely half as wide as the greatest width. Cephalic sutures weakly apparent, the median suture obsolete. Carapace clothed with short hairs and a definite series of spines as follows: seven on the clypeus, six marginal and one median just above the margin; ocular quadrangle with two spines; two on midline behind the eyes; four on the pale streaks that converge at the position of the median suture; two transverse series of three or four spines on each side in the caudal half of the pars thoracica. Sternum longer than broad, clothed with fine hairs. Labium twice as long as broad, clothed with fine hairs. Chelicerae armed with short erect spines. Abdomen much longer than broad, with a pronounced caudal tubercle (Fig. 11).

First row of eyes narrower than the second (5/7), straight, weakly recurved as seen from above, the medians separated by two diameters, a little nearer the laterals (25/30), separated from the posterior laterals by a diameter of the lateral eye. Second row of eyes weakly recurved, the medians separated by about three diameters (50/18), three diameters from the larger laterals (55/18). Median ocular quadrangle a little broader than long (17/14), narrower in front (17/10). Median eyes on small tubercles, the lateral pairs on very large, well-separated tubercles. Clypeus about four times as high as the diameter of an anterior median eye, nearly equal to the height of the median ocular quadrangle (11/14).

Vulva as illustrated in Fig. 25.

Leg formula, 1243, the first two pairs and the last two subequal in length. Legs evenly clothed with short black hairs and set with strong spines. First femur about one and one-third times the length of the carapace, the prolateral surface armed with six weak spines. First tibia usually armed with two single ventral spines on the outer (prolateral) margin, the distals lacking, and a single spine on the prolateral surface near the end of the joint. First metatarsus with three pairs of spines, the last pair apical, and often with two or three single intermediate ones.

	I	II
Femur	2.82 mm.	2.68 mm.
Patella	1.00	1.00
Tibia	2.20	2.12
Metatarsus	1.90	1.82
Tarsus	0.95	0.95
Total	8.87	8.57

	III	IV
Femur	1.50 mm.	1.75 mm.
Patella	0.62	0.65
Tibia	1.17	1.17
Metatarsus	0.75	0.80
Tarsus	0.60	0.60
Total	4.64	4.97

Male from Norwalk, Connecticut, 5.00 mm. in total length.

	Length	Width
Carapace	2.00 mm.	1.85 mm.
Front	0.67	0.95
Sternum	1.08	0.75
Labium	0.45	0.20
Endite	0.51	0.25
Abdomen	2.85	1.60

Structure of the carapace as in the female.

First row of eyes narrower than the second (13/19), straight, the medians separated by two diameters (13/27), a little nearer the laterals (13/23). Second row of eyes weakly recurved, the medians separated by about three diameters (15/40), farther from the larger laterals (53/40). Ratio of the eyes: ALE AME:PLE:PME = 25:13:20:15. Lateral eyes separated by nearly two diameters of the latter. Median ocular quadrangle broader than long (14/13), narrowed in front. Clypeus scarcely as high as the height of the median quadrangle (10/13).

Leg formula, 1243, the first two pairs subequal, and the last two subequal in length. First femur one and one-half times the length of the carapace, armed with two dorsal, two retrolateral and six weak prolateral spines. First tibia with two dorsal, three retrolateral, three prolaterals and two pairs of weak ventral spines, none of them apical. First metatarsus with two prolateral, two retrolateral and three ventral pairs, the last pair apical.

	I	II
Femur	3.00 mm.	2.87 mm.
Patella	1.06	1.06
Tibia	2.50	2.25
Metatarsus	2.32	2.15
Tarsus	1.12	1.12
Total	10.00	9.45

	III	IV
FEMUR	1.56 mm.	1.75 mm.
PATELLA	0.67	0.67
TIBIA	1.31	1.25
METATARSUS	0.85	0.85
TARSUS	0.67	0.67
TOTAL	5.06	5.19

Femur of male palpus as long as the tibia and patella, which are subequal in length. Tibia as broad as long, armed with a short ventral truncated apophysis and a subequal, less robust, lateral apophysis. Cymbium a little longer than broad, the tutaculum virtually obsolete. Bulb about as broad as long, the embolus originating on the prolateral side. Truncus a fine tube which is supported for most of its length by a broad pars pendula, the terminal part of the truncus a short spine directed caudad. Palpus as illustrated in Figs. 21 and 22.

TYPE LOCALITY.—*Tmarus angulatus* (Walckenaer) was based on the unpublished drawings of Abbot, which are extant, but the specimens on which the drawings were based are lost. Type of *caudatus* Hentz from Alabama; lost. Male type of *magniceps* Keyserling from Mariposa, California, in the Museum d'Histoire Naturelle, Paris (Simon collection).

DISTRIBUTION.—United States.

RECORDS.—MAINE: Portland (Bryant, 1908). NEW HAMPSHIRE: Franconia, females (Banks). VERMONT: South Newfane, June, male. MASSACHUSETTS: Shirley, Aug. 9, 1902, female. Chatham, June 10, 1919, male (Emerton). Beverly, immatures. Peabody, June 23, eggs (Emerton, 1892). Readville, Brookline, Boston (Bryant, 1908). Woods Hole, July, 1901, young (Bryant). CONNECTICUT: New Haven, Aug. 4, 1902, im. male. Norwalk, June 2, 1933, male, females (Gertsch). NEW YORK: McLean, June 21, 1923, males, females. Ithaca, September, males. Upper Cayuga Lake Basin, not uncommon in September on trees and fences (Banks, 1892). Onondaga County (Britcher). Central Nassau, June (Crosby and Bishop, 1928). Long Island, females (N. Pike). Sea Cliff, L. I., immatures (Banks). NEW JERSEY: Pine Barrens, May 3, 1930, female (Dietz). Ramsey, Sept. 1, 1934 (Gertsch). DISTRICT OF COLUMBIA: immatures (Fox). PENNSYLVANIA: Zion Grove, female. Conyngham, Aug. 13, 1929, 2 females (Dietz). KENTUCKY: Haunted Cave, near Mammoth Cave, female and egg sac. TENNESSEE: State Line, July 7, 1933, male. NORTH CAROLINA: Raleigh, male. Canton, June, 1875, immatures. Durham, Chapel Hill, Swannanoa Valley (Banks, 1911). MISSISSIPPI: Ocean Springs, January, 1905, immatures (J. H. Comstock). ALABAMA: Auburn, October (Banks, 1900). MISSOURI: Columbia, May, female (Crosby). OKLAHOMA: Delaware County, July 15, 1925 (Banks, 1932). OHIO: Rockbridge, April 10, 1915, female (Barrows). Gambier, June 13–24, 1905, female (Nelson). NEBRASKA: Lincoln, Fremont, Sprague, May 15 to Sept. 24 in deciduous forests (Worley and Pickwell). INDIANA: Richmond, Crooked Lake (Elliott, 1932). FLORIDA: Palm Beach, March (Banks, 1904). MINNESOTA: Minneapolis, June 30, 1931, male (Gertsch). NEW MEXICO: Jemez Springs, male, female (Dietz). TEXAS: Llano, Llano County, December, 1934, female (Davis). Brownsville, Dec. 1, 1934, female (Mulaik). Edinburg, March 31, 1934, female (Mulaik). ARIZONA: Prescott, June 20 (Banks, 1902). Williams, June 5–July 1, 1904 (Banks). UTAH: Zion National Park, female (Chamberlin and Woodbury, 1929). Idem, July 4, 1931, male, female (Gertsch). CALIFORNIA: Twin Lakes Park, male, female (Dietz). Marin County, male, females (Banks). San Diego, females (Banks). Los Angeles, female (Banks). San Francisco, April 19, 1931, male, female. WASHINGTON: Olympia, immature male (Banks). OREGON: Jackson County, Nov., 1934, female (Lawrence).

Tmarus rubromaculatus Keyserling

Figures 17, 18 and 24

Tmarus rubromaculatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 158–159, Pl. III, fig. 86.—MARX, 1890, Proc. U. S. National Museum, XII, p. 558.

Tmarus caudatus BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 50 (part).

Tmarus angulatus PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 435 (part).

Tmarus griseus KEYSERLING, 1883, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXIII, pp. 672–673, Pl. XXI, fig. 20.—MARX, 1890, Proc. U. S. National Museum, XII, p. 558; 1892, Proc. Ent. Soc., Washington, II, p. 160.—BANKS, 1904, Proc. Acad. Nat. Sci. Philadelphia, LIV, p. 133; 1910, Bull. U. S. National Museum,

LXXII, p. 50; 1913, Proc. Acad. Nat. Sci. Philadelphia, p. 179.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 434.

Males average 4.50 mm. in total length; females, 5.25 mm. in length from the clypeus to the end of the caudal tubercle.

Coloration essentially as in *Tmarus angulatus* (Walckenaer). Legs of the female usually paler, without the numerous black spots of that species; legs of the male with fewer but larger markings.

A female from Macon, Georgia, 5.25 mm. long was used for the following diagnosis.

	Length	Width
CARAPACE	1.90 mm.	1.75 mm.
FRONT	0.50	1.00
STERNUM	1.00	0.75
LABIUM	0.50	0.25
ENDITE	0.67	0.32
ABDOMEN	3.50	2.25

Carapace slightly longer than broad, convex, suborbicular, truncated in front, equally high from the posterior declivity to the posterior eyes. Clypeus strongly sloping, flat. Carapace clothed with short hairs and a definite series of spines as in *angulatus*. Chelicerae armed with erect spines. Sternum and mouth parts clothed with fine black hairs.

First row of eyes narrower than the second (13/18), straight, slightly recurved as seen from above, the medians separated by more than two diameters (10/26), scarcely as far from the laterals (10/24). Second row of eyes weakly recurved, the medians separated by more than two diameters (17/40), about three diameters from the laterals. Ratio of the eyes: ALE: AME:PLE:PME = 25:10:20:17. Median ocular quadrangle broader than long (14/11), narrowed in front (14/9). Clypeus nearly as high as the length of the median ocular quadrangle (10/11), five times as high as the diameter of an anterior median eye.

Vulva as illustrated in Fig. 24.

Leg formula, 1243. First femur with two dorsal spines. Legs otherwise spined as in *angulatus* but the spines much more robust.

	I	II
FEMUR	2.45 mm.	2.40 mm.
PATELLA	1.00	1.00
TIBIA	2.12	2.00
METATARSUS	1.75	1.75
TARSUS	0.75	0.75
TOTAL	8.07	7.90

	III	IV
FEMUR	1.12 mm.	1.30 mm.
PATELLA	0.56	0.56
TIBIA	1.10	1.00
METATARSUS	0.62	0.62
TARSUS	0.50	0.50
TOTAL	3.90	3.98

The male is allied structurally to *angulatus*.

	Length	Width
CARAPACE	1.65 mm.	1.55 mm.
FRONT	0.47	0.82
STERNUM	0.90	0.65
LABIUM	0.37	0.20
ENDITE	0.57	0.20
ABDOMEN	2.50	1.20

Leg formula, 1243, the spines distributed as in *angulatus* but all of them more strongly developed. First femur more than one and one-half times the length of the carapace.

	I	II
FEMUR	2.80 mm.	2.70 mm.
PATELLA	0.92	0.92
TIBIA	2.25	2.25
METATARSUS	2.07	2.00
TARSUS	1.00	1.00
TOTAL	9.04	8.87

	III	IV
FEMUR	1.12 mm.	1.25 mm.
PATELLA	0.50	0.50
TIBIA	1.10	1.00
METATARSUS	0.62	0.62
TARSUS	0.45	0.45
TOTAL	3.79	3.82

Palpus (Figs. 17 and 18) as in *angulatus* but the distal end of the truncus of the embolus much shorter, bifid.

TYPE LOCALITY.—Male type of *rubromaculatus* from Georgia in the Museum National d'Histoire Naturelle, Paris (Simon collection). Two female cotypes of *griseus* from Crescent City, Florida, in the United States National Museum (Marx collection).

DISTRIBUTION.—Southeastern United States. Connecticut.

RECORDS.—FLORIDA: Tribby, Pasco County, Sept. 16, 1917, female (Hebard). Fort Meyers, female. Lake Newman, Gainesville, Feb. 22, 1923, male. Crescent City (Keyserling, 1883). Big Tree, near Longwood, March 23, 1938, male (Gertsch). GEORGIA: Atlanta, July, male, females. Idem, April, male. LOUISIANA: Covington, females. MISSISSIPPI: Lucedale, February, 1931, male(Dietrich). ALABAMA: Mobile, August, 1930, male (Creighton). NORTH CAROLINA: Rocky River, near Sanford, April 26, 1938, male (Gertsch). TEXAS: Five miles north of Jasper, June 6, 1936, female (S. Mulaik). DISTRICT OF COLUMBIA: Cabin John's Bridge, June

(Marx, 1892). CONNECTICUT: Norwalk, June 2, 1933, male (Gertsch).

MISUMENOIDES F. CAMBRIDGE

Runcinia KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 119.

Misumena SIMON, 1892–1895, Histoire Naturelle des Araignées, I, p. 1025.

Misumenoides F. CAMBRIDGE, 1900, Biologia Centrali-Americana, Araneidea, II, p. 136.

Misumenoides PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 408.

Carapace as broad as long, weakly convex, devoid of strong spines. Clypeus vertical, the margin carinate. Eyes of the first row recurved, equidistantly spaced, equal in size. Eyes of the second row recurved, equidistantly spaced, equal in size, smaller than the anterior eyes. Median ocular quadrangle broader than long, slightly narrowed in front. Lateral eyes on connate tubercles. Eye arrangement and front of the carapace as illustrated in Figs. 5 and 6. Eye area with an inconspicuous transverse white carina. Legs armed with spines only beneath the tibiae and metatarsi (see Figs. 94 and 95).

GENOTYPE.—*Misumenoides magnus* (Keyserling).

The genus *Runcinia* of the Eastern Hemisphere is replaced in the Americas by the closely related group of species placed in *Misumenoides* by F. O. P. Cambridge. *Runcinia plana* Simon from Paraguay almost certainly belongs elsewhere. Only two species of *Misumenoides* are known from the United States, one widely distributed, *M. aleatorius*, the other recorded only once, *M. annulipes*. *Thomisus odiosus* Cambridge from Mexico belongs in the genus, but *Runcinia californica* Banks is a synonym of *Misumenops dubius* (Keyserling).

Misumenoides aleatorius (Hentz)

Figures 5, 6, 28, 29, 40, 41, 87, 94 and 95

Thomisus aleatorius HENTZ, 1847, Journ. Boston Soc. Nat. Hist., p. 444, Pl. XXIII, fig. 2; 1875, Spiders U. S. (reprint), p. 77, Pl. X, fig. 2.—MARX, 1890, Proc. U. S. National Museum, XII, p. 557.—BRITCHER, Spiders of Onondaga County.

Runcinia brendelii KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 127–130, Pl. II, fig. 70.—MARX, 1890, Proc. U. S. National Museum, XII, p. 556.

Runcinia aleatorius BANKS, 1890, Ent. News, Philadelphia, II, pp. 85–86 (synonymizes *brendelii*); 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 59, Pl. III, figs. 18 and 18*a*.

Runcinia aleatoria BAKER, 1894, Ent. News, Philadelphia, V, p. 164.—BANKS, 1895, Journ. N. Y. Ent. Soc., III, p. 90.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1899, idem, IV, p. 189; 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 537.—TULLGREN, 1901, Bihang Svensk. Vet. Akad. Handlinger, XXVII, Abd. IV, pp. 12–13.—BANKS, 1904, Proc. California Acad. Sci., (3) III, p. 352; 1904, Proc. Acad. Nat. Sci. Philadelphia, LIV, p. 132; 1906, 31st Ann. Rept. Dept. Geology, Indiana, p. 742; 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 451; 1910, Bull. U. S. National Museum, LXXII, p. 49.—BARROWS, 1918, Ohio Journal Science, XVIII, p. 31.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV, p. 28.

Misumena aleatoria EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 369, Pl. XXX, figs. 2–2*d*.—EMERTON, 1894, idem, IX, p. 418.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), pp. 61–62.—SCHEFFER, 1905, Kansas Univ. Science Bull., III, p. 118.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, pp. 60–61.

Misumenoides aleatorius PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 408.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1059.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.—WORLEY, 1932, Univ. Washington Pub. Biol., I, p. 40.

Five males average 2.80 mm. in total length, the largest 3.25 mm. Mature females vary considerably in size, from 5.35 to 11.33 mm., the average being 8.42 mm. in total length.

Integument of the carapace in the male dull to bright yellow in color, without markings or contrasting colors except for a tinge of red in the ocular area and a creamy white line demarking the clypeal carina. Sternum and the posterior coxae immaculate yellow. First coxae and the mouth parts tinged with red. First two pairs of legs and the palpi dark reddish brown to bright red in color. Last two legs immaculate yellow or white, concolorous with the abdomen, which completely lacks markings. See Fig. 29 for dorsal view of male.

Coloration of the carapace in the females extremely variable. Integument creamy white to lemon yellow or dull yellowish brown, the sides slightly darker, the interval between usually evident as a light longitudinal stripe. Clypeal carina plainly visible as a white streak continuous with the clypeal margin in its middle part, but from there passing to the sides of the pars cephalica. Sternum, mouth parts and abdomen uniform white or yellow, but even in the pale forms these parts may be marked with isolated patches or spots of red as follows: on the dorsum of the first two coxae, at the distal end of the endites, at the distal end of the first and second metatarsi. A common color form (Fig. 28) has broad red bands on the carapace, all the coxae and bases of the femora red above and below, the first two patellae red except for a round light spot below, the first two tibiae with basal and distal narrow red rings and the distal joints of the legs all or partially red in color. In this form the abdomen often has red side bands and

two dorsal bands made up of spots; and an irregular red maculation in the middle of the venter. In a female from San Diego, California, these markings are all present in black. All or part of these markings may be present in specimens from the same locality.

A male from Pennsylvania, 3.00 mm. long, was used as a basis for the following measurements.

	Length	Width
Carapace	1.44 mm.	1.52 mm.
Front	0.35	0.65
Sternum	0.72	0.62
Labium	0.25	0.25
Endite	0.36	0.15
Abdomen	1.82	1.50

Integument of the carapace and the abdomen sparsely set with tiny, inconspicuous setae and completely devoid of larger spines, except on the clypeal margin where four are larger than the others. Carapace slightly broader than long, highest behind the middle, convex, suborbicular in outline, the head part intimately fused with the thoracic portion, without obvious sutural differentiation. A broad carina, conspicuously whitened, is continuous with the clypeal margin for half its width and then curves laterad to a point well beyond the last eye row. A distinct carina is also present between the eyes, connecting the tubercles of the laterals. Clypeus equal in height to one and one-half times the diameter of an anterior median eye. The slightly longer than broad sternum is rounded behind, the posterior coxae separated by two-thirds their width. Labium as long as broad, two-thirds as long as the slightly convergent endites. Abdomen rugose on the sides, rather flat, oval in outline as seen from above.

First row of eyes narrower than the second (73/92), slightly recurved, the medians separated by less than two diameters (10/17), nearer the laterals (10/13). Second row of eyes slightly recurved, the medians separated by three diameters (7/25), as far from the subequal laterals. Ratio of the eyes: ALE:AME:PLE:PME = 10:10:7:7. Median ocular quadrangle broader than long (45/36), narrower in front (45/40). Lateral eyes on conspicuous, connate tubercles.

Leg formula, 1243, the legs clothed with short black hairs and a few spines as follows: femora with three or four small unpaired spines above; first two tibiae with a ventral, subbasal and submedian pair, the distals lacking; and the first two metatarsi with ventral submedian, subdistal and distal pair of spines. First pair of legs five times as long as the carapace.

	I	II	III	IV
Femur	2.25 mm.	2.15 mm.	0.90 mm.	0.92 mm.
Patella	0.82	0.78	0.40	0.40
Tibia	1.75	1.60	0.60	0.61
Metatarsus	1.62	1.50	0.55	0.60
Tarsus	0.82	0.78	0.32	0.32
Total	7.26	6.81	2.77	2.85

Femur of male palpus twice as long as broad, as long as the patella and tibia taken together, about equal in length to the tarsus. Whole appendage very short, only two-thirds as long as the first metatarsus. Two tibial apophyses present, a weak inferior subventral lobe and a robust retrolateral apophysis that is as long as the tibia and at the distal end of which is a prominent lobe and a short spur, much as in *M. vatia*. Tegulum strongly sclerotized, oval in outline, weakly convex, the embolus originating from the prolateral distal margin. Embolus directed obliquely laterad as a strong black spine. Bulbal parts occupying less than the basal two-thirds of the longer than broad cymbium. Details of palpus as in Figs. 40 and 41.

A female from Valley Park, Missouri, 7.00 mm. long, was used for the following measurements.

	Length	Width
Carapace	2.66 mm.	2.66 mm.
Front	0.53	1.46
Sternum	1.05	0.87
Labium	0.52	0.52
Endite	0.75	0.35
Abdomen	4.50	5.00

Carapace and abdomen clothed sparsely with inconspicuous hairs. Carapace proportionately longer than in the male, the front decidedly wider, the dorsal striae obsolete. Abdomen variable in size, the disparity being due to the presence and stage of development of the eggs, usually broadest behind and as broad as or broader than long, about three-fourths as high as the breadth.

Eyes occupying five-sevenths of the width of the pars cephalica at that point. First row of eyes narrower than the second (9/11), slightly recurved, the medians separated by more than two diameters (13/30), slightly nearer the equal lateral eyes (13/23). Eyes of the second row slightly recurved, the medians separated by five diameters (9/46), about as far from the subequal laterals (9/43). Ratio of the eyes: ALE:AME:PLE:PME = 13:13:10:9. Median ocular quadrangle broader than long (64/45), narrower in front (64/56). Clypeus about twice as high as the diameter of an anterior median eye. See Figs. 5 and 6 for the eye relations and details of the front of the carapace.

Leg formula, 1243, the first legs stout, about four times as long as the carapace, which is longer than the tibiae or metatarsi. Appendages sparsely clothed with inconspicuous setae, the only well-developed spines being eight pairs beneath the anterior metatarsi and one pair or an

unpaired spine beneath the tibiae near the distal end.

Vulva as illustrated in Fig. 87.

	I	II
FEMUR	3.33 mm.	3.15 mm.
PATELLA	1.46	1.46
TIBIA	2.33	2.23
METATARSUS	2.25	2.16
TARSUS	1.16	1.10
TOTAL	10.53	10.10
	III	IV
FEMUR	1.60 mm.	1.80 mm.
PATELLA	0.86	0.86
TIBIA	1.00	1.15
METATARSUS	0.97	1.20
TARSUS	0.56	0.63
TOTAL	4.99	5.64

TYPE LOCALITY.—Male type of *aleatorius* from Alabama, the original material of Hentz lost. The types of *Runcinia brendelii* Keyserling, male and female, came from Peoria, Illinois, and are in the Koch collection.

DISTRIBUTION.—This fine species is a characteristic element of the Misumenid fauna in Canada and the States east of the Rockies. It is also found on the Pacific Coast but no records are available from such Great Basin States as Utah, Idaho and Nevada.

RECORDS.—MAINE: Portland (Bryant, 1908). Long Island, July, 1901, female (Bryant). Idem, July 5, 1900, female (Bryant). Idem, August, 1906, female (Bryant). NEW HAMPSHIRE: Ponemah, August, 1912, 5 males (Bryant). Chocorua, June 3, 1912, female (Bryant). Gilmanton, July 12–18, 1925, male (Bryant). Hollis, Hillsborough County, males, females. Swanzey, Sept. 3, 1926, female (Forbes). VERMONT: Essex (Bryant, 1908). Essex Junction, August, 1901, 7 males, 7 females (Bryant). Smugglers Notch, July 14, 1902, female (Bryant). MASSACHUSETTS: Danvers, Milton, Readville (Bryant, 1908). Brookline, Aug. 11, 1877, 3 females (Henshaw). Colliston, July, 1923 (Emerton and Banks) Idem, September, 1923, male and female (Emerton and Banks). Lexington, Sept. 8, 1902, 2 females (Bryant). Idem, Aug. 27, 1908, female (Saxon). Idem, June 28, 1933, young (Gertsch and Ivie). Holliston, August, 1923, 4 males, 5 females (Emerton and Banks). Sharon, Aug. 9, 1902, 6 males, 4 females (Bryant). Salem, female (Barton). Idem, 2 females (Emerton). Allston, September, 1899, 5 females (Bryant). Beverly, male and female (Sears). Idem, Aug. 2, 2 males (Emerton). Worchester, September, 1926, male (Forbes). Woods Hole, September, 1911, female (Bagg). Idem, July 18, 1901, females (Britcher). RHODE ISLAND: Kingston, female (Banks). CONNECTICUT: (Emerton, 1892). Windham, female (Edward). New Haven, Aug. 4, 1902, female (Bryant). South Meriden, Aug. 30, 1915, male, 6 females (Johnson). Danbury, July 19, 1912, females (Emerton). Norwalk, June 15, 1933, young; July 29, 1933, immature; August, males, females (Gertsch). NEW YORK: Carmel, male. Ithaca, July 31, 1909, 3 males, 10 females (Bryant). Cornell University Campus, Ithaca, 2 females (Banks, 1892). South Nyack, Sept. 8, 1913 (Drawford). Onondaga County (Britcher). Old Forge, June; Woodworth Lake, May; Rochester; Irving, September; Poughkeepsie; Taughannock Falls, August; McLean, May; Albany, August; Catskill, September; Castleton, September; Patterson, August (Crosby and Bishop, 1928). Sand Point, Long Island, Sept. 13, 1919, female (Burns). Montauk, L. I., June 20, 1927, female (Latham). Cold Spring Harbor, L. I., Aug. 8, 1907, 3 males, 10 females (Bryant). Sea Cliff, L. I., male, 2 females (Banks). New Drop, Staten Island, August, 1919, female (Burns). Tottenville, S. I., August (Crosby and Bishop, 1928). Staten Island, August, 1929, female (Davis). NEW JERSEY: Atco, Sept. 4, 1892, females (Nell). Medford, males (Stone). South Orange, Aug. 26, males (Dietz). Riverton, Aug. 25, 1928, female (Richmond). Great Notch, July 25, 1909, male. Duttonville, Aug. 28, 1910, female (Lutz). Lakehurst, August, males, females (Emerton). Ramsey, Aug. 15, 1908, females (Lutz). Idem, August, 1934, males, females (Gertsch). Great Piece Meadow, females. PENNSYLVANIA: Orangeville, August, 1931, female (Hughes). Chester County, August, 1887, males, females (Stone). Idem, September, 1889, males, females (Stone). Germantown, September, 1889, male (Stone). Delaware

County, July 17, females (McCook). Washington, males, females (Long). DELAWARE: Newark, female. MARYLAND: Baltimore (Keyserling, 1880). Hagerstown, August, 1915, 2 males (Pennington). Plummer's Island, Aug. 24, 1907, female (Hyslop). Sugar Loaf Mountain, male, female (Banks). Bladensburg, Aug. 24, 1907, male (Hyslop). DISTRICT OF COLUMBIA: May to October (Marx, 1892). Aug. 28, 1907, female (Hyslop). Three females (Chamberlin). VIRGINIA: Falls Church, female (Banks). Glencarlyn, 6 females (Banks). Winginia, Nelson County, August, 1927, 2 females (Davis). WEST VIRGINIA: Luray, 1909, male, female (Chamberlin). OHIO: Guernsey County, 1916, male (Barrows). Columbus, August, 1917, female (Barrows, 1918). Gambier, August, 1905, females (Nelson). Urbana, August, 1907, males, females (Nelson). Delaware, Aug. 3–7, 1905, males, female (Nelson). WISCONSIN: Eau Claire, June, male, 6 females (Chamberlin). Platteville, female (Holden). MINNESOTA: Minneapolis, September, 1931, males, females (Gertsch). MICHIGAN: (Baker, 1894). Hamer, July 11, 1933, immature (Chickering). Wolf Lake, July 10, 1933, immature (Chickering). ILLINOIS: Peoria (Keyserling, 1880). Chicago, female (Banks). Centralia, 4 females (Banks). Chicago, August, 1909, male, female (Banks). Urbana, Oct. 24, 1926, male (Shackleford). Salts, Aug. 21, 1926, females (Smith). Idem, July 27, 1926, females (Smith). Urbana, Aug. 28, 1926, female (Shackleford). INDIANA: Lake James, May 8, female (Banks). Hammond, July 30, female (Banks, 1906). Grand Chain, Sept. 5 (Banks, 1906). Greencastle (Banks, 1906). IOWA: Ames, male, female (Banks). Boone, 10 females (Chamberlin). Dallas County, 2 females (Allen). Jefferson, male (Allen). NEBRASKA: "Eastern half of state from Plattsmouth, Murdock and Lincoln to Oconto, Broken Bow and Halsey, Aug. 9, Sept. 12" (Worley, 1927). KANSAS: Douglas County, July, August (Scheffer, 1905). Lawrence, male (Banks). Idem, August, female. MISSOURI: St. Louis, 2 females (Emerton). Columbia, May, female (Crosby). Idem, September–October, 1903, female (Hayhurst). Hunter, August, 1905, males (Crosby). Valley Park, Aug. 1, 1929, females (Meiners). KENTUCKY: Newport, female. NORTH CAROLINA: Morganton, Pineola, Durham and Chapel Hill (Banks, 1911). Wake Forest, August, 1930, male (Banks). Canton, 5 males, 4 females (Banks). Little Switzerland, Sept. 3, 1930, 3 males (Creighton). Idem, Aug. 19, 1930, 5 males (Creighton). Raleigh, Sept. 20, 1911, 4 females (Brimley). Idem, July, 1912, 6 males (Brimley). Mt. Mitchell, Sept. 4, 1930, male (Banks). Woodville, Nov. 21, 1925, female (Mabee). Raleigh, June, 1912, immature female. TENNESSEE: Newfound Gap, September, 1930, 2 males (Banks). MISSISSIPPI: Holly Spring, 5 females (Banks). Lucedale, August, 1929, female (Dietrich). Idem, September, 1931, female (Dietrich). Idem, October, 1930, female (Dietrich). Idem, September, 1930, male, 2 females (Dietrich). ALABAMA: Auburn (Banks, 1900). Chicksaw, September, 1930, 2 females (Dietrich). Idem August, 1924, female (Goode). Greene, August, 1916, female. GEORGIA: (Keyserling, 1880). Austell, 2 males (Banks). Honey Island, Okefenokee Swamp, June 1, 1912, immatures (Crosby). Macon, June, 1930, young. LOUISIANA: (Banks, 1899). FLORIDA: Orange County (Tullgren, 1901). Altoona, July (Banks, 1904). Jacksonville, April (Banks, 1904). Runnymede, female (Banks). Tribby, Pasco County, Sept. 16, 1917, male, female (Hebard). Lake Lucy, Jan. 25, 1906, female. Fort Meyers, Sept. 15, 1917, 2 males (Hebard). Alachua County, Sept. 20, 1929, female (Davis). Arredondo, Alachua County, Sept. 29, 1924 (Walker). Gainesville, Jan. 1, 1933, female (Wallace). Idem, Oct. 14, 1932, female (Wallace). Sanford, July 27, 1927, male, female (Stone). Idem, September, 1927, male, female (Stone). Tampa, July 7, 1927, male, female (Stone). Archer, Aug. 22, 1924, male, females. Newberry, Aug. 24, 1924, female (Walker). Orlando, Orange County, Aug. 28, 1924 (Walker). Monticello, female. De Funiak Springs, females (Watson). Crestview, female. ARKANSAS: Hope, June 29, female (Dietz). Idem, Aug. 25, 1928, male

(Dietz). OKLAHOMA: Adair County, July 9, 1927 (Banks, 1932). Idem, Aug. 25, 1928, male (Dietz). Comanche County, July 6, 1928 (Banks, 1932). Nowata County, July 21 (Banks, 1932). TEXAS: Brazos County, 3 males, 10 females (Banks). Victoria, August, 1905, male, females (Mitchell). Austin, females (Montgomery). CALIFORNIA: Los Angeles (Davidson). Claremont (Baker). Los Angeles, 3 females (Banks). Mt. Wilson, male, female (Banks). San Jose, female (Banks). Claremont, 3 males, 3 females (Banks). Laguna Beach, Claremont, July 6, 1921, male, female. Upland, July, 1922, male, female. San Diego, female (Dietz).

CANADA.—MONTREAL: Quebec, male, female (Chamberlin). Idem, male, 4 females (Chamberlin). ONTARIO: Ottawa, 2 males, 3 females (Chamberlin). BRITISH COLUMBIA: Victoria, 2 males, 6 females (Banks). Rogers Pass, Selkirk Mountains, Aug. 1, 1909, male (Bradley). ALBERTA TERRITORY: (Emerton, 1894).

Misumenoides annulipes
(O. P. Cambridge)

Figures 42 and 43

Runcinia annulipes O. P. CAMBRIDGE, 1891, Biologia Centrali-Americana, Araneidea, I, p. 78, Pl. IX, fig. 14.

Misumenoides annulipes F. CAMBRIDGE, 1900, idem, II, p. 140, Pl. IX, fig. 30.—GERTSCH, 1933, American Museum Novitates, No. 636, p. 15.

A male from Colorado is 2.18 mm. in total length, slightly smaller than one from Mexico, 2.40 mm. The only females referred to this species with certainty measure 5.42 mm. and 4.45 mm. in total length.

Integument of the carapace of the male in the alcoholic specimens dull yellowish brown, the margins suffused with black to form side bands, and the clypeal carina and eye tubercles white in color. Palpus, sternum and two posterior pairs of legs unmarked yellow, the mouth parts and first coxae darker. Femora and patellae of the first two pairs of legs very dark brown, the distal joints marked by broad basal yellow annulae. Dorsum of the abdomen dull yellow, unmarked except for the round depressions indicating the position of the internal muscle attachments. Venter clouded with black.

Carapace of the female with broad brown side bands that are broken by a submarginal band or isolated lighter spots, medially provided with a broad dull yellow median stripe, in which is present a quadrangular creamy white maculation at the position of the obsolete median cephalic suture and from which a pale median streak goes to the last eye row. Eye region mainly white, the clypeal carina plainly evident as a white line. Coxae, mouthparts and sternum red, the latter with a median triangular yellow marking. Integument of the legs dull yellow, the patellae of the first pair red, the tibiae with basal and distal narrow red rings, the metatarsus with a distal red ring that is broken below. Abdomen bright to dull yellow, with or without a black band made up of red spots, but with the venter broadly banded with a longitudinal red stripe.

Measurements of the male from Colorado.

	Length	Width
CARAPACE	0.96 mm.	1.10 mm.
FRONT	0.25	0.55
STERNUM	0.55	0.57
LABIUM	0.17	0.17
ENDITE	0.25	0.14
ABDOMEN	1.30	1.00

Structure and proportions of the carapace as in *M. aleatorius*.

First row of eyes narrower than the second (60/75), slightly recurved, the medians separated by one and one-half times their diameter, nearer the subequal laterals (8/10). Second row of eyes recurved, the medians over two diameters apart (7/18), as far from the subequal laterals. Ratio of the eyes: ALE:AME: PLE:PME = 9:8:8:7. The median ocular quadrangle broader than long (43/35), narrower in front in the same ratio. Lateral eyes on conspicuous, connate tubercles. Clypeus slightly higher than the diameter of an anterior median eye.

Legs clothed with black hairs and larger spines as follows: femora with five or six dorsal spines, the first femur with one or two very weak prolaterals; tibiae and metatarsi unarmed beneath, the first two metatarsi with a single prolateral at the distal end. First pair of legs scarcely five times as long as the carapace.

	I	II
FEMUR	1.60 mm.	1.54 mm.
PATELLA	0.52	0.52
TIBIA	1.20	1.15
METATARSUS	1.12	1.05
TARSUS	0.65	0.61
TOTAL	5.09	4.87

	III	IV
FEMUR	0.65 mm.	0.67 mm.
PATELLA	0.27	0.27
TIBIA	0.45	0.46
METATARSUS	0.40	0.45
TARSUS	0.32	0.34
TOTAL	2.09	2.19

Male palpus. Although agreeing well in general details with *aleatorius*, there are several important differences in this palpus. The tibia is provided with two similar apophyses, but the larger retrolateral one has the distal lobe, well developed in *aleatorius*, considerably reduced.

The tegulum is longer than broad, and the embolic portion, though originating on the prolateral side at the distal end as in the other species, is shorter, the heavily sclerotized black spur lying near the margin of the tegulum and directed laterad at a right angle to the long axis. For details of palpus see Figs. 42 and 43.

A female from Colorado, 5.42 mm. long, was used for the following structural diagnosis.

	Length	Width
Carapace	2.30 mm.	2.35 mm.
Front	0.40	1.27
Sternum	1.20	1.05
Labium	0.45	0.37
Endite	0.62	0.32
Abdomen	3.45	3.70

The female of this species is very similar in structure to that of *aleatorius*. The carina through the eye region that connects the lateral eye tubercles is not as well developed in the species and the front of the carapace is scarcely as wide. The median eye quadrangle is proportionately longer than in *aleatorius*.

Eye area over four-fifths as wide as the pars cephalica at that point. First row of eyes narrower than the second (21/27), slightly recurved, the medians separated by two diameters (12/23), nearer the subequal laterals (12/17). Second row of eyes slightly recurved, the medians separated by over three diameters (10/34), about as far from the laterals (10/33). Ratio of the eyes: ALE:AME:PLE:PME = 13:12:11:10. Median ocular quadrangle broader than long (54/44), narrower in front (54/47), the anterior eyes larger. Clypeus equal in height to one and one-half times the diameter of an anterior median eye.

Leg formula, 1243, the first pair of legs about four times as long as the carapace. First two tibiae with two unpaired spines beneath on the prolateral side and the metatarsi armed beneath with eight pairs of strong spines.

	I	II
Femur	2.85 mm.	2.52 mm.
Patella	1.32	1.17
Tibia	2.12	1.87
Metatarsus	1.90	1.75
Tarsus	0.92	0.87
Total	9.11	8.18
	III	IV
Femur	1.32 mm.	1.52 mm.
Patella	0.72	0.72
Tibia	0.95	1.05
Metatarsus	0.82	1.05
Tarsus	0.52	0.54
Total	4.33	4.88

Type Locality.—Male type from the immediate vicinity of Guatemala City, Guatemala (Sarg), in the collection of Godman and Salvin.

Distribution.—Mexico. Colorado?

Records.—La Chapala, Jalisco, Mexico, males and females (L. H. Weld). One male and two females from Colorado are in the collection of The American Museum of Natural History.

It now seems doubtful that the specimens recorded from Colorado represent a valid record for that state.

Misumena Latreille

Misumena Latreille, 1804, Dic. N. Hist., XXIV, p. 135.

Misumena Simon, 1892–1895, Histoire Naturelle des Araignées, I, p. 1025.

Carapace about as broad as long, moderately high, almost entirely devoid of spines. Clypeus vertical. Eyes of the first row slightly recurved, equidistantly spaced, subequal in size. Eyes of the second row recurved, equidistant, subequal in size. Median ocular quadrangle broader than long, slightly narrowed in front. Lateral eyes on large connate tubercles. Eye relations and details of the front of the head as illustrated in Figs. 3 and 4. Legs devoid of strong spines above or on the prolateral side but with robust spines beneath the tibiae and metatarsi as shown in Figs. 96 and 97.

Genotype.—*Misumena calycina* (Linnaeus).

A large number of species were once placed in this genus, but now most of them have been assigned to other genera. No other American species seems to be congeneric with *Misumena calycina* (Linnaeus). The genus undoubtedly represents a recent offshoot from genera in which the carapace is strongly carinate.

Misumena calycina (Linnaeus)

Figures 3, 4, 26, 27, 38, 39, 86, 96 and 97

Araneus vatius Clerck, 1757, Svensk. Spindl., p. 128, Pl. vi, fig. 5.

Aranea calycina Linnaeus, 1758, Systema Naturae, I, p. 620.

Thomisus fartus Hentz, 1847, Journ. Boston Soc. Nat. Hist., V, p. 445, Pl. xxiii, fig. 4; 1875, Spiders U. S., p. 78, Pl. x, fig. 4.

Misumena vatia Emerton, 1876, Psyche, I, p. 129; 1877, Proc. Boston Soc. Nat. Hist., XIX, p. 70.—Thorell, 1877, Bull. U. S. Geol. Survey, III, p. 500.—Marx, 1890, Proc. U. S. National Museum, XII, p. 556.—Banks, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 58.—Emerton, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, pp. 368–369, Pl. xxx, figs. 1–1*g*.—Baker, 1895, Ent. News, Philadelphia, V, p. 164.—Banks, 1895, Ann. N. Y. Acad. Sci., VIII, p. 428.—Emerton, 1894, Trans. Connecticut Acad. Arts and Sci., IX, p. 418.—Banks, 1895, Journ.

N. Y. Ent. Soc., III, p. 90.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1900, Proc. Washington Acad. Sci., II, p. 483; 1901, Proc. Acad. Nat. Sci. Philadelphia, LIII, p. 584; 1904, Proc. California Acad. Sci., (3) III, p. 352.—COOLIDGE, 1907, Canadian Entomologist, XXXIX, p. 376.—BANKS, 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 451.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., VI, p. 248.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 62.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 50.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 408.—BANKS, 1916, Proc. U. S. National Museum, LI, p. 70.—BARROWS, 1918, Ohio Journal Science, XVIII, p. 311.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 335.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 61.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1058.—CHICKERING, 1931, Papers Michigan Acad. Sci., XV, p. 353.—WORLEY, 1932, Univ. Washington Publ. Biology, I, pp. 39–40.

The total lengths of five males, one of which is European, are 2.88 mm., 3.00 mm., 3.05 mm., 3.20 mm. and 3.32 mm., an average of 3.09 mm. The average of seven females is 6.99 mm., the largest measuring 8.43 mm., the smallest, 6.23 mm.

Carapace dark reddish brown to red in the male, without marginal lighter markings but with a creamy white median maculation just in front of the posterior declivity from which a narrow white streak passes forward to the second eye row. Area of the eyes usually white and continuous with a median white stripe that includes the middle part of the clypeus. Sternum, mouth parts and coxae bright red. First two pairs of legs concolorous with the carapace, the tarsi yellow or red tipped, the basal part of the tibiae and metatarsi broadly or narrowly ringed with yellow, though any trace of annulae may be lacking. Posterior legs invariably immaculate yellow. Patellae of the palpi yellow or lightened, the remaining joints red. Integument of the abdomen gray to creamy white, the sides with a red band that may be continuous with a like coloration of the venter, the dorsum with two narrow longitudinal red bands that reach the caudal end. Dorsal view of male as illustrated in Fig. 27.

Integument of the carapace in the female white to clear lemon yellow, but in the average specimen the sides are slightly darker, the middle part occupied by a creamy white longitudinal band as in the male, which ends at the posterior eye row. Middle part of the clypeus white. Eye region usually tinged more or less deeply with red. Legs, sternum and mouth parts usually white or yellow, never with contrasting markings. Abdomen concolorous with the carapace, varying from white to yellow, often immaculate, but usually provided with bright red side bands and occasionally with a median row of spots. Dorsal view of female as illustrated in Fig. 26.

Measurements of a male from Colorado.

	Length	Width
CARAPACE	1.57 mm.	1.52 mm.
FRONT	0.42	0.70
STERNUM	0.80	0.67
LABIUM	0.25	0.22
ENDITE	0.40	0.17
ABDOMEN	2.10	1.50

Integument of the carapace sparsely provided with short inconspicuous setae, the side margins armed with a closely set row of slightly longer ones and the clypeal margin with six weak spines and several smaller ones. Carapace moderately high, slightly longer than broad, highest at a point between the second coxae, convex, broadly rounded on the sides, the front truncated, about half as wide as the greatest width. Clypeus scarcely twice as high as the diameter of an anterior median eye. Cephalic part poorly differentiated from the pars thoracica, the sutures practically obsolete. Sternum slightly longer than broad, truncated in front, ending in a blunt point between the last coxae and separating them by one-third their width. Labium somewhat longer than broad, three-fifths as high as the subparallel endites. Mouth parts and coxae sparsely set with black hairs. Abdomen oval in outline from the dorsal aspect, sparsely provided with short hairs.

Eyes of the first row narrower than the second (70/87), slightly recurved, a line through the centers of the medians touching the lower margins of the laterals. Anterior median eyes separated by scarcely two diameters (9/16), somewhat nearer the lateral eyes (9/12). Second row of eyes slightly recurved, the eyes equal in size and subequidistantly spaced (22/23), the medians separated by three diameters. Ratio of the eyes: ALE:AME:PLE:PME = 10:9:7:7. Median ocular quadrangle broader than long (27/32), narrower in front (37/34), the anterior eyes slightly larger. Lateral eyes on large connate tubercles.

Leg formula, 1243, the first two pairs long, nearly five times as long as the carapace, the tibiae and metatarsi equal to it in length, the femora considerably exceeding the carapace in length. Last pairs of legs weak, scarcely half as long as the first pairs. Legs clothed with black hairs. Spines very short and weak.

	I	II
FEMUR	2.20 mm.	2.09 mm.
PATELLA	0.95	0.90
TIBIA	1.75	1.65
METATARSUS	1.65	1.50
TARSUS	0.88	0.84
TOTAL	7.43	6.98
	III	IV
FEMUR	0.92 mm.	1.00 mm.
PATELLA	0.50	0.50
TIBIA	0.62	0.68
METATARSUS	0.56	0.67
TARSUS	0.41	0.42
TOTAL	3.01	3.27

Femur of male palpus (Figs. 38 and 39) twice as long as broad, longer than the patella and tibia taken together, scarcely as long as the tarsus, the whole appendage being about as long as the metatarsus of the second leg. Tibia provided on the retrolateral face with a stout apophysis as long as the joint, the distal extremity of which is lobed on the ventral side but is dorsally produced in a stout hook. Retrolateral apophysis intimately joined to a ventral rounded process. Bulbal parts comparatively simple, the tegulum, as seen from the ventral aspect, convex, suborbiculate, a sclerotized plate that occupies four-fifths of the width of the somewhat longer than broad cymbium. Embolus short, heavy at the base, originating near the distal end of the tegulum, terminating in a curved black spine.

Measurements of a female from St. Thomas, Ontario, 8.43 mm.

	Length	Width
Carapace	3.06 mm.	2.93 mm.
Front	0.73	1.66
Sternum	1.43	1.13
Labium	0.60	0.51
Endite	0.86	0.43
Abdomen	5.66	6.70

Carapace provided with a very few weak hair-like setae, otherwise smooth. Clypeus as high as the median ocular quadrangle. Posterior coxae subcontiguous. Integument of the abdomen smooth, not provided with a definite series of spines as in the male.

First row of eyes three-fourths as wide as the second, slightly recurved, the anterior medians separated by more than twice their diameter (12/30), nearer the slightly larger lateral eyes (12/25). Eyes of the second row subequal in size, equidistantly spaced, the medians four diameters apart. Ratio of the eyes: ALE: AME:PLE:PME = 14:12:10:10. Median ocular quadrangle broader than long (62/56), narrower in front (62/54), the anterior eyes slightly larger. Lateral eyes on conspicuous connate tubercles. Eye relations as illustrated in Figs. 3 and 4.

Leg formula, 1243, the first two pairs of legs considerably longer than the last two pairs and much more robust. Legs proportionately somewhat shorter than in the male, the first one about four times as long as the carapace. Appendages sparsely clothed with short hairs. First two metatarsi armed beneath with eight pairs of strong spines; the anterior tibiae with four or five paired or unpaired spines at the distal end (Fig. 96).

Vulva as illustrated in Fig. 86.

	I	II	III	IV
Femur	3.80 mm.	3.63 mm.	1.90 mm.	2.20 mm.
Patella	1.76	1.70	1.05	1.05
Tibia	2.93	2.80	1.20	1.50
Metatarsus	3.00	2.86	1.16	1.50
Tarsus	1.25	1.30	0.73	0.80
Total	12.74	12.29	6.04	7.05

Type Locality.—Europe.

Distribution.—This common species is found throughout the Holarctic region.

Records.—Maine: Eastbrook, July, 1922, male (Emerton). Gouldsboro, June 13, 1922, male (Emerton). Long Island, June, 1901, 10 females (Bryant). Idem, July 30, 1904, male (Bryant). Idem, Aug. 3, 1904, male (Bryant). Idem, Sept. 5, 1904, female (Bryant). Idem, Sept. 10, 1904, female (Bryant). Idem, Sept. 14, 1904, female (Bryant). Upton, female. Bar Harbor, July 12, 1932, female (Brower). New Hampshire: Chocorua, June 3, 1912, 5 males, female (Bryant). Fitzwilliam, June 13–17, 1930, 6 males, 2 females (Bryant). Franconia, male, female (Banks). Gilmanton, June 12–18, 1925, 4 males, female (Bryant). Intervale, July 17, 1913, 4 males, 3 females (Bryant). Idem, August, 1910, 2 females (Bryant). Idem, Aug. 26, 1915, male, female (Bryant). Idem, Aug. 28, 1914, 4 males, 5 females (Bryant). Monadnock, June 22, 1924, 6 males, 5 females (Bryant). Moosilauke, July 3, 1912, male (Bryant). Idem, July 3, 1912, 5 males, 2 females (Bryant). Idem, July 8, 1912, 4 males, female (Bryant). Randolph, July 1, 1926, 2 males, 2 females (Emerton and Banks). Shelburne, June, 1914, 2 females (Deane). South Lyndeboro, June 5–11, 1923, 5 males, 6 females (Bryant). Hollis, July, male, female. Vermont: Grout's Mills, July, 1913, male, 3 females (Chamberlin). Middlebury, July, 1923, male (Emerton). South Newfane, June 16–23, 1926, 7 males, 3 females (Bryant). Idem, July 18, 1930, 3 males, female (Bryant). Idem, June, 1927, 4 males, 2 females (Bryant). Stowe, July 29, 1902, 2 females (Bryant). Massachusetts: Salem, female. Idem, 2 females (Emerton). Sharon, 1920, 6 females (Cushing). Sherborn, female. Shirley, June 24, 1917, male (Bryant). Bedford, female (Fitch). Cohasset, May 29, 1920,

male (Bryant). Idem, June 1, 1914, female (Bryant). Chatham, June, 1920, male (Emerton). Duxbury, August, 1916, 2 males (Clapp). Idem, August, 1916, 6 males, 4 females (Clapp). Manchester, June 23, 1874, 2 males (Emerton). Newton, August, 1926, female (Bryant). Readville, June 25, 1904, male, female (Bryant). Brockton, Sept. 16, 1930, female (Richmond). NEW YORK: Ithaca, 2 females (Banks). Idem, 4 males, 11 females (Banks). Poughkeepsie, 5 females (Banks). Black Brook, Clinton County, June 11, 1916, female. Peru, January, 1916, male. Idem, April, May, 1931, males, female. Hammer, June 12, 1927, male (Worley). Lake Tear, Mt. Nancy, July 11, 1918, 4300 feet, male. Rochester, June 29, 1926, female from stamen of white peony. Lake Delaware, Delaware County, May 30, 1923, male. Taughannock Falls, May 11, 1930, females. Point Breeze, Orleans County, June 11, 1922, male. Lancester, male, females (Van Duzee). Ringwood, Tompkins County, July 16, 1922, male. McLean, May 16, 1921, female (Bissell). Labrador Pond, Cortland County, June 7, 1921, male. Trenton Falls, June 5, 1921, male, female (Dietrich). Black Hook, Jan. 6, 1916, male. Penn Yan, 1916, 2 females. Enfield Gorge, Tompkins County, May 21, 1922, male. Cold Spring Harbor, Long Island, July 17, 1907, 2 males (Bryant). NEW JERSEY: Ramsey, Aug. 17, 1934, 3 females (Gertsch). MARYLAND: Charles County, 2 females (Keyserling). Plummer's Island, Aug. 22, 1907, male (Hyslop). PENNSYLVANIA: Conyngham, June 11, 1929, female (Dietz). Harves Lakes, female (Stone). Holmsberg, Philadelphia, Sept. 11, 1913 (Enoch). VIRGINIA: Falls Church, 5 females, 2 males (Banks). DISTRICT OF COLUMBIA: Washington, 2 females (Keyserling). NORTH CAROLINA: Little Switzerland, Sept. 3, 1930, female (Creighton). ALABAMA: Auburn, 2 females (Banks). Orange Beach, Aug. 1, 1930, 3 females (Loding). TENNESSEE: Robertson County, July, 1904, 3 females (Fox). FLORIDA: Tallahassee, August, 1903, male (Morse). TEXAS: Brownsville, female (Banks). KANSAS: Ft. Lavarnis, female (Keyserling). IOWA: Macgregor, female (Banks). INDIANA: Bloomington, females. ARKANSAS: Hope, Sept. 27, 1931, male, 2 females (Knobel). MICHIGAN: Ann Arbor, Aug. 27, 1932, female (Miner). Douglas Lake, 1922, female (Matheson). Albion, 1930, male. Marquette, July 3, 1932, male, females. Idem, July 18, 1932, male, females. Birch, July 2, 1932, female. MINNESOTA: St. Paul, June 18, 1931, female (Macy). Minneapolis, Oct. 5, 1931, female (Gertsch). WYOMING: Big Horn Mountains, August, 1929, males, females. IDAHO: Bear Lake Hot Springs, Bear Lake County, Aug. 29, 1928, male (Gertsch). Nounan, Aug. 27, 1929, males, females (Gertsch). ARIZONA: James Canyon, Sacramento Mts., July 8, 1917, female (Wheeler). Santa Catalina Mts., June 8–18, 1904, female (Lutz). COLORADO: Boulder, male (Banks). Peaceful Valley, Boulder County, female (Banks). Dark Canyon, female (Banks). Fort Collins, 2 males (Banks). West Cliff, 2 males, 5 females (Banks). Reynolds, female (Miller). Florissant, July 17, female (Rohwer). Estes Park, August, 1919, male. Platte Canyon, Sept.–Oct., 1906, male (Oslar). Near Denver, Sept. 17, 1932, female. Golden, females. Strontia Springs, July 28, 1930, females (Dietz). Chimney Gulch, Aug. 10, 1929, females (Dietz). UTAH: Bridger Basin, 6 females (Keyserling). Chalk Creek, Uintah Mts., 4 males, 5 females (Chamberlin). Silver Lake, female (Banks). Richfield, July 27, 1930, females (Gertsch). Little Cottonwood Canyon, Salt Lake City, June 30, 1929, males, females (Gertsch). Salt Lake City, females (Skinner). Idem, June, 1930, males, females (Gertsch). City Creek Canyon, Salt Lake City, June, 1931, males, females (Gertsch). Idem, June, 1930, males, females (Gertsch). Zion National Park, May 1, 1924, female. NEW MEXICO: Mesilla Park, female (Banks). Organ Mountains, 2 females (Banks). Roswell, 2 females (Banks). Pecos, male, 3 females (Bryant). Jemez Springs, July 12, 1928, females (Dietz). CALIFORNIA: Claremont, female. San Pedro, female (Banks). Claremont, April, 1913, 2 females (Chamberlin). Palo Alto, 3 females (Banks). Del Norte County, June 30, 1932, females.

Felton, Santa Cruz Mts., May 22, 1907, male (Bradley). Sonoma County, males, females (Dietz). OREGON: Corvallis, female (Banks). Idem, July 6, 1912, male (Stover). Umatilla, June 25, 1882, female (Henshaw). WASHINGTON: Friday Harbor, June 26, 1926, male (Worley). Wawawai, 2 females (Banks). Loon Lake, Colville, July 25, 1882, 2 males, 14 females (Henshaw). Klikitat, July 10, 1882, male, 3 females (Henshaw). Little Spokane, July 26, 1882, female (Henshaw). Olympia, 10 males, 10 females (Banks). Wenas, July 7, 1882, 3 females (Henshaw). MONTANA: Helena, female (Banks).

CANADA.—NOVA SCOTIA: Barrington, September, 1923, male (Bryant). Weymouth, July, 1924, 5 males, 3 females (Bryant). Truro, males, females. QUEBEC: Ft. Coulonge, Aug. 31, 1919, males, females (Beaulne). Lanoraie, June 25, 1915, female. MANITOBA: Aweme, July 3, 1917, females (Criddle). ONTARIO: Guelph, Nov. 15, 1928, female (Crosby). Ottawa Valley, May 31, 1915, female (Waugh). St. Thomas, males, females (James). Norway Point, Lake of Bays, July 25, 1919, male, females. Ottawa, May 11, 1914, female (Kellete). Arnprior, July 10–16, 1916, females (Macnamara). SASKATCHEWAN: Wauchope, female. Cypress Hills, March 25, 1930, male, females (Carr). Idem, June 26, 1930, females (Carr). ALBERTA: Calgary, August, 1924, female (Salt). Banff, female (McDunnough). Waterton Lake, July 10, 1930, male, female. Gull Lake, June 25, 1928, female (Strickland). Fawcett, May 15–June 3, 1930, male, female. Seba, July, 1930, 6 females. Medicine Hat, June, 1930, males, females (Carr). Edmonton, July 15, 2 females. Lundbreck Falls, July 12, females. Cowley, females (Chrystal). BRITISH COLUMBIA: Terrace, June 12, 1930, males, females (Hippishley). Okanogan Falls, June 16, 1919, male (Anderson). Princeton, July 29, 1919, female (Anderson). Metlakatla, female (Banks).

MISUMENOPS F. CAMBRIDGE

Misumena KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 78.

Diaea KEYSERLING, 1880, idem, p. 112.

Misumenops F. CAMBRIDGE, 1900, Biologia Centrali-Americana, Araneidea, II, p. 141.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 410.

Misumessus BANKS, 1904, Journ. New York Ent. Soc., XII, p. 112.

Spines all setaceous. Carapace well spined, about as broad as long, moderately high, weakly convex above, the cephalic sutures and median groove virtually obsolete. Clypeus vertical. Eyes (see Figs. 34 and 35) of the first row recurved, the medians usually nearer the larger laterals. Eyes of the second row recurved, subequidistantly spaced, the medians smaller or about equal in size to the laterals. Median ocular quadrangle broader than long, rarely slightly longer than broad, slightly narrowed in front. Lateral eyes on conspicuous connate tubercles. First leg with strong prolateral spines on the femur and robust ventral spines on the tibia and metatarsus. Tarsal claws dissimilar, the retroclaw with three to five teeth, the proclaw with two, three or four discrete teeth followed by a series of fine contiguous teeth. Abdomen set with setaceous spines except in the female of *oblongus*.

GENOTYPES.—Of *Misumenops* F. Cambridge, *Misumena maculisparsa* Keyserling; of *Misumessus* Banks, *Misumena oblonga* Keyserling.

F. Cambridge considered his *Misumenops* as "purely a genus of convenience, standing between *Misumena* and *Diaea*, instituted to avoid the necessity of lumping these and several other genera together." For that matter it can be argued that all genera are purely conveniences erected to make more understandable the pertinent steps of progression in one or another direction of the bewildering number of species in any group. The genus *Misumenops* is considered here as constituting a group of forms quite as discrete from related genera as are any of the others of the subfamily. It is extremely doubtful that the species from the eastern hemisphere referred to *Misumenops* in recent years actually are congeneric. *Misumena tricuspidata* (Fabricius) of Europe seems certainly not to belong to it.

The males of the species of *Misumenops* present characters in the palpi which make them relatively easy to identity. In two of the species the terminal part of the embolus follows closely the margin of the bulb and rests in an inconspicuous groove on the retrolateral margin. From the viewpoint of palpal characters these species can be considered somewhat less specialized than the

others. In all the other Nearctic members of the genus the embolus terminates in some sort of a spiral. The size and elaboration of this spiral are expressed in varying degrees among the species, the highest development being present in *coloradensis* where the embolus, after completing the usual retrolateral curl, terminates in a second ventral spiral. The cymbium is variously modified to provide a resting place for the fine or heavy spiraloid truncus of the embolus.

Many of the named species now associated with this genus were based on the female sex alone. Inasmuch as the vulva is relatively similar in form among many of the species and seems to be subject to considerable variation, the assignment of some of the proposed names to the proper male is still somewhat uncertain. Some of the species seem to have been based on material which was not fully adult but in which the vulva was nevertheless partially developed. The other characters have not been studied enough to make a key to the females very practical.

The following records from within the limits of the United States of species presumably of this genus have not been verified. Because of the uncertainty of these names and the improbability of the actual occurrence of the species, they are not considered in the following diagnoses. *Misumena conspersa* Keyserling, cited from California, Arizona and Florida by Marx, 1889 (Proc. U. S. Nat. Mus., XII, p. 556); *Misumena mexicana* Keyserling, cited from California by Marx (idem, p. 556); and *Misumena variegata* Keyserling, cited from Florida by Marx (idem, p. 556) seem to represent erroneous records. *Misumena damnosa* Keyserling, cited from Arizona by Banks, 1910 (Proc. U. S. Nat. Mus., LXXII, p. 50) and *Misumena fidelis* Banks, cited from Arizona by Banks, 1901 (Proc. U. S. Nat. Mus., XXIII, p. 586) are doubtful species. The male cotype of *Misumena modesta* Banks, cited from California by F. Cambridge in 1900 (Biologia Centrali-Americana, Araneidea, II, p. 146), is a specimen of *Misumena calycina* (Linnaeus). The female, however, represents a species of *Misumenops*. *Misumenops utanus* Chamberlin and *M. admes* Chamberlin and Woodbury, 1929 (Proc. Biol. Soc. Washington, XXXXII, p. 137) are nomina nuda.

KEY TO THE MALES

1.—Terminal part of the embolus forming a spiral.....3.
Terminal part of the embolus not forming a spiral.....2.
2.—Carapace with dark longitudinal bands. Embolus originating on the prolateral margin of the bulb.....*bellulus* (Banks).
Carapace without dark bands. Embolus originating at the distal end of the bulb .....*oblongus* (Keyserling).
3.—Embolus originating at the distal end of the bulb, the tube relatively short, forming a weak spiral visible from beneath (Fig. 48).....*dubius* (Keyserling).
Embolus much longer, the terminal part forming a spiral on the retrolateral margin of the cymbium.....4.
4.—Embolus heavy, the spiral small (Fig. 58).. .....*devius*, new species.
Embolus not of this form.....5.
5.—Embolus forming only one spiral.....6.
Embolus forming a retrolateral and a ventral spiral.....*coloradensis* Gertsch.
6.—Truncus of embolus free of the pars pendula for most of its length.....7.
Truncus of embolus supported by a pars pendula for most of its length.....8.
7.—Spiral of embolus relatively small. Tibial apophysis rather short (Fig. 51)..... .....*celer* (Hentz).
Spiral of embolus larger. Tibial apophysis longer (Fig. 53)...*californicus* (Banks).
8.—First femur about twice as long as the carapace.....*asperatus* (Hentz).
First femur more than twice as long as carapace.....*decorus* (Banks).

Misumenops oblongus (Keyserling)

Figures 44, 45, 62 and 63

Misumena oblonga KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 79–80, Pl. II, fig. 41.—MARX, 1890, Proc. U. S. National Museum, XII, p. 556; 1892, Proc. Ent. Soc. Washington, II, p. 159.—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 371, Pl. XXX, figs. 4–4c.—BANKS, 1895, Ent. News, Philadelphia, VI, p. 205; 1895, Ann. N. Y. Acad. Sci., VIII, p. 428; 1895, Journ. N. Y. Ent. Soc. III, p. 90; 1898, Proc. Ent. Soc. Washington, IV, p. 189; 1901, Proc. Acad. Nat. Sci. Philadelphia, LIII, p. 584; 1904, idem, LIV, p. 133; 1893, Journ. N. Y. Ent. Soc., I, p. 125 (synonymizes *americanus*).—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII, p. 62.

Misumessus oblongus BANKS, 1906, Ann. Rept. Dept. Geol. Nat. Res., Indiana, p. 742; 1910, Bull. U. S. Nat. Museum, LXXII, p. 50.

Misumenops oblongus PETRUNKEVITCH, 1911,

Bull. American Mus. Nat. Hist., XXIX, p. 413.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 63.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1059.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XXXXI, p. 428.

Misumena americana KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 85–86, Pl. II, fig. 44.—MARX, 1890, Proc. U. S. National Museum, XII, p. 556; 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 50; 1932, Publ. Univ. Oklahoma Biol. Survey, IV, p. 27.

Misumenops americanus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 410.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 61.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XXXXI, p. 41.

Carapace in the male dull to bright yellow, always lacking dorsal bands, but with the eye tubercles white, the margins sometimes with a narrow red seam. Sternum, mouth parts and coxae white to yellow. Palpi unmarked. Legs yellow, ringed as in *celer*, apparently never punctate in red. Abdomen slightly lighter than the carapace, unmarked. Integument of the carapace in the female dull yellow, never marked with contrasting pigment, the eye area creamy white. Legs concolorous with the carapace, unmarked. Abdomen creamy to silvery white, inconspicuously reticulate with darker pigment. Abdomen occasionally margined in red.

FEMALE.—Total length, 6.16 mm.

	Length	Width
CARAPACE	2.06 mm.	2.16 mm.
FRONT		1.26
STERNUM	1.23	1.06
LABIUM	0.50	0.40
MAXILLA	0.66	0.33
ABDOMEN	4.66	4.00

Carapace almost completely devoid of spines, those on the clypeal margin very weak. First femur with three prolaterals and usually a single dorsal but they are unusually weak for species of this genus. Abdomen lacking the spines so characteristic of other members of the group. Eyes of the first row recurved, the medians separated by two diameters (10/22), nearer the laterals (10/14). Second row of eyes recurved, the medians separated by three diameters (8/27), farther from the laterals (8/30). Median ocular quadrangle broader than long (45/42), narrowed in front in the same ratio. Ratio of the eyes: ALE:AME:PLE:PME = 13:10:10:8. Clypeus equal in height to three times the diameter of an anterior median eye (10/30).

Spines of the first leg as follows: Femur, prolateral 3, dorsal 1. Tibia, ventral 2–2–2–2, the last pair not apical. Metatarsus, ventral 2–2–2–2–2–2, or with one or more additional pairs, the last pair not apical. First leg: femur, 3.66 mm., patella, 1.33 mm., tibia, 2.73 mm., metatarsus, 2.36 mm. and tarsus, 0.93 mm. long. Second leg slightly shorter than the first (11.01 mm./10.55 mm.).

Vulva as illustrated in Figs. 62 and 63.

MALE.—Total length, 2.60 mm.

Carapace relatively smooth, armed with a marginal row and with a sparse dorsal covering of stout erect spines, one beside the posterior lateral eye and those on the clypeal margin longer. Abdomen evenly set with short erect spines. Eyes of the first row narrower than the second (57/72), recurved, the medians separated by little more than the diameter (8/10), scarcely a diameter from the laterals (8/7). Second row of eyes recurved, the medians separated by two diameters (7/15), farther from the laterals (7/18). Median ocular quadrangle broader than long (29/26), narrowed in front (29/25). Ratio of the eyes: ALE:AME:PLE:PME = 10:8:8:7. Clypeus equal in height to one and one-half times the diameter of an anterior median eye (8/12).

Legs long, the first tibia slightly incrassated in the distal half. First leg spined as follows: femur, dorsal 4, prolateral 4. Tibia and metatarsus clothed evenly with long black hairs, some beneath these joints somewhat heavier but not true spines. First leg: femur, 1.86 mm., patella, 0.56 mm., tibia, 1.66 mm., metatarsus, 1.56 mm. and tarsus, 0.73 mm. long.

Tibia of male palpus slightly broader than long, armed with a short ventral apophysis and a very broad retrolateral apophysis. Cymbium a little longer than broad, the tutaculum an inconspicuous groove on the retrolateral margin. Tegulum weakly convex, as broad as long, the embolic portion originating near the distal end. Truncus a slender tube, supported at the origin by a broad pars pendula, that completely encircles the tegulum and lies in the tutacular groove. Palpus as in Figs. 44 and 45.

TYPE LOCALITY.—Male cotypes of *oblongus* from Baltimore, Maryland, and Peoria, Illinois (Koch collection). Female cotypes of *americanus* from Baltimore, Maryland, and Peoria, Illinois (Koch collection and in the University of Breslau).

DISTRIBUTION.—United States in general, more rare in the northern part. Mexico. *Misumenops pallens* Keyserling, synonymized with *americanus* by Cambridge, is a closely related but distinct species.

RECORDS.—NEW HAMPSHIRE: West Ossippee, August, 1936, male (S. Mulaik). MASSACHUSETTS: Blue Hill, Aug. 18, 1902, male (Bryant). Milton; Brookline (Emerton, 1892). CONNECTICUT: New Haven, Aug. 12, 1884, male (Emerton). Simsbury (Emerton, 1892). Danbury, July 19, 1912, male (Emerton). Norwalk, June 10, June 23, July 4, July 25, males and females (Gertsch). NEW YORK: Sea Cliff, female (Banks). Lancaster, female (Van Duzee).

NEW JERSEY: Riverton, July 28, 1925, female (E. A. Richmond). Ramsey, May, male (Gertsch). PENNSYLVANIA: York Furnace, June, 1889, female (Stone). West Chester, male, females (Stone). Chester County, September, 1889, female (Stone). Germantown, July, 1889, female (Stone). Arundtsville, July 3, 1928, female. Washington, Aug. 15, 1929, female (Long). MARYLAND: Baltimore (Keyserling, 1880). VIRGINIA: Falls Church, males. East of Luray, July 5, 1933, females (Gertsch). DISTRICT OF COLUMBIA: Washington (Emerton, 1892). Giesboro Point; Soldier's Home; Potomac Hills (Marx, 1892). NORTH CAROLINA: Wake Forest, August, female (Banks). Blowing Rock, Black Mountains (Beutenmuller). Morganton; Balsam; Pineola; Durham; Roan Mt. (Banks, 1911). GEORGIA: Thompson's Mills, females (Banks). Atlanta, May, 1899, males, females (Emerton). FLORIDA: Tampa, July 7, 1927, females (Stone). Micanopy, March 6, 1927, male (Hubbell). Sanford, July 20, 1927, female (Stone). Royal Palm Park, July 23, 1927, female. Punta Gorda (Banks, 1904). Gainesville, June 12, 1935, females (Gertsch). MISSISSIPPI: Oxford, males. ALABAMA: Auburn, September, 1924, male (Good). Mobile, Aug. 2, 1930, males (Creighton). TENNESSEE: Knoxville, male (W. B. Cartwright). Glenraven, Robertson Co., June–July, 1904, females (W. H. Fox). Knoxville, June 7, 1933, males (Gertsch). Kingston, July 12, 1933, females (Gertsch). KENTUCKY: Jassamine County, July 28, 1925, female. Quicksand, June 25, 1925, males, female (Crosby). Near Louisville, July 18, 1933, male (Gertsch). LOUISIANA: Shreveport, females, male (Banks). ILLINOIS: Urbana, June 21, 1926, male (Smith). Salts, June, July, August, males (Smith). Peoria (Keyserling, 1880). OHIO: Gambier, June, 1907, male (Nelson). Idem, June and August, 1905, males and females (Nelson). MISSOURI: Columbia, June, male (Crosby). St. Louis, male (Emerton). INDIANA: Greencastle; Bass Lake; New Harmony; Veedersburg; Vawter Park; Attica; Grand Chain; Knox County; Culver (Banks, 1901; Elliott, 1932). MICHIGAN: Douglas Lake, August, 1922, male (Matheson). Albion, male, female (Chamberlin). Albion, June, July, male and female (Chickering). Mosherville, July 3, 1933, female (Chickering). NEBRASKA: Lincoln, June, 1922, male (Worley and Pickwell, 1927). OKLAHOMA: Payne Co.; Comanche Co.; Nowata Co. (Banks, 1932). Stillwater, female. TEXAS: Brazos County, female (Banks). Austin, male. Llano, August, 1935, male (L. I. Davis). Alvarado, Sept. 2, 1933, male (W. Ivie). COLORADO: Fort Collins; Dixons Canyon (Banks, 1895). NEW MEXICO: Mesilla Park (Banks, 1901). ARIZONA: Indian Gardens, Grand Canyon, July 24, 1934, female (Lutz). UTAH: Bluff, Sept. 5, 1937, female (G. F. Knowlton). Zion National Park, 1928, female (Woodbury). Moab, June 18, 1934, male (W. Ivie). CALIFORNIA: Santa Ana Canyon, July 4, 1931, male (W. Ivie).

Misumenops bellulus (Banks)

Figures 46, 47 and 65

Misumena bellula BANKS, 1896, Trans. American Ent. Soc., XXIII, p. 71; 1904, Proc. Acad. Nat. Sci. Philadelphia, p. 133.

Misumessus bellulus BANKS, 1910, Bull. U. S Nat. Mus., LXXII, p. 50.

Misumenops bellulus PETRUNKEVITCH, 1911 Bull. American Mus. Nat. Hist., XXIX, p. 410.

FEMALE.—Total length, 4.00 mm.

Carapace of the female white to yellow, with two red dorsal bands that do not reach the caudal margin, the eye tubercles white. First two pairs of legs white to yellow, the patellae with a distal, the tibiae and metatarsi with basal and distal red annulae. Posterior legs unmarked yellow. Abdomen gray to white, the dorsum usually with two rows of black spots in the caudal half and some dark markings in the middle of the anterior portion.

	Length	Width
CARAPACE	1.53 mm.	1.60 mm.
FRONT		0.86
STERNUM	0.86	0.83
LABIUM	0.33	0.30
MAXILLA	0.55	0.26
ABDOMEN	2.33	2.66

Carapace armed with the usual long spines of the genus. First row of eyes narrower than the second (78/93), recurved, the medians separated by more than two diameters (8/18), nearer the laterals (8/13). Second row of eyes recurved, the medians separated by nearly three diameters (8/22), three diameters from the laterals (8/24). Median ocular quadrangle broader than long (38/32), narrowed in front (38/34). Ratio of the eyes: ALE:AME:PLE:PME = 11:8:9:8.

Spination of the first leg as follows: femur, prolateral 3 to 6, dorsal 1 to 3. Tibia, ventral 5 or 6 pairs. Metatarsus, prolateral 1 distal, ventral 7 pairs. First leg: femur, 2.16 mm., patella, 0.86 mm., tibia, 1.60 mm., metatarsus, 1.50 mm. and tarsus, 0.70 mm. long. Abdomen set with spines.

Vulva as illustrated in Fig. 65.

MALE.—Total length, 2.33 mm.

Coloration and general structure as in *Misumenops celer* (Hentz).

	Length	Width
CARAPACE	1.23 mm.	1.33 mm.
FRONT		0.60
STERNUM	0.63	0.60
LABIUM	0.23	0.20
MAXILLA	0.30	0.16
ABDOMEN	1.60	0.90

Carapace spined as in *celer*. First row of eyes narrower than the second (63/74), the medians separated by less than two diameters (7/12), nearer the laterals (7/9). Second row of eyes recurved, the medians separated by more than two diameters (7/16), farther from the laterals (7/18). Median ocular quadrangle broader than long (30/26), narrowed in front (30/26). Ratio of the eyes: ALE:AME:PLE:PME = 10:7:8:7. Clypeus nearly twice as high as the diameter of an anterior median eye (7/13).

First leg spined as follows: femur, dorsal 4 or 5, prolateral 4 or 5. Tibia, prolateral and retrolateral usually 3, none distal, ventral 4 or 5 pairs, often very weak. Metatarsus, prolateral and retrolateral 3 to 5, no distals, ventral 3 to 6 pairs, all weak. First leg: femur, 2.10 mm., patella, 0.73 mm., tibia, 1.66 mm., metatarsus, 1.66 mm. and tarsus, 0.93 mm. long. Abdomen set with erect spines.

Palpus resembling that of *oblongus*. Tibia with a small ventral spur and a much larger retrolateral apophysis. Tegulum as broad as long. Embolic division originating on the prolateral side near the distal end of the tegulum, the truncus a fine tube that lies in an inconspicuous tutaculum on the retrolateral margin of the cymbium. Palpus as illustrated in Figs. 46 and 47.

TYPE LOCALITY.—Four female cotypes from Punta Gorda, Florida, in the collection of the Museum of Comparative Zoology.

DISTRIBUTION.—Florida. West Indies.

RECORDS.—FLORIDA: Miami, males and females. Miami, Feb.-May, 1903, female (J. H. Comstock). Homestead, July 10, 1912, male (Hebard). Fort Meyers, February, 1933, two males. Idem, Nov. 16, males and females (Lutz). Lake Worth, Aug. 24, 1933, male, females (W. Ivie). Punta Gorda, male and female. Key Largo, Nov. 6, 1911, females (Lutz).

CUBA: Guantanamo, Nov. 4–8, 1913, males, females (Lutz). Cristo, Ornte, Oct. 3, 1913, male (Lutz).

JAMAICA: Montego Bay, St. James, Dec. 30, 1919, males and females.

DOMINICA: Laudet, June 11, 1911, males and females (Lutz). Roseau, June 16, 1911, males and females (Lutz).

Misumenops celer (Hentz)

Figures 30, 31, 50, 51 and 68

Thomisus celer HENTZ, 1847, Journ. Boston Soc. Nat. Hist., V, p. 446, Pl. XXIII, fig. 5; 1875, Occas. Papers Boston Soc. Nat. Hist., II, p. 78, Pl. X, fig. 5 (reprint).—MARX, 1890, Proc. U. S. Nat. Museum, XII, p. 557.

Misumena celer BANKS, 1910, Bull. U. S. Nat. Museum, LXXII, p. 50.—BARROWS, 1918, Ohio Journ. Sci., XVIII, p. 311.

Misumenops celer PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 411.—CHAMBERLIN, 1924, Proc. California Acad. Sci., (4th Ser.) XII, p. 652 (synonomy).—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 62.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1059.—WORLEY, 1932, Univ. Washington Publ. Biol., I, p. 40.

Diaea lepida THORELL, 1877, Bull. U. S. Geol. Survey, p. 498.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 556.

Misumena lepida BANKS, 1893, Journ. New York Ent. Soc., I, p. 126; 1895, Ann. New York Acad. Sci., VIII, p. 428.

Misumessus lepidus BANKS, 1910, Bull. U. S. Nat. Mus., LXXII, p. 50.

Misumenops lepidus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 412.—WORLEY, 1932, Univ. Washington Publ. Biol., I, p. 41.

Misumena spinosa KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 81–82, Pl. II, fig. 42.—BANKS, 1893, Journ. New York Ent. Soc., I, p. 125 (synonymizes *georgiana*); 1895, Ann. New York Acad. Sci., VIII, p. 428; 1898, Proc. Ent. Soc. Washington, IV, p. 189; 1904, Proc. Acad. Nat. Sci. Philadelphia, p. 132; 1913, idem, p. 179, Pl. XI, fig. 2.

Misumena georgiana KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 86–87, Pl. II, fig. 45.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 556.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57.—BAKER, 1894, Ent. News, Philadelphia, V, p. 164.—BANKS, 1893, Journ. New York Ent. Soc., I, p. 125; 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 537; 1902, Proc. U. S. Nat. Mus., XXV, p. 216; 1913, Proc. Acad. Nat. Sci. Philadelphia, p. 179, Pl. XI, fig. 16.

Misumena alabamensis KEYSERLING, 1883, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXIII, p. 666, Pl. XXI, fig. 15.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 556.—BANKS,

1910, Bull. U. S. Nat. Mus., LXXII, p. 50.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 406.

Misumena diegoi KEYSERLING, 1887, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXVII, p. 481, Pl. VI, fig. 41.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 556.—BANKS, 1902, idem, XXV, p. 215; 1910, Bull. U. S. Nat. Mus., LXXII, p. 50.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 411.—WORLEY, 1932, Univ. Washington Publ. Biol., I, p. 40.

FEMALE.—Total length, 5.50 mm.

Integument of the carapace white to dull or bright yellow, the carapace with a median X-shaped white maculation from which light streaks go forward to the eye region. Legs, sternum, mouth parts and abdomen concolorous with the carapace. Dorsum of the abdomen occasionally marked, as in the male, with obscure black bands made up of spots in the caudal half. Dorsal aspect of female as illustrated in Fig. 30.

	Length	Width
CARAPACE	2.50 mm.	2.53 mm.
FRONT		1.56
STERNUM	1.23	1.06
LABIUM	0.56	0.43
MAXILLA	0.86	0.33
ABDOMEN	3.35	2.86

Integument of the carapace set with conspicuous spines as in the male and with many short spines on the sides. Sides with a marginal row of spines directed obliquely forward, the clypeus with seven principal spines and weakly developed intermediate ones. Carapace convex, slightly longer than broad, moderately high on the midline to the posterior declivity, the sides well rounded. Cephalothoracic sutures obsolete. Sternum longer than broad, truncate in front, separating the front coxae by their length, broadly rounded on the sides and behind, the posterior coxae almost contiguous. Labium longer than broad, two-thirds as high as the maxillae. Abdomen set with rows of conspicuous spines.

First row of eyes narrower than the second in the ratio of 55:66, recurved, the medians separated by two and one-half diameters (11/27), slightly nearer the laterals (11/24). Second row of eyes less recurved, the medians separated by five times their diameter (7.5/37.0), the same distance from the laterals. Ratio of the eyes: ALE:AME:PLE:PME = 14:11:10:7.5. Median ocular quadrangle about as long as broad (49/47), slightly narrower in front than behind (47/52). Eye area and clypeus lacking carina. Lateral eyes on conspicuous connate tubercles. Clypeus three times as high as the diameter of an anterior median eye (30/11).

Leg formula, 1243. Legs rather sparsely clothed with inconspicuous hairs but armed with long, stout spines. First femur with three prolateral basal and two or three dorsal spines. First tibia with six pairs of ventral spines of which two are considerably longer than the others. First metatarsus with eight pairs of stout ventral spines. Second leg as the first but lacking the prolateral spines on the femur and with only two pairs beneath the tibia. First leg about four and one-half times as long as the carapace. Claws of the first two legs similar, with six or seven basal teeth. Claws of the posterior legs similar, with four basal teeth.

	I	II
FEMUR	3.43 mm.	3.33 mm.
PATELLA	1.53	1.43
TIBIA	2.70	2.46
METATARSUS	2.70	2.46
TARSUS	1.16	1.03
TOTAL	11.52	10.71
	III	IV
FEMUR	1.56 mm.	1.86 mm.
PATELLA	0.80	0.80
TIBIA	1.00	1.16
METATARSUS	0.96	1.20
TARSUS	0.53	0.60
TOTAL	4.85	5.62

Vulva as illustrated in Fig. 68.

MALE.—Total length, 3.00 mm.

Integument of the carapace dull to bright yellow, the margins with a narrow red seam, the sides with more or less distinct brown bands, the eye tubercles or the whole eye region creamy white. Sternum, mouth parts and coxae white to yellow. Integument of the first two pairs of legs dull to bright yellow, the femora unmarked, sparsely punctate with red, or thickly irrorate in red and black, with a narrow distal red ring. Other joints of these legs banded as follows: patellae with a distal, tibiae with a basal and a broad distal, metatarsi with a very broad distal and the tarsi with or without a terminal red ring. Last two legs unmarked or with narrow red distal annulae on all the joints but the tarsi. Abdomen gray to yellow, the dorsum with two black or red bands made up of five or six spots in the caudal half, the front portion unmarked or with additional basal black spots. Sides of the abdomen often with traces of dark bands. Spinnerets usually ringed with red. Dorsal aspect of male as illustrated in Fig. 31.

	Length	Width
CARAPACE	1.40 mm.	1.46 mm.
FRONT		0.66
STERNUM	0.73	0.73
LABIUM	0.26	0.23
MAXILLA	0.36	0.20
ABDOMEN	1.83	1.06

Integument of the carapace smooth, somewhat shiny, set with rows of stout spines, otherwise sparsely clothed with weak spines and inconspicuous hairs. Principal spines arranged in seven rows, five of which converge from the eye row to the position of the obsolete median suture. Margins of the pars thoracica with a closely set

row of short spines directed obliquely forward, the clypeus with five principal spines and smaller intermediate ones. Carapace slightly broader than long, suborbicular, weakly constricted in front to indicate the head portion, which is otherwise intimately fused to the pars thoracica, the conventional sutures obsolete. Carapace convex, moderately high, weakly rounded just behind the eyes, about the same height on the midline, the convex sides evenly rounded. Sternum as long as broad, truncated in front, rather evenly rounded on the sides, the posterior coxae separated by scarcely their width. Labium slightly longer than broad, two-thirds as high as the subparallel endites. Abdomen set with rows of stout spines.

First row of eyes narrower than the second (66/88), recurved, the medians separated by a little more than the diameter (12/9), slightly nearer the laterals (10/9). Second row of eyes recurved, the medians separated by twice their diameter, much farther from the laterals (7.5/23.0). Ratio of the eyes: ALE:AME: PLE:PME = 11:9:9:7.5. Median ocular quadrangle about as broad as long (30/31), narrowed in front. Eye region and clypeus lacking carinae. All eyes on conspicuous white tubercles, the lateral tubercle subconnate. Clypeus slightly higher than the diameter of an anterior median eye (11/9).

Leg formula, 1234. Legs rather thickly clothed with long hairs and set with long spines. First femur about twice as long as the width of the carapace, with four or five dorsal and three or four prolateral spines. First tibiae with two median and sometimes a distal pair of very slender ventral spines. First leg nearly seven times as long as the carapace. Claws of all legs similar, with three or four basal teeth.

	I	II
Femur	2.83 mm.	2.70 mm.
Patella	0.90	0.90
Tibia	2.40	2.23
Metatarsus	2.40	2.23
Tarsus	1.10	0.93
Total	9.63	8.99
	III	IV
Femur	1.00	1.00
Patella	0.43	0.43
Tibia	0.80	0.80
Metatarsus	0.66	0.66
Tarsus	0.46	0.46
Total	3.35	3.35

Tibia of the palpus with a very small ventral spur and a larger, distally excavated retrolateral apophysis that appears bifid in ventral view. Cymbium slightly longer than broad, the retrolateral side with a smooth area devoid of hairs on which the spiral portion of the embolus rests. Tegulum about as broad as long. Embolic portion originating on the prolateral side of the tegulum near the base, the truncus a long black spur that runs around the tegulum and ends as a spiral on the prolateral side, not visible from below. Palpus as illustrated in Figs. 50 and 51.

Type Locality.—Female type of *celer* from South Carolina, presumably destroyed. Male type of *Diaea lepida* Thorell from American Fork Canyon, Utah, July 22, presumably in the Stockholm Museum. Male cotypes of *Misumena spinosa* Keyserling from Georgia in the Museum d'Histoire Naturelle, Paris (Simon collection). Female cotypes of *Misumena georgiana* Keyserling from Georgia in the Museum d'Histoire Naturelle, Paris (Simon collection). Immature type of *Misumena alabamensis* Keyserling from Selma, Alabama, in the United States National Museum (Marx collection). Female type of *Misumena diegoi* Keyserling from San Diego, California, presumably in the United States National Museum (Marx collection). Female type of *Misumena californica* Banks from Los Angeles, California, in the Museum of Comparative Zoölogy (Banks collection).

Distribution.—United States in general, relatively rare in the northeastern part. British Columbia. Mexico. Central America. West Indies. The following records are for the most part new.

Records.—Massachusetts: Charlestown (J. H. Emerton). New York: Ithaca (Banks, 1892). Virginia: Falls Church, male, female (Banks). Radford, July 6, 1934, males and females (Gertsch). North Carolina: Reidville, female (Chamberlin). Raleigh, August, 1912, male. Georgia: Fairfax, male. Billy's Island, Okefenokee Swamp, July, 1912, two males (Crosby). Fargo to Billy's Island, Okefenokee Swamp, March 28, 1912, female (Crosby). Mixons Hammock, Okefenokee Swamp, June 16, 1912, male (Crosby). Atlanta, May, 1899, males and females (J. H. Emerton). Alabama: Mobile, Aug. 1, Aug. 4, 1930, males and females (Creighton). Salina, male and female (Chamberlin). Cowarts, Aug. 1–3, 1916 (Watson). Thomasville, July 22–26, 1916, male (Watson). Pickett Springs, Montgomery, Aug. 5–6, 1916, male, females (Watson). Louisiana: Females (N. B. Gilbeau). Florida: Gainesville, March 1, 1925, male. Idem, April 21, 1933, male. Idem, March 31, 1933, male (H. K. Wal-

lace). Orlando, Oct. 15, 1926, male (McBride). Tampa, July 7, 1927, males (Stowe). Rock Bluff, April 4, 1927, male, female. Micanopy, March 6, 1927, male (Barrows). Sanford, September, 1901, male (Stone). Orlando, Aug. 28, 1924, females. Palm Beach, April, 1923, female (F. C. Fletcher). Dunedin, Dec. 15–Jan. 8, 1925 (W. S. Blatchley). Pensacola, males, females. St. Augustine, males, females. Altoona, males, females (Chamberlin). Appalachicola, male and female. Umatilla, March 12, 1933, male (H. K. Wallace). Eustis, females. St. Petersburg, April 8, 1933, males, females (H. K. Wallace). Tribby, Pasco Co., Sept. 16, 1917, male and female (Hebard). MISSISSIPPI: Ocean Springs, July 13, 1930, female (Dietrich). Lucedale, May, 1929, male, females (Dietrich). Pascagoula, Aug. 2, 1930, males. MINNESOTA: Minneapolis, July, 1931, two males (Gertsch). INDIANA: Lafayette, Aug. 16, 1920, two females. MICHIGAN: (Baker, 1894). OHIO: Marietta, female (Barrows, 1918). OKLAHOMA: Comanche County, males, females. Camp Boulder, June 12, 1924, males. IOWA: Sioux City, males, females (C. N. Ainslie). KANSAS: Wichita, females (Chamberlin). MISSOURI: Columbia, June, 1905, female (Crosby). Valley Park, Aug. 28, 1929, females (Meiners). TEXAS: Victoria, males, females (P. Hayhurst). Dallas, September, 1907, two females. Houston, July 30, 1932, female (S. Mulaik). San Antonio, males, females. Brazos County, male, females (N. Banks). Rio Grande Valley, numerous records (S. Mulaik and L. Irby Davis). NEBRASKA: (Worley and Pickwell, 1927). COLORADO: Platte Canyon, July 29, 1929, females (Dietz). Denver, April 5, 1928, male (Dietz). Wray, Aug. 17–19, 1919, females (F. E. Lutz). NEW MEXICO: Jemez Springs, May, 1928, females (Dietz). Las Vegas, female (Chamberlin). ARIZONA: Tucson, May 5–June 10, 1930, female (Oslar). Pine Canyon, Santa Catalina Mountains, female (Lutz). UTAH: Richfield, May 25, 1930, males and females (Gertsch). Salt Lake City, June 10, 1930, males, females (Gertsch). Raft River Mountain, Sept. 4, 1932, male, female (Chamberlin and Rowe). NEVADA: Ormsby County, male (Banks). WYOMING: Torrington, August, 1930, male. Cokeville, Aug. 14, 1931, female (Gertsch). CALIFORNIA: Inyo Mountains, July 7, 1911, two females. Cazadero, male. Marin County, male, females (Banks). Orange, Aug. 16, male and female (Cockerell). Palo Alto, females (Banks). San Francisco, female (Banks). Alta Peak, Sequoia National Park, July 20, 1907, female (Bradley). Dalton Creek, Fresno Co., May 1, 1920, female (Dietrich). Laguna Beach, July 1, 1931, male (W. Ivie), near Cartago, Aug. 6, 1931, male (W. Ivie). OREGON: Corvallis, June 28, 1912, female. Idem, May 18, 1898, males and females (Kincaid). Base of Mt. McLoughlin, June 22, 1934, males and females (F. Lawrence). Near Medford, 1934, males and females (F. Lawrence). Lake of the Woods, July 1–4, 1934, male, females (F. Lawrence). Jackson County, males and females (F. Lawrence). Kirby, July 2, 1933, male. McMinnville, males, females (R. Macy and K. Fender). Rogue River Valley, April, 1934, male and females (Lawrence). IDAHO: Montpelier, August, 1930, female (Gertsch). Adelaide, May 27, 1931, males and females (D. E. Fox). Twin Falls, Aug. 2, 1931, males and females (D. E. Fox). WASHINGTON: (Worley, 1932). Yakima, May, 1932, females. Walla Walla, males and females. Seattle, male (Kincaid). Olympia, male, females (Banks). Pullman, male (Banks). Wawawai, May 20, 1910, females (Hyslop).

CANADA.—BRITISH COLUMBIA: Victoria, females. Fairview, June 12, 1919, female (W. B. Anderson).

Misumenops dubius (Keyserling)

Figures 48, 49 and 64

Misumena dubia KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 90, Pl. II, fig. 48.—MARX, 1890, Proc. U. S. Nat. Museum, XII, p. 556.

Misumena ornata CAMBRIDGE, 1893, Biologia Centrali-Americana, Araneidea, I, p. 119, Pl. XV, figs. 11 and 13.

Misumenops dubius CAMBRIDGE, 1900, Biologia Centrali-Americana, Araneidea, II, p. 145, Pl. X, fig. 10.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 411.—GERTSCH, 1933, American Mus. Novitates, No. 636, p. 15.

Runcinia californica BANKS, 1900, Canadian

Entomologist, XXXII, p. 99; 1904, Proc. California Acad. Sci., (3d Ser.) III, p. 352; 1910, Bull. U. S. Nat. Mus., LXXII, p. 49.

Misumenoides californicus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 409.

FEMALE.—Total length, 6.40 mm.

Coloration extremely variable, very rarely as in the female of *celer*. Carapace with two broad dark brown longitudinal bands that include the clypeus, the interval white to light brown, enclosing a creamy white X-shaped maculation. Sides with a submarginal light band and a narrow marginal brown seam. Eye tubercles white. Carapace more rarely completely lacking paler bands, uniform dark brown or red. Sternum, mouth parts and coxae yellow, usually more or less suffused with red. First two legs rarely pale yellow, more often uniform light to dark brown, or bright red, or occasionally with these colors broken to form irregular bands and spots. Posterior legs unmarked yellow or white. Integument of the abdomen white to gray, the dorsum with red basal side bands and two dorsal red or black bands in the caudal half, not uncommonly uniform bright pink or red above and below.

	Length	Width
CARAPACE	2.60 mm.	2.60 mm.
FRONT		1.53
STERNUM	1.20	1.13
LABIUM	0.56	0.43
MAXILLA	0.80	0.33
ABDOMEN	4.00	3.86

Structure close to *celer*. First row of eyes narrower than the second (13/15), recurved, the medians separated by two diameters (13/27), nearer the laterals (13/23). Second row of eyes recurved, the medians separated by four diameters (10/40), about as far from the laterals (10/42). Median ocular quadrangle broader than long (60/52), narrowed in front in the same ratio. Ratio of the eyes: ALE:AME:PLE:PME = 16:13:12:10. Clypeus more than twice as high as the diameter of an anterior median eye (13/30).

Leg spined as in *celer*. First leg: femur, 3.56 mm., patella, 1.56 mm., tibia, 3.00 mm., metatarsus, 3.00 mm. and tarsus, 1.20 mm. long.

Vulva as illustrated in Fig. 64, essentially as in *celer* but the anterior hood of a slightly different form.

MALE.—Total length, 3.00 mm.

Coloration as in *celer* but the dorsal dark stripes on the carapace are always sharply defined.

	Length	Width
CARAPACE	1.36 mm.	1.50 mm.
FRONT		0.70
STERNUM	0.73	0.73
LABIUM	0.26	0.23
MAXILLA	0.36	0.20
ABDOMEN	1.46	1.23

Structure in all respects very close to *celer*. Eyes of the first row narrower than the second (67/82), recurved, the medians separated by more than a diameter (8/13), nearer the laterals (8/10). Second row of eyes recurved, the medians separated by more than two diameters (7/18), about three diameters from the laterals (7/22). Median ocular quadrangle broader than long (32/29), narrowed in front (32/28). Ratio of the eyes: ALE:AME:PLE:PME = 10:8:8:7. Clypeus nearly twice as high as the diameter of an anterior median eye (8/15).

Legs spined as in *celer*. First leg: femur, 2.80 mm., patella, 0.90 mm., tibia, 2.20 mm., metatarsus, 2.20 mm. and tarsus, 0.93 mm. long.

Tibia of the palpus with a very small ventral spur and a much larger retrolateral apophysis. Tegulum about as broad as long, the embolus a fine tube forming a small spiral which lies against the margin of the cymbium near the distal end, the spiral clearly visible from below. Palpus as illustrated in Figs. 48 and 49.

TYPE LOCALITY.—Female type of *Misumena dubia* Keyserling from Mexico in the British Museum (Keyserling collection). Female type of *Misumena ornata* O. P. Cambridge from Mexico in the British Museum (Godman and Salvin collection). Female type of *Runcinia californica* Banks from Los Angeles, California, in the Museum of Comparative Zoölogy (Banks collection).

DISTRIBUTION.—Southwestern United States. Mexico.

RECORDS.—OKLAHOMA: Comanche County, females (Hubbell). Harmon County, females (Hubbell). Texas County female (Hubbell). TEXAS: Victoria, October, 1904, female. Victoria, August, 1905, male, females (J. D. Mitchell). Victoria, January–June, 1905, males and females. Brownsville, July 31, 1912, male, females (Hebard). Rio Grande Valley, numerous records from various stations (S. Mulaik and L. Irby Davis). LOUISIANA: Two males (N. B. Gilbeau). MISSISSIPPI: Lucedale, September, 1930, female (Dietrich). KANSAS: Manhattan, June–October, 1923, female (R. C. Smith). CALIFORNIA: Chiquito Creek, Madeira Co., Aug. 20, male (Dietrich). ARIZONA: Phantom Ranch, Grand Canyon, July 26, 1934, female (F. E. Lutz).

Misumenops californicus (Banks)

Figures 52, 53 and 67

Misumena californica BANKS, 1896, Journ.

New York Ent. Soc., IV, p. 91. (Not *Misumenops (Runcinia) californicus* Banks, 1900.)

Misumenops californicus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 410.

Misumessus pallidulus BANKS, 1904, Journ. New York Ent. Soc., XII, p. 112; 1904, Proc. California Acad. Sci., (3rd Ser.) III, p. 352; 1910, Bull. U. S. Nat. Mus., LXXII, p. 50.

Misumenops pallidulus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 413.

FEMALE.—Total length, 6.00 mm.

Coloration as in *celer*.

	Length	Width
CARAPACE	2.25 mm.	2.40 mm.
FRONT		1.30
STERNUM	1.20	1.15
LABIUM	0.50	0.40
MAXILLA	0.65	0.34
ABDOMEN	3.75	3.75

Structure and spination as in *celer*. Eyes of the first row recurved, the medians separated by two diameters (14/30), nearer the laterals (14/25). Second row of eyes recurved, the medians separated by more than two diameters (13/36), farther from the laterals (13/36). Median ocular quadrangle broader than long (60/55), narrowed in front in the same ratio. Clypeus equal in height to about two diameters of an anterior median eye (14/32).

Vulva as illustrated in Fig. 67, closely related to that of *celer*.

First leg: femur, 3.00 mm., patella, 1.30 mm., tibia, 2.30 mm., metatarsus, 2.15 mm. and tarsus, 1.00 mm. long. Leg spines as in *celer*.

MALE.—Total length, 3.70 mm.

Coloration essentially as in *celer*.

	Length	Width
CARAPACE	1.65 mm.	1.70 mm.
FRONT		0.90
STERNUM	0.87	0.87
LABIUM	0.34	0.27
MAXILLA	0.43	0.24
ABDOMEN	2.20	1.60

Structure and spination as in *celer*. Eyes of the first row recurved, the medians separated by scarcely two diameters (13/22), nearer the laterals (13/17). Second row of eyes recurved, the medians separated by about two diameters (12/27), farther from the laterals (12/36). Median ocular quadrangle broader than long (50/48), narrowed in front (50/46). Clypeus equal in height to about two diameters of an anterior median eye (13/24).

Leg spines as in *celer*. First leg: femur, 3.10 mm., patella, 1.15 mm., tibia, 2.55 mm., metatarsus, 2.55 mm. and tarsus, 1.20 mm. long.

Palpus as in *Misumenops celer* (Hentz) but the retrolateral tibial apophysis much longer. Embolic division originating near the base on the prolateral side, the truncuc a fine tube ending in a spiral on the retrolateral cymbial margin, the spiral much larger than in *celer*. See Figs. 52 and 53.

TYPE LOCALITY.—Female cotypes of *Misumena californica* Banks from Los Angeles, California, in the Museum of Comparative Zoölogy. Female cotypes of *Misumessus pallidulus* Banks from San Francisco, California, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Western United States.

RECORDS.—TEXAS: Austin, male. Seven miles east of Edinburg, March 20, 1934, two males (S. Mulaik). COLORADO: Grand Junction, July 11, 1919, male (Lutz). ARIZONA Scottsdale, two males (Britcher). UTAH: Beaver Dam Wash, April 22, 1930, male (Rowe). Grantsville, Aug. 4, 1930, male (Ivie). Zion National Park, July 4, 1931, males and females (Gertsch). St. George, July 6, 1931, males and females (Gertsch). CALIFORNIA: Berkeley, September, 1919, female (Dietrich). Redwood Corralitos, Santa Cruz Mountains, May 13, 1907, male (Bradley). Felton, Santa Cruz Mountains, May 22, 1907, males and females (Bradley). Sonoma County, October–November, 1927, male (Dietz); June, 1928, male and females (Dietz). Mt. Palomar, July 25, 1931, male (Ivie). Laguna Beach, July 24, 1931, males and females (Ivie). Jasper Ridge, May, 1922, male, female (J. C. Chamberlin). Los Angeles, males and females. MEXICO: La Buena Ventura, Vera Cruz, July, 1909, males (Petrunkevitch).

Misumenops decorus (Banks)

Figures 54 and 55

Misumena decora BANKS, 1898, Proc. California Acad. Sci., (3rd Ser.) I, p. 263, Pl. XVI, fig. 13.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 407.

Misumenops volutus F. CAMBRIDGE, 1900, Biol. Centrali-Americana, Araneidea, II, p. 142, Pl. X, fig. 3.—GERTSCH, 1933, American Mus. Novitates, No. 636, p. 15.

MALE.—Total length, 3.66 mm.

Coloration as in *celer* and *asperatus*.

	Length	Width
CARAPACE	1.66 mm.	1.75 mm.
FRONT		0.80
STERNUM	0.86	0.83
LABIUM	0.33	0.23
MAXILLA	0.46	0.26
ABDOMEN	2.20	1.33

Structure essentially as in *asperatus*. First leg: femur, 4.00 mm., patella, 1.16 mm., tibia, 3.26 mm., metatarsus, 3.23 mm. and tarsus, 1.40 mm. long.

Palpus as in *asperatus* but differing in the following particulars: Retrolateral apophysis of the tibia broader and somewhat shorter. Embolus less robust, the pars pendula correspondingly narrower. Cymbium more deeply excavated on the retrolateral surface. See Figs. 54 and 55.

TYPE LOCALITY.—Cotypes of *Misumena decora* Banks from Mexico, all destroyed except one male and one female in the Museum of Comparative Zoölogy. Male type of *Misumenops volutus* F. Cambridge from Guatemala in the British Museum (Godman and Salvin collection).

DISTRIBUTION.—Guatemala. Mexico.

RECORDS.—MEXICO: Lake Chapala, Jalisco, male (L. H. Weld). La Buena Ventura, Vera Cruz, July, 1908, three males (Petrunkevitch). Pedregales, D. F., August, 1909, two males (Petrunkevitch).

It now seems quite improbable that the male recorded from Colorado by Gertsch actually came from within the limits of the united States.

Misumenops asperatus (Hentz)

Figures 34, 35, 56, 57, 69, 72 and 73

Thomisus asperatus HENTZ, 1847, Journ. Boston Soc. Nat. Hist., V, p. 447, Pl. XXIII, fig. 7. (Reprint: Spiders U. S., p. 79, Pl. x, fig. 7.)—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 557.

Misumena asperata EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 370, Pl. XXX, fig. 3. (Synonymizes *georgiana* and *foliata*.)—EMERTON, 1894, idem, IX, p. 418.—SCHEFFER, 1905, Kansas Univ. Sci. Bull., III, p. 118.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 62.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 335.

Misumessus asperatus BANKS, 1906, 31st Ann. Rept. Dept. Geol. Nat. Res., Indiana, p. 742; 1910, Bull. U. S. Nat. Mus., LXXII, p. 50; 1911, Proc. Acad. Nat. Sci. Philadelphia, p. 451.—BARROWS, 1918, Ohio Journal Science, XVIII, p. 311.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Surv., IV, p. 27.

Misumenops asperatus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 410.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 62.—CHICKERING, 1931, Papers Mich. Acad. Sci., XV, p. 353.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XXXXI, p. 428.

Misumena rosea KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 82, Pl. II, fig. 43.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 556.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57, Pl. III, fig. 15; 1900, idem, p. 537; 1904, idem, p. 132.

Misumena foliata BANKS, 1892, Proc. Acad, Nat. Sci. Philadelphia, p. 57, Pl. III, fig. 17. Pl. II, fig. 37.

Misumena placida BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 58.

Misumenops asperatus utanus GERTSCH, 1933, American Museum Novitates, No. 636, p. 15, Fig. 14.

FEMALE.—Total length, 5.50 mm.

Carapace variable, white to bright lemon yellow, often with a greenish tinge, the eye area white, medially with an X-shaped white maculation, and not uncommonly with faint red side bands. Sternum, mouth parts and legs concolorous with the carapace, the latter simetimes sparsely flecked with red spots. Abdomen gray to yellow, with darker retriculations, the sides with or without a red band.

	Length	Width
CARAPACE	2.00 mm.	2.10 mm.
FRONT		1.13
STERNUM	1.00	0.86
LABIUM	0.43	0.33
MAXILLA	0.56	0.26
ABDOMEN	4.00	4.33

Structure essentially as in *celer*. Eyes of the first row recurved, the medians separated by two diameters (10/20), nearer the laterals (10/15). Second row of eyes recurved, the medians separated by about three diameters (8.5/24), farther from the laterals (8.5/32). Median ocular quadrangle broader than long (42/41), slightly narrowed in front (42/40). Ratio of the eyes: ALE:AME:PLE:PME = 13:10:10:8.5. Clypeus equal in height to two diameters of an anterior median eye (10/22).

Legs strongly spined as in *celer* (see Figs. 72 and 73). First leg: femur, 2.43 mm., patella, 1.13 mm., tibia, 2.00 mm., metatarsus, 1.80 mm. and tarsus, 0.93 mm. long.

Vulva as in Fig. 69, comparatively much larger and more deeply excavated than in *celer*.

MALE.—Total length, 3.30 mm.

Carapace varying from dull to bright yellow, with dorsal brown bands and a median lighter longitudinal stripe, the sides yellow, with a narrow red or black seam. Eye tubercles and most of the area creamy white. Legs concolorous with the carapace, bright to dull yellow, the last two pairs sparsely pointed in red and unbanded, the first two pairs with narrow red or black rings distally on the tibiae, metatarsi and tarsi, the femora of these legs rather thickly and evenly flecked with red. Abdomen gray to white, with or without basal red markings but invariably with two distal serrate red or black bands. Under side of the whole animal light, immaculate, sparsely punctate or rarely with darker markings on the middle of the abdomen.

	Length	Width
Carapace	1.66 mm.	1.73 mm.
Front		0.73
Sternum	0.80	0.80
Labium	0.33	0.28
Maxilla	0.46	0.23
Abdomen	2.00	1.46

Structure essentially as in *celer*. Eyes of the first row recurved, the medians separated by more than their diameter (10/15), nearer the laterals (10/13). Second row of eyes recurved, the medians separated by more than two diameters (8.5/20), farther from the laterals (8.5/25). Median ocular quadrangle as broad as long, slightly narrowed in front (37/35). Ratio of the eyes: ALE:AME:PLE:PME = 14:10:10:8.5. Clypeus equal in height to more than a diameter of an anterior median eye (10/15).

Legs spined as in *celer*. First leg: femur, 2.50 mm., patella, 1.00 mm., tibia, 2.10 mm., metatarsus, 1.93 mm. and tarsus, 0.93 mm. long.

Palpus much more robust than in *Misumenops celer* (Hentz) and related species, the bulbal parts much more convex. Tibia with a very small ventral spur and a large retrolateral apophysis. Tegulum strongly convex, about as long as broad, the embolic portion originating near the distal end on the prolateral side. Embolus very broad, the truncus a black tube, supported by a broad pars pendula for most of the length, the terminal part spiraliform. Cymbium excavated deeply on the retrolateral side to accommodate the spiral. See Figs. 56 and 57.

The variety *utanus* differs only in its much larger size.

Type Locality.—Female type of *Thomisus asperatus* Hentz from Alabama, not extant. Male and female cotypes of *Misumena rosea* Keyserling from Georgia, Baltimore, Maryland, and Peoria, Illinois, presumably in the Koch and Simon collections. Female and male cotypes of *Misumena foliata* Banks and juvenile female type of *Misumena placida* Banks from the Upper Cayuga Lake Basin, in the Museum of Comparative Zoölogy. Male holotype and female allotype of *Misumenops asperatus utanus* Gertsch from Salt Lake City, Utah, in The American Museum of Natural History.

Distribution.—United States and Canada. The species become increasingly rarer toward the south and at the present time there seem to be no authentic records from Mexico or the West Indies.

Records.—The following records are for the most part new. New Hampshire: Shelburne, June, 1914, male (W. Deane). Hollis, Aug. 4, 1911, male. Gilmanton, June 12, 1925, males and females (Bryant). South Lyndeboro, June 5–11, 1923, male, females (Bryant). Chocorua, June 1–3, 1912, males and females (Bryant). Massachusetts: Shirley, June 24, 1917, males (Bryant). Waltham, June 2, 1890, "on sorrel flowers of same color," female (Emerton). Sharon, Aug. 9, 1902, female (Bryant). Allston, Sept. 29, 1899, female (Bryant). Holliston, June, 1924, male, females (Emerton). Nantucket, June, male (Fall). Newton, May 28, 1904, male and female (Bryant). Peabody, June 14, 1874, males (Emerton). Petersham, May 27–31, male (Bryant). Rhode Island: Portsmouth, June 7, 1922, male and females (Bryant). Connecticut: New Haven, September, 1902, female (Bryant). Idem, Oct. 1, 1902, males (Emerton). Danbury, July 19, 1912, female (Emerton). Norwalk, June 3, July 12 and Aug. 20, males and females (Gertsch). New York: Cold Spring Harbor, Long Island, July 3, 1907, male (Bryant). Sea Cliff, Long Island, male (Banks). Rock City, June 5, 1915, female. Peru, June 10, 1916, female. Duttonville, June 8, 1910, male. Cornwall, May 30, 1913, females (Emerton). Pine Island, Sept. 8, 1910, females. New Jersey: Westville, male (Banks). Newton, male (Emerton). Midwood, male and female. Ramsey, May and June, males and females (Gertsch). Pennsylvania: Palmerton, May 22, 1928, males (Dietz). Virginia: Fairfax, females (Chamberlin). Maryland: near Meyersville, May 2, 1916, male (Hyslop). Beltsville, May, 1888, male (Fox). Montgomery County, Sept. 17, 1925, females (Dietz). District of Columbia: (Marx, 1892). Kentucky: Quicksand, August, 1925, female (Mrs. Funkhouser). North Carolina: Raleigh, female (Sherman). Canton, males and females (Banks). Black Mountains, females (Banks). Tennessee: Knoxville, female (Cartwright). Georgia: Clayton, May 18, female (Bradley). Alabama: Morgan, females (Chamberlin). Orange Beach, Aug. 21, 1930, females (Loding). Florida: Umatilla, March 11, 1933, male (Wallace). Orlando, female (Chamberlin). (Banks,

1904). MINNESOTA: Minneapolis, May, 1931, males, females (Gertsch). IOWA: Sioux City, males and females (Ainslie). ILLINOIS: Peoria, females (Banks). MICHIGAN: Douglas Lake, July, 1922, female (Matheson). Albion, June 6, 1932, males (Chickering). INDIANA: (Banks, 1906). (Elliott, 1932). OHIO: Gambier, June 13–24, 1905, males (Nelson). ARKANSAS: Hope, Sept. 11, 1926, females (Dietz). MISSISSIPPI: Lucedale, May, 1931, male (Dietrich). LOUISIANA: Chastine, May 3, 1915, female (Schmidt). KANSAS: Manhattan, females (Banks). Winfield, female. MISSOURI: Columbia, May 2, male. St. Louis, June 21, 1925, female. OKLAHOMA: (Banks, 1932). NEBRASKA: (Worley and Pickwell, 1927). COLORADO: Platte Canyon, September–October, 1906, male (Oslar). Colorado Springs, June 10–15, 1906, females (Oslar). Morrison, males, female (Oslar). Fort Collins, immatures (Banks). Canyon City, males and females (Banks). Denver, April 5, 1928, male (Dietz). UTAH: Salt Lake City, males and females (Gertsch). Richfield, May 25, 1930, males and females (Gertsch). Zion National Park, males and females. NEW MEXICO: Albuquerque, males. TEXAS: Brazos, April 5, 1935, female (Robinson). CALIFORNIA: Claremont, male (Chamberlin). IDAHO: Montpelier, females (Gertsch). CANADA.—ALBERTA: Medicine Hat, September, 1930, females (Carr). BRITISH COLUMBIA: Vernon, April 25, 1919, female (Anderson). QUEBEC: Aylmer, June 3, 1915, male (Beaulne). Fort Coulonge, Aug. 10, females (Beaulne). ONTARIO: Jordan, Aug. 24, 1915, female (Ross). MANITOBA: Males and females (Banks).

Misumenops devius, new species

Figures 58 and 59

FEMALE.—Total length, 6.15 mm.

Coloration in complete agreement with unmarked females of *asperatus*.

	Length	Width
CARAPACE	2.85 mm.	2.75 mm.
FRONT		1.70
STERNUM	1.40	1.25
LABIUM	0.60	0.45
MAXILLA	0.80	0.40
ABDOMEN	3.50	3.00

Structure essentially as in *asperatus*. Eyes of the first row recurved, the medians separated by nearly three diameters (15/40), nearer the laterals (15/30). Second row of eyes recurved, the medians separated by more than three diameters (14/49), farther from the laterals (14/55). Median ocular quadrangle slightly broader than long (74/70), narrowed in front in the same ratio. Ratio of the eyes: ALE:AME:PLE:PME = 22:15:15:14. Clypeus equal in height to about three diameters of an anterior median eye (15/44). Spination of the carapace as usual in the genus.

Legs spined as in *asperatus*. First leg: femur, 3.65 mm., patella, 1.50 mm., tibia, 2.90 mm., metatarsus, 2.90 mm. and tarsus, 1.15 mm. long.

Vulva differing in no important respects from that of *californicus*.

MALE.—Total length, 3.70 mm.

Color pattern in rather close agreement with *asperatus* but the longitudinal brown bands of the carapace broader, including more of the sides and leaving a narrow lateral broken pale stripe above the black marginal seam. Sternum lightly punctate, the femora heavily punctate in black. Dark annulae on the legs as in *asperatus* but the terminal one on the tibiae limited to the distal third of the joint. Dorsum of the abdomen heavily marked with red and black, the venter with a median dark stripe.

	Length	Width
CARAPACE	1.57 mm.	1.60 mm.
FRONT		0.80
STERNUM	0.80	0.80
LABIUM	0.30	0.27
MAXILLA	0.40	0.23
ABDOMEN	2.25	1.65

Structure in close agreement with *Misumenops asperatus* (Hentz). Eyes of the first row recurved, the medians separated by more than a diameter (15/20), nearer the laterals (15/16). Second row of eyes recurved, the medians separated by scarcely two diameters (14/24), farther from the laterals (14/33). Median ocular quadrangle slightly longer than broad (51/49), narrowed in front (49/44). Ratio of the eyes: ALE:AME:PLE:PME = 20:15:15:14. Clypeus equal in height to one and one-half times the diameter of an anterior median eye (15/22).

Spination of the legs as in *asperatus*. First leg: femur, 3.15 mm., patella, 1.10 mm., tibia, 2.65 mm., metatarsus, 2.60 mm. and tarsus, 1.50 mm. long.

Palpus as illustrated in Figs. 58 and 59, essentially as in *asperatus* but with a very heavy black band which forms a small spiral on the retrolateral surface.

TYPE LOCALITY.—Male holotype and female allotype from Pomona, California, July, 1934, collected by B. J. Hall, in The American Museum of Natural History.

Misumenops coloradensis Gertsch

Figures 60, 61 and 66

Misumenops coloradensis GERTSCH, 1933, American Museum Novitates, No. 636, p. 17, Figs. 15 and 46.—GERTSCH, 1935, American Museum Novitates, No. 792, p. 26.

Coloration in both sexes in essential agreement with *Misumenops asperatus* (Hentz).

FEMALE.—Total length, 4.66 mm.

	Length	Width
CARAPACE	1.83 mm.	1.90 mm.
FRONT		1.06
STERNUM	0.90	0.86
LABIUM	0.43	0.33
MAXILLA	0.60	0.28
ABDOMEN	3.35	3.35

Structure essentially as in *asperatus*. Eyes of the first row recurved, the medians separated by about two diameters (10/19), nearer the laterals (10/16). Second row of eyes recurved, the medians separated by three diameters (9/27), farther from the laterals (9/30). Median ocular quadrangle broader than long (43/40), narrowed in front (43/37). Ratio of the eyes: ALE: AME:PLE:PME = 12:10:10:9. Clypeus equal in height to twice the diameter of an anterior median eye (10/22).

Spination of the legs as in *asperatus*. First leg: femur, 2.40 mm., patella, 1.00 mm., tibia, 1.76 mm., metatarsus, 1.73 mm. and tarsus, 0.93 mm. long.

Vulva as illustrated in Fig. 66.

MALE.—Total length, 3.00 mm.

	Length	Width
CARAPACE	1.43 mm.	1.43 mm.
FRONT		0.73
STERNUM	0.66	0.66
LABIUM	0.30	0.33
MAXILLA	0.36	0.20
ABDOMEN	1.83	1.26

Spination of the carapace and general structure in close agreement with *asperatus*. Eyes of the first row recurved, the medians separated by less than two diameters (9/14), nearer the laterals (9/11). Second row of eyes recurved, the medians separated by more than two diameters (7.5/18), farther from the laterals (7.5/22). Median ocular quadrangle as long as broad (33/33), narrowed in front (33/30). Ratio of the eyes: ALE:AME:PLE:PME = 11.5:9:9:7.5. Clypeus equal in height to more than the diameter of an anterior median eye (9/14).

Legs relatively longer than in *asperatus* but with similar spination. First leg: femur, 2.73 mm., patella, 0.93 mm., tibia, 2.23 mm., metatarsus, 2.23 mm. and tarsus, 1.06 mm. long.

Palpus of the same general type as in *asperatus* but differing in the following respects: Retrolateral tibial apophysis heavier, deeply notched as viewed from the ventral aspect, the dorsal branch much longer. Embolus spiraled on the retrolateral margin of the cymbium but with an addition spiral on the ventral aspect. Palpus as illustrated in Fig. 60 and 61.

TYPE LOCALITY.—Male holotype and female allotype from Colorado in the collection of The American Museum of Natural History.

DISTRIBUTION.—Southwestern United States. Northern Mexico.

RECORDS.—TEXAS: Kent, Culbertson County, Sept. 17, 1912, female (Hebard). NEW MEXICO: Jemez Springs, Aug. 12, 1928, males, female (Dietz). ARIZONA: (Gertsch, 1935). Fort Whipple, females (Palmer). Kaibab Forest, July 11, 1931, two females (Gertsch). Littlefield, May 3, 1930, male (D. E. Fox). Bear Wallow, Santa Catalina Mountains, females (Lutz). UTAH: Pine Valley, June 12, 1934, males and females (Ivie). Salt Lake City, July, 1931, male (Gertsch). COLORADO: Platte Canyon, September–October, 1906, males (Oslar). Boulder, July 8, 1908, two females (Lutz). Boulder Canyon, July 5, 1908, two females (Lutz). Regnier, June 1, 1919, female (Lutz).

MEXICO: Saltillo, July 3, 1936, female (Davis). Five miles west of Saltillo, July 5, 1936, male (Davis).

Misumenops importunus (Keyserling)

Misumena importuna KEYSERLING, 1881, Verh. k. k. Zool.-Bot. Gesell., Wien, XXXI, pp. 307–308, Pl. XI, fig. 25.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 556.—BANKS, 1904, Proc. California Acad. Sci., (3rd Ser.) III, p. 352.—COOLIDGE, 1907, Canadian Entomologist, XXXIX, p. 376.—BANKS, 1910, Bull. U. S. Nat. Mus., LXXII, p. 50.

Misumenops importunus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 412.

TYPE LOCALITY.—Female type from San Mateo, California, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—California.

RECORDS.—CALIFORNIA: San Mateo, female type (Keyserling, 1881). Marin County (Vaslit). Mill Valley, Marin County (Fuchs) (Banks, 1904). Santa Clara County (Baker) (Banks, 1904). Santa Clara Valley (Coolidge, 1907).

The proper position of this name is uncertain because of the difficulty of associating the females of the genus with the males.

Misumenops munieri (Coolidge)

Misumessus munieri COOLIDGE, 1909, Ent. News, Philadelphia, XX, p. 243.—BANKS, 1910, Bull. U. S. Nat. Mus., LXII, p. 50.

Misumenops munieri PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 412.

TYPE LOCALITY.—Female type from Muir Woods, Marin County, California.

This species will probably be found to be a synonym of one of the better known forms. The description would seem to ally it with *Diaea pictilis* (Banks) but the differences in the spination of the legs would seem to preclude the possibility of identity.

DIAEA THORELL

Diaea THORELL, 1870, On European Spiders, p. 184.

Misumena BANKS, 1896, Journ. N. Y. Ent. Soc., IV, p. 91.

Misumessus BANKS, 1904, Proc. California Acad. Sci., (3) III, p. 352 (*pictilis*).

Misumenops PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 413 (*pictilis*).

Parasynaema GERTSCH, 1934, American Museum Novitates, No. 707, p. 15 (*pictilis*).

Carapace about as long as broad, moderately convex above, armed with setaceous spines. Eyes of the first row recurved, subequidistantly spaced, the medians smaller. Eyes of the second row recurved, equidistant, the medians smaller. Median ocular quadrangle slightly longer than broad, weakly narrowed in front. Lateral eyes on large tubercles, the bases of which are contiguous. Legs armed with numerous strong spines on all surfaces of the joints. Tarsal claws with more than six teeth. Abdomen broadly rounded behind.

GENOTYPE.—*Diaea dorsata* (Fabricius).

I have placed two species in *Diaea* after a study of the European genotype. While there are evident differences in structure that may ultimately set them apart from this genus, the similarities are even more striking. Until representatives of other related genera are available for comparison, it seems best to leave them here.

First and second metatarsi and tibiae with six or seven pairs of ventral spines.....
.....*D. pictilis* (Banks).

First and second metatarsi and tibiae with three pairs of ventral spines. Abdomen with six small black spots on the dorsum.....
.....*D. seminola*, new species.

Diaea pictilis (Banks)

Figures 70, 74, 75 and 91

Misumena pictilis BANKS, 1896, Journ. N. Y. Ent. Soc., IV, p. 91.—COOLIDGE, 1907, Canadian Entomologist, XXXIX, p. 326.

Misumessus pictilis BANKS, 1904, Proc. California Acad. Sci., (3) III, p. 352; 1910, Bull. U. S. National Museum, LXXII, p. 50.

Misumenops pictilis PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 413.

Parasynaema pictilis GERTSCH, 1934, American Museum Novitates, No. 707, p. 15.

A male and female from California are 5.00 mm. and 6.00 mm. in total length, respectively.

Color in both sexes equivalent. Carapace white to light yellowish brown, immaculate, the eye tubercles yellow to creamy white. Sternum, mouth parts and legs concolorous with the carapace, without markings. Dorsum of the abdomen with a silvery dentate median band, on each side of which is a dull red longitudinal side stripe that is broken into spots in the caudal half. Sides of the abdomen and the venter mainly creamy white.

A female from Los Angeles, California, was used for the following measurements.

	Length	Width
CARAPACE	2.62 mm.	2.62 mm.
FRONT	0.67	1.50
STERNUM	1.10	1.15
LABIUM	0.60	0.47
ENDITE	0.82	0.37
ABDOMEN	4.00	3.00

Integument of the carapace smooth, clothed with strong setaceous spines. Spinal armature as follows: clypeal margin with seven; two between the eyes of the median quadrangle; three on the midline behind the eyes; two laterad of the posterior lateral eye; four on each side that margin the posterior declivity. Carapace as long as broad, convex, highest between the third coxae, the front a little more than half as broad as the greatest width of the carapace. Sutures obsolete. Abdomen armed with rows of long spines.

Eyes of the first row narrower than the second (51/60), recurved, the medians separated by two diameters (11/22), slightly nearer the laterals (11/19). Second row of eyes recurved, the medians separated by more than two diameters (11/28), as far from the laterals (11/28). Median ocular quadrangle slightly longer than broad (51/50), narrowed in front (50/44), the eyes equal. Ratio of the eyes: ALE : AME : PLE : PME = 18 : 11 : 14 : 11. Clypeus nearly four times as high as the diameter of an anterior median eye (11/43).

Vulva as illustrated in Fig. 91.

Leg formula, 1243, the legs sparsely clothed with inconspicuous short hairs and strong spines as follows. First leg: femur, dorsal, 1, median; prolateral, 15. Patella, 2 weak dorsals. Tibia, dorsal, 6; prolateral, 3; retrolateral, 3; ventral, 7 pairs. Metatarsus, prolateral, 4; retrolateral, 4; ventral, 8 pairs. Second legs as the first but lacking the prolaterals on the femora. (See Fig. 70.)

	I	II
Femur	3.25 mm.	3.12 mm.
Patella	1.35	1.35
Tibia	2.87	2.75
Metatarsus	2.65	2.55
Tarsus	1.15	1.07
Total	11.27	10.84

	III	IV
Femur	1.80 mm.	2.10 mm.
Patella	0.87	0.87
Tibia	1.52	1.50
Metatarsus	1.12	1.17
Tarsus	0.72	0.72
Total	6.03	6.36

Male.—From Napa County, California.

Carapace, 2.25 mm. long, 2.12 mm. wide. Total length, 5.00 mm. Structure essentially as in the female.

Tibia of male palpus longer than broad, armed with a short ventral apophysis and a longer retrolateral spur that is laterally notched, leaving a sharp black terminal spur. Cymbium longer than broad, the tutaculum virtually obsolete. Truncus of embolus broadly encircling the bulb, the end hooked. For details of palpus see Figs. 74 and 75.

Type Locality.—Female type from Palo Alto, California, in the Museum of Comparative Zoölogy (Banks collection).

Distribution.—California.

Records.—California: Santa Clara Valley (Coolidge, 1907). San Mateo, immature female (Chamberlin). Los Angeles, November–December, female (Grant). Mt. St. Helena, Napa County, June 9, 1918, male, Ben Lomond, March, 1934, male (W. Ivie).

Diaea seminola, new species

Figures 76 and 77

Total length of male holotype, 2.50 mm.

Specimen in very poor condition and showing no color pattern on the carapace except the black eye tubercles. Legs pale yellow. Abdomen pale yellow, with six black spots as figured.

	Length	Width
Carapace	1.30 mm.	1.30 mm.
Front	0.31	0.62
Sternum	0.65	0.65
Labium	0.25	0.20
Endite	0.35	0.20
Abdomen	1.32	0.82

First row of eyes narrower than the second (87/107), recurved, the medians separated by one and one-half times their diameter, about a diameter from the lateral eyes. Second row of eyes more strongly recurved, the medians two and one-half diameters apart, farther from the laterals (33/23). Ratio of the eyes: ALE:AME:PLE:PME = 15:11:13:9. Median ocular quadrangle very slightly broader than long (8/7), equally wide in front as behind. Clypeus one and one-half times as high as the diameter of an anterior median eye. Clypeus with seven spines, six of them marginal and one median that is slightly above the margin.

Femur I, 1.42 mm. long; II, 2.05 mm. long. First metatarsus with three pairs of ventral spines. First and second femora with six pairs of dorsal spines.

Tibia of male palpus longer than broad, armed with a slender curved ventral apophysis and a broader prolateral spur that ends in a strong dorsal and a lateral spur best seen from a side view. Cymbium longer than broad, the tutaculum obsolete. Tegulum as broad as long. Embolus originating near the base on the prolateral side, broadly encircling the bulb, hooked at the end. For details of palpus see Figs. 76 and 77.

Type Locality.—Male holotype from Sebastian, Florida, in the collection of the Museum of Comparative Zoölogy.

Synema Simon

Thomisus subgenus *Synema* Simon, 1864, Histoire Naturelle des Araignées, p. 431.

Diaea Thorell, 1869–1870, On European Spiders, p. 184 (part).

Synaema Simon, 1892–1895, Histoire Naturelle des Araignées, I, p. 1036.

Carapace as broad as or broader than long, strongly convex above, the cephalic sutures obsolete, clothed with setaceous spines. Lateral eyes on subequal, separated tubercles. Eyes and front of *Synema globosum* (Fabricius) as illustrated in Figs. 32 and 33. Eyes of the first row moderately recurved, or straight (*parvulum*), equidistantly spaced (*Synema, sens. str.*) or the medians much nearer the laterals (*Parasynema*). Eyes of the second row more strongly recurved, the laterals larger, the eyes subequidistantly spaced or the medians nearer the laterals. Median ocular quadrangle broader than long. Tarsal claws with six to twelve teeth. Bulb of male palpus devoid of apophyses. Rim of the vulva of the female in most cases reduced to a small sclerotized hood in front.

Genotype.—*Synema globosum* (Fabricius).

Synema is in many respects intermediate between *Diaea, Misumenops* and related genera on the one hand and *Ozyptila, Xysticus* and *Coriarachne* on the other. From *Xysticus* the genus can usually be differentiated by the greater number of teeth on the claws of the first tarsi and the more strongly convex carapace. The first row of eyes is usually recurved and the eyes subequidistantly spaced. However, in some species the eyes are arranged essentially as

in *Xysticus*. This is true of the genus *Parasynema* Cambridge, which represents a group probably worthy of no higher position than that of a subgenus.

KEY TO THE SPECIES

1.—Anterior median eyes larger than the posterior medians. Carapace light brown or green in color.....2.
Eyes of the median quadrangle subequal. Carapace dark brown or black in color..3.
2.—Abdomen with a large dark caudal maculation, otherwise pale. Eyes of anterior row nearly straight. Carapace light brown.....*S. parvulum* (Hentz).
Abdomen without a large maculation. Eyes of the anterior row recurved. Carapace and legs green.....*S. virescens* (Banks).
3.—Spines on the clypeal margin very long. Leg spines much longer than the width of the joints. First tibia with prolateral spines.....*S. neomexicana*, new species.
Spines on the clypeal margin short. Leg spines not longer than the width of the joints. First tibia without prolateral spines.....4.
4.—Carapace very strongly convex, glistening black. Dorsum of abdomen in both sexes uniform gray..*S. bicolor* Keyserling.
Carapace less strongly convex, brown, with a pale dorsal stripe. Dorsum of abdomen light brown, the male with a basal white band.....*S. obscurum* Keyserling.

Synema parvulum (Hentz)

Figures 80, 81 and 88

Thomisus parvulus HENTZ, 1847, Journ. Boston Soc. Nat. Hist., V, p. 447, Pl. XXIII, fig. 8; 1875, Spiders U. S. (reprint), p. 80, Pl. X, fig. 8.

Synaema nigromaculatum KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 61–63, Pl. I, fig. 31.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555; 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 179.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 427.

Synaema parvula MARX, 1890, Proc. U. S. National Museum, XII, p. 556.—BANKS, 1899, Proc. Ent. Soc. Washington, IV, p. 189; 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 537; 1906, 31st Annual Rept. Dept. Geol. Indiana, p. 742.—SCHEFFER, 1905, Kansas Univ. Sci. Bull., III, p. 118.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 49.—BARROWS, 1918, Ohio Journal Science, XVIII, p. 312.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 69.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV (1), p. 29.

Synaema parvulum PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 427.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.

The sexes differ little in size, the males averaging 2.50 mm., the females, 2.75 mm. in total length.

Carapace in males and females shiny, yellowish brown, the sides sometimes infuscated and with margins with a narrow black seam. Lateral eye tubercles white or gray. Median eyes often ringed with white. Sternum, coxae and mouth parts immaculate yellow. Integument of the legs light yellow to yellowish brown, the last pair immaculate, the first pairs often with the femora darkened above or with distinct dark lateral stripes on the femora, tibiae and metatarsi. Abdomen grayish white to bright yellow, a large brown or black transverse maculation at the caudal end which is sometimes continuous around the sides to the venter. Middle of the venter invariably light yellow or white in color.

A male from Lakehurst, New Jersey, 2.50 mm., was used as a basis for the following analysis.

	Length	Width
CARAPACE	1.25 mm.	1.22 mm.
FRONT	0.45	0.65
STERNUM	0.62	0.57
LABIUM	0.25	0.20
ENDITE	0.35	0.15
ABDOMEN	1.52	1.15

Integument of the carapace nearly glabrous, shiny, armed with a few long, slender spines as follows: five on the clypeal margin, two on each side and one in the middle, and four smaller intermediate ones; one behind and on the side of each posterior lateral eye; all other spines very small. Carapace as broad as long, strongly convex, broad in front, the sutures delimiting the cephalic portion obsolete. Clypeus one and one-half times as high as the diameter of an anterior median eye. Abdomen smooth above, provided with a few hairs below.

First row of eyes narrower than the second (89/96), weakly recurved, the medians scarcely two diameters apart (10/17), slightly nearer the larger laterals (10/15). Second row of eyes strongly recurved, the medians separated by three diameters, (8/25), as far from the laterals. Ratio of the eyes: ALE:AME:PLE:PME = 14:10:11:18. Median ocular quadrangle broader than long (41/36), narrower in front (37/41). Lateral eyes on conspicuous, well-separated tubercles.

Legs sparsely clothed with weak spines that are distributed as follows: first femur, 5 dorsal, 5 prolateral; first and second tibiae, dorsal 1–1, ventral, 2–2–2, prolateral and retrolateral, 1–1–1; metatarsi, ventral, 2–2.

	I	II
FEMUR	1.50 mm.	1.75 mm.
PATELLA	0.59	0.62
TIBIA	1.12	1.38
METATARSUS	1.07	1.25
TARSUS	0.71	0.77
TOTAL	4.99	5.77

	III	IV
Femur	0.94 mm.	0.95 mm.
Patella	0.35	0.35
Tibia	0.60	0.65
Metatarsus	0.56	0.60
Tarsus	0.39	0.39
Total	2.84	2.94

Femur of male palpus as long as the tibia and patella which are subequal. Tibia about as broad as long, armed with a short ventral apophysis and a short prolateral spur that is directed dorsad. Cymbium a shallowly excavated, longer than broad receptacle. Embolus originating near the distal end of the tegulum and making one and one-fourth revolutions around the bulb. Truncus a fine black tube, supported for half a turn by a broad pars pendula that decreases and is obliterated after a complete revolution, the terminal portion of the truncus a fine acuminate spine. Tutaculum a shallow groove on the retrolateral margin of the cymbium. Palpus as in Figs. 80 and 81.

A female from Lakehurst, New Jersey, 2.52, was used for the following measurements. Structure essentially as in the male.

	Length	Width
Carapace	1.30 mm.	1.28 mm.
Front	0.42	0.81
Sternum	0.62	9.65
Labium	0.22	0.22
Endite	0.37	0.17
Abdomen	1.80	1.84

First row of eyes narrower than the second (84/91), slightly recurved, the medians separated by over a diameter (10/15), about as far from the laterals (10/14). Second row of eyes strongly recurved, the medians separated by three diameters, as far from the laterals (8/24). Ratio of the eyes: ALE:AME:PLE:PME = 15:10:12:8. Median ocular quadrangle broader than long (40/35), narrower in front in the same ratio. Clypeus scarcely as high as two diameters of an anterior median eye (10/17).

Legs spined as in the male.

	I	II
Femur	1.25 mm.	1.40 mm.
Patella	0.52	0.57
Tibia	0.92	1.00
Metatarsus	0.90	0.95
Tarsus	0.61	0.67
Total	4.20	4.59
	III	IV
Femur	0.85 mm.	0.92 mm.
Patella	0.32	0.32
Tibia	0.60	0.65
Metatarsus	0.50	0.55
Tarsus	0.35	0.39
Total	2.62	2.83

Atrial orifices of vulva (Fig. 88) well separated, situated in a shallowly excavated, subtriangular depression which is bordered by short hairs. Receptacles separated by nearly two diameters.

Type Locality.—Hentz's material was from "The Southern States" and is not extant. Male type of *nigromaculatum* Keyserling from Georgia, in the Museum d'Histoire Naturelle, Paris (Simon collection).

Distribution.—Southern States, occasionally north to southern New Jersey.

Records.—New Jersey: Lakehurst, July 23, 2 females (Emerton). Idem, May 24, 1909, male (Emerton). Maryland: Rockville, Aug. 16, 1926, female (Dietz). Baltimore (Keyserling, 1880). Plummer's Island, August, female. District of Columbia: July–August (Fox). June–October (Marx, 1892). Virginia: (Marx, 1890). Great Falls, females (Banks). Falls Church, females (Banks). Ohio: Cedar Point, immatures (Barrows). Indiana: Arlington, June 10, male, female. Grand Chain, May 12 (Banks, 1906). Veedersburg, May 12 (Banks, 1906). Culver, June 20, male, female (Banks). Kansas: Manhattan, female (Banks). Douglas County, June (Scheffer, 1905). Missouri: St. Louis, female (Emerton). Columbus, male, June 8, 1933 (Ivie). North Carolina: Raleigh, Oct. 31, 1911, male. Canton, female (Banks). Madison, female. Weldon, Oct. 26, 1926. (Carolina, May 25, Hentz, 1847.) Alabama: Auburn (Banks, 1900). Georgia: Thompson's Mills, male, females (Banks). Atlanta, May, 1899, males, females (Emerton). Decatur, May, 1934, males, females (Auten). Florida: Jacksonville, Oct. 23, 1926, 2 females. Tallahassee, April 13, 1927, male. Gainesville, March 6, 1925, male. Louisiana: (Banks, 1899). Arkansas: Hope, May 12, 1926, female (Dietz). Oklahoma: Cleveland County, Nov. 19, 1930 (Banks, 1932). California: (Marx, 1890). New Mexico: Albuquerque, male.

Synema viridans (Banks)

Figures 84, 85 and 89

Misumena viridans Banks, 1896, Trans. American Ent. Soc., XXIII, p. 71; 1904, Proc. Acad. Nat. Sci. Philadelphia, LIV, p. 133.

Misumessus viridans Banks, 1910, Bull. U. S. National Museum, LXXII, p. 50.

Misumenops viridans PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 414.

Parasynaema viridans GERTSCH, 1934, American Museum Novitates, No. 707, p. 15.

The total lengths of a male and female from Florida are 2.90 mm. and 3.92 mm., respectively.

Female unmarked, pale to bright green in color, yellow in old alcoholic specimens, the abdomen duller than the carapace and appendages. Eye tubercles in both sexes white. Integument of the first two pairs of legs in the male green, marked with distal red annulae on all the joints. Carapace of the male bright green, the abdomen somewhat duller, the dorsum with six transverse red bands, the anterior one broken, leaving a median basal lighter area. Spinnerets ringed with red.

The following measurements are for the male.

	Length	Width
CARAPACE	1.32 mm.	1.41 mm.
FRONT	0.39	0.70
STERNUM	0.65	0.69
LABIUM	0.30	0.25
ENDITE	0.46	0.22
ABDOMEN	1.70	1.25

Integument of the carapace devoid of hairs but armed with numerous long spines as follows: seven on the clypeal margin; a median row of three and lateral rows of four on the dorsum; one behind and two below the posterior lateral eyes; and five on the pars thoracica. Carapace slightly broader than long, convex, the front half as broad as the greatest width, the cephalic sutures obsolete. Clypeus a little higher than the diameter of an anterior median eye (13/10). Abdomen armed with several rows of long, regularly spaced spines and a few smaller setae.

Eyes of the first row narrower than the second (77/90), recurved, the medians nearly two diameters apart (10/18), nearer the larger laterals (10/10). Second row of eyes moderately recurved, the medians three diameters apart (7/22), as far from the laterals. Ratio of the eyes: ALE:AME:PLE:PME = 14:10:10:7. Median ocular quadrangle slightly broader than long (36/33), as wide in front as behind, the anterior eyes larger.

Leg formula, 1234. Legs sparsely clothed with inconspicuous hairs and heavily armed with long spines as follows: first femur, dorsal 4, ventral, 5 pairs, some of them small, prolateral 5, and several smaller ones; femur II as I but lacking the prolaterals; patellae I and II, distal 1; tibiae I and II, ventral, 2 pairs, the distals lacking, dorsal 2, prolateral 2 or 3 small spines; metatarsi I and II, ventral 2 pairs, the distals lacking.

	I	II
FEMUR	2.17 mm.	2.14 mm.
PATELLA	0.70	0.70
TIBIA	1.85	1.78
METATARSUS	1.81	1.75
TARSUS	0.92	0.85
TOTAL	7.45	7.22

	III	IV
FEMUR	1.00 mm.	1.00 mm.
PATELLA	0.47	0.47
TIBIA	0.75	0.75
METATARSUS	0.60	0.60
TARSUS	0.40	0.40
TOTAL	3.22	3.22

Tibia of male palpus as broad as long, armed with a short broad ventral apophysis that is broadly hooked at the end and a bifid retrolateral apophysis of about equal length. Cymbium longer than broad, shallowly excavated, the tutaculum obsolete. Tegulum about as broad as long. Embolus very short, rather broad at the base but immediately terminated in a short spine that is directed prolaterad. Palpus as in Figs. 84 and 85.

The following measurements are for the female which agrees well with the male as to structure and spination of the carapace.

	Length	Width
CARAPACE	1.62 mm.	1.70 mm.
FRONT	0.45	0.95
STERNUM	0.82	0.82
LABIUM	0.37	0.30
ENDITE	0.52	0.20
ABDOMEN	2.25	2.50

First row of eyes narrower than the second (88/105), recurved, the medians over two diameters apart (9/22), a little more than a diameter from the larger laterals (9/10). Second row of eyes more strongly recurved, the medians three diameters apart (8/24), slightly farther from the larger laterals (8/28). Ratio of the eyes: ALE:AME:PLE:PME = 12:9:11:8. Median ocular quadrangle as wide in front as behind, broader than long (40/37). Clypeus a little higher than the diameter of an anterior median eye (14/19).

Legs heavily spinose as in the male, the tibiae and metatarsi with long paired spines as in the male.

	I	II
FEMUR	1.80 mm.	1.77 mm.
PATELLA	0.75	0.75
TIBIA	1.45	1.45
METATARSUS	0.87	0.80
TARSUS	0.70	0.66
TOTAL	5.57	5.43

	III	IV
FEMUR	1.02 mm.	1.87 mm.
PATELLA	0.57	0.57
TIBIA	0.72	0.75
METATARSUS	0.55	0.57
TARSUS	0.39	0.40
TOTAL	3.25	4.16

Atrial orifices of the vulva (Fig. 89) two narrow slits on each side of a semilunar tubercle. Receptacles separated by scarcely their width.

TYPE LOCALITY.—Male and female co-

types from Punta Gorda, Florida (Mrs. A. T. Slosson) in the Museum of Comparative Zoölogy (Banks collection).

DISTRIBUTION.—Southeastern United States. Texas. Iowa.

RECORDS.—IOWA: Ames, female (Banks). FLORIDA: One mile southwest of Fisherville, Pensacola, Oct. 14, 1914, male, female (Watson). St. Augustine, April, 1919, males, females (Johnson). TEXAS: Edinburg, March 31, 1934, female (Mulaik). Brownsville, Nov. 1, 1934, immatures (Mulaik). Idem, June 1, 1934, female (J. N. Knull).

Synema bicolor Keyserling

Figures 82, 83 and 92

Synaema bicolor KEYSERLING, 1883, Verhandl. k. k. Zool.-Bot. Gesell., Wien., XXXIII, pp. 667–668, Pl. XXI, fig. 16.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555; 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1904, Proc. Acad. Nat. Sci. Philadelphia, LIV, p. 132.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 66.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 425.—EMERTON, 1913, Appalachia, XII, p. 155; 1920, Trans. Royal Canadian Inst., XII, p. 334.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1059.

Xysticus inornatus EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 366, Pl. XXIX, figs. 5–5*b*.—BANKS, 1893, Journ. N. Y. Ent. Soc., I, p. 125 (synonymizes *inornatus* with *bicolor*).

The males of this species vary little in size, the average length of four being 3.28 mm. Three females average 4.70 mm. in total length.

In living specimens the carapace is glistening black, but alcoholics quickly fade to a dark brown color. Sternum, mouth parts and coxae dark brown to black, usually flecked with white, particularly the posterior coxae. Legs concolorous with the carapace, the last two femora with white stripes above, and the other joints of all the legs marked with white at the position of the conjunctivae. Metatarsi and tarsi of the male yellowish brown. Abdomen in both sexes uniform gray above.

Measurements of a male from Norwalk, Connecticut, 3.15 mm. in total length.

	Length	Width
CARAPACE	1.75 mm.	1.67 mm.
FRONT	0.60	1.02
STERNUM	0.82	0.75
LABIUM	0.36	0.25
ENDITE	0.50	0.25
ABDOMEN	1.85	1.60

Integument of the carapace smooth and shining, sparsely set with short, inconspicuous hairs and a few longer spines that are distributed as follows: seven on the clypeal margin; two laterad of each posterior lateral eye. Carapace scarcely longer than broad, very wide in front, strongly convex, the cephalic sutures obsolete. Clypeus scarcely twice as high as the diameter of an anterior median eye (11/20).

First row of eyes narrower than the second (22/26), slightly recurved, the medians separated by more than two diameters (11/28), much nearer the laterals (11/13). Ratio of the eyes: ALE:AME:PLE:PME = 19:11:15:11. Median ocular quadrangle broader than long (52/43), scarcely narrower in front (52/51). Lateral eyes on separate tubercles.

Legs clothed with inconspicuous hairs, armed with spines as follows: first femur, dorsal 5, prolateral 3; second femur, dorsal 5, prolateral 0; first and second tibiae, dorsal 1–1, ventral 2–2–2; first and second metatarsi, ventral 2–2, prolateral and retrolateral 1.

	I	II
FEMUR	1.55 mm.	1.62 mm.
PATELLA	0.65	0.72
TIBIA	1.12	1.17
METATARSUS	1.20	1.20
TARSUS	0.82	0.82
TOTAL	5.34	5.53
	III	IV
FEMUR	1.17 mm.	1.17 mm.
PATELLA	0.52	0.52
TIBIA	0.80	0.87
METATARSUS	0.70	0.77
TARSUS	0.50	0.50
TOTAL	3.69	3.83

Femur of male palpus as long as the tibia and patella which are subequal in length. Tibia broader than long, armed with a stout ventral apophysis that is shallowly excavated at the end, and a larger, more slender prolateral apophysis. Cymbium as broad as long, deeply excavated, the tutaculum a well-marked groove on the retrolateral margin that terminates in a pale ventrally directed spur. Tegulum as broad as long. Embolus originating near the distal end of the tegulum, the truncus a black tube that is supported by a broad pars pendula for most of the length, the terminal part of the truncus a strong spine that only goes to the middle of the tutacular groove. Palpus as illustrated in Figs. 82 and 83.

Measurements of a female from Norwalk, Connecticut, 4.75 mm. in total length. Structure as in the male.

	Length	Width
CARAPACE	1.85 mm.	1.80 mm.
FRONT	0.65	1.15
STERNUM	0.90	0.77
LABIUM	0.37	0.25
ENDITE	0.52	0.25
ABDOMEN	2.95	2.95

First row of eyes narrower than the second (12/14), recurved, the medians separated by three diameters (11/35), much nearer the laterals (11/15). Second row of eyes more strongly recurved, the medians separated by over three diameters (11/38), about as far from the laterals (11/35). Ratio of the eyes: ALE:AME:PLE:PME = 20:11:15:11. Median ocular quadrangle broader than long (60/47), not much narrower in front (60/57). Clypeus scarcely twice as high as the diameter of an anterior median eye (11/18). Lateral eyes on large, separate tubercles.

Leg formula, 2143, the spines as in the male.

	I	II
FEMUR	1.49 mm.	1.51 mm.
PATELLA	0.72	0.72
TIBIA	1.05	1.05
METATARSUS	1.00	1.00
TARSUS	0.65	0.65
TOTAL	4.91	4.93
	III	IV
FEMUR	1.05 mm.	1.15 mm.
PATELLA	0.52	0.52
TIBIA	0.78	0.82
METATARSUS	0.62	0.67
TARSUS	0.50	0.50
TOTAL	3.47	3.66

Atrial cavity of the vulva (Fig. 92) a shallow, oval depression.

TYPE LOCALITY.—Female type of *bicolor* Keyserling from Enterprise, Florida, in the United States National Museum (Marx collection). Female type of *inornatus* Emerton from Medford, Massachusetts, in the Museum of Comparative Zoology (Emerton collection).

DISTRIBUTION.—New England. Florida.

RECORDS.—NEW HAMPSHIRE: Lake Winne, May 29, 1906, female. Gilmanton, June 12–18, 1925, males (Bryant). Durham (Bryant, 1908). MASSACHUSETTS: Woods Hole, July 4, 1901, female (Britcher). Holliston, May 5, 1923, female (Emerton and Banks). Beverly, young (Emerton, 1892). Lynn (Bryant, 1908). Hyde Park (Bryant, 1908). Sharon (Bryant, 1908). CONNECTICUT: New Haven (Emerton, 1892). Norwalk, June 2–12, 1934, males, females (Gertsch). NEW YORK: Columbia County, male. Sacandaga Peak, June (Crosby and Bishop, 1928). NEW JERSEY: Ramsey, June 12, 1912, female (Lutz). Idem, June 6, 1913, female (Lutz). DISTRICT OF COLUMBIA: Giesboro Point, August (Marx, 1892). VIRGINIA: (Marx, 1890). NORTH CAROLINA: Chatham, Aug. 10, 1913, female (Emerton).

Synema neomexicana, new species

Total length of female holotype, 4.25 mm.

Carapace uniform dark brown, the margins with a narrow white seam, the eye tubercles yellowish brown. Sternum, mouth parts and coxae light brown, variegated with irregular brown markings. Femora, patellae and tibiae concolorous with the carapace, each joint with a distal narrow white ring or several spots. Metatarsi and tarsi yellowish brown, the distal half with a broad dark brown band. Dorsum of abdomen gray to white, infuscated, palest at the base, the sides and venter infuscated.

	Length	Width
CARAPACE	1.80 mm.	1.70 mm.
FRONT	0.50	1.07
STERNUM	0.75	0.62
LABIUM	0.35	0.25
ENDITE	0.47	0.25
ABDOMEN	2.50	2.17

Integument of the carapace relatively smooth, armed with very long sinuous spines as follows: seven on the clypeal margin, the median one curved strongly dorsad, the length of all these setae about as long as the width of the first eye row; one long spine between the posterior lateral and median eye of each side; two in the median ocular quadrangle; and two or three below the posterior median eye. Carapace with additional smaller spines behind the eyes. Carapace nearly as broad as long, strongly convex, the median suture obsolete. Clypeus about twice as high as the diameter of an anterior median eye. Abdomen clothed with fine long spines.

First row of eyes narrower than the second (28/31), weakly recurved, the medians separated by three diameters, one and one-half diameters from the laterals. Second row of eyes more strongly recurved, the medians separated by three diameters, slightly nearer the laterals. Ratio of the eyes: ALE:AME:PLE:PME = 23:13:17:13. Median ocular quadrangle broader than long (6/5), as wide in front as behind, the eyes subequal.

	I	II
FEMUR	1.25 mm.	1.25 mm.
PATELLA	0.75	0.75
TIBIA	0.95	0.95
METATARSUS	0.82	0.82
TARSUS	0.60	0.60
TOTAL	4.37	4.37
	III	IV
FEMUR	0.82 mm.	0.82 mm.
PATELLA	0.50	0.50
TIBIA	0.57	0.57
METATARSUS	0.50	0.50
TARSUS	0.42	0.42
TOTAL	2.81	2.81

Spines on the legs as follows: first leg, femur, dorsal 1, prolateral 5 very long ones. Patella, dorsal 2. Tibia, dorsal 3, prolateral 2, retrolateral 2, and ventral 2–2–2–2. Metatarsus, dorsal 3, ventral 2–2–2–2. Second leg as the first but lacking the prolaterals on the femur. All spines very long, some twice as long as the breadth of the joint.

TYPE LOCALITY.—Female holotype from Las Vegas, New Mexico, in the Museum of Comparative Zoölogy (Banks collection).

Synema obscurum Keyserling

Figures 78, 79 and 93

Synaema obscura KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 64–65, Pl. I, fig. 32.—MARX, 1890, Proc. U. S. National Museum, XII, p. 556.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., VI, p. 248.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 66.

Synema obscura BANKS, 1910, Bull. U. S., National Museum, LXXII, p. 49.—EMERTON 1920, Trans. Royal Canadian Inst., XII, p. 334.

Synaema obscurum PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 442.

Total length of a male from Passumpsic, Vermont, 3.45 mm. The only mature female I have seen is 4.50 mm. long.

Carapace dark reddish brown, with indistinct yellow markings in the eye region and on the midline. Mouth parts brown; sternum and coxae brown, flecked with white. Metatarsi and tarsi yellowish brown in the male, the other joints dark reddish brown. Abdomen in the females dull uniform brown; in the male margined in front by a white band that runs back on the sides. Venter brown, marked with white.

Measurements of the male from Vermont.

	Length	Width
CARAPACE	1.70 mm.	1.57 mm.
FRONT	0.62	0.95
STERNUM	0.77	0.71
LABIUM	0.30	0.25
ENDITE	0.45	0.21
ABDOMEN	1.90	1.50

Integument of the carapace clothed with inconspicuous hairs. Spinal armature as follows: clypeal margin, 7; one behind and two below the posterior lateral eye. Carapace strongly convex, highest between the second coxae, the front broad but considerably less so than in *bicolor*, the cephalic sutures obsolete. Clypeus nearly twice as high as the diameter of an anterior median eye (16/28).

First row of eyes narrower than the second (92/107), recurved, the medians separated by two diameters (10/22), half as far from the larger laterals. Second row of eyes more strongly recurved, the medians separated by more than two diameters (10/24), slightly farther from the laterals (10/27). Ratio of the eyes: ALE:AME:PLE:PME = 19:10:14:10. Median ocular quadrangle scarcely broader than long (44/40), a little narrower in front (44/42). Lateral eyes on separate tubercles.

Legs clothed with inconspicuous hairs and spines. First leg: femur, dorsal 4 or 5, prolateral 3. First and second tibiae, dorsal 1 or 2 small spines, ventral 2–2–2–2. First and second metatarsi, ventral 2–2–2, prolateral and retrolateral 2 distal. Second femur, dorsal 5.

	I	II
FEMUR	1.42 mm.	1.42 mm.
PATELLA	0.67	0.67
TIBIA	1.07	1.07
METATARSUS	1.20	1.20
TARSUS	0.80	0.80
TOTAL	5.16	5.16

	III	IV
FEMUR	1.02 mm.	1.87 mm.
PATELLA	0.50	0.50
TIBIA	0.76	0.82
METATARSUS	0.65	0.72
TARSUS	0.54	0.60
TOTAL	3.47	4.51

Palpus as in *bicolor* but differing in the following particulars. Ventral apophysis of the tibia more strongly excavated at the base; the inner distal branch much longer, curved over the tegulum. Tutaculum with the pale, ventrally directed spine much longer. Palpus as in Figs. 78 and 79.

Measurements of a female from Seba, Alberta, 4.50 mm. in total length. Structure and spination as in the male.

	Length	Width
CARAPACE	2.00 mm.	2.00 mm.
FRONT	0.60	1.25
STERNUM	1.00	0.90
LABIUM	0.42	0.32
ENDITE	0.55	0.25
ABDOMEN	2.75	2.37

First row of eyes narrower than the second (29/37), recurved, the medians separated by nearly three diameters (15/42), scarcely more than a diameter from the laterals (15/17). Second row of eyes recurved, the medians separated by three diameters (14/42), as far from the laterals (14/42). Median ocular quadrangle broader than long (7/6), slightly wider in front (70/72). Ratio of the eyes: ALE:AME:PLE:PME = 24:15:19:14. Clypeus more than twice as high as the diameter of an anterior median eye.

Vulva (Fig. 93) practically indistinguishable from *bicolor*.

	I	II
FEMUR	1.50 mm.	1.57 mm.
PATELLA	0.85	0.85
TIBIA	1.20	1.20
METATARSUS	1.15	1.10
TARSUS	0.87	0.87
TOTAL	5.57	5.59
	III	IV
FEMUR	1.20 mm.	1.27 mm.
PATELLA	0.62	0.62
TIBIA	0.90	1.00
METATARSUS	0.67	0.77
TARSUS	0.57	0.60
TOTAL	3.96	4.26

TYPE Locality.—Male type from Mount Washington, New Hampshire, in the Museum d'Histoire Naturelle, Paris (Simon collection).

DISTRIBUTION.—Canada. New England. Colorado. Texas.

RECORDS.—NEW HAMSPHIRE: Franconia, male (Banks). VERMONT: Passumpsic, male, 1920 (Granger). COLORADO: West Cliff, male (Banks). Elk River, July (Banks, 1895). TEXAS: Jeff Davis County July, 1934, immature female (Mulaik). SOUTH DAKOTA: Black Hills, Aug. 30, 1937, female (Peterson).

CANADA.—BRITISH COLUMBIA: Metlakatla, immature female, 1912 (Keen). ALBERTA: Seba, June–July, immatures (Carr). Medicine Hat, June, 1930, immatures (Carr). Seba Beach, Seba, July, 1934, female (Rowan). Banff (Emerton, 1920).

OZYPTILA E. SIMON

Ozyptila E. SIMON, 1864, Histoire Naturelle des Araignées, p. 439.

Oxyptila E. SIMON, 1892–1895, idem, (2nd Ed.), p. 1035.

Carapace slightly longer than or as broad as long, convex, moderately high, the clypeus vertical. Spines usually clavate to spatulate in shape, more rarely setaceous. Eyes as in *Xysticus* but the median ocular quadrangle usually longer than broad, rarely broader than long (see Figs. 126 and 127). Lateral eye tubercles large, well separated. Spines beneath first tibiae two pairs, except in *okefenokensis* (see Figs. 138 and 139). Tarsal claws with three or four teeth. Vulva simplified, the rim or elevated margin obsolete except for a small hood in front.

GENOTYPE.—*Ozyptila brevipes* (Hahn).

The American species of this genus fall conveniently into two groups based principally on the proportions of the median ocular quadrangle:

Eyes of the median ocular quadrangle forming a figure much broader than long. Retrolateral tibial apophysis of the male palpus directed dorsad. Bulb of male palpus without apophyses ..... Group A.—(*Ozyptila modesta* (Scheffer), type).

Eyes of the median ocular quadrangle forming a figure longer than broad. Retrolateral tibial apophysis of the male palpus directed forward. Bulb of male palpus usually with apophyses..... ..Group B.—(*Ozyptila brevipes* Hahn, type).

GROUP A

Carapace slightly broader than long, moderately broad in front. Clothing of the carapace short clavate to spatulate hairs and spines, those in the male longer and most of them clavate. Eye rows recurved as usual, the median ocular quadrangle somewhat broader than long in the male, proportionately much broader than long in the females (Fig. 127). Spines beneath the first tibiae two pairs, none distal, except in *Ozyptila okefenokensis* where there are four or more pairs of which the last one is distal (Fig. 138). Retrolateral apophysis of the tibia of the male palpus directed dorsad nearly at a right angle to the tibia. Bulb of the palpus without apophyses. Vulva of the female with the small pale hood in front as in typical members of the genus.

TYPE OF THE GROUP.—*Ozyptila modesta* (Scheffer).

The three species included in this group occupy in many respects a position intermediate between *Ozyptila* and *Xysticus*. The resemblance to this latter genus is reflected particularly in the proportions of the median ocular quadrangle and the increased number of spines beneath the first tibiae of one of the species. However, the same type of overlapping of characters can be singled out in some species of *Xysticus*. *Ozyptila okefenokensis* Gertsch, known only from a single female, can be easily recognized by the more numerous paired spines beneath the first tibiae. The other two species are very closely allied and may be separated by reference to the figures of the genitalia and by slight differences in the eye relationship as given in the descriptions.

Ozyptila modesta (Scheffer)

Figures 104, 105, 127 and 128

Xysticus modestus SCHEFFER, 1904, Industrialist, XXX, p. 3.—SCHEFFER, 1904, Ent. News, Philadelphia, XV, p. 257, Pl. XVII, fig. 1.

Ozyptila modesta BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist.,

XXIX, p. 416.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 62.—BRYANT, 1930, Psyche, XXXVII, p. 383, Figs. 6 and 20 (synonymizes *beaufortensis* Strand).

Oxyptila marshalli BARROWS, 1919, Ohio Journal Science, XIX, p. 357, PL. XV, fig. 2.—BRYANT, 1930, Psyche, XXXVII, p. 382, Figs. 8 and 10.

FEMALE.—Total length, 4.10 mm.

Carapace with a broad median dark brown stripe which is as wide as the interval between the posterior lateral eyes and which is abruptly ended caudally at the declivity, the band invaded medially by light maculations to form a median pale stripe. Sides of the carapace with an irregular supramarginal dark band and with a very narrow marginal black seam. Intervals between the dark stripes of the carapace forming dull reddish brown bands. Labium and endites dusky, the sternum and coxae dull yellow, with irregular black maculations. Legs light yellowish brown, thickly maculate with large black spots on the basal joints, the metatarsi and tarsi unmarked. Abdomen mainly black above, with transverse pale bands in the caudal half; the venter paler.

	Length	Width
CARAPACE	2.30 mm.	2.40 mm.
FRONT	0.50	1.20
STERNUM	1.08	0.93
LABIUM	0.42	0.32
MAXILLA	0.60	0.27
ABDOMEN	2.30	2.55

Carapace slightly broader than long, weakly convex above, the thoracic portion forming a broad oval, the pars cephalica short, intimately and evenly joined with the pars thoracica. Carapace evenly clothed with short spatulate hairs, the pars cephalica with longer spatulate spines as follows: one below each posterior lateral and two at the base of each tubercle, one laterad of each posterior median eye, a pair in the median ocular quadrangle and thirteen on the clypeal margin of which seven are much more robust. First row of eyes narrower than the second (5/6), recurved, the medians separated by about three diameters (8/24), two diameters from the laterals (8/15). Ratio of the eyes: ALE:AME:PLE:PME = 17:8:12:8. Second row of eyes recurved, the medians separated by three diameters (8/24), farther from the laterals (8/34). Median ocular quadrangle broader than long (43/34), slightly wider in front (43/41), the eyes subequal. Clypeus equal in height to twice the diameter of an anterior median eye (8/15). Abdomen evenly set with rows of short clavate to subspatulate spines.

Legs clothed with linear to clavate hairs and longer subspatulate spines. First legs spined as follows: femur, prolateral 3. Tibia, ventral 2–2–0. Metatarsus, prolateral 1 median, ventral 2–2–2. First leg: femur, 1.90 mm., patella, 1.05 mm., tibia, 1.40 mm., metatarsus, 1.15 mm. and tarsus, 0.70 mm. long.

Vulva as illustrated in Fig. 128.

MALE.—Total length, 3.10 mm.

Coloration and pattern essentially as in the female but the pale longitudinal bands of the carapace more extensive and the basal joints of the legs uniform reddish brown, the metatarsi and tarsi dull yellow.

	Length	Width
CARAPACE	1.75 mm.	1.77 mm.
FRONT	0.35	0.83
STERNUM	0.84	0.78
LABIUM	0.34	0.25
MAXILLA	0.48	0.20
ABDOMEN	1.45	1.80

Structure approximating that of the female but the legs somewhat longer. Spines and hairs linear to setaceous, the clypeal margin with seven principal subclavate spines and six shorter ones between these. Eyes of the first row narrower than the second (70/87), recurved, the medians separated by two diameters (7/14), nearer the laterals (7/9). Second row of eyes recurved, the medians separated by two diameters, farther from the laterals (7/23). Median ocular quadrangle broader than long (30/26), slightly narrowed behind (30/29). Ratio of the eyes: ALE:AME:PLE:PME = 15:7:12:7.

Spines as in the female, the first femur with three prolaterals and 1 dorsal. Median prolateral spine present on first metatarsus. First leg: femur, 1.70 mm., patella, 0.84 mm., tibia, 1.23 mm., metatarsus, 1.10 mm. and tarsus, 0.68 mm. long.

Palpus as illustrated in Figs. 104 and 105.

TYPE LOCALITY.—Female cotypes from Manhattan, Kansas, June, all lost or destroyed but one in the Museum of Comparative Zoölogy. Male type of *marshalli* from Sugar Grove, Ohio, Sept. 17, 1917, in the collection of Dr. W. M. Barrows.

DISTRIBUTION.—Southeastern United States.

RECORDS.—KANSAS: Manhattan, females, June 10 (Scheffer, 1904). INDIANA: Pine, female. MISSOURI: Columbus, June, 1905, female (Crosby). OHIO: Sugar Grove, Sept. 17, 1917, male (Barrows, 1919). Idem, males and females, Aug. 17, 1935, topotypes (Barrows and Ivie). Clear Creek, Hocking County, Aug. 18, 1935, male and female (Barrows). VIRGINIA: Falls Church, male (Banks). GEORGIA: Tallulah Falls, female.

Ozyptila floridana Banks

Figures 106, 107 and 129

Oxyptila floridana BANKS, 1895, Psyche, VII, pp. 243–244; 1904, Proc. Acad. Nat. Sci. Philadelphia, LIV, p. 132 (*floridensis*); 1910,

Bull. U. S. National Museum, LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 415.—BRYANT, 1930, Psyche, XXXVII, p. 380, Figs. 3, 4 and 18.

FEMALE.—Total length, 3.20 mm.

Carapace dark brown, with a broad, irregular, marginal dark band which encloses three submarginal pale spots and with narrow longitudinal dark stripes which outline an indistinct median paler stripe. Median pale stripe slightly broader than half the interval between the posterior lateral eyes, abruptly narrowed at the posterior declivity at which point is a triangular white maculation. Eye tubercles creamy white. Under side and legs light brown, thickly marked with brown spots but the anterior tibiae almost unicolorous brown, the terminal joints a little paler. Dorsum of the abdomen dusky to black, with paler irregular markings which are white on the sides; the venter paler, with black markings.

	Length	Width
CARAPACE	1.47 mm.	1.55 mm.
FRONT	0.30	0.80
STERNUM	0.75	0.70
LABIUM	0.33	0.25
MAXILLA	0.45	0.20
ABDOMEN	1.70	2.20

Structure of the carapace and spines as in *modesta*. Eyes of the first row moderately recurved, the medians separated by three diameters (6/17), half as far from the laterals (6/9). Second eye row more strongly recurved, the medians separated by two and one-half times their diameter (6/14), much farther from the laterals (6/24). Median ocular quadrangle broader than long (29/24), broader in front (29/26). Ratio of the eyes: ALE:AME: PLE:PME = 13:6:10:6. Clypeus scarcely as high as two diameters of an anterior median eye (6/10).

Spines as in *modesta*. First leg: femur, 1.23 mm., patella, 0.70 mm., tibia, 0.94 mm., metatarsus, 0.80 mm. and tarsus, 0.58 mm. long.

Vulva as illustrated in Fig. 129, very closely related to that of *modesta*.

MALE.—Total length, 2.30 mm.

Color of the carapace and abdomen essentially as in the female. Integument of the underside light brown, without contrasting markings, the legs darker brown, the front tibiae darkest, with only a few indistinct darker maculations.

	Length	Width
CARAPACE	0.70 mm.	0.76 mm.
FRONT	0.28	0.70
STERNUM	0.68	0.68
LABIUM	0.27	0.22
MAXILLA	0.32	0.15
ABDOMEN	1.10	1.30

Carapace sparsely clothed with short inconspicuous clavate hairs and with longer spines in the ocular region, the clypeal margin with seven principal filiform to subclavate spines. First row of eyes narrower than the second, moderately recurved, a line along the lower margins being very weakly recurved, the medians separated by two diameters (6/12), one diameter from the laterals (6/7). Posterior row of eyes more strongly recurved, the medians separated by two diameters (5/10), much farther from the laterals (5/20). Ratio of the eyes: ALE: AME:PLE:PME = 15:6:10:5. Median ocular quadrangle as broad as long (24/24), broader in front (24/22). Clypeus equal in height to one and one-half diameters of an anterior median eye.

Spines as in *modesta*. First leg: femur, 1.30 mm., patella, 0.66 mm., tibia, 0.97 mm., metatarsus, 0.86 mm. and tarsus, 0.52 mm. long.

Palpus as illustrated in Figs. 106 and 107.

TYPE LOCALITY.—Female type from Punta Gorda, Florida, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Florida. Tennessee.

RECORDS.—FLORIDA: Punta Gorda, female (Banks, 1904). Dunedin, 1927, two males, female (Blatchley). TENNESSEE: Montvale Springs, March 18, 1929, female (W. M. Barrows).

Ozyptila okefenokensis Gertsch

Figures 130 and 138

Oxyptila okefinokensis GERTSCH, 1934, American Museum Novitates, No. 707, p. 13.

FEMALE.—Total length, 4.66 mm.

Coloration and pattern in very close agreement with *modesta* and *floridana*.

	Length	Width
CARAPACE	2.20 mm.	2.30 mm.
FRONT	0.50	1.27
STERNUM	1.05	0.87
LABIUM	0.50	0.35
ENDITE	0.75	0.30
ABDOMEN	2.50	2.75

Carapace and abdomen clothed with clavate to spatulate spines and hairs as usual. First row of eyes narrower than the second (53/65), recurved, the medians separated by three diameters (9/28), nearer the laterals (9/17). Second row of eyes recurved, the medians separated by scarcely three diameters (9/25), farther from the laterals (9/36). Median ocular quadrangle broader than long (45/39), slightly narrowed behind (45/43). Ratio of the eyes: ALE:AME:PLE:PME = 18:9:13:9. Clypeus equal in height to about two diameters of an anterior median eye (9/17).

First leg spined as follows: femur, prolateral 4, dorsal 2, weak. Tibia, ventral 1–2–(1)–2–2–2. Metatarsus, prolateral and retrolateral 1 median, ventral 2–2–2–2. First leg: femur, 2.18 mm., patella, 1.10 mm., tibia, 1.70 mm., metatarsus, 1.45 mm. and tarsus, 0.80 mm. long.

Vulva as illustrated in Fig. 130, apparently not fully mature.

TYPE LOCALITY.—GEORGIA: Female holotype from Billy's Island, Okefenokee Swamp, June, 1912 (Crosby), in the collection of Cornell University. No other specimens are known.

GROUP B

Carapace generally somewhat longer than broad, moderately broad in front. Clothing of the carapace short clavate to spatulate hairs and spines. Eye rows recurved, the median ocular quadrangle forming a figure rarely as broad as long, usually much longer than broad (see Fig. 126). Spines normal for the genus, the first tibiae with two pairs beneath, none distal, the first metatarsi with three ventral pairs, the last pair distal (see Fig. 139). Prolateral spine on the first metatarsus usually present but occasionally absent, particularly in the males. Apophyses often present on the bulb of the male palpus. Prolateral tibial apophysis of the male palpus directed forward, parallel to the tibia. Epigynum simplified, the normal rim reduced to a small hood at the front which presumably acts as an articulating surface for an apophysis of the male palpus.

TYPE OF THE GROUP.—*Ozyptila brevipes* (Hahn).

To this group belong the typical members of the genus *Ozyptila*. A relatively small number of species is known from North America. In the Palearctic region the group is very well developed with numerous known species. The American forms seem to be more conservative in palpal characters and consequently are more difficult to identify. The species may be separated by reference to the figures and the descriptions.

The species described by Strand as *Oxyptila beaufortensis*, from Beaufort, North Carolina (see Archiv für Naturgeschichte, 1915, LXXXI, Abt. A, Heft 9, p. 124), probably belongs in this group but the description is insufficient to place it with any certainty.

Ozyptila conspurcata Thorell

Figures 116, 117 and 135

Oxyptila conspurcata THORELL, 1877, Bull. U. S. Geol. Survey, p. 496.—MARX, 1889, Proc. U. S. Nat. Mus., XII, p. 555.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57, Pl. III, fig. 12.—EMERTON, 1894, Trans. Connecticut Acad. Arts and Sci., IX, p. 417, Pl. IV, fig. 7 (not 7c).—BANKS, 1895, Psyche, VII, p. 242; 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1895, Journ. N. Y. Ent. Soc., III, p. 90.—SLOSSON, 1898, idem, VI, p. 248.—BANKS, 1906, 31st Ann. Rept. Dept. Geol., Indiana, p. 742.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 62.—BANKS, 1910, Bull. U. S. Nat. Mus., LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 415.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, p. 79 (synonymizes *georgianus* Keyserling).—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 63.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1059.—BRYANT, 1930, Psyche, XXXVII, p. 379, figs. 2 and 16.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.

Oxyptila georgiana KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 52, Pl. I, fig. 26.—MARX, 1889, Proc. U. S. Nat. Mus., XII, p. 555.

FEMALE.—Total length, 4.30 mm.

Sides of the carapace light to dull orange brown, sometimes moderately flecked with white. Carapace with a median longitudinal pale stripe which includes the ocular area, is as wide as the interval between the posterior lateral eyes and narrows to two-thirds that width at the posterior declivity. Legs concolorous with the sides of the carapace, sparingly maculate in white. Abdomen gray to dull yellowish brown, with white markings at the sides, the whole dorsum thinly covered with small dark markings.

	Length	Width
CARAPACE	2.05 mm.	1.92 mm.
FRONT	0.50	0.86
STERNUM	0.93	0.78
LABIUM	0.38	0.30
MAXILLA	0.57	0.25
ABDOMEN	2.60	2.80

Carapace with a sparse covering of short clavate hairs. Clypeal margin with seven principal long clavate spines. First row of eyes narrower than the second (77/98), recurved, the medians separated by two diameters (8/16), nearer the laterals (8/12). Second row of eyes recurved, the medians separated by two diameters (8/17.5), three diameters from the laterals (8/26). Median ocular quadrangle longer than broad (37/34), very slightly narrowed in front (34/32). Ratio of the eyes: ALE:AME:PLE:PME = 17:8:13:8. Clypeus equal in height to about twice the diameter of an anterior median eye (8/18).

Spines on the legs as usual but the first femur with a single weak prolateral. First metatarsus with a submedian prolateral and a retrolateral spine. First leg: femur, 1.57 mm., patella, 0.95 mm., tibia, 1.06 mm., metatarsus, 1.02 mm. and tarsus, 0.63 mm. long.

Vulva as illustrated in Fig. 135.

MALE.—Total length, 3.10 mm.

Carapace light to dark reddish brown on the sides, medially with a longitudinal paler stripe

which is much invaded by brown. Femora dark reddish brown, the distal joints of the legs uniform light yellowish brown. Abdomen dull yellowish brown, with dark transverse bands in the caudal half and marked with white.

	Length	Width
CARAPACE	1.78 mm.	1.63 mm.
FRONT	0.45	0.73
STERNUM	0.80	0.73
LABIUM	0.29	0.24
MAXILLA	0.40	0.20
ABDOMEN	1.58	1.65

Structure essentially as in the female but the hairs and spines on the carapace mainly setaceous. Clypeal margin with seven principal setaceous spines. Eyes of the first row broader than the second (66/83), recurved, the medians separated by scarcely two diameters (8/13), one diameter from the laterals. Second row of eyes recurved, the medians separated by scarcely two diameters (8/13), scarcely three diameters from the laterals (8/22). Median ocular quadrangle longer than broad (33/30), slightly narrowed in front (30/29). Clypeus equal in height to twice the diameter of an anterior median eye (8/16).

Spines as usual, the first femur with one prolateral and one dorsal. First metatarsus with a median prolateral spine present. First leg: femur, 1.40 mm., patella, 0.67 mm., tibia, 1.00 mm., metatarsus, 0.95 mm. and tarsus, 0.55 mm. long.

Male palpus as illustrated in Figs. 116 and 117.

TYPE LOCALITY.—Female type of *conspurcata* from Manitou Springs, Colorado (Thorell collection). Female cotypes of *georgiana* from Georgia and Peoria, Illinois, in the Museum d'Histoire Naturelle, Paris (Simon collection).

DISTRIBUTION.—Eastern United States. Colorado. Canada.

RECORDS.—NEW HAMPSHIRE: Franconia (Slosson, 1898). Intervale, August, 1919, female. MASSACHUSETTS: Holliston, June 24, male, female. Woods Hole, female (Britcher). CONNECTICUT: Norwalk, June 23, 1933, female (Gertsch). NEW YORK: Ithaca (Banks, 1895). Ithaca, 3 females. Idem, June (Crosby and Bishop, 1928). Wilmington Notch, August; McLean, May; Riders Mills, May; Paradise, May; Oakland Valley, May; Long Island: Sea Cliff, October (Crosby and Bishop, 1928). Cold Spring Harbor, L. I., June 25, 1903, female. NEW JERSEY: Newfoundland, May 30, 1910, male (Lutz). MICHIGAN: Albion, June 2, 1931, male. MINNESOTA: Minneapolis, June, female (Gertsch). INDIANA: Cypress Swamp, Sept. 25; Pine, Oct. 29; Knox County, May 26 (Banks, (1906). WISCONSIN: Beaver Dam (Banks, 1895). IOWA: Ames (Banks, 1895). ILLINOIS: Riverside, June 8, 1912, male. GEORGIA (Keyserling, 1880). NEBRASKA: (Worley and Pickwell, 1927). COLORADO: Manitou Springs, female (Thorell, 1877). Fort Collins, November (Banks, 1895).

CANADA.—ONTARIO: Ottawa, males, females (Emerton, 1894). Minaki (Emerton, 1920). MANITOBA: Aweme (Emerton, 1920). BRITISH COLUMBIA: Metlakatla (Emerton, 1920). ALBERTA: Near Laggan, female (Emerton, 1894).

Ozyptila formosa Bryant

Figures 118, 119 and 136

Ozyptila formosa BRYANT, 1930, Psyche, XXXVII, p. 381, Figs. 5, 7 and 17.

FEMALE.—Total length, 3.75 mm.

Carapace light rusty brown, with a median longitudinal light stripe which includes the space between the lateral eyes and continues caudad to the margin, being somewhat narrowed at the posterior declivity. Sides of the carapace almost uniform rusty brown, sparingly flecked with white. Legs light yellowish brown, flecked with white. Abdomen paler than the carapace, uniform dull yellowish brown above, the sides sparingly flecked with white and black spots.

	Length	Width
CARAPACE	1.80 mm.	1.75 mm.
FRONT	0.45	0.85
STERNUM	0.90	0.76
LABIUM	0.32	0.27
MAXILLA	0.46	0.22
ABDOMEN	2.10	2.45

Carapace slightly longer than broad, the pars cephalica narrowed to about half the greatest width. Carapace sparsely set with very short spatuliform hairs, the clypeal margin with seven long filiform spines. Eyes of the first row recurved, the medians separated by two diameters (7/14), nearer the laterals (7/9). Ratio of the eyes: ALE:AME:PLE:PME = 15:7:10:7. Eyes of the second row recurved, the medians separated by less than two diameters (7/12), three diameters from the laterals (7/22). Clypeus more than twice as high as the diameter of an anterior median eye (6/18). Median ocular quadrangle longer than broad (32/30), slightly narrowed behind (30/28), the eyes subequal.

Spines as usual, the first femur with a short median prolateral. Median prolateral spine present on first metatarsus. First leg: femur, 1.50 mm., patella, 0.80 mm., tibia, 1.10 mm., metatarsus, 0.90 mm. and tarsus, 0.55 mm. long.

Vulva as illustrated in Fig. 136.

MALE.—The only specimen of this sex known is the male type. Drawings of the palpus, kindly sent to me by Miss Bryant, are given (see Figs. 118 and 119).

TYPE LOCALITY.—Male type from Royal Palm Park, Florida, March 24, 1925 (W. S. Blatchley). Three female cotypes from the same place, March and April (W. S. Blatchley). All these specimens are in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Florida to Long Island, New York.

RECORDS.—FLORIDA: As above (Bryant, 1930). NEW YORK: Cold Spring Harbor, Long Island, June 23, 1932, female (Gertsch).

Ozyptila americana Banks

Figures 100, 101, 114, 115, 126 and 139

Ozyptila americana BANKS, 1895, Psyche, VII, p. 242.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 415.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1059.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, p. 79; 1910, Bull. U. S. Nat. Mus., LXXII, p. 49.—BARROWS, 1924, Ohio Journal Science, XXIV, p. 313.—BRYANT, 1930, Psyche, XXXVII, p. 377, Figs. 1 and 5.

FEMALE.—Total length, 4.15 mm.

Color somewhat less bright than in the male but the pattern often the same. Sides of the carapace more uniformly darkened, the pale longitudinal side stripes in those instances nearly obsolete. Abdomen as in the males but in gravid females the dorsum of the abdomen is often pale gray or brown and the dark pattern more distinct.

	Length	Width
CARAPACE	1.85 mm.	1.89 mm.
FRONT	0.48	0.90
STERNUM	0.96	0.80
LABIUM	0.33	0.30
MAXILLA	0.44	0.22
ABDOMEN	2.20	2.55

Carapace sparsely set with short clavate hairs which on the pars cephalica form three lines, one median and one row on each side which goes forward to the posterior lateral eye. Clypeal margin with seven principal linear to clavate spines. First row of eyes narrower than the second (72/86), moderately recurved, the medians separated by one and one-half diameters (9/15), nearer the laterals (10/7). Second row of eyes more strongly recurved, the medians separated by one and one-half diameters (9/16), farther from the laterals (9/21). Median ocular quadrangle longer than broad (46/44), slightly narrowed in front (44/42.5). Ratio of the eyes: ALE:AME:PLE:PME = 16:9:13:9. Clypeus equal in height to twice the diameter of an anterior median eye (9/20).

Spines on the legs as usual, the median prolateral spine on the metatarsus nearly always present. First leg: femur, 1.30 mm., patella, 0.80 mm., tibia, 0.95 mm., metatarsus, 0.95 mm. and tarsus, 0.57 mm. long.

Vulva as illustrated in Figs. 133 and 134.

MALE.—Total length, 2.70 mm.

Carapace bright yellowish brown, with lateral dark brown longitudinal stripes which begin narrowly at the posterior lateral eyes and increase in width caudally, ending on the posterior declivity; and with irregular marginal brown stripes which are broadest caudally. Interval between the longitudinal dorsal stripes forming a pale band which includes the median ocular area, is as wide behind as the interval between the posterior lateral eyes and narrows to three-fifths that width at the posterior declivity. Under side of the carapace and the legs dull to bright yellowish brown, the first femora dusky to dark brown throughout, the other femora darker only in the distal half. Femur of the palpus dusky, the patella pale yellow, the terminal joints brown. Abdomen pale yellow to creamy white, with small dark markings on each side near the base of the dorsum and broken brown or dark transverse bands in the caudal half.

	Length	Width
CARAPACE	1.60 mm.	1.53 mm.
FRONT	0.40	0.70
STERNUM	0.76	0.70
LABIUM	0.30	0.24
MAXILLA	0.40	0.20
ABDOMEN	1.40	1.49

Carapace sparsely set with short setiform hairs, those in the ocular region longer, linear, and those on the clypeal margin much longer, setaceous, nine of them more robust. First row of eyes narrower than the second (60/73), recurved, the medians separated by more than a diameter (8/11), less than a diameter from the laterals (5/8). Second row of eyes strongly recurved, the medians separated by one and one-half diameters, two and one-half diameters from the laterals. Median ocular quadrangle longer than broad (32/27), as wide in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 16:8:13:8. Clypeus equal in height to one and one-half diameters of an anterior median eye. Eyes as illustrated in Fig. 126.

Legs sparsely clothed with rows of short setaceous hairs, the spinal armature of the first one as follows: femur, prolateral and dorsal 2 each. Tibia, ventral 2–2–0. Metatarsus, ventral 2–2–2, prolateral 1 median often present. First leg: femur, 1.26 mm., patella, 0.60 mm., tibia, 0.90 mm., metatarsus, 0.98 mm. and tarsus, 0.65 mm. long.

Palpus as illustrated in Figs. 114 and 115.

TYPE LOCALITY.—Three female cotypes

from Ithaca, New York, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Eastern United States and Canada.

RECORDS.—NEW HAMPSHIRE: Intervale, August, 1910, female. North Woodstock, June 4, 1908, male and female. Jackson, Feb. 20, 1906, female. MAINE: Presque Isle, Aug. 26, 1925, three females. MASSACHUSETTS: Hanover, June 9, 1936, male (Bryant). NEW YORK: Slide Mt., Ulster Co., May 8, 1921, female. Presho, Oct. 29, 1924, female. Greenwood Lake, Riverhead, Aug. 4, 1931, female (Crosby and Bishop). Danby, Oct. 2, 1932, female (Crosby). Guyaurga, Yates Co., June 24, 1923, female. Connecticut Hill, Tompkins County, Aug. 20, 1922, female. McLean, Tompkins County, May 8, 1919, two females. Trenton Falls, June 5, female; June, 1921, female. Ithaca, May, male. Pinehill, Sullivan County, May 11, 1922, female. CONNECTICUT: Norwalk, May 5, 1933, male and females (Gertsch). OHIO: Columbus, July, 1917, female (Barrows, 1924). MICHIGAN: Douglas Lake, Aug. 18, 1931, two females (Chickering). Marquette, June 30, female; July 18, 1932, females; July 15, 1932, female (Chickering). MINNESOTA: St. Paul, female (Marx). IOWA: Ames, 1932, female. NEBRASKA: Female (Marx). MANITOBA: Aweme, females. ONTARIO: Ottawa, 1893, females from a bog (Emerton).

Ozyptila monroensis Keyserling

Figures 110, 111 and 131

Oxyptila monroensis KEYSERLING, 1883, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXIII, p. 671, Pl. XXI, fig. 19.—MARX, 1889, Proc. U. S. Nat. Mus., XII, p. 555; 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1895, Journ. New York Ent. Soc., III, p. 90; 1895, Psyche, VII, p. 242; 1900, Proc. Acad. Nat. Sci. Philadelphia, p. 537; 1910, Bull. U. S. Nat. Mus., LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 416.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 63.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1059.—BRYANT, 1930, Psyche, XXXVII, p. 385, Figs. 9 and 19.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., p. 428.

Ozyptila neglecta BRYANT, 1930, Psyche, XXXVII, p. 386, Figs. 11 and 14.

FEMALE.—Total length, 3.00 mm.

Carapace dark brown on the sides, with a median longitudinal paler stripe which in the cephalic region is much invaded by brown, the narrowed thoracic portion dirty white. Sternum dark brown but with a large central pale maculation. Coxae and mouth parts dark brown. Legs concolorous with the sides of the carapace, variegated only slightly with white spots or rings at the junctures of the joints. Abdomen light brown to nearly black, with a pattern of numerous small pale spots.

	Length	Width
CARAPACE	1.50 mm.	1.45 mm.
FRONT	0.40	0.70
STERNUM	0.73	0.66
LABIUM	0.30	0.24
MAXILLA	0.40	0.18
ABDOMEN	1.80	1.90

Carapace with the usual arrangement of spines and hairs, the clypeal margin with seven principal subspatulate spines. First row of eyes recurved, the medians separated by more than a diameter (11/15), nearer the laterals (11/10). Second row of eyes more strongly recurved, the medians separated by more than a diameter (9/15), much farther from the laterals (9/30). Median ocular quadrangle as long as broad (36/36), narrowed behind (36/31). Ratio of the eyes: ALE:AME:PLE:PME = 17:11:14:9. Clypeus equal in height to scarcely twice the diameter of an anterior median eye (11/20).

First leg spined as usual in females of the genus. First leg: femur, 1.00 mm., patella, 0.63 mm., tibia, 0.72 mm., metatarsus, 0.68 mm. and tarsus, 0.55 mm. long.

Vulva as illustrated in Fig. 131.

MALE.—Total length, 2.50 mm.

Carapace dark reddish brown, the pattern very indistinct in alcoholic specimens but with traces of a broad marginal band on each side and a pale median longitudinal band. Under side and legs concolorous with the dorsum. Abdomen reddish brown, with broken transverse bands of black.

	Length	Width
CARAPACE	1.55 mm.	1.40 mm.
FRONT	0.36	0.70
STERNUM	0.70	0.65
LABIUM	0.30	0.23
MAXILLA	0.40	0.15
ABDOMEN	1.30	1.40

Carapace clothed sparsely with short clavate hairs, the ocular area with clavate spines, the clypeal margin with seven principal filiform spines. Eyes of the first row recurved, the medians separated by less than two diameters (7/12), one diameter from the laterals. Second row of eyes more strongly recurved, the medians separated by scarcely two diameters (7/12), farther from the laterals (7/22). Median ocular quadrangle slightly longer than broad (27/26), slightly wider in front than behind (26/24). Clypeus equal in height to scarcely two diameters of an anterior median eye (7/12).

Spines as usual in males of the genus, a median prolateral usually present on the first metatarsus. First leg: femur, 1.05 mm., patella, 0.58 mm., tibia, 0.83 mm., metatarsus, 0.83 mm. and tarsus, 0.55 mm. long.

Palpus as illustrated in Figs. 110 and 111.

TYPE LOCALITY.—Female and immature male cotypes from Fort Monroe, Virginia, in the United States National Museum (Marx collection). Male holotype of *Ozyptila neglecta* Bryant from Hayden Falls, Columbus, Ohio, June 13, 1926 (W. M. Barrows), in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Eastern United States and Canada.

RECORDS.—VIRGINIA: (Keyserling, 1883). DISTRICT OF COLUMBIA: (Marx, 1892). ALABAMA: Mobile, female (Banks, 1900). MARYLAND: Baltimore, male. FLORIDA: Key West, female (Marx). GEORGIA: Savannah, male (Marx). MISSOURI: St. Louis, June 1, 1928, three females (Meiners). INDIANA: (Elliott, 1932). NEBRASKA: (Worley and Pickwell, 1927). MINNESOTA: Minneapolis, May 4, 1932, female (Gertsch).

Ozyptila nevadensis Keyserling

Figures 112, 113 and 132

Oxyptila nevadensis KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 50, Pl. 1, fig. 25.—MARX, 1889, Proc. U. S. Nat. Mus., XII, p. 555.—BANKS, 1910, Bull. U. S. Nat. Mus., LXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 416.—BANKS, 1896, Psyche, VII, p. 243.

FEMALE.—Total length, 3.50 mm.

Sides of the carapace and most of the posterior declivity rusty red with paler reticulations. Median pale stripe tan to white, as broad in front as the first eye row and including the ocular region, narrowed evenly caudally to about one-third that width. Under side of the carapace and the mouth parts dusky yellow. Legs reddish brown, marked with a few lighter maculations, the posterior legs dusky on the sides of the basal joints. Abdomen light brown, marked with an indefinite pattern of black spots concentrated in the caudal half. Color pattern essentially as in *monroensis*.

	Length	Width
CARAPACE	1.65 mm.	1.60 mm.
FRONT	0.45	0.75
STERNUM	0.85	0.73
LABIUM	0.33	0.27
MAXILLA	0.45	0.23
ABDOMEN	2.00	2.10

Spines and hairs of the carapace clavate to spatulate, the clypeal margin with seven principal clavate spines. First row of eyes recurved, the medians separated by scarcely two diameters (12/20), half as far from the laterals (12/10). Second row of eyes recurved, the medians separated by scarcely two diameters (12/18), farther from the laterals (12/32). Median ocular quadrangle longer than broad (46/43), narrowed behind (43/40). Ratio of the eyes: ALE: AME:PLE:PME = 22:12:17:12. Clypeus equal in height to two diameters of an anterior median eye (12/23).

Spines on the first leg as follows: femur, prolateral 1. Tibia, ventral 2–2–0. Metatarsus, prolateral and retrolateral 1 median, ventral 2–2–2. First leg: femur, 1.25 mm., patella, 0.72 mm., tibia, 0.87 mm., metatarsus, 0.85 mm. and tarsus, 0.55 mm. long.

Vulva as illustrated in Fig. 132.

MALE.—Total length, 2.90 mm.

Color pattern as in the female but darker. First two pairs of legs darker and more uniformly colored in brown.

	Length	Width
CARAPACE	1.60 mm.	1.50 mm.
FRONT	0.43	0.70
STERNUM	0.80	0.70
LABIUM	0.28	0.24
MAXILLA	0.37	0.17
ABDOMEN	1.45	1.60

Carapace spined essentially as in the female. Eyes of the first row recurved, the medians separated by more than a diameter (11/19), nearer the laterals (11/8). Second row of eyes recurved, the medians separated by more than a diameter (11/17), farther from the laterals (11/30). Median ocular quadrangle longer than broad (42/38), slightly narrowed behind (38/36). Ratio of the eyes: ALE:AME:PLE:PME = 20:11:15:11. Clypeus equal in height to scarcely two diameters of an anterior median eye (11/20).

Spination of first leg as usual. First leg: femur, 1.20 mm., patella, 0.67 mm., tibia, 0.89 mm., metatarsus, 0.91 mm. and tarsus, 0.56 mm. long.

Palpus as illustrated in Figs. 112 and 113.

TYPE LOCALITY.—Female type from Nevada in the Museum d'Histoire Naturelle, Paris (Simon collection).

DISTRIBUTION.—Western United States.

RECORDS.—UTAH: Zion National Park, 1927, males and females (Woodbury). Fruita, July 10, 1931, males and females (Gertsch). Fish Lake, Sevier County, Sept. 4, 1930, two females (Gertsch). Salt Lake City, female (Marx). City Creek, Salt Lake City, females (Gertsch). NEW MEXICO: San Springs, July, 1934, female

(S. Mulaik). IDAHO: St. Charles, July 8, 1928, female (Gertsch). CALIFORNIA: Northfork, March, 1920, females (Dietrich).

Ozyptila bryantae, new species

Figures 108 and 109

Ozyptila monroensis BRYANT, 1930, Psyche, XXXVII, p. 385, Figs. 9 and 19. (Not *monroensis* Keyserling.)

FEMALE.—Total length, 3.00 mm.

Coloration and structure in close agreement with *Ozyptila monroensis* Keyserling with which this species has been confused.

	Length	Width
CARAPACE	1.36 mm.	1.32 mm.
FRONT	0.40	0.75
STERNUM	0.70	0.60
LABIUM	0.26	0.20
MAXILLA	0.35	0.16
ABDOMEN	1.75	2.00

Spines on the carapace clavate to spatulate, the clypeal margin with seven principal long clavate spines. Eyes of the first row moderately recurved, the medians separated by two diameters (9/18), about half as far from the laterals (9/20). Second row of eyes more strongly recurved, the medians separated by two diameters (8/17), farther from the laterals (8/28). Median ocular quadrangle longer than broad (37/35), slightly wider in front (35/34). Ratio of the eyes: ALE:AME:PLE:PME = 15:9:11:8. Clypeus equal in height to two diameters of an anterior median eye (9/18).

Spination of the legs as in *monroensis*. First leg: femur, 0.94 mm., patella, 0.60 mm., tibia, 0.67 mm., metatarsus, 0.65 mm. and tarsus, 0.45 mm. long.

Vulva agreeing in detail with that of *nevadensis*.

MALE.—Total length, 1.90 mm.

The male is allied to *monroensis* with which it agrees closely in coloration and structure. It is distinct in the smaller size, in that the median ocular quadrangle is less narrowed behind, and in the details of the palpus.

	Length	Width
CARAPACE	1.12 mm.	1.10 mm.
FRONT	0.28	0.50
STERNUM	0.56	0.54
LABIUM	0.23	0.17
MAXILLA	0.28	0.12
ABDOMEN	0.95	1.15

First row of eyes recurved, the medians separated by two diameters (7/14), nearer the laterals (7/8). Second row of eyes more strongly recurved, the medians separated by two diameters (6.5/13), farther from the laterals (6.5/24). Median ocular quadrangle longer than broad (28/26), slightly narrowed in front (26/24.5). Ratio of the eyes: ALE:AME:PLE:PME = 14:7:11:6.5. Clypeus equal in height to two diameters of an anterior median eye (7/15).

Legs spined as usual, the first metatarsus lacking a median prolateral spine. First leg: femur, 0.76 mm., patella, 0.45 mm., tibia, 0.58 mm., metatarsus, 0.58 mm. and tarsus, 0.43 mm. long.

Palpus as illustrated in Figs. 108 and 109.

TYPE LOCALITY.—Female holotype from Norwalk, Connecticut, June 4, 1933 (Gertsch); male allotype from Baltimore, Maryland; both deposited in The American Museum of Natural History.

DISTRIBUTION.—Northeastern United States and Canada.

RECORDS.—NEW YORK: Riverhead, Nov. 24, 1934, female. CONNECTICUT: Norwalk, June 4, 1933, female holotype (Gertsch). MARYLAND: Baltimore, male. MINNESOTA: Minneapolis, Oct. 5, 1930, female (Gertsch). Itasca Park, May 29, 1932, female (Gertsch). (Females from Fawcett, Alberta and Saskatoon, Saskatchewan, may belong here.)

CANADA.—QUEBEC: Montreal, female. MANITOBA: Aweme, June 27, 1917, female.

Ozyptila barrowsi, new species

Figures 120 and 121

Ozyptila modesta BRYANT, 1930, Psyche, XXXVII, p. 383, Fig. 6, not female. (Not *modesta* Scheffer.)

MALE.—Total length, 3.30 mm.

Carapace very dark brown on the sides, medially with an indistinct longitudinal pale stripe. Under side of the cephalothorax dusky brown. Integument of the legs light brown, the first femora, tibiae and patellae dark brown, somewhat mottled and flecked with paler coloration, the distal joints paler brown. Other legs essentially as the first but the femora pale basally.

	Length	Width
CARAPACE	1.80 mm.	1.73 mm.
FRONT	0.45	0.80
STERNUM	0.85	0.76
LABIUM	0.35	0.26
MAXILLA	0.45	0.20
ABDOMEN	1.80	1.90

Structure of the carapace in essential agreement with *pacifica*. Carapace sparsely clothed with short filiform hairs. First row of eyes recurved, the medians separated by scarcely two diameters (8/14), one diameter from the laterals. Second row of eyes recurved, the medians separated by two diameters (7/14), three diameters from the laterals (7/21). Median ocular quad-

rangle longer than broad (34/31), slightly wider in front (31/29). Ratio of the eyes: ALE: AME:PLE:PME = 16:8:12:7. Clypeus equal in height to two diameters of an anterior median eye.

Spines as usual in the genus. Second metatarsus with median prolateral spine present. First leg: femur, 1.50 mm., patella, 0.78 mm., tibia, 1.14 mm., metatarsus, 1.15 mm. and tarsus, 0.60 mm. long.

Palpus as illustrated in Figs. 120 and 121.

TYPE LOCALITY.—Male holotype from Pine, Indiana, in the Museum of Comparative Zoölogy (Banks collection).

Ozyptila pacifica Banks

Figures 122, 123 and 137

Oxyptila pacifica BANKS, 1895, Psyche, VII, p. 243; 1910, Bull. U. S. Nat. Mus., LXXII, p. 49.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.—BRYANT, 1930, Psyche, XXXVII, p. 386, Figs. 12, 13 and 21.—WORLEY, 1932, Univ. Washington Publ., Biology, I, p. 41.

FEMALE.—Total length, 3.80 mm.

Sides of the carapace almost uniform dark brown. Median pale band of the carapace as wide as the eye group in front but evenly narrowed to about half that width behind. Under side of the carapace light brown, without markings. Legs dull brown, unmarked except for a dark ring at the distal end of the fourth tibia. Abdomen pale yellowish brown, the dorsum with a pair of small black spots near the base and three pairs of dark transverse bars in the distal half.

	Length	Width
CARAPACE	1.75 mm.	1.65 mm.
FRONT	0.50	0.85
STERNUM	0.85	0.70
LABIUM	0.30	0.27
MAXILLA	0.45	0.20
ABDOMEN	2.20	2.35

First row of eyes recurved, the medians separated by scarcely two diameters (12/20), nearer the laterals (12/10). Second row of eyes recurved, the medians separated by scarcely two diameters (12/18), much farther from the laterals (12/32). Median ocular quadrangle longer than broad (46/42), slightly broader in front (42/41). Ratio of the eyes: ALE:AME: PLE:PME = 18:12:16:12. Clypeus equal in height to about twice the diameter of an anterior median eye (12/27).

Spines normal. First leg: femur, 1.26 mm., patella, 0.73 mm., tibia, 0.83 mm., metatarsus, 0.80 mm. and tarsus, 0.50 mm. long.

Vulva as illustrated in Fig. 137.

MALE.—Total length, 3.20 mm.

Coloration and pattern in some examples in close agreement with the female but the dark side bands on the carapace usually enclosing one or several large pale spots. Femora darkened in most examples and the patellae with incomplete dark rings. Abdomen more strongly marked with black than in the female, the pattern the same.

	Length	Width
CARAPACE	1.55 mm.	1.45 mm.
FRONT	0.47	0.65
STERNUM	0.77	0.66
LABIUM	0.26	0.23
MAXILLA	0.37	0.20
ABDOMEN	1.70	1.60

Eyes of the first row recurved, the medians separated by more than a diameter (12/17), much nearer the laterals (12/7). Second row of eyes recurved, the medians separated by more than a diameter (12/18), much farther from the laterals (12/28). Median ocular quadrangle longer than broad (47/42), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE: PME = 20:12:15:12. Clypeus equal in height to scarcely two diameters of an anterior median eye (12/22).

Legs spined as usual in the group. First leg: femur, 1.15 mm., patella, 0.66 mm., tibia, 0.86 mm., metatarsus, 0.85 mm. and tarsus, 0.56 mm. long.

Palpus as illustrated in Figs. 122 and 123.

TYPE LOCALITY.—Female and immature male cotypes from Olympia, Washington, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Pacific Northwest. Colorado.

RECORDS.—WASHINGTON: Olympia (Banks, 1895). BRITISH COLUMBIA: Masset, male and female (Keen). Metlakatla, female (Keen). Terrace, June 12–30, 1931, males (Hippishley). OREGON: Eight miles southeast of Colton, April–May, 1934, male (J. M. Pierson). COLORADO: Florissant, male.

XYSTICUS C. Koch

Xysticus C. KOCH, 1835, in H. Schaeff. Deutschl. Ins.

Spiracme MENGE, 1868, Preuss. Spinn., p. 466.

Psammitis MENGE, 1868, idem, p. 468.

Proxysticus DALMAS, 1922, Ann. Genova, p. 90.

Spines setaceous, filiform or claviform, rarely spatulate. Carapace as broad as or slightly longer than broad, moderately high, weakly convex or flat above, the sutures poorly indicated or obsolete. Clypeus vertical, armed with seven, nine or more long spines. Eyes of the first row recurved (Fig. 99), the medians usually much nearer the large lateral eyes, the eyes very rarely subequidistant (*laticeps*). Eyes of the second row recurved (Fig. 98), equidistantly spaced, or the medians nearer each other. Median ocular quadrangle in most species as broad as or broader than long, more rarely somewhat longer than

broad, usually slightly narrower in front. Lateral eye tubercles large, well separated. First two legs subequal in length, strongly spinose. Tarsal claws with three to six teeth. Abdomen broadly rounded behind. Palpus with or without bulbal apophyses.

GENOTYPE.—*Xysticus viaticus* (Linnaeus).

The numerous species of this genus may be separated into various natural groups on the basis of the male genitalia:

1.—Bulb of the male palpus armed with one or two apophyses.....2.
Bulb of the male palpus without apophyses .....4.
2.—Embolus with a well-developed apical sclerite (except *furtivus*). Median apophysis much smaller than the distal one or obsolete.....Group C.—(*Xysticus cunctator* Thorell, type).
Embolus without an apical sclerite.....3.
3.—Bulb with two subequal, discrete apophyses. Tibia without an intermediate apophysis .....Group A.—(*Xysticus viaticus* (Linnaeus), type).
Apophyses of the bulb broadly joined at the base. Tibia with an intermediate apophysis (except *lutzi*).....Group B.—(*Xysticus concursus* Gertsch, type).
4.—Tibia with two apophyses.....Group D.—(*Xysticus sabulosus* (Hahn), type).
Tibia with three apophyses.....Group E.—(*Xysticus robustus* (Hahn), type).

The females of *Xysticus* are more difficult to segregate into the various groups. They may be divided somewhat imperfectly into two sections on the basis of the presence or absence of a median septum in the vulva. This character must be used with caution for there are some exceptions.

1.—Vulva with a more or less well-developed, elevated, median septum of variable form, or with a transverse plate emarginated in front; rarely without a median septum (*coloradensis*, Fig. 199, and *concursus*, Fig. 198.).....See Group A.
Vulva without a median septum, or with an elevated median lobe of variable form (see Figs. 261, 264, 266 and 267), in which cases the marginal rim of the vulva is obsolete.. .....See Group D.

GROUP A

Tibia of male palpus with a ventral and a retrolateral apophysis. Bulb with two subequal, strongly sclerotized apophyses of variable form, one belonging to the median division of the bulb and attached to the tegulum (median apophysis), the other originating near the base of the embolic division (distal apophysis). Embolus usually attached near the base of the tegulum, the truncus broadly encircling the bulb and supported by a pars pendula for a considerable portion of its length, the distal part of the embolus an acuminate spine, without an apical sclerite. Tarsus usually with a well-developed tutaculum. Vulva of the female variable in form, divided in the middle by a longitudinal septum of variable distinctness in most cases, the presence often best expressed in the occurrence of two tubercular black bodies which represent the strongly sclerotized, revolved or elevated margins of the septum. Vulva more rarely without a well-marked septum (*elegans*) or with a transverse plate in the caudal portion of the vulva (*emertoni* and *luctans*). Clypeus armed with seven or nine principal spines. Carapace armed with setaceous or filiform spines.

TYPE OF THE GROUP.—*Xysticus viaticus* (Linnaeus).

This is by far the largest group of the genus and includes the numerous forms which, in terms of male genitalia, are of a more conventional type. While there has been considerable elaboration of the various apophyses and structures, there are no very important departures from the average. It should be kept in mind that these so-called Groups do not represent genera in any sense of the word but are merely conveniences for the segregation of various species obviously allied into a group for comparison. The criteria for the separation of the various groups are not of equal importance. Even the seemingly radical departure in Groups D and E, in which forms the bulb is unarmed, is not sufficient to establish this assemblage as constituting anything more than a subgenus. In Group A the two bulbal apophyses are present and are for the most part essentially equal in size. In the females we find, with few exceptions, a median septum present in the vulva, a structure correlated with the presence of apophyses in the males. Bulbal apophyses are present to my knowledge only in some species of *Tmarus* and in *Xysticus*. *Xysticus* as a genus can be considered one of the most advanced genera of the Misumeninae because of the development of these accessory apophyses, and on the basis of other characters more advanced than *Tmarus*. In some species of *Xysticus* (Groups D and E) the apophyses are secondarily lost, resulting in a simplification of the palpus and a corresponding change in the vulva of the female. A further advance is seen in *Coriarachne* in which the species, presumably coming from the

sabulosus group, are very much flattened.

Many species of this group, which includes the genotype of *Xysticus*, *X. viaticus* (Linnaeus), are known from the Holarctic region. However, no American species is known to be identical with any of the numerous forms from Europe. It seems certain that some of the species described from Siberia will be found in Alaska and boreal America when sufficient collecting has been done in those little-known regions.

KEY TO THE MALES

1.—Terminal part of the embolus forming a spiral.....*X. variabilis* Keyserling.
Terminal part of the embolus not forming a spiral.....2.
2.—Embolus originating near the distal end of the tegulum. Distal apophysis very small (Fig. 202).....*X. pretiosus* Gertsch.
Embolus originating near the base of the tegulum.....3.
3.—Patella and tibia of the first leg black, the femur and distal joints pale. Lateral dark bands of the carapace including the clypeus and half of the pars cephalica.....*X. texanus* Banks.
Legs without such contrasting markings, the femora usually as dark as the tibiae.....4.
4.—Median apophysis of the bulb T-shaped, the stem portion very short.....5.
Median apophysis of the bulb not T-shaped.....8.
5.—Median apophysis attached near the middle.....*X. lassanus* Chamberlin.
Median apophysis assymmetrically T-shaped.....6.
6.—Bulbal apophyses about equal in length, the distal one one-half as long as the width of the bulb.....7.
Distal apophysis longer than the median, as long as the width of the bulb. Retrolateral tibial apophysis twice as long as the ventral apophysis.....*X. emertoni* Keyserling.
7.—First metatarsus with three pairs of ventral spines.....*X. graminis* Emerton.
First metatarsus with four pairs of ventral spines.....*X. orizaba* Banks.
8.—Sides of the carapace dark in color, sometimes mottled or streaked. Median ocular quadrangle slightly narrowed in front.....10.
Sides of the carapace with two dark bands, a marginal one and a narrow subdorsal band, the intervals between forming pale stripes.....9.
9.—Femur of first leg equal in length to the carapace. Anterior median eyes nearer the laterals.....*X. luctans* (Koch).
Femur of first leg slightly longer than the carapace (2.40 mm./2.16 mm.). Eyes of the first row subequidistant.....*X. laticeps* Bryant.
10.—Median apophysis truncate at the end, broadly curved over the distal apophysis.....*X. elegans* Keyserling.
Median apophysis not truncate at the end.....11.
11.—Both apophyses relatively slender, the median with a small terminal hook.....*X. funestus* Keyserling.
Median apophysis without a terminal hook.....12.
12.—Median apophysis evenly rounded.....14.
Median apophysis strongly geniculate..13.
13.—Embolus heavy, the terminal portion twisted. Clypeal margin with seven principal spines.....*X. triguttatus* Keyserling.
Embolus relatively slender. Clypeus with nine marginal spines.....*X. acquiescens* Emerton.
14.—Truncus of embolus free of the pars pendula on the prolateral side of the bulb.....15.
Truncus supported by the pars pendula at or beyond the distal end of the bulb...16.
15.—Carapace grayish brown, the median pale band distinct....*X. gulosus* Keyserling.
Carapace uniform dark reddish brown, the median longitudinal stripe obsolete. Femur and patella of first legs dark brown, the distal joints paler.....*X. ontariensis* Emerton.
16.—Median apophysis very short, broadly rounded (Fig. 150).....*X. discursans* Keyserling.
Median apophysis longer, more slender.....17.
17.—Distal ends of apophyses strongly divergent (Fig. 176).....*X. auctificus* Keyserling.
Distal ends of apophyses not widely separated.....18.
18.—Distal apophysis reduced in size.....19.
Distal apophysis about equal in size to the median.....20.
19.—Clypeal margin with nine principal spines. Median ocular quadrangle much broader than long (21/12).....*X. peninsulanus* Gertsch.
Clypeal margin with seven principal spines. Median ocular quadrangle slightly longer than broad (68/64).....*X. canadensis* Gertsch.
20.—Anterior median eye about two diameters from the lateral eye. First femur much longer than the carapace (3.39 mm./2.61 mm.). Spines on carapace short.....*X. apachecus* Gertsch.
Anterior median eye about a diameter from the anterior lateral eye. First femur slightly longer than the carapace (3.09 mm./3.61 mm.). Spines on carapace well developed.....21.
21.—Tutaculum terminating at the distal end of the retrolateral tibial apophysis.....*X. locuples* Keyserling.

Tutaculum longer, extending caudad of the distal end of the retrolateral tibial apophysis.....*X. gosiutus* Gertsch.

KEY TO THE FEMALES

1.—Each side of the carapace with a marginal brown stripe and a subdorsal narrow longitudinal brown stripe, otherwise pale; median ocular quadrangle greatly narrowed in front, the eyes of the first row subequidistantly spaced.....2.
Sides of the carapace uniformly darkened or mottled, without two distinctive dark stripes on each side. Median eyes usually much nearer the laterals than each other.....3.

2.—Vulva with a low median septum (Fig. 191).....*X. laticeps* Bryant.
Vulva with a transverse, emarginated plate (Fig. 196).....*X. luctans* (Koch).

3.—Tibia and patella of the first leg black, the femur and the distal joints pale yellow. Black side bands of the carapace including the clypeus and eye region.....*X. texanus* Banks.
First leg without such contrasting markings.....4.

4.—Each side of the carapace with a conspicuous longitudinal dark brown stripe, the margins white. Median ocular quadrangle longer than broad. (See Group B).....*X. aprilinus* Bryant.
Sides of the carapace uniformly darkened or mottled, the margins dark.....5.

5.—Vulva with a well-marked median septum.....11.
Vulva without a well-marked longitudinal median septum.....6.

6.—Vulva with a strongly sclerotized, elevated, brown plate deeply emarginated in front which fills the caudal half of the atrium.....*X. emertoni* Keyserling.
Vulva without such a plate.....7.

7.—First metatarsus with three pairs of ventral spines. Median septum very broad and low, practically filling the atrium, the caudal margins with a small tubercle on each side.....*X. pretiosus* Gertsch.
First metatarsus with 1–2–2–2 ventral spines or more.....8.

8.—Atrium subtriangular in form. (See Group B).....*X. concursus* Gertsch.
Atrium not subtriangular in form.....9.

9.—Atrium transversely elliptical (Fig. 199). First tibia with 1–2–2–2 ventral spines. (See Group B)...*X. coloradensis* Bryant.
Atrium suborbicular in form, with a low septum. First tibia with five or more pairs of ventral spines.....10.

10.—Median ocular quadrangle very much broader than long in the ratio 62:42.....*X. peninsulanus* Gertsch.
Median ocular quadrangle proportionately less broad than long in the ratio 87:75.....*X. elegans* Keyserling.

11.—Vulva with a median septum of varying distinctness, the margins of which are not conspicuously revolved to form tubercular bodies.....25.
Vulva with a well-marked, elevated, median septum, the margins of which are revolved into conspicuous dark tubercles of various shapes.....12.

12.—Dark tubercular bodies of atrium well separated.....15.
Dark tubercular bodies of atrium subcontiguous.....13.

13.—Tubercular bodies much longer than broad (Fig. 166).....*X. britcheri* Gertsch.
Tubercular bodies oval or suborbicular..14.

14.—Tubercular bodies oval.....*X. gulosus* Keyserling.
Tubercular bodies suborbicular.....*X. ontariensis* Emerton.

15.—Second metatarsus with 2–2–2 ventral spines.....16.
Second metatarsus with 1–2–2–2 or more ventral spines.....21.

16.—Abdomen creamy white, with a pair of small round black spots at the base of the dorsum and two transverse rows of four spots in the caudal half.....*X. triguttatus* Keyserling.
Abdomen darker, variously marked but without such a pattern of spots.....17.

17.—Median ocular quadrangle longer than broad. Tubercular bodies in atrium small, very widely separated.....*X. pretiosus* Gertsch.
Median ocular quadrangle broader than long.....18.

18.—Tubercular bodies in atrium more widely separated behind than in front.....19.
Tubercular bodies subparallel or more widely separated in front.....20.

19.—Median ocular quadrangle much broader than long (80/58). Femur I very much shorter than carapace (1.65 mm./2.25 mm.). Clypeus with nine principal spines.....*X. acquiescens* Emerton.
Median ocular quadrangle broader than long (54/47). Femur I proportionately longer (1.35 mm./1.65 mm.). Clypeus with seven principal spines.....*X. variabilis* Keyserling.

20.—Head very broad, the median ocular quadrangle very much broader than long (90/60). Hairs and spines of carapace and abdomen all setaceous, the clypeal margin with nine principal spines.....*X. bicuspis* Keyserling.
Head narrower, the median ocular quadrangle slightly broader than long (68/58). Hairs and spines of carapace and abdomen subclavate, the clypeal margin with seven principal spines.....*X. discursans* Keyserling.

21.—Median septum relatively narrow, the tubercular bodies, if present, small, far in front.....*X. funestus* Keyserling.
Median septum broad, the tubercular bodies large.....22.

22.—First metatarsus with four pairs of 1-2-2-2 spines. Median ocular quadrangle slightly longer than broad (78/75)..... ..... *X. canadensis* Gertsch.

First metatarsus with five or more pairs of spines. Median ocular quadrangle broader than long.....23.

23.—Median ocular quadrangle distinctly broader than long (97/80).....24.

Median ocular quadrangle slightly broader than long (80/75)..*X. gosiutus* Gertsch.

24.—Anterior median eyes nearly two full diameters from the laterals. Carapace relatively smooth, the spines short..... ..... *X. apachecus* Gertsch.

Anterior median eyes slightly more than a diameter from the laterals. Carapace spined as usual, the spines long..... ..... *X. locuples* Keyserling.

25.—Median septum a triangular lobe broadly joined behind to the margin of the atrium.....26.

Median septum not of this form.....27.

26.—First femur much shorter than the carapace (1.35 mm./1.65 mm.)..... ..... *X. variabilis* Keyserling.

First femur almost as long as the carapace (2.40 mm./2.50 mm.)..... ..... *X. arizonicus*, new species.

27.—Median septum broad, the margins subparallel, occasionally slightly revolved at the margins.....28.

Median septum not of this form.....30.

28.—First metatarsus with three pairs of ventral spines.....*X. bicuspis* Keyserling.

First metatarsus with at least four pairs of ventral spines.....29.

29.—Head very broad, the median ocular quadrangle much broader than long (117/85). ..... *X. orizaba* Banks.

Head narrower, the median ocular quadrangle somewhat broader than long (80/65).....*X. auctificus* Keyserling.

30.—Median ocular quadrangle very much broader than long (62/42). Vulva as in Fig. 194.....*X. peninsulanus* Gertsch.

Median ocular quadrangle broader than long but in lesser ratio.....31.

31.—Vulva large, about as broad as the length of the fourth coxa, the atriobursal orifices widely separated in two suborbicular depressions. (See Group C)..... ..... *X. fraternus* Banks.

Vulva proportionately much smaller...32.

32.—Septum relatively low, a slight carina, sometimes broadened behind, the atriobursal orifices plainly visible on each side. ..... (See Group C).

Septum inconspicuous, the atriobursal orifices not plainly visible on each side..33.

33.—Vulva as in Fig. 192..... ..... *X. elegans* Keyserling.

Vulva as in Fig. 175..... ..... *X. funestus* Keyserling.

Xysticus gulosus Keyserling

Figures 140, 141 and 165

Xysticus gulosus Keyserling, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 43-45, Pl. I, fig. 21.—Marx, 1890, Proc. U. S. National Museum, XII, p. 555.—Banks, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57, Pl. III, figs. 7 and 7*a*.—Emerton, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 361, Pl. XXVIII, figs. 2-2*c*.—Baker, 1894, Ent. News, Philadelphia, V, p. 164.—Marx, 1892, Proc. Ent. Soc. Washington, II, p. 159.—Banks, 1895, Annals. N. Y. Acad. Sci., VIII, p. 427; 1895, Journ. N. Y. Ent. Soc., III, p. 89.—Slosson, 1898, idem, VI, p. 248.—Banks, 1899, Proc. Ent. Soc. Washington, IV, p. 189; 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 536; 1901, idem, LII, p. 584.—Scheffer, 1905, Kansas Univ. Sci. Bull., III, p. 118.—Banks, 1906, 31st Ann. Rept. Dept. Geol., Indiana, p. 743.—Bryant, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 64.—Banks, 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 452.—Petrunkevitch, 1911, Bull. American Museum Nat. Hist., XXIX, p. 439.—Banks, 1910, Bull. U. S. National Museum, LXXII, p. 48; 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 178.—Chamberlin and Gertsch, 1928, Proc. Biol. Soc. Washington, XLI, p. 183.—Chamberlin and Woodbury, 1929, idem, XLII, p. 137.—Barrows, 1918, Ohio Journal Sci., XVIII, p. 312.—Emerton, 1920, Trans. Royal Canad. Inst., XII, p. 333.—Worley and Pickwell, 1927, Univ. Studies, Nebraska, XXVII, p. 67.—Crosby and Bishop, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—Banks, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV, p. 29.—Elliott, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.—Worley, 1932, Univ. Washington Publ., I, p. 42.

Xysticus lentus Banks, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 55, Pl. II, fig. 67; 1916 idem, LXVI, p. 79.

Female.—Total length, 5.10 mm.

Carapace uniform grayish brown, the midline with an indistinct broad median pale band, much invaded by brown in the cephalic portion, the posterior declivity white, with a large black spot on each side. Mouth parts, sternum and legs concolorous with the carapace, sparsely marked with brown spots. Abdomen uniform grayish brown, the dorsum with a few small black spots.

	Length	Width
Carapace	2.55 mm.	2.52 mm.
Front	0.70	1.35
Sternum	1.20	1.08
Labium	0.54	0.39
Endite	0.85	0.32
Abdomen	3.09	3.09

Carapace armed with setaceous to filiform spines, the clypeal margin with nine principal spines, the eye tubercles with numerous smaller ones. Pars cephalica at the second eye row

seven-elevenths as broad as the greatest width. Dorsum of abdomen set with short filiform spines.

Eyes of the first row narrower than the second (50/62), recurved, the medians separated by more than three diameters (15/53), nearer the laterals (15/26). Second row of eyes recurved, the medians separated by more than three diameters (15/53), farther from the laterals (15/57). Median ocular quadrangle broader than long (83/76), as broad in front as behind (83/83). Ratio of the eyes: ALE: AME:PLE:PME = 27:15:20:15. Clypeus about twice as high as the diameter of an anterior median eye.

Vulva as illustrated in Fig. 165.

First leg spined as follows: femur, prolateral 3, elsewhere 0. Tibia, ventral 2–2–2–2, elsewhere 0. Metatarsus, prolateral and retrolateral 0–1–(1), ventral 2–2–2–2–2. First leg: femur, 2.55 mm., patella, 1.32 mm., tibia, 1.80 mm., metatarsus, 1.74 mm., tarsus, 0.90 mm. long.

MALE.—Total length, 3.72 mm.

Pattern as in the female but the general color of the whole spider darker.

	Length	Width
CARAPACE	2.19 mm.	2.13 mm.
FRONT	0.62	1.14
STERNUM	1.11	0.84
LABIUM	0.45	0.30
ENDITE	0.62	0.25
ABDOMEN	2.22	1.98

Clypeal margin with nine principal spines. Eyes of the first row narrower than the second (27/32), recurved, the medians separated by two diameters (15/35), nearer the laterals (15/20). Second row of eyes recurved, the medians separated by two diameters (15/35), farther from the laterals (15/42). Ratio of the eyes: ALE:AME:PLE:PME = 23:15:19:15. Clypeus one and one-half times as high as the diameter of an anterior median eye (15/22).

Palpus as illustrated in Figs. 140 and 141.

First leg spined as follows: femur, prolateral, 5, dorsal, 3, elsewhere 0. Tibia, prolateral and retrolateral, 0, ventral, 2–2–2–2. Metatarsus, prolateral and retrolateral, 0–1–0, ventral, 2–2–2–2. First leg: femur, 2.73 mm., patella, 1.20 mm., tibia, 2.22 mm., metatarsus, 2.37 mm., tarsus, 1.11 mm. long.

TYPE LOCALITY.—Female type of *gulosus* from Georgia, in the Museum d'Histoire Naturelle, Paris (Simon collection). Cotypes of *lentus* from near Ithaca, New York, in the Museum of Comparative Zoology (Banks collection).

DISTRIBUTION.—United States. Canada.

RECORDS.—MAINE: Long Island, July, 1901, females (Bryant). Portland (Bryant, 1908). NEW HAMPSHIRE: Intervale, September, 1910, male (Bryant). Franconia, male, females (Banks). Gilmanton, June 12–18, 1925, female (Bryant). Hanover, female (Banks). VERMONT: South Newfane, June 16–23, 1929, males, females (Bryant). Woodstock, Sept. 1–15, 1923, male. Lake Champlain, August, 1919, male, female (Raymond). Passumpsic, 1930, male (Granger). MASSACHUSETTS: Williamston, Oct. 13, 1906 (Bryant). Readville, female. Milton, Oct. 18, 1910, female. Ipswich, Oct. 3–8, 1913, 2 females. Holliston, Sept., 1923, female (Emerton). Salem, males, females (Emerton). Beverly, males, females (Emerton). Cambridge, male (Banks). Brighton, Oct. 17, 1915, male (Bryant). CONNECTICUT: New Haven, male, female (Emerton). Norwalk, June 4, 1933, female (Gertsch). RHODE ISLAND: Providence, female (Banks). NEW YORK: Ithaca, male, female (Banks). Idem, October, 1905, female (Banks). Idem, Oct. 3, 1912, female. Idem, July 22, 1920, male. Idem, Oct. 2, 1903, male (Bishop and Crosby). Idem, Oct. 14, 1915, female. Idem, numerous specimens taken from July to November. Canandaigua, October, 1914, 2 females, 3 males. Bluff Point, September, 1911, female. Penn Yan, Oct. 4, 1922, female. Geneva, Nov. 14, 1914, female. Rochester, Sept. 28, 1931, male (Bishop). Idem, Oct. 6, 1931, male (Bishop). Idem, Sept. 26, 1932, male (Bishop). Barneveldt, Sept. 7, female. Manlius, female (Smith). Olcott, February, 1925, 2 females. Deringter Lake, July 4, 1922, female. Sea Cliff, Long Island, male, females (Banks). Sound Avenue, L. I., Sept. 10, 1926, female (Latham). Six Mile Creek, Upper Cayuga Lake Basin, September (Banks, 1892). NEW JERSEY: Fort Lee, female (Banks). Point Pleasant, August, 1880, female (Stone). Short Hills, May 10, 1907, female (Petrunkevitch). Idem, June 10, 1908, 2 females (Petrunkevitch). Ramsey, Nov. 1, 1919, male (Lutz). MARYLAND: Hagerstown, Oct. 6, 1915, female (Pennington). DISTRICT OF COLUMBIA: male (Fox). May to November (Marx, 1892). NORTH CAROLINA: Canton, male (Banks). Black Mountains, female (Banks). Morganton,

Chapel Hill, Swannanoa Valley (Banks, 1911). VIRGINIA: Richmond, female (Banks). Falls Church, 2 males (Banks). KENTUCKY: near Mammoth Cave, June 11, 1874, female (Putnam). ALABAMA: Auburn (Banks, 1900). IOWA: Ames, male, females (Banks). WISCONSIN: Platteville, male, females (Banks). ILLINOIS: Nashville, female (Banks). Chicago male (Chamberlin). OHIO: Salineville, female (Banks). Columbus, Oct. 8, 1918, 3 males (Barrows). Idem, Oct. 20, 1917, male, female (Barrows). Rockbridge, June, 1914, female (Barrows). Idem, June, 1914, male, female (Barrows). MISSOURI: Columbia, females (Crosby). Idem, 2 males, female (Fox). TEXAS: Galveston, females, 1870. El Paso, female (Banks). KANSAS: Manhattan, males, females. Douglas County, September (Scheffer, 1905). Rossville, October (Scheffer, 1905). INDIANA: Wilders, July 25; Greencastle (Banks, 1906). MICHIGAN: Albion, females (Swanson). Idem, Sept. 23–30, 2 females; Sept. 26, 1929, male; Oct. 5, 1930 (Chickering). Ishpeming, Oct. 17, 1931, females. MINNESOTA: Minneapolis, June 23, 1922, male (Fletcher). Idem, Sept. 14, 1932, males, females (Macy). OKLAHOMA: Newkirk, Oct. 8, 1907, female. Kingfisher, Oct. 5, 1907, male (Hayhurst). Cleveland County, Oct. 15, 1927; Comanche County, June 25, 1928 (Banks, 1932). TENNESSEE: Knoxville, 2 females (Cartwright). UTAH: Salt Lake City, Sept. 18, 1930, males, females (Gertsch). Blanding, San Juan County, female. St. George, female. COLORADO: Boulder, males (Banks). Fort Collins, female (Banks). Strontia Springs, July 28, 1930, males, females (Dietz). Clear Creek, June 12, 1927, female. Colorado Springs, Dec., 1930, female. (Above timber line, August, 1906, male.) NEW MEXICO: Las Vegas, February (Banks, 1901). Summit of range between Pecos and Spapello rivers, August (Banks, 1901). CALIFORNIA: Claremont, female (Banks). Palo Alto, females (Banks). Los Angeles, November-December, 1923, 2 females (one with only six eyes) (Grant). WASHINGTON: Pullman, June 22, 1910, female (Hyslop). Idem, males, females. Olympia, males (Banks). Wawawai, male, females (Banks).

CANADA.—ONTARIO: Ottawa, females (Banks). Arnprior, Summer, 1917, females (Waugh). Brockville (Emerton, 1920). Toronto (Emerton, 1920). ALBERTA: Medicine Hat, Sept. 21, 1932, female (Carr). BRITISH COLUMBIA: Victoria, females (Banks). NOVA SCOTIA: Truro, female (Emerton, 1920). QUEBEC: Coulonge, July 28, 1919, female (Beaulne). Montreal, March 14, 1915, female (Beaulne). Idem, Aug. 27, 1915, females (Beaulne). Idem, April 17, 1915, females (Beaulne).

Xysticus ontariensis Emerton

Figure 164

Xysticus ontariensis EMERTON, 1919, Canadian Entomologist, LI, p. 108, Fig. 16.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.—BARROWS, 1924, Ohio Journal Science, XXIV, p. 313.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 68.

FEMALE.—Total length, 6.30 mm.

Pattern as in *gulosus* but the color of the whole spider ashen gray.

	Length	Width
CARAPACE	2.73 mm.	2.73 mm.
FRONT	0.76	1.56
STERNUM	1.32	1.05
LABIUM	0.48	0.33
ENDITE	0.65	0.25
ABDOMEN	4.20	4.65

Clypeal margin with nine principal spines. Eyes of the first row narrower than the second, recurved, the medians separated by four diameters (13/53), nearer the laterals (13/25). Second row of eyes recurved, the medians separated by three diameters (15/50), farther from the laterals (15/57). Median ocular quadrangle broader than long (80/76), as broad in front as behind (80/80). Ratio of the eyes: ALE:AME:PLE:PME = 25:13:19:15. Clypeus nearly three times as high as the diameter of an anterior median eye (13/35).

Vulva as illustrated in Fig. 164.

First leg armed as follows: femur, prolateral, 3. Tibia, ventral, 2–2–2–2. Metatarsus, ventral, 2–2–2–2–2–2. First leg: femur, 2.55 mm., patella, 1.35 mm., tibia, 1.89 mm., metatarsus, 1.89 mm., tarsus, 0.96 mm. long.

MALE.—Total length, 3.60 mm.

Carapace uniform dark reddish brown, the median dorsal stripe almost completely obliterated. Femora and patellae of the first two legs concolorous with the carapace, the distal joints paler.

	Length	Width
CARAPACE	1.89 mm.	1.83 mm.
FRONT	0.55	1.02
STERNUM	0.96	0.78
LABIUM	0.42	0.30
ENDITE	0.62	0.25
ABDOMEN	1.86	1.62

Clypeal margin with nine principal spines. First row of eyes narrower than the second, recurved, the medians separated by two diameters (14/30), nearer the laterals (14/20). Second row of eyes recurved, the medians separated by two diameters (14/30), farther from the laterals (14/40). Median ocular quadrangle broader than long (58/57), narrower in front (58/53). Ratio of the eyes: ALE: AME:PLE:PME = 23:14:18:14. Clypeus one and one-half times as high as the diameter of an anterior median eye (14/23).

Palpus differing in no important respect from that of *Xysticus gulosus* Keyserling.

First leg spined as follows: femur, prolateral, 9, dorsal, 6, elsewhere, 0. Tibia, prolateral and retrolateral, (1)–(1)–0, ventral, 2–2–2–2. Metatarsus, prolateral and retrolateral, 0–1–(1), ventral, 2–2–2–2. First leg: femur, 2.70 mm., patella, 1.02 mm., tibia, 2.25 mm., metatarsus, 2.43 mm., tarsus, 1.11 mm. long.

DISTRIBUTION.—Canada. Eastern United States.

TYPE LOCALITY.—Male type from Cloyne, Ontario, in the Museum of Comparative Zoölogy (Emerton collection).

RECORDS.—MAINE: Long Island, September, 1904, male (Bryant). VERMONT: South Newfane, September, 1926, male (Bryant). NEW HAMPSHIRE: Holliston, Sept. 8–18, 1923, males (Emerton and Banks). Salem, male (Emerton). Woodstock, Sept. 1–15, 1933, male. Wellesley, male (Emerton). NEW YORK: Ithaca, male (Banks). Idem, Sept. 9, 1919, male (Crosby). Idem, 2 males (Crosby). Barnveldt, Sept. 7, male. Upper Cayuga Lake Basin, male (Banks). Boonville, Sept. 15, 1931, 2 males. Sea Cliff, Long Island, male (Banks). Sound Beach, Riverhead, Sept. 10, 1922, male. MARYLAND: Montgomery County, Aug. 17, 1925, female (Dietz). DISTRICT OF COLUMBIA: March 10, 1929, female (Dietz). OHIO: Rockbridge, Sept. 13, 1918, male, female (Barrows). Salineville, male (Banks). WISCONSIN: Platteville, male (Banks). St. Croix Falls, November, 1931, male (Gertsch). NEBRASKA: Valentine, Aug. 24, 1923, male (Worley and Pickwell). MISSOURI: Columbia, September, male (Crosby). VIRGINIA: Falls Church, male (Banks). NORTH CAROLINA: Canton, male (Banks). Little Switzerland, Sept. 4–5, 1930, 2 males (Creighton). MISSISSIPPI: male (Banks) no further data. COLORADO: Boulder, males (Banks)

Xysticus apachecus Gertsch

Figures 144, 145 and 174

Xysticus apachecus GERTSCH, 1933, American Museum Novitates, No. 593, p. 22, Fig. 24.

Coloration the same for both sexes. Integument of the carapace pale yellowish brown, the broad median longitudinal paler band equal in width to the first eye row, immaculate, the customary black maculation at the cephalic suture absent. Sides of the carapace light brown, the posterior declivity with a large black spot on each side. Integument of the legs white, the first two pairs with very few markings, the last two pairs, particularly the femora, with creamy white maculations and black spots. Abdomen yellow, with a median white band on the dorsum from which extend four transverse streaks on each side, accompanied by corresponding black streaks.

A female from Arizona is 7.20 mm. long.

	Length	Width
CARAPACE	3.30 mm.	3.15 mm.
FRONT	0.90	1.83
STERNUM	1.56	1.23
LABIUM	0.78	0.54
ENDITE	0.98	0.40
ABDOMEN	4.35	3.33

Clypeal margin with nine rather short principal spines. Pars cephalica at the second eye row three-fourths as broad as the carapace (11/15). Carapace highest between the second and third coxae, with the usual spinal armature but the spines much reduced in size.

First row of eyes recurved, the medians separated by nearly four diameters (19/74), much nearer the laterals (19/40). Second row of eyes recurved, the medians separated by three and one-half diameters (19/67), farther from the laterals (19/76). Median ocular quadrangle broader than long (105/90), as wide in front as behind. Ratio of the eyes: ALE:AME: PLE:PME = 33:19:27:19.

First leg spined as follows: femur, prolateral 3, elsewhere 0. Tibia, ventral 2–1–2–2–2–2, elsewhere 0. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2–2. First leg: femur, 3.20 mm., patella, 1.36 mm., tibia, 2.72 mm., metatarsus, 2.18 mm. and tarsus, 1.12 mm., the total length, 10.58 mm.

Vulva (Fig. 174) broader than long, the median septum broadly joined at the margins, caudally narrowed, the lateral margins revolved into black ridges.

MALE.—Total length, 4.80 mm.

	Length	Width
Carapace	2.61 mm.	2.34 mm.
Front	0.65	1.32
Sternum	1.11	0.96
Labium	0.48	0.33
Endite	0.75	0.28
Abdomen	2.70	2.19

First row of eyes recurved, the medians separated by three diameters (15/48), two diameters from the laterals (15/30). Second row of eyes recurved, the medians separated by three diameters (15/60), four diameters from the laterals (15/60). Median ocular quadrangle broader than long (84/67), narrowed in front (84/77). Ratio of the eyes: ALE:AME:PLE:PME = 30:15:23:15. Clypeus slightly more than twice as high as the diameter of an anterior median eye (15/35).

Palpus as illustrated in Figs. 144 and 145.

First leg spined as follows: femur, prolateral 4, dorsal 4. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–1–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2–2. First leg: femur, 3.39 mm., patella, 1.38 mm., tibia, 2.70 mm., metatarsus, 2.52 mm. and tarsus, 1.11 mm. long.

Type Locality.—Female holotype from Blanding, Utah, April 17, 1928 (Gertsch), in the collection of the University of Utah.

Distribution.—Southwestern United States.

Records.—Utah: Mill Creek, Salt Lake City, female (Gertsch). Arizona: north rim of the Grand Canyon, July 7, 1932, male and four females (Gertsch). New Mexico: Jemez Springs, October 30, female (Dietz). Texas: Austin, female. Helothes, Feb. 21, 1925, female (A. H. Wright).

Xysticus locuples Keyserling

Figures 142 and 143

Xysticus locuples Keyserling, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 24–25, Pl. I, fig. 9.—Marx, 1890, Proc. U. S. Nat. Mus., XII, p. 555.—Banks, 1895, Ann. New York Acad. Sci., VIII, p. 426; 1910, Bull. U. S. Nat. Mus., LXXII, p. 48.—Petrunkevitch, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 440.—Banks, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 178, Pl. XI, fig. 10.—Worley, 1932, Univ. Washington Pub. Biol., I, p. 43.

? *Xysticus bicuspis* Banks, 1901, Proc. Acad. Nat. Sci. Philadelphia, LIII, p. 583, Pl. XXXIII, fig. 15.

Pattern as in *Xysticus gosiutus* Gertsch, which this species resembles very closely in structure, but the colors always less bright, usually brown or dull reddish brown. Abdomen with a broad, serrate median white stripe above and pairs of black side bars.

A female is 6.45 mm. long.

	Length	Width
Carapace	3.24 mm.	3.15 mm.
Front	0.83	1.65
Sternum	1.50	1.17
Labium	0.66	0.48
Endite	0.84	0.38
Abdomen	3.60	3.30

Carapace clothed with long setaceous spines, the clypeal margin with nine principal long ones and smaller intermediates. Pars cephalica at the second eye row three-fifths as wide as the greatest width of the carapace (37/57). Abdomen set with rows of small setaceous spines.

First row of eyes narrower than the second (57/66), recurved, the medians separated by two and one-half diameters (21/53), half as far from the laterals (21/26). Second row of eyes recurved, the medians separated by nearly three diameters (20/56), farther from the laterals (20/64). Median ocular quadrangle broader than long (97/80), slightly narrowed in front (96/93). Ratio of the eyes: ALE:AME:PLE:PME = 35:21:27:20. Clypeus equal in height to about twice the diameter of an anterior median eye (21/40).

First leg spined as follows: femur, prolateral 3, elsewhere 0. Tibia, ventral 2–2–1–1–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2. First leg: femur, 3.00 mm., patella, 1.56 mm., tibia, 2.49 mm., metatarsus, 2.10 mm. and tarsus, 0.90 mm. long.

Vulva differing in no important respect from that of *apachecus*.

A male is 4.40 mm. long.

Color and structure essentially as in the male of *Xysticus gosiutus*.

	Length	Width
Carapace	2.28 mm.	2.16 mm.
Front	0.56	1.14
Sternum	1.05	0.90
Labium	0.48	0.33
Endite	0.62	0.30
Abdomen	2.43	2.16

Eyes of the first row recurved, the medians separated by scarcely two diameters (18/32), scarcely a diameter from the laterals (18/15). Second row of eyes recurved, the medians separated by less than two diameters (18/32), scarcely three diameters from the laterals (18/47). Median ocular quadrangle broader than long (68/62), narrowed in front (68/63). Ratio of the eyes: ALE:AME:PLE:PME = 29:18:22:18. Clypeus scarcely as high as two diameters of an anterior median eye (18/30).

Spines of the first leg: femur, prolateral 6, dorsal 5. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2. First leg: femur, 2.58 mm., patella, 1.08 mm.,

tibia, 1.98 mm., metatarsus, 2.16 mm. and tarsus, 0.99 mm. long.

Palpus as illustrated in Figs. 142 and 143.

TYPE LOCALITY.—Male and female cotypes from Colorado in the Museum d'Histoire Naturelle, Paris (Simon collection).

DISTRIBUTION.—Rocky Mountains to the Pacific Coast.

RECORDS.—NEW MEXICO: Albuquerque, May, 1930, male. Las Vegas, female (Banks) as *formosus*. Las Cruces, male (Banks). Pecos, female (Banks). Dripping Springs, Organ Mountains, male (Banks, 1901). ARIZONA: Townsend, female (Banks). Williams, June 9–15, July 5 (Banks, 1902). Bright Angel Point, Grand Canyon, July 19 (Banks, 1902). COLORADO: Ward, Sept. 17, 1931, females (Lutz). Platte Canyon, Aug. 24, 1927, female (Dietz). Chimney Gulch, July 10, 1927, female (Dietz). Steamboat Springs, Sept. 16, 1931, females (Gertsch). UTAH: St. George, male, female paratypes of *Xysticus gosiutus* (Gertsch, 1933). Zion National Park, April 24, 1930, male (Gertsch). Grouse Creek, Raft River Mountains, Aug. 8, 1932, female (Ivie). Logan Canyon, female (Chamberlin). City Creek, Salt Lake City, females (Gertsch). NEVADA: (Keyserling, 1880). Ormsby County, male (Banks). CALIFORNIA: Norfolk, March, 1920, female. Del Norte County, female. Sonoma County, June 28, male (Dietz). Idem, July 4, 1925, female (Dietz). Mt. Shasta, female (Banks). Marin County, male (Banks). Mendocino, male (labelled *gulosus* by Keyserling). Layton, male (Banks). Sisson, July 1, 1905, two females (Emerton). OREGON: Bohemia, Aug. 2, 1905, female (Emerton). WASHINGTON: Olympia, female. Idem, males, females (Banks). Mt. Ranier, Paradise Peak, July 20, 1905, male, female (Emerton). Mt. Ranier, near Olympia (Worley, 1932). MONTANA: Ravalli County, June 17, 1930, female (Kohls).

Xysticus gosiutus Gertsch

Figures 146, 147 and 170

Xysticus gosiutus GERTSCH, 1933, American Museum Novitates, No. 593, pp. 20–21, Figs. 17 and 21.

Integument of the carapace yellow, with a median longitudinal pale band as wide as the first eye row, the anterior portion light reddish brown, the remainder white or nearly so, a creamy white semilunar streak present at the median furrow which lacks the customary dark maculation. Eye tubercles and eye region white. Sides of the carapace reddish, with two darker bands at each side of the median pale band. Abdomen pink to red, irrorate in brown.

A female is 5.40 mm. long.

	Length	Width
CARAPACE	2.76 mm.	2.70 mm.
FRONT	0.69	1.37
STERNUM	1.38	0.99
LABIUM	0.60	0.45
ENDITE	0.80	0.35
ABDOMEN	3.00	3.09

Clypeus with nine principal long marginal spines. Carapace about as broad as long, highest between the second and third coxae, the front somewhat wider than half the greatest width. Abdomen suborbicular as seen from above, clothed with rows of spines.

Eyes of the first row recurved, the medians separated by about three diameters (18/53), much nearer the laterals (18/23). Second row of eyes recurved, the medians separated by scarcely three diameters (17/46), farther from the laterals (17/56). Median ocular quadrangle broader than long (80/75), as wide in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 28:18:22:17. Clypeus equal in height to a little more than two diameters of an anterior median eye (18/40).

First leg spined as follows: femur, prolateral 3. Tibia, ventral 2–1–2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2. First leg: femur, 2.61 mm., patella, 1.29 mm., tibia, 2.01 mm., metatarsus, 1.90 mm. and tarsus, 0.96 mm. long.

Vulva as illustrated in Fig. 170.

A male is 4.80 mm. long.

Sides of the carapace bright reddish brown. Median longitudinal light band of the carapace as wide as the first eye row in front, gradually narrowed caudad to about half that width, the cephalic portion orange, with a few white streaks, the posterior portion lighter, a creamy white semilunar maculation at the median suture. Eye region bright red, the tubercles light brown. Integument of the legs nearly orange, the femora and patellae of the first pairs bright red, the tibiae with basal and distal red annulae, the metatarsi and tarsi yellow; posterior legs yellow, flecked in red and white. Dorsum of the abdomen white at the base, with caudal transverse bands.

	Length	Width
CARAPACE	2.61 mm.	2.46 mm.
FRONT	0.62	1.20
STERNUM	1.23	0.99
LABIUM	0.54	0.36
ENDITE	0.67	0.28
ABDOMEN	2.55	2.25

Eyes of the first row recurved, the medians separated by more than two diameters (19/43), nearer the laterals (19/16). Second eye row recurved, the medians separated by about two diameters (17/37), farther from the laterals (17/50). Median ocular quadrangle broader than long (72/70), wider in front than behind (76/72). Ratio of the eyes: ALE:AME: PLE:PME = 30:19:23:17. Clypeus scarcely twice as high as the diameter of an anterior median eye (19/36).

First leg spined as follows: femur, prolateral 7, dorsal 6. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2. Metatarsus spined as the tibia. First leg: femur, 3.09 mm., patella, 1.26 mm., tibia, 2.34 mm., metatarsus, 2.43 mm. and tarsus, 1.14 mm. long.

Palpus as illustrated in Figs. 146 and 147.

TYPE LOCALITY.—Male holotype and female allotype from Little Cottonwood Canyon, Salt Lake City, Utah, July 17, 1928 (Gertsch), in the collection of the University of Utah.

DISTRIBUTION.—Utah. Oregon. British Columbia.

RECORDS.—UTAH: City Creek Canyon, Salt Lake City, June, 1931, females (Gertsch). OREGON: Seattle, male and female (Exline).

CANADA.—BRITISH COLUMBIA: Okanagan Falls, June 16, 1919, male (Anderson).

Xysticus canadensis Gertsch

Figures 148, 149 and 173

Oxyptila cinerea EMERTON, 1892, Trans. Connecticut Acad. Arts Sci., VIII, p. 366, Pl. XXIX, fig. 6. (Not *X cinereus* C. L. Koch, 1837; not *Thomisus cinereus* Blackwall, 1861.)

Xysticus cinerea BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 63.—BANKS, 1910, Bull. U. S. Nat. Mus., LXXII, p. 48.

Xysticus cinereus PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 437.

Xysticus canadensis GERTSCH, 1934, American Mus. Novitates, No. 707, p. 5. (New name for *Xysticus cinereus* (Emerton), preoccupied.)

A female is 4.35 mm. long.

Carapace brown on the sides, mottled, the midline with a broad median longitudinal white band that anteriorly includes the area of the eyes and is constricted on the caudal declivity. Sternum, mouth parts and coxae thickly marked with brown. Legs light brown, marked with dark brown maculations, the femora mottled with large white spots. Abdomen light brown, the dorsum with pairs of black bars in the caudal half.

	Length	Width
CARAPACE	2.22 mm.	2.16 mm.
FRONT	0.75	1.20
STERNUM	1.11	0.90
LABIUM	0.42	0.27
ENDITE	0.57	0.20
ABDOMEN	2.46	2.82

Clypeal margin with seven long principal spines. Carapace armed as usual, the spines of the setaceous type. Abdomen set with rows of short spines.

Eyes of the first row narrower than the second (16/19), recurved, the medians separated by two diameters (18/40), a diameter from the laterals (18/20). Second row of eyes recurved, the medians separated by two diameters (18/39), farther from the laterals (18/49). Median ocular quadrangle slightly longer than broad (78/75), broader behind than in front (75/70). Ratio of the eyes: ALE:AME:PLE:PME = 28:18:22:18. Clypeus twice as high as the diameter of an anterior median eye (18/34).

First leg spined as follows: femur, prolateral 4, elsewhere 0. Tibia, ventral 2–1–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.01 mm., patella, 1.02 mm., tibia, 1.50 mm., metatarsus, 1.35 mm. and tarsus, 0.75 mm. long.

Vulva as illustrated in Fig. 173.

A male is 3.90 mm. long.

Color pattern as in the female.

	Length	Width
CARAPACE	1.86 mm.	1.77 mm.
FRONT	0.52	0.87
STERNUM	0.90	0.75
LABIUM	0.39	0.27
ENDITE	0.52	0.18
ABDOMEN	2.07	1.80

Clypeal margin with seven principal spines.

Eyes of the first row narrower than the second (13/16), recurved, the medians separated by two diameters (17/32), nearer the laterals (17/12). Second row of eyes recurved, the medians separated by two diameters (17/30), farther from the laterals (17/37). Median ocular quadrangle longer than broad (68/64), broader behind than in front (64/60). Ratio of the eyes: ALE:AME:PLE:PME = 27:17: 21:17. Clypeus one and one-half times as high as the diameter of an anterior median eye (17/25).

First leg spined as follows: femur, prolateral 5, dorsal 3. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2.

Palpus as illustrated in Figs. 148 and 149.

TYPE LOCALITY.—Male type from the White Mountains, New Hampshire, July, in the Museum of Comparative Zoölogy (Emerton collection).

DISTRIBUTION.—Canada. New England.

RECORDS.—LABRADOR: Battle Harbor, Aug. 4, 1912, female (Leng). ALBERTA: Bog forest, Edmonton, male. NEW HAMPSHIRE: White Mountains, July, male type (Emerton, 1892). Idem, June 3, 1918, male.

Xysticus britcheri Gertsch

Figure 166

Xysticus britcheri GERTSCH, 1934, American Museum Novitates, No. 707, p. 10, Fig. 6.

The female holotype is 5.00 mm. long.

Carapace light brown to gray, with lateral brown bands and a median longitudinal light stripe in which are three white streaks. Under side of the carapace light brown, irregularly flecked with red. Legs light brown, with median and lateral creamy white narrow longitudinal stripes on the femora, patellae and tibiae, the femora with a pale stripe beneath. Abdomen light brown, with white side bands and a median broader light stripe, caudally with three white bands.

	Length	Width
CARAPACE	2.33 mm.	2.16 mm.
FRONT	0.66	1.40
STERNUM	1.16	0.76
LABIUM	0.46	0.33
ENDITE	0.66	0.33
ABDOMEN	3.33	3.00

Clypeal margin with nine principal spines. Pars cephalica at the second eye row two-thirds as broad as the greatest width (60/88).

Eye rows recurved, the first narrower than the second (37/43), the median eyes twice as far apart as their distance from the laterals. Eyes of the posterior row equidistantly spaced. Median ocular quadrangle slightly broader than long (23/21), narrowed in front in the same ratio. Ratio of the eyes: ALE:AME:PLE:PME = 10:5:7:5. Clypeus equal in height to two diameters of an anterior median eye.

First leg spined as follows: femur, prolateral 4. Tibia, prolateral 1–1–1, retrolateral 0, ventral 2–2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.90 mm., patella, 1.56 mm., tibia, 2.16 mm., metatarsus, 2.10 mm. and tarsus, 1.00 mm. long.

Vulva as illustrated in Fig. 166, characterized by the presence of a pair of heavily sclerotized black ridges that are nearly as long as and almost fill the atrial cavity.

TYPE LOCALITY.—Female holotype from Onondaga County, New York, Nov. 3 (Britcher), in the collection of The American Museum of Natural History.

DISTRIBUTION.—New York State. Only the type is known.

Xysticus lassanus Chamberlin

Figures 124 and 125

Xysticus lassanus CHAMBERLIN, 1925, Bull. Mus. Compar. Zoöl., LXVII, p. 218.—GERTSCH, 1934, American Mus. Novitates, No. 707, p. 13, Fig. 7 (synonymizes *simplicior* Chamberlin and Gertsch).

Xysticus simplicior CHAMBERLIN AND GERTSCH, 1929, Journ. Ent. and Zool., Pomona College, p. 5, Pl. 1, fig. 10.

MALE.—Total length, 4.00 mm.

Carapace with an indistinct median longitudinal pale stripe which is scarcely as wide as the first eye row in front and which narrows to about half that width at the position of the median groove, the stripe much invaded in front by brown flecks, the posterior portion white but enclosing a small brown marking at the edge of the declivity. Sides of the carapace darker brown but variegated with white markings. Integument of the underside and the appendages nearly white, thickly flecked with brown spots. Abdomen mottled, with three black bars on each side in the caudal half.

	Length	Width
CARAPACE	1.85 mm.	1.81 mm.
FRONT	0.47	0.95
STERNUM	0.90	0.72
LABIUM	0.43	0.32
MAXILLA	0.55	0.25
ABDOMEN	2.20	1.85

Carapace moderately broad in front, convex, the clypeal margin with seven principal spines. First row of eyes recurved, the medians separated by scarcely two diameters (14/27), nearer the laterals (14/18). Second row of eyes recurved, the medians separated by two diameters (14/29), farther from the laterals (14/40). Median ocular quadrangle broader than long (55/47), narrowed in front (55/50). Ratio of the eyes: ALE:AME:PLE:PME = 25:14:18:14. Clypeus equal in height to more than a diameter of an anterior median eye (14/21).

First leg spined as follows: femur, dorsal, 4, prolateral, 3. Tibia, prolateral and retrolateral 1–1–1, ventral, 2–2–2–2. Metatarsus, prolateral, 1–1–1, retrolateral, 1–1–0, ventral, 2–2–2–2. First leg: femur, 1.92 mm., patella, 0.85 mm., tibia, 1.43 mm., metatarsus, 1.50 mm. and tarsus, 0.70 mm. long. Male palpus as illustrated in Fig. 124, characterized particularly by the unusual shape and position of the bulbal apophyses.

The female of this species is unknown.

TYPE LOCALITY.—Male holotype of *lassanus* from Roberts, Texas, taken from the stomach of *Geococcyx californicus* (Lesson), in the Museum of Comparative Zoölogy. Male type of *simplicior* from St. George, Utah, in the collection of the University of Utah.

DISTRIBUTION.—Utah. New Mexico. Texas, Arizona.

RECORDS.—UTAH: St. George, Washington County, 1926, male (Woodbury). TEXAS: Roberts, male (Chamberlin, 1925). ARIZONA: There is a male from this state in the Museum of Comparative Zoölogy.

Xysticus auctificus Keyserling

Figures 176, 177 and 188

Xysticus auctificus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 25–27, Pl. I, fig. 10.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 426.—MARX, 1890, Proc. U. S. National Museum, XII, p. 554.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 47.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 437.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV (1), p. 29.

Xysticus maculatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 45–46, Pl. I, fig. 22.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 555.—BANKS, 1898, Proc. Ent. Soc. Washington, IV, p. 189; 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 537; 1910, Bull. U. S. Nat. Mus., LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 440.

Xysticus trimaculatus BRYANT, 1933, Bull. Mus. Comp. Zoöl., LXXIV, pp. 179–180, Pl. II, figs. 12 and 13.

A female is 5.50 mm. long.

Carapace brown on the sides, medially with a broad longitudinal pale stripe, the cephalic portion of which is invaded by olive brown, leaving two marginal narrow white streaks. Eye region with a transverse white band. Posterior declivity with small black lateral maculations and a triangular median figure. Sternum, mouth parts and legs yellow, rather thickly pointed with black. Abdomen gray above, the caudal half with indistinct transverse black bars, the venter paler.

	Length	Width
CARAPACE	2.17 mm.	2.12 mm.
FRONT	0.60	1.25
STERNUM	0.90	0.75
LABIUM	0.47	0.32
ENDITE	0.60	0.25
ABDOMEN	3.50	3.50

Carapace set with setaceous spines, the clypeal margin with seven long principal ones, the pars cephalica armed as usual, five-eighths as broad as the greatest width of the carapace (11/17).

Eyes of the first row narrower than the second (17/20), recurved, the medians separated by nearly three diameters (16/46), nearer the laterals (16/25). Second row of eyes recurved, the medians separated by three diameters (16/48), farther from the laterals (16/54). Median ocular quadrangle broader than long (80/65), narrowed in front (80/74). Ratio of the eyes: ALE:AME:PLE:PME = 27:16:20:16. Clypeus equal in height to scarcely two diameters of an anterior median eye (16/27).

First leg spined as follows: femur, prolateral 3, dorsal 1. Tibia, prolateral and retrolateral 0, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2–2. First leg: femur, 1.87 mm., patella, 1.10 mm., tibia, 1.32 mm., metatarsus, 1.32 mm. and tarsus, 0.67 mm. long.

Vulva as illustrated in Fig. 188.

A male is 3.50 mm. long.

Color of the carapace and appendages as in the female. Abdomen with a broad white median band on the dorsum, the sides with brown bands or pairs of brown spots.

	Length	Width
CARAPACE	1.98 mm.	2.00 mm.
FRONT	0.50	1.12
STERNUM	0.90	0.75
LABIUM	0.38	0.30
ENDITE	0.55	0.22
ABDOMEN	2.20	1.75

Clypeal margin with seven principal spines. Eyes of the first row narrower than the second (14/16), recurved, the medians separated by more than two diameters (14/37), a diameter from the laterals (14/13). Second row of eyes recurved, the medians separated by more than two diameters (14/37), farther from the laterals (14/41). Median ocular quadrangle broader than long (65/56), narrowed in front (65/62). Ratio of the eyes: ALE:AME:PLE:PME = 23:14:18:14. Clypeus scarcely equal in height to two diameters of an anterior median eye (14/25).

First leg spined as follows: femur, prolateral 6, dorsal 6. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral (1)–1–1, ventral 2–2–2–2. First leg: femur, 2.25 mm., patella, 1.00 mm., tibia, 1.70 mm., metatarsus, 1.90 mm. and tarsus, 0.95 mm. long.

Palpus as illustrated in Figs. 176 and 177.

TYPE LOCALITY.—Female type of *maculatus* from Georgia in the Museum d'Histoire Naturelle, Paris (Simon collection). Male type of *auctificus* from Colorado in the Museum d'Histoire Naturelle, Paris (Simon collection). Male holotype of *trimaculatus* from Hope, Arkansas, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Mississippi Valley. Colorado.

RECORDS.—COLORADO: Platte Canyon, male. Grand Junction, 2 females. KANSAS: Manhattan, June–October, 1923, female (Smith). ILLINOIS: Charleston, June 29, 1919, male. Centralia, females

(Banks). South of Farmerville, June 10, 1933, males, females (Ivie). OKLAHOMA: Wichita National Forest, June 29, females. Comanche County, 2 females (Hubbell). Camp Boulder, Comanche County, June 29, 1926, female. Ottawa County, July 20, 1929, female. ARKANSAS: Hope, male (Knobel). Idem, June 21, females (Dietz). LOUISIANA: Chastine, May 10, 1915, 2 females (Schmidt). Idem, May 20, 1915, male (Schmidt). Idem, March 24, 1915, male (Schmidt). MISSISSIPPI: no specific data, female, April 13, 1917 (Robert). TEXAS: no specific data, female. No specific locality data, female, June 14, 1908 (Yothers). GEORGIA: (Keyserling, 1880). ALABAMA: Auburn, October (Banks, 1900).

Xysticus pretiosus Gertsch

Figures 167, 202 and 203

Xysticus pretiosus GERTSCH, 1934, American Museum Novitates, No. 707, p. 6, Fig. 3.

Xysticus auctificus WORLEY, 1932, Univ. Washington Publ. Biol., I, p. 41 (*loc. cit.*, not *auctificus* Keyserling).

FEMALE.—Total length, 4.75 mm.

Carapace with a median longitudinal pale stripe scarcely as wide as the first eye row which is light yellowish brown in the cephalic portion, the posterior declivity white, without a dark maculation at the obsolete median groove. Sides of the carapace dark brown, broken up with pale markings. Underside of the carapace and the legs light reddish brown, variegated with inconspicuous white flecks and spots, the last leg with several large dark spots. Abdomen concolorous with the legs, with indistinct broken transverse bars behind accompanied by white bars of spots.

	Length	Width
CARAPACE	2.25 mm.	2.05 mm.
FRONT	0.70	1.10
STERNUM	0.95	0.78
LABIUM	0.42	0.34
MAXILLA	0.60	0.25
ABDOMEN	2.50	2.50

Carapace set with short subclavate and longer linear to clavate spines, the clypeal margin with seven principal subclavate spines. Width of the head at the second eye row, 1.30 mm. Eyes of the first row recurved, the medians separated by scarcely two diameters (20/35), half as far from the laterals (20/16). Second row of eyes recurved, the medians separated by scarcely two diameters (20/35), farther from the laterals (20/45). Median ocular quadrangle longer than broad (71/66), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 32:20:26:20. Clypeus equal in height to one and one-half diameters of an anterior median eye (30/20).

Spination of first leg as follows: femur, prolateral 3, dorsal 0. Tibia, prolateral 1, retrolateral 0, ventral (1)–2–2–2. Metatarsus, prolateral 0–1–(1), retrolateral 1, ventral 2–2–2. First leg: femur, 1.65 mm., patella, 0.90 mm., tibia, 1.20 mm., metatarsus, 1.15 mm. and tarsus, 0.65 mm. long.

Vulva as illustrated in Fig. 167, a shallow, suborbicular depression with a broad low septum, the elevated ridges small and placed on each side near the caudal end.

MALE.—Total length, 3.30 mm.

Coloration essentially as in the female but the markings larger.

	Length	Width
CARAPACE	1.80 mm.	1.73 mm.
FRONT	0.50	1.00
STERNUM	0.80	0.60
LABIUM	0.30	0.20
MAXILLA	0.46	0.20
ABDOMEN	1.93	1.80

Structure essentially as in the female.

Spination of the first leg as follows: femur, prolateral 3, dorsal 3. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2. First leg: femur, 1.66 mm., patella, 0.70 mm., tibia, 1.33 mm., metatarsus, 1.20 mm. and tarsus, 0.80 mm. long.

Palpus as illustrated in Figs. 202 and 203.

TYPE LOCALITY.—Male holotype from Forest Grove, Clear County, California, August, in The American Museum of Natural History.

DISTRIBUTION.—Pacific Northwest.

RECORDS.—CALIFORNIA: Santa Monica, June, 1909, male. Ten miles west of Santa Barbara, July 12, 1934, female (W. Ivie). Forest Grove, male holotype (Gertsch, 1934). OREGON: Near Roseberg, Aug. 30, 1931, male paratype (W. Ivie). WASHINGTON: Olympia, male (Worley, 1932, as *auctificus*). Friday Harbor, female. Seattle, male (Kincaid).

CANADA.—BRITISH COLUMBIA: Terrace, July, 1931, two male paratypes (Hippishley). Idem, June 1–10, 1931, male (Hippishley).

Xysticus triguttatus Keyserling

Figures 169, 178 and 179

Xysticus triguttatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 12–14, Pl. I, figs. 3 and 6.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 55.—EMERTON, 1892,

Trans. Connecticut Acad. Arts Sci., VIII, pp. 363–364, Pl. XXIX, figs. 1–1*d* (synonymizes *feroculus* Keyserling).—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1895, Journ. N. Y. Ent. Soc., III, p. 89.—MARX, 1890, Proc. Ent. Soc. Washington, II, p. 159; 1890, Proc. U. S. National Museum, XII, p. 555; 1892, Proc. Ent. Soc. Washington, II, p. 195.—BANKS, 1906, 31st Ann. Rept. Dept. Geol., Indiana, p. 742; 1910, Bull. U. S. National Museum, LXXII, p. 49; 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 45.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., VI, p. 248.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 65.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 441.—BARROWS, 1918, Ohio Journ. Sci., XVIII, p. 312.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1061.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV, p. 29.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.

Xysticus feroculus KEYSERLING, 1881, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXI, pp. 305–306, Pl. XI, fig. 24.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 52, Pl. III, figs. 3–3*a*.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, LXVI, p. 79.

A female is 4.05 mm. long.

Integument of the carapace light yellow to light brown in well-marked specimens, the usual median longitudinal lighter band marked at the median furrow with a longer than broad black maculation and a creamy white semilunar marking. Eye tubercles creamy white. Sides of the carapace brown to black, the chromatism often concentrated to form two dark bands on each side. Sternum, maxillae and labium yellow, practically without markings. Legs and palpi light yellow to dark brown in melanic examples, the posterior legs with a few black spots. Dorsum of the abdomen white to gray, with a pair of small black spots at the base and two transverse rows of four black spots behind. Venter of the abdomen white, with rows of dark spots.

	Length	Width
CARAPACE	1.83 mm.	1.74 mm.
FRONT	0.58	1.08
STERNUM	0.77	0.66
LABIUM	0.42	0.30
ENDITE	0.58	0.21
ABDOMEN	2.70	2.70

Clypeal margin with seven principal setaceous spines. Carapace as wide as long, highest between the second and third coxae, the sides steeply declining, the width at the front greater than one-half of the width of the carapace at the widest point.

Eyes of the first row recurved, the medians separated by nearly three diameters (14/40), much nearer the laterals (14/24). Second row of eyes recurved, the medians separated by three diameters (13/44), farther from the laterals (13/50). Median ocular quadrangle broader than long (70/60), slightly narrowed in front (70/68). Ratio of the eyes: ALE:AME: PLE:PME = 25:14:19:13. Clypeus scarcely as high as two diameters of an anterior median eye (14/25).

Spines of the first leg as follows: femur, prolateral 4 or 5. Tibia, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 0–1–(1), ventral 1–2–2–2. First leg: femur, 1.53 mm., patella, 0.87 mm., tibia, 1.07 mm., metatarsus, 1.11 mm. and tarsus, 0.57 mm. long.

Vulva as illustrated in Fig. 169.

A male is 3.24 mm. long.

Carapace with a median longitudinal pale band as wide as the second eye row, with or without the crescentric pale marking near the black maculation at the median furrow, the sides brown. Integument of the legs and palpi pale yellow to light brown, the femora darker, reddish brown. Tarsus of the palpus white above. Dorsum of the abdomen white to gray, with a pattern of black or brown spots as follows: a median basal, two lateral basals, two lateral medians and two transverse distal bands. Venter gray.

	Length	Width
CARAPACE	1.80 mm.	1.65 mm.
FRONT	0.58	0.93
STERNUM	0.81	0.66
LABIUM	0.36	0.27
ENDITE	0.54	0.20
ABDOMEN	1.65	1.44

Clypeal margin with seven principal spines. Eyes of the first row recurved, the medians separated by about two diameters (13/28), much nearer the laterals (13/16). Second row of eyes recurved, the medians separated by two and one-half diameters (12/30), farther from the laterals (12/36). Median ocular quadrangle broader than long (54/47), slightly narrowed in front (54/50). Ratio of the eyes: ALE:AME:PLE:PME = 21:13:15:12. Clypeus equal in height to one and one-half diameters of an anterior median eye (13/20).

First leg spined as follows: femur, prolateral 10, dorsal 4 or 5. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2. First leg: femur, 1.77 mm., patella, 0.75 mm., tibia, 1.50 mm., metatarsus, 1.56 mm. and tarsus, 0.78 mm. long.

Palpus as illustrated in Figs. 178 and 179. Tutaculum well developed. Embolus heavy, the apical portion twisted and ending acutely. Bulb with two processes, the median apophysis hooked, the distal one wide at the base, seemingly notched from above.

TYPE LOCALITY.—Male and female types

of *triguttatus* from Boston, Massachusetts, in the British Museum (Keyserling collection). Female type of *feroculus* from Massachusetts, deposited in the Museum of Comparative Zoölogy.

DISTRIBUTION.—United States and Canada east of the Rocky Mountains.

RECORDS.—NEW HAMPSHIRE: Hollis, Hillsborough County, 3 females (Fox). Franconia, males, females (Slosson, 1898). MASSACHUSETTS: Woods Hole, 2 males (Petrunkevitch). North Adam, August, 1907, male (Bryant). Boston, male and female types (Keyserling, 1880). CONNECTICUT: Norwalk, May to August, 1933, many males and females (Gertsch). NEW YORK: McLean, July, 1904, male. Hilton, June 4, 1919, male. Ringwood, Tompkins County, July 5, 1920, male; idem, July 16, 1922, male. Ithaca, July, 1903, 2 males; idem, July, 3 males; idem, July 7, 1903, 4 females; idem, June 26, 1906, male; idem, Sept. 9, female. Albion, May 19, 1921, male. Trenton Falls, June 5, 1921, female. Barnveldt, May 28, 1919, male. Wilmington, Essex County, Aug. 25, 1916, 1000–2200 feet, female. Enfield Glen, Aug. 23, 1926, male, 2 females (Rea). Mineola, June 20, 1915, male. Lake Charlotte, Columbia County, June 11, 1919, male. Upper Cayuga Lake Basin, males (Banks, 1892). Axton; Johnstown, May; Sacandaga Peak, June; Clayville, June; Central Nassau, June; Tackawasick Pond, June; Poughkeepsie (Crosby and Bishop, 1928). Cold Spring Harbor, Long Island, June, 1921, male (Anderson). Idem, June 15–July 1, 1933, males, females (Gertsch). Sea Cliff, L. I., males, females (Banks, 1895). NEW JERSEY: Short Hills, July, 1906, 17 males, 14 females (Petrunkevitch). Idem, July and August, male, 4 females (Petrunkevitch). Brownville, Aug. 19, 1908, 2 females (Petrunkevitch). Lake Hopatcong, August, 1908, 2 females. Ramsey, July, August, 1934, males, females (Gertsch). PENNSYLVANIA: Conyngham, Aug. 13, 1929, female (Dietz). Palmerton, June 13, 1923, males, females (Dietz). Cove Creek, Fulton County, June, 1905, male (Stone). Philadelphia, females (labelled *tetrachorus* by H. C. McCook, a nomen nudum). Glenside, July 4, 1892, male (Nell). DELAWARE: Newark, female. VIRGINIA: Falls Church, June 30, 1926, 2 males, 3 females (Banks). DISTRICT OF COLUMBIA: male (Fox). Potomac Hills; Fort Washington; Bladenburg, August (males only from June to October) (Marx, 1892). WEST VIRGINIA: Buckhannon, June 17, 1930, male; June 19, 1930, male. GEORGIA: (Keyserling, 1880). Atlanta, May, 1889, males (Emerton). NORTH CAROLINA: Pineola; Blowing Rock (Banks, 1911). OHIO: Rockbridge, June, 1914, male (Barrows); idem, July 1, 1916, male (Barrows). Guernsey County, 1916, 2 males, female. Gambier, June 13–24, 1905, male (Nelson); idem, June, 1907, 3 males (Nelson). ILLINOIS: Urbana, June, 1926, males, females (Shackleford). Idem, July 5, 2 males (Shackleford). Idem, August, 1926, 3 females (Shackleford). Champaign, August, 1926, 3 females (Shackleford). MICHIGAN: Sugar Loaf, Marquette, June 28, 1932, male (Chickering). Douglas Lake, July 1, 1922, female (Chickering). Idem, July 8, 1933, female (Chickering). MINNESOTA: Lake Vadnais, St. Paul, July 30, 1931, males, females (Macy). St. Paul, June 24, 1931, females (Macy). INDIANA: Greencastle, June 18, 1904, 2 males. Hammond, July 30; Wilders, July 25 (Banks, 1908). Richmond; Valparaiso (Elliott, 1932). KANSAS: Manhattan, June to October, 1923, male (Smith). Douglas County, July (Scheffer, 1904). OKLAHOMA: Comanche County, June 13, 1926; LeFlore County, June 24, 1927; Ottawa County, July 20, 1929 (Banks, 1932). COLORADO: (Keyserling, 1880). Platte Canyon, September–October, 1906, female (Oslar). Fort Collins, June, female (Banks, 1895).

CANADA.—NOVA SCOTIA: Truro, 5 females. Labrador: (Marx, 1892). MANITOBA: Treesbank, June 19, 1917, female (Criddle). Aweme, June 4, 1910, female (Criddle).

Xysticus discursans Keyserling

Figures 150, 151 and 168

Xysticus discursans KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 20–22, Pl. 1, fig. 7.—MARX, 1890, Proc. U. S. National

Museum, XII, p. 554.—Banks, 1895, Annals N. Y. Acad. Sci., VIII, p. 427 (part: incorrectly synonymizes *pulverulentus* Emerton).—Banks, 1898, Proc. California Acad. Sci., (3) I, pp. 259–260; 1902, Proc. U. S. National Museum, XXV, p. 215; 1910, Bull. U. S. National Museum, LXXII, p. 48.—Petrunkevitch, 1911, Bull. American Museum Nat. Hist., XXIX, p. 438.—Banks, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 177.—Barrows, 1924, Ohio Journal Science, XXIV, p. 313.—Worley, 1932, Univ. Washington Publ., Biol., I, p. 42.—Gertsch, 1934, American Museum Novitates, No. 707, p. 11, Fig. 10 (synonymizes *vernalis* Bryant).

Xysticus vernalis Bryant, 1930, Psyche, XXXVII, p. 139, Figs. 13 and 15.

A female is 4.80 mm. long.

Sides of the carapace light brown, the midline with a broad median longitudinal pale stripe that is much invaded by brown in the cephalic portion, the posterior declivity white, with a small median brown spot and a more or less distinct brown marking on each side. Sternum, mouth parts and coxae light brown, with some darker markings. Legs mainly brown, darkest above, the sides with white stripes. Abdomen grayish brown above, the caudal half with three pairs of indistinct black bars.

	Length	Width
Carapace	2.25 mm.	2.16 mm.
Front	0.60	1.26
Sternum	0.99	0.84
Labium	0.45	0.32
Endite	0.55	0.25
Abdomen	3.00	3.15

Clypeal margin with seven long principal spines. Eyes of the first row narrower than the second (44/50), recurved, the medians separated by nearly four diameters (12/45), nearer the laterals (12/25). Second row of eyes recurved, the medians separated by nearly four diameters (12/44), farther from the laterals (12/50). Median ocular quadrangle broader than long (68/56), narrowed in front (68/66). Ratio of the eyes: ALE:AME:PLE:PME = 23:12:18:12. Clypeus equal in height to about two diameters of an anterior median eye (12/28).

First leg spined as follows: femur, prolateral 3. Tibia, ventral 1–2–2–2. Metatarsus, prolateral 0–1–1, retrolateral 0–1–0, ventral 2–2–2. First leg: femur, 1.80 mm., patella, 1.25 mm., tibia, 1.35 mm., metatarsus, 1.20 mm. and tarsus, 0.60 mm. long.

Vulva as illustrated in Fig. 168.

A male is 3.84 mm. long.

Coloration very often in complete agreement with the female. Carapace with a broad median longitudinal pale band scarcely as wide as the first eye row, the cephalic portion dark brown, the caudal portion light brown, a black maculation at the median cephalic furrow. Sides of the carapace dark brown to black. Sternum, coxae, chelicerae and the legs all dark brown, somewhat lightened distally, the last legs with some white flecks. Abdomen nearly black, the base and the lateral margins with more or less distinct creamy white bands, the rest of the dorsum with a few white markings.

	Length	Width
Carapace	2.10 mm.	2.04 mm.
Front	0.50	1.05
Sternum	0.99	0.75
Labium	0.42	0.30
Endite	0.53	0.25
Abdomen	2.19	1.95

Clypeal margin with seven principal spines. Eyes of the first row recurved, the medians separated by nearly three diameters (14/40), half as far from the laterals. Second row of eyes recurved, the medians separated by scarcely four diameters (12/43), about four diameters from the laterals (12/47). Median ocular quadrangle broader than long (68/60), very slightly wider in front (68/67). Ratio of the eyes: ALE:AME:PLE:PME = 26:14:19:12. Clypeus equal in height to scarcely twice the diameter of an anterior median eye (14/25).

First leg spined as follows: femur, prolateral 4, dorsal 4. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2. First leg: femur, 2.19 mm., patella, 1.05 mm., tibia, 1.53 mm., metatarsus, 1.80 mm. and tarsus, 0.84 mm. long.

Palpus as illustrated in Figs. 150 and 151. Patella and tibia about equal in length, the two equal to the femur. Tibia with two heavy processes, in lateral profile about equal in length and stoutness. Cymbium about as broad as long, the tutaculum well developed. Bulb with two apophyses, the median heavy, geniculate, the distal one small and acute. Embolus long, the truncus rather heavy, without apical sclerite.

Type Locality.—Male and female types of *discursans* from Colorado in the Museum d'Histoire Naturelle, Paris (Simon collection). Male type of *vernalis* from Petersham, Massachusetts, May 27–31, 1913, deposited in the Museum of Comparative Zoölogy.

Distribution.—United States.

Records.—Maine: Portland Harbor, Long Island, June, 1902, male. New Hampshire: Mount Washington, 3 males (Bryant). Massachusetts: Holliston, male (Bryant). Woods Hole, July 1, male (Bryant). New York: Fairport, May 14, 1931, male. Sea Cliff, Long Island, male (Banks). Barnveldt, May 28, 1919, female. Albion, May 19, 1921, male. Pennsylvania: No specific locality, July 11, 1925,

male (Dietz). ILLINOIS: Chicago, male (Banks). IOWA: Ames, male (Banks). OHIO: Columbus, May 8, 1918, males, females (Barrows). Idem, April 15, 1922, males, female (Barrows). ALABAMA: Auburn, male (Banks). MISSISSIPPI: No specific locality, female. COLORADO: Denver, April 5, 1929, male (Dietz). Fort Collins, May (Banks, 1895). Dixon's Canyon, March (Banks, 1895). UTAH: Salt Lake City, female (Richards). Lakota, Bear Lake, July 10, 1929, male (Gertsch). IDAHO: Notus, June 11, 1931, male (Ivie). WASHINGTON: Ashford (Worley, 1932). ARIZONA: Williams, Jan. 1–4, male (Banks, 1902). NEVADA: (Keyserling, 1880, male, female). MEXICO: Aqua Caliente, male (Banks, 1898).

CANADA.—BRITISH COLUMBIA: Kaslo, July 16 (Banks, 1916). NOVA SCOTIA: Cape Breton, North of Sydney, July, 1906, male.

Xysticus variabilis Keyserling

Figures 171, 200 and 201

Xysticus variabilis KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 40–42, Pl. I, fig. 19.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 555.—BANKS, 1910, Bull. U. S. Nat. Mus., LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 441.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 179.—BRYANT, 1933, Bull. Mus. Comp. Zoöl., LXXIV, pp. 180–181, Pl. II, fig. 11, Pl. III, fig. 19.—GERTSCH, 1934, American Mus. Novitates, No. 707, p. 13, Fig. 5.

A female is 3.18 mm. long.

Carapace light brown, the sides darker brown, mottled, the median longitudinal pale band margined with white spots, the posterior declivity with a black maculation on each side. Mouth parts, sternum and coxae yellowish brown, unmarked or flecked with white. Legs light brown, irregularly marked with white. Abdomen with a creamy white, serrate, longitudinal band and four pairs of black bars in the caudal half, the venter white.

	Length	Width
CARAPACE	1.65 mm.	1.59 mm.
FRONT	0.42	0.90
STERNUM	0.84	0.63
LABIUM	0.33	0.24
ENDITE	0.42	0.19
ABDOMEN	1.65	1.95

Clypeal margin with seven long setaceous spines. Carapace armed as usual, the spines filiform to setaceous. Pars cephalica at the second eye row five-eighths as broad as the greatest width (40/64).

Eyes of the first row narrower than the second (33/38), recurved, the medians separated by two and one-half diameters (11/27), nearer the laterals (11/17). Second row of eyes recurved, the medians separated by three diameters (11/32), farther from the laterals (11/40). Median ocular quadrangle broader than long (54/47), narrowed in front (54/49). Ratio of the eyes: ALE:AME:PLE:PME = 23:11:17:11. Clypeus one and one-half times as high as the diameter of an anterior median eye (11/17).

Legs provided with strong spines, the armature of the first as follows: femur, prolateral 4. Tibia, ventral (1)–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral (1)–2–2–2. First leg: femur, 1.35 mm., patella, 0.78 mm., tibia, 0.99 mm., metatarsus, 0.90 mm. and tarsus, 0.51 mm. long.

Vulva as illustrated in Fig. 171.

A male is 2.70 mm. long.

Pattern as in the female but the carapace and first two pairs of legs dark reddish brown. Abdomen darker above, the median pale band darker and the transverse black bars much more extensive.

	Length	Width
CARAPACE	1.56 mm.	1.44 mm.
FRONT	0.42	0.78
STERNUM	0.75	0.54
LABIUM	0.30	0.22
ENDITE	0.38	0.16
ABDOMEN	1.35	1.20

Clypeal margin with seven principal spines. Eyes of the first row narrower than the second (30/35), recurved, the medians separated by two and one-half diameters (10/25), nearer the laterals (10/15). Second row of eyes recurved, the medians separated by nearly three diameters (11/28), three diameters from the laterals (11/32). Median ocular quadrangle broader than long (50/43), narrowed in front (50/45). Ratio of the eyes: ALE:AME:PLE:PME = 18:10:15:11. Clypeus scarcely twice as high as the diameter of an anterior median eye (10/18).

First leg spined as follows: femur, prolateral 5, dorsal 3. Tibia, prolateral and retrolateral 1–1–1, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2. First leg: femur, 1.62 mm., patella, 0.63 mm., tibia, 1.20 mm., metatarsus, 1.20 mm. and tarsus, 0.54 mm. long.

Palpus as illustrated in Figs. 200 and 201. Tibia with the two conventional apophyses, each of about the same length. Bulbal apophyses similar in shape. Embolus spiraloid in the terminal portion.

TYPE LOCALITY.—Female type from Georgia in the Museum d'Histoire Naturelle, Paris (Simon collection).

DISTRIBUTION.—Southeastern States.

RECORDS.—NORTH CAROLINA: Wilmington, May, 1900, female (Emerton). MISSISSIPPI: Ocean Springs, July 13, female (Dietrich). Lucedale, May, 1931, male (Dietrich). GEORGIA: Macon, females. Fargo to Billy's Island, Okefenokee Swamp, May 25, 1912, female (Crosby). Six miles south of Valdosta, April 20, 1938, male (Gertsch). FLORIDA: Ocala, April 29, 1928, male (Uhler). Blountstown, April 18, 1938, male (Gertsch).

Miss E. B. Bryant records this species from the following localities: Wilmington, North Carolina, male allotype, May, 1900 (Emerton). Newbern, North Carolina, May, 1900, female (Emerton). Charleston, South Carolina, May, 1900, male (Emerton).

Xysticus funestus Keyserling

Figures 162, 163 and 175

Xysticus funestus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 10–12, Pl. I, fig. 2.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555; 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1910, Bull. U. S. National Museum, LXXII, p. 48.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 67.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 439.—GERTSCH, 1934, American Museum Novitates, No. 707, p. 11 (synonymizes *nervosus* and *brunneus* Banks).

Xysticus nervosus BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, pp. 55–56, Pl. III, figs. 8, 8*a*, Pl. IV, fig. 84.—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 362, Pl. XXVIII, figs. 4–4*d*.—BANKS, 1895, Ent. News, Philadelphia, VI, p. 205; 1895, Journ. N. Y. Ent. Soc., III, p. 90; 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 536.—SCHEFFER, 1905, Kansas Univ. Sci. Bull., III, p. 118.—BANKS, 1906, 31st Ann. Rept. Dept. Geol., Indiana, p. 743.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII, pp. 64–65.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 431.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, LXVI, p. 79.—BARROWS, 1918, Ohio Journal Science, XVIII, p. 312.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 68.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV (1), p. 29.

Xysticus brunneus BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 53, Pl. III, fig. 4.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 436.

Xysticus crudelis BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 53, Pl. III, fig. 5.

A female is 7.00 mm. long.

Carapace and appendages bright rusty red, variegated with lighter spots. Carapace with a broad indistinct median longitudinal pale stripe, the caudal declivity lacking the conspicuous side maculations present in most species of the genus. Abdomen somewhat duller than the carapace, without large contrasting markings.

	Length	Width
CARAPACE	3.10 mm.	3.10 mm.
FRONT	0.90	1.85
STERNUM	1.50	1.17
LABIUM	0.70	0.50
ENDITE	0.90	0.37
ABDOMEN	4.25	4.25

Clypeus strongly spinose, the margin with twelve or more subequal spines, seven of which have the basal tubercle large, indicating that they correspond to the conventional longer spines of other species. Carapace and abdomen spined as usual.

Eyes of the first row narrower than the second (22/26), recurved, the medians separated by about three diameters (20/57), nearer the laterals (20/40). Second row of eyes recurved, the medians separated by more than three diameters (19/67), as far from the laterals (19/67). Median ocular quadrangle broader than long (105/88), narrowed in front (105/90). Ratio of the eyes: ALE:AME:PLE:PME = 28:20:24:19. Clypeus equal in height to two and one-half times the diameter of an anterior median eye (20/53).

Legs strongly spinose, the first with the following spinal armature: femur, prolateral 3, elsewhere 0. Tibia, prolateral and retrolateral 0, ventral 2–2–(2)–2–2–2–2–2, but only four of these pairs present on occasional specimens and the size of the others variable. Metatarsus, prolateral and retrolateral 1–1–1, ventral six or seven pairs of which four pairs are more robust. First leg: femur, 3.07 mm., patella, 1.65 mm., tibia, 2.75 mm., metatarsus, 2.12 mm. and tarsus, 0.65 mm. long.

Vulva as illustrated in Fig. 175.

A male is 4.00 mm. long.

Color as in the female but the abdomen more strongly marked with white.

	Length	Width
CARAPACE	2.12 mm.	2.12 mm.
FRONT	0.60	1.15
STERNUM	1.00	0.87
LABIUM	0.42	0.30
ENDITE	0.57	0.40
ABDOMEN	2.30	1.75

Carapace with seven principal marginal spines on the clypeus and other smaller intermediate ones.

Eyes of the first row narrower than the second (15/17), the medians separated by two diameters (16/30), nearer the laterals (16/21). Second row of eyes recurved, the medians separated by more than two diameters (16/40), farther from the laterals (16/45). Median ocular quadrangle broader than long (72/62), narrowed in front (72/62). Ratio of the eyes: ALE:AME:PLE:PME = 26:16:20:16. Clypeus equal in height to scarcely two diameters of an anterior median eye (16/30).

First leg spined as follows: femur, prolateral 4, dorsal 4, elsewhere 0. Tibia and metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.92 mm., patella, 1.02 mm., tibia, 2.37 mm., metatarsus, 2.35 mm. and tarsus, 1.17 mm. long.

Palpus as illustrated in Figs. 162 and 163. Apophyses of the bulb slender, somewhat curved, the distal end of the median apophysis with a small hook.

TYPE LOCALITY.—Male and female cotypes of *funestus* Keyserling from Baltimore, Maryland, in the Museum d'Histoire Naturelle, Paris (Simon collection). Female type of *brunneus* Banks from Ithaca, Upper Cayuga Lake Basin, New York, in the Museum of Comparative Zoölogy (Banks collection). Female type of *crudelis* Banks from Upper Cayuga Lake Basin, New York, in the Museum of Comparative Zoölogy (Banks collection). Male and female cotypes of *nervosus* from Upper Cayuga Lake Basin, New York, in the Museum of Comparative Zoölogy (Banks collection).

DISTRIBUTION.—United States east of the Rocky Mountains.

RECORDS.—RHODE ISLAND: Providence, male, females (Banks). MASSACHUSETTS: Medford, males, females. Readville, males, females. Idem, Oct. 16, 1909, male. Sharon (Bryant, 1908). Woods Hole, 2 females. Idem, Sept. 20, 1928, 3 females (Forbes). Peabody, Oct. 26, 1930, male (Cordell). Nantucket, Sept. 20, 1892, male (Henshaw). Hollister, Sept. 9, 1928, 3 females (Banks). Brighton, Sept. 27, 1913, male, females. Forest Hill, female (Henshaw). Deerfield, 1877, female (Agassiz). CONNECTICUT: New Haven (Bryant, 1908). Idem, Oct. 13, 1902, males, females. New Haven, June 14, 1892, males, females (Emerton). Norwalk, June, 1933, males, females (Gertsch). NEW YORK: Upper Cayuga Lake Basin, male, female, taken in copulation (Banks, 1895). Ithaca, males. Idem, Oct. 18, 1930, male (Hughes). Idem, Nov. 20, 1902, female. Idem, Oct. 18, 1902, male. Idem, Nov. 9, 1930, 2 males (Crosby). Idem, male. Idem, 1912, male. Idem, November, 1916, female. Idem, Oct. 2, 1912, females. Idem, October, male. Idem, September, female. Idem, August to November (Crosby and Bishop, 1928). Dinwoodie, Westchester County, May 3, 1925, female. Taughannock, March 28, female. McLean, September, 1912, male. Idem, Sept. 28, 1912, female. Cold Spring Harbor, Long Island, June 13, 1907, male, females. Poughkeepsie, females (Banks). Orient, L. I., May 3, 1928, female (Latham). Canandaigua, two males. Geneva, November, 1914, female. Tottenville, Staten Island, June 3, 1920, female (Davis). NEW JERSEY: Short Hills, Oct. 5, 1907, females (Petrunkevitch). Idem, 1906, 3 females. Idem, Oct. 5, 1907, 3 males, 6 females (Petrunkevitch). Youngstown, November, 1932, female (Crawford). Ramsey, September, 1934, males, females (Gertsch). PENNSYLVANIA: Washington, July, 1930, female (Long). MARYLAND: Greencastle, female. Montgomery County, Sept. 17, 1927, two males, two females (Dietz). Hagerstown, June, female (Dietz). DISTRICT OF COLUMBIA: May to November (Marx, 1892). April, 1888, female (Fox). Washington, females (Banks). DELAWARE: Newark, male. VIRGINIA: Richmond, female (Banks). Great Falls, June 21, female (Banks). Falls Church, males, females (Banks). NORTH CAROLINA: Greensboro, female (Banks). Male, female (Keyserling, 1880). Oteen, Oct. 15, 1923, male (Crosby and Bishop). Lewiston, Dec. 11, 1924, male, female (Mabee). TENNESSEE: Kingston, July 15, 1933, females (Gertsch). ALABAMA: Auburn (Banks, 1900). Idem, females (Banks). FLORIDA: Alachua County, male, females (Wallace). KANSAS: Douglas County, April (Scheffer, 1905). Manhattan, female (Banks). MISSOURI: Southwestern part (Banks, 1895). Springfield, female (Banks). Columbia, males, females. Idem, October, 1903, 2 females (Hayhurst). Idem, September, 1903, 2 males, 2 females (Hayhurst). Idem, September, 1903, 4 females (Hay-

hurst). Idem, November, 2 females (Hayhurst). Idem, October, female (Hayhurst). Idem, April, female (Hayhurst). Cassville, October, 1905, male. INDIANA: Tippecanoe Lake, June 6, females (Banks). Culver, June 29 (Banks, 1906). Greencastle, female (Banks). Vincennes, female (Banks). Valparaiso (Elliott, 1932). Bloomington, October, 1906, 3 females (Petrunkevitch). OHIO: Columbus, Oct. 28, 1917, male, female (Barrows). Rockbridge, October, 1913, male, female (Barrows). Gambier, Sept. 15–30, 1905, female (Nelson). Chillicothe, May, 1925, 2 females (Nelson). MISSISSIPPI: Lucedale, February, 1932, female (Dietrich). Idem, July, 1930, female (Dietrich). Idem, December, 1931, male (Dietrich). Idem, January, 1932, female (Dietrich). Agricultural College, 2 females. ARKANSAS: Hope, June and July, female, beating flowers (Louise Knobel). TEXAS: Austin, males, females. Idem, females (Banks). Brazos Bottoms, August, 1932, female (Harwood). OKLAHOMA: Canadian County, Oct. 1, 1930; Cleveland County, Oct. 21, 1927 (in low herbage, woodland and prairie) (Banks, 1932). NEBRASKA: "Extreme eastern Nebraska, not found west of Lincoln. Plattsmouth and Lincoln, Feb. 24–March 31, mature female, Feb. 24. March, immatures" (Worley and Pickwell, 1927). COLORADO: (Marx). Banks, 1895. NEW MEXICO: Mesilla, females (Banks). MICHIGAN: Albion, Sept. 10, 1930, female (Chickering). Idem, Aug. 15, 1931, female (Chickering). WISCONSIN: Platteville, female (Banks).

Xysticus luctans (C. Koch)

Figures 160, 161 and 196

Thomisus luctans C. KOCH, 1845, Die Arachniden, XII, p. 63, Pl. CCCXI, fig. 998.—MARX, 1890, Proc. U. S. National Museum, XII, p. 557.—BANKS, 1901, Journ. N. Y. Ent. Soc., IX, p. 185.

Xysticus quadrilineatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 42–43, Pl. I, fig. 20.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57, Pl. III, fig. 10.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., VI, p. 248.—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, pp. 365–366, Pl. XXIX, figs. 4, 4*a*.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1895, Journ. N. Y. Ent. Soc., III, p. 90; 1900, Proc. Acad. Nat. Sci. Philadelphia, LII, p. 536; 1906, 31st Rept. Dept. Geol., Indiana, p. 743.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 65.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, XII, p. 178; 1916, idem, LXVI, p. 79.—BARROWS, 1918, Ohio Journ. Sci., XVIII, p. 312.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.

Xysticus luctans BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 440.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 183.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 68.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1960.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.

A female is 6.12 mm. long.

Carapace light to dark brown, with narrow marginal dark side bands and two dorsal longitudinal dark bands that run from the posterior lateral eye of each side to the posterior declivity. Intervals between the four dark bands much lighter in color, usually without markings, but the midline occasionally with a narrow dark streak that ends at the position of the median groove. Eye region with a transverse white stripe. Mouth parts, sternum and legs light brown, punctate in dark brown. Abdomen gray to white, the dorsum with five pairs of small black spots.

	Length	Width
CARAPACE	3.12 mm.	3.00 mm.
FRONT	0.96	1.92
STERNUM	1.50	1.02
LABIUM	0.69	0.51
ENDITE	0.90	0.35
ABDOMEN	3.60	3.00

Carapace clothed with setaceous spines as usual in the genus, the clypeal margin with nine or eleven long principal ones and smaller intermediate spines. Pars cephalica at the second eye row seven-elevenths as broad as the greatest width (75/112). Abdomen set with rows of short setaceous spines.

Eyes of the first row narrower than the second (67/77), recurved, the medians separated by three diameters (18/53), nearer the laterals (18/43). Second row of eyes recurved, the medians separated by more than three diameters (22/70), slightly farther from the laterals (22/72). Median ocular quadrangle broader than long (114/92), narrowed in front (114/87). Ratio of the eyes: ALE:AME:PLE:PME = 35:18:27:22. Clypeus nearly three times as high as the diameter of an anterior median eye (18/50).

Legs clothed with black hairs and set with strong spines, the armature of the first as follows: femur, prolateral 4. Tibia, ventral 1–2–2–2, and two smaller pairs interpolated between

the second and third pairs. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2–2–2. First leg: femur, 2.85 mm., patella, 1.50 mm., tibia, 2.16 mm., metatarsus, 1.80 mm. and tarsus, 1.05 mm. long.

Vulva as illustrated in Fig. 196.

A male is 5.34 mm. long.

Pattern as in the female but the color of the whole animal usually much darker and somewhat brighter. Basal joints of the legs brown, the distal joints much paler.

	Length	Width
CARAPACE	2.75 mm.	2.64 mm.
FRONT	0.75	1.50
STERNUM	1.26	1.05
LABIUM	0.51	0.36
ENDITE	0.78	0.30
ABDOMEN	2.76	1.98

Clypeal margin with nine principal spines. Eyes of the first row narrower than the second (6/7), recurved, the medians separated by nearly three diameters (18/50), two diameters from the laterals (18/35). Second row of eyes recurved, the medians separated by three diameters (20/60), farther from the laterals (20/20). Median ocular quadrangle broader than long (100/87), as broad in front as the length but narrower than behind (100/87). Ratio of the eyes: ALE:AME:PLE:PME = 35:18:27:20. Clypeus equal in height to two and one-half times the diameter of an anterior median eye (18/45).

First leg spined as follows: femur, prolateral 9, dorsal 4, elsewhere 0. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 1–2–2–2–2. First leg: femur, 2.76 mm., patella, 1.20 mm., tibia, 2.10 mm., metatarsus, 1.86 mm. and tarsus, 1.14 mm. long.

Palpus as illustrated in Figs. 160 and 161.

TYPE LOCALITY.—Female type from Pennsylvania, presumably in the British Museum (C. Koch collection). Female type of *Xysticus quadrilineatus* Keyserling from Peoria, Illinois, in the British Museum (Koch collection).

DISTRIBUTION.—United States and Canada east of the Rocky Mountains.

RECORDS.—MAINE: Long Island, July 4, 1900, female (Bryant). Portland (Bryant, 1908). VERMONT: South Newfane, September, 1926, female (Bryant). NEW HAMPSHIRE: Franconia, female (Banks). MASSACHUSETTS: Chatham, June 10, 1919, males (Bryant). Forest Hills, male (Chamberlin). Holliston, females (Emerton). Readville, female. Scituate, June 13, 1909, male (Bryant). Woods Hole, July, 1901, female (Bryant). Idem, 1910, female. Sharon (Bryant, 1908). Medford; Swampscott; and Beverly (Emerton, 1892). CONNECTICUT: New Haven (Bryant, 1908). Norwalk, May to July, 1933, males, females (Gertsch). NEW YORK: Ithaca, female (Banks). Idem, August, 1903, female. Idem, May 25, 1906, male (Nelson). Idem, October, 1906, female. Cayuga Lake Basin, immature female (Banks). Wappinger Falls, May 23, 1920, male. Sunden Springs, Clayville, June 8, 1921, male. Enfield Glen, August, 1926, female. Sea Cliff, Long Island, female (Banks). Long Island, males, females (Pike). PENNSYLVANIA: Conyngham, May 11, 1929, male (Dietz). Germantown, June 15, 1899, male (Stone). MARYLAND: Montgomery County, November 14, 1925, females (Dietz). DISTRICT OF COLUMBIA: Potomac Hills; Rock Creek, June to September (Marx, 1892). VIRGINIA: Falls Church, female (Banks). ALABAMA: Auburn, October (Banks, 1900). MINNESOTA: Minneapolis, May 30, male (Gertsch). Lake Vadnais, St. Paul, July 7, 1931, male (Macy). MICHIGAN: Douglas Lake, Aug. 8, 1931, female (Chickering). IOWA: male (Banks). WISCONSIN: Platteville, females (Banks). OHIO: Rockbridge, October, 1913, female (Barrows). Columbus, May 18, 1918, male (Barrows). INDIANA: Kosciusko County, female (Banks). NEBRASKA: "Entire eastern Nebraska; Lincoln, Plattsmouth, April 22 to August 25, under logs and carrion, in sunflowers; hibernates as adult." (Worley and Pickwell, 1927). ILLINOIS: Peoria, females (Keyserling, 1880). COLORADO: Fort Collins (Banks, 1895).

CANADA.—QUEBEC: Montreal, April 28, 1915, female (Banks). NOVA SCOTIA: Truro (Emerton, 1920).

Xysticus laticeps Bryant

Figures 182, 183 and 191

Xysticus laticeps BRYANT, 1933, Bull. Mus. Comp. Zoöl., LXXIV, pp. 178–179, Pl. III, fig. 25.—GERTSCH, 1934, American Mus. Novitates, No. 707, p. 13, Fig. 14.

A female is 6.00 mm. long.

Pattern in both sexes as in *Xysticus luctans* (Koch) but the color usually somewhat brighter. Coxae marked on the ventral surfaces with small round black spots in both sexes.

	Length	Width
Carapace	2.85 mm.	2.70 mm.
Front	0.82	1.74
Sternum	1.35	1.14
Labium	0.60	0.48
Endite	0.85	0.35
Abdomen	3.60	3.30

Structure as in *luctans*. Clypeal margin with nine principal spines. Eyes of the first row broader than the second (67/73), recurved, the medians separated by three diameters (17/50), nearer the laterals (17/40). Second row of eyes recurved, the medians separated by more than three diameters (20/68), as far from the laterals (20/68). Median ocular quadrangle broader than long (108/80), narrowed in front (108/86). Ratio of the eyes: ALE:AME:PLE:PME = 32:17:25:20. Clypeus about two and one-half times as high as the diameter of an anterior median eye (17/40).

First leg spined as follows: femur, prolateral 3. Tibia, ventral 1–2–2–2–2. Metatarsus, prolateral 1–1–1, retrolateral 1–1–0, ventral 2–2–2–2–2 and two unpaired. First leg: femur, 2.85 mm., patella, 1.50 mm., tibia, 2.16 mm., metatarsus, 1.77 mm. and tarsus, 0.99 mm. long.

Vulva as illustrated in Fig. 191.

A male is 3.75 mm. long.

	Length	Width
Carapace	2.16 mm.	2.08 mm.
Front	0.57	1.26
Sternum	1.05	0.84
Labium	0.39	0.39
Endite	0.50	0.25
Abdomen	1.80	1.53

Clypeus with nine principal marginal spines. Width of the pars cephalica at the second eye row eleven-sixteenths of the greatest width (55/82). Eyes of the first row narrower than the second (46/54), recurved, the medians separated by about two diameters (15/33), as far from the laterals (15/33). Second row of eyes recurved, the medians separated by nearly three diameters (16/43), farther from the laterals (16/55). Median ocular quadrangle broader than long (75/60), narrowed in front (75/62). Ratio of the eyes: ALE:AME:PLE:PME = 25:15:20:16. Clypeus nearly twice as high as the diameter of an anterior median eye (15/26).

First leg spined as follows: femur, prolateral 7, dorsal 3. Tibia, prolateral and retrolateral 1–1–1 (small), ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.40 mm., patella, 1.05 mm., tibia, 1.83 mm., metatarsus, 1.80 mm. and tarsus, 0.87 mm. long.

Palpus as illustrated in the Figs. 182 and 183.

Type Locality.—Female holotype from Mobile, Alabama, Aug. 2, 1930 (Creighton), in the Museum of Comparative Zoology.

Distribution.—Southeastern United States. Cuba.

Records.—Georgia: Macon, July, 1930, two males. Mississippi: Lucedale, April 1, 1932, female (Dietrich). Alabama: Mobile (Bryant, 1933). Florida: Camp Torreya, Liberty County, Aug. 1, 1925, female. Fort Meyers, February, 1930, female (Barrows). Cuba: Soledad, Aug. 31, male (Worley). San Jose, July 31, 1931, male (Worley).

Xysticus peninsulanus Gertsch

Figures 180, 181 and 194

Xysticus peninsulanus Gertsch, 1934, American Museum Novitates, No. 707, pp. 7–8, Fig. 11.

Female.—Total length, 6.70 mm.

Carapace with a median longitudinal light reddish-brown stripe one-third as wide as the carapace, somewhat invaded in front by darker coloration, the customary dark maculation at the obsolete median groove lacking. Sides of the carapace dark reddish brown, variegated with a few lighter markings. Labium and first coxae each with large black markings, the remaining coxae each with two small black spots. Sternum paler, with several small spots. Legs dark brown, paler distally. Abdomen dull reddish brown above, with a black area on each side near the base and with several small black spots in the caudal portion.

	Length	Width
Carapace	2.90 mm.	2.80 mm.
Front	0.60	1.25
Sternum	1.20	0.90
Labium	0.50	0.40
Maxilla	0.70	0.32
Abdomen	4.20	3.50

Carapace relatively low, broad in front, the width of the head at the second eye row, 1.85 mm. Spines of the carapace setaceous, placed essentially as in *laticeps*, the clypeal margin with nine principal spines. Eyes of the first row recurved, the lower margins forming a straight line, the medians separated by two diameters (14/32), nearer the laterals (14/25). Second row of eyes recurved, the medians separated by more than two diameters (14/39), farther from the laterals (14/46). Median ocular quadrangle broader than long (62/42), narrowed in front (62/54). Ratio of the eyes: ALE:AME:PLE:PME = 28:14:19:14. Clypeus equal in height to scarcely two diameters of an anterior median eye (14/25).

Spination of the first leg as follows: femur, prolateral, 3. Tibia, prolateral and retrolatera., 0, ventral, 1–2–2–1–2. Metatarsus, prolateral, 1–1–1, retrolateral, 1–1–0, ventral, 2–2–2–2. First leg: femur, 2.65 mm., patella, 1.40 mm.,

tibia, 2.05 mm., metatarsus, 1.70 mm. and tarsus, 0.90 mm. long.

Vulva as illustrated in Fig. 194.

MALE.—Total length, 3.66 mm.

Carapace pure black except for a median and narrower lateral brownish stripes caudally, the eye region with a broken transverse light line between the eye rows. Sternum light brown, sparsely punctate in black, the labium, endites and first coxae black, the third and fourth coxae light brown and with a round black marking near the base. Femora, patellae and base of tibiae of first two pairs of legs black, the distal joints progressively lighter, the last two legs light brown and sparsely marked with black spots. Abdomen dark brown to black and showing transverse black bands caudally that are margined in white, the venter paler.

	Length	Width
CARAPACE	2.00 mm.	1.83 mm.
FRONT	0.43	1.10
STERNUM	0.86	0.66
LABIUM	0.36	0.30
MAXILLA	0.53	0.30
ABDOMEN	1.82	1.50

First row of eyes recurved, the medians separated by two and one-half diameters, half as far from the laterals. Second row of eyes recurved, the medians separated by about three diameters, as far from the laterals. Median ocular quadrangle much broader than long (21/12). Ratio of the eyes: ALE:AME:PLE:PME = 7: 4.5:6:4.5.

Spination of the first leg as follows: femur, prolateral, 4, dorsal, 4. Tibia, prolateral, 1–1–0, retrolateral, 1–1–0, ventral, 2–2–2. Metatarsus, prolateral and retrolateral, 0, ventral, 2–2–2. First leg: femur, 1.73 mm., patella, 0.83 mm., tibia, 1.33 mm., metatarsus, 1.26 mm. and tarsus, 0.76 mm. long.

The palpus is illustrated in Figs. 180 and 181.

TYPE LOCALITY.—Male holotype from Punta Gorda, Florida, in the collection of The American Museum of Natural History.

DISTRIBUTION.—Florida.

RECORD.—FLORIDA: Gainesville, October 21, 1932, female.

Xysticus elegans Keyserling

Figures 156, 157 and 192

Xysticus elegans KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 31–32, Pl. I, fig. 14.—BANKS, 1893, Journ. N. Y. Ent. Soc., I, p. 126.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 63.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., VI, p. 248.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 47.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 438.—BARROWS, 1924, Ohio Journ. Sci., XXIV, p. 313.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska XXVII, p. 66.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—GERTSCH, 1934, American Mus. Novitates, No. 707, p. 12 (synonymizes *limbatus* Keys.).

Xysticus limbatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 35–37, Pl. I, fig. 16 (not male).—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 360, Pl. XXVIII, figs. 1–1*h*.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159.—MARX, 1890, Proc. U. S. National Mus., XII, p. 554.—BRYANT, 1909, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 63.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, pp. 177–178; 1910, Bull. U. S. National Mus., LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 439.—BARROWS, 1918, Ohio Journ. Sci., XVIII, p. 312.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 66.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—EMERTON, 1913, Appalachia, XII, p. 155.

Xysticus borealis KEYSERLING, 1883, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXIII, p. 668, Pl. XXI, fig. 17.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 195.—BANKS, 1900, Proc. Washington Acad. Sci., II, p. 483.—MARX, 1890, Proc. U. S. National Mus., XII, p. 554.—BANKS, 1910, Bull. U. S. National Mus., LXXII, p. 47.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 437.

FEMALE.—Total length, 8.70 mm.

Carapace reddish brown on the sides, marmorate, medially with a broad longitudinal light brown band. Mouth parts, sternum and legs light reddish brown, mottled with lighter markings. Abdomen light brown above, with transverse white bars; the venter unmarked.

	Length	Width
CARAPACE	4.38 mm.	4.20 mm.
FRONT	1.38	2.70
STERNUM	2.10	1.44
LABIUM	0.93	0.63
MAXILLA	1.15	0.50
ABDOMEN	5.40	5.10

Carapace rather thickly set with small setaceous spines, the clypeal margin with nine long principal spines and several smaller intermediate ones. Pars cephalica at the second eye row seven-elevenths as broad as the greatest width (77/117). Abdomen set with weak spines.

Eyes of the first row narrower than the second (55/64), recurved, the medians separated by more than two diameters (20/48), nearer the laterals (20/26). Second row of eyes recurved, the medians separated by about three diameters (18/51), farther from the laterals (18/60). Median ocular quadrangle broader than long (87/75), slightly narrowed in front (87/85). Clypeus twice as high as the diameter of an anterior median eye (20/40).

First leg spined as follows: femur, prolateral

3. Tibia, ventral 1–2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2. First leg: femur, 3.66 mm., patella, 1.98 mm., tibia, 2.85 mm., metatarsus, 2.55 mm. and tarsus, 1.26 mm. long.

Vulva as illustrated in Fig. 192.

A male is 6.40 mm. long.

Pattern as in the female but the colors are much darker. Abdomen with a median serrate white band and three pairs of large brown spots on the sides.

	Length	Width
CARAPACE	3.68 mm.	3.60 mm.
FRONT	0.96	2.00
STERNUM	1.76	1.28
LABIUM	0.68	0.48
ENDITE	0.98	0.40
ABDOMEN	3.52	3.00

Clypeal margin with nine or eleven principal spines. Eyes of the first row narrower than the second (67/73), recurved, the medians separated by two and one-half diameters (24/60), nearer the laterals (24/32). Second row of eyes recurved, the medians separated by scarcely three diameters (23/62), farther from the laterals (23/70). Median ocular quadrangle broader than long (104/94), very slightly narrowed in front (104/103). Ratio of the eyes: ALE: AME:PLE:PME = 35:24:30:23. Clypeus twice as high as the diameter of an anterior median eye (24/50).

First leg spined as follows: femur, prolateral 15, dorsal, 6. Tibia, prolateral and retrolateral 1–1–1, ventral 1–2–2–1–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 1–2–2–2–1–2–2–2. First leg: femur, 3.68 mm., patella, 1.80 mm., tibia, 2.68 mm., metatarsus, 2.68 mm. and tarsus, 1.20 mm. long.

Palpus as illustrated in Figs. 156 and 157.

TYPE LOCALITY.—Male type of *elegans* from Georgia in the Museum d'Histoire Naturelle, Paris (Simon collection). Female type of *limbatus* from Colorado or Texas in the Museum d'Histoire Naturelle (Simon collection), or in the University of Breslau (female from Peoria, Illinois). Immature female type of *borealis* from Alaska, in the U. S. National Museum.

DISTRIBUTION.—United States and Canada east of the Rocky Mountains.

RECORDS.—MAINE: Long Island, Sept. 14, 1909, females (Bryant). Jefferson, Lincoln County, 1930, female (Archer). Eastbrook, July, 1922, female (Emerton). Portland, females (Bryant, 1908). NEW HAMPSHIRE: Fitzwilliam, June 13–17, 1930, male (Bryant). Mt. Washington, male (Banks). Intervale, July, 1913, female (Bryant). Gilmanton, June 12–18, 1925, male, female. Lunapee, August, 1916, female. Hollis, Hillsborough County, female. Three Mile Island, May 26, 1906, male, female. Franconia (Slosson, 1898). Lake Winnepesaukee, June 1, 1909, males, females (taken in lantern trap at night). VERMONT: South Newfane, September, 1926, female (Bryant). Idem, June 16–23, 1926, male, female (Bryant). MASSACHUSETTS: Cambridge, male (Banks). Blue Hills, June 5, 1913, female. Brookline; Mt. Tom; Medford; Peabody; Salem; Durham (Emerton, 1892). CONNECTICUT: New Haven, May 17, 1920, female (Petrunkevitch). Idem, June 24, 1912, male, female. Simsbury, females (Emerton, 1892). NEW YORK: Newcomb, Sept. 20, 1924, female. New Salem, July 30, 1926, female (Bishop). McLean, 2 females. Essex County, females. Idem, June 23, 1917, female (Notman). Ithaca, 2 males. Idem, April 10, 1926, female. Idem, June, female. Sag Harbor, Long Island, May 27, 1928, female (Latham). Montauk, L. I., July 15–27, female (Latham). Brooklyn, L. I., males, females (Pike). Quoque, April 11, 1923, female (Crosby). Schenectady, Dec. 2, 1920, female (Crosby). Johnstown, female. Howard, July 5, 1924, female. Long Pond, Suffolk County, June 29, 1924, female (Crosby). Columbia County (Lake Charlotte), June 21, 1915, female. Lynbrook, June, 1918, 3 females. Whiteface, Aug. 22, 1910, female. NEW JERSEY: Short Hills, June, 1908, male, 3 females (Petrunkevitch). Blackwood, June 8, 1930, male (Dietz). Idem, June 30, 1928, female (Dietz) PENNSYLVANIA: Palmerton, May 31, 1928, male (Dietz). Idem, July 8, 1929, female. Conyngham, June 30, 1925, females (Dietz). Idem, May 2, 1928, male (Dietz). Idem, June 7, 1929, female (Dietz). Seybertville, May 5, 1930, male (Dietz). York Furnace, June, 1889, male (Stone). MARYLAND: Montgomery County, Aug. 17, 1925, female. DISTRICT OF COLUMBIA: Potomac Hills, July (Marx, 1892). IOWA: Ames, female (Banks). MICHIGAN: Stoney Lake, Shelby, July 30, male. Albion, Summer, 1930, female. Douglas Lake, June 18, 1931, female. Idem, July 8, 1931, female. Negaimel,

Aug. 3, 1932, female. Marquette, June 30, 1932, female. Ann Arbor, April 4, 1930, female (Miner). MINNESOTA: Itasca Park, May 30, 1932, female (Gertsch). WISCONSIN: St. Croix Falls, females (Banks). ILLINOIS: Urbana, Oct. 10, 1925, female. Idem, Oct. 4, 1925, female (Smith). Ogle County, male (Banks). Peoria (Keyserling, 1880). INDIANA: Vincennes, female (Banks). Hammond, female (Banks). KENTUCKY: Near Mammoth Cave, May 24, female (Sanborn). MISSOURI: Creve Coeur Lake, May 4, 1924, 3 females (Meiners). St. Louis, May 18, 1924, 3 males (Meiners). OHIO: Flint, May 27, 1918, male (Barrows). Cedar Point, Aug., 1913, female (Barrows). KANSAS: Blue Mound, Douglas County, 1924, female (Beamer). NEBRASKA: "Entire state in forests" (Worley and Pickwell, 1927). TEXAS: (Keyserling, 1880). COLORADO: Strontia Springs, July 28, 1930, male (Dietz). Fort Collins, female (Banks). Female type of *limbatus* (Keyserling, 1880). NEW MEXICO: Las Vegas, male (Banks). NORTH DAKOTA: female (Banks). GEORGIA: Clayton, May, 1911, 2000 ft., female. Male type of *elegans* (Keyserling, 1880).

CANADA.—QUEBEC: Fronside, Oct. 23, 1915, female (Stohr). ONTARIO: Lac Seul, July, 1919, female (Waugh). Ottawa, female, 1918 (Waugh). Idem, females (Banks). NOVA SCOTIA: Weymouth, July, 1924, female. ALASKA: (Keyserling, 1883).

Xysticus emertoni Keyserling

Figures 158, 159 and 197

Xysticus emertoni KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 39–40, Pl. I, fig. 18.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159.—BANKS, 1901, Proc. Acad. Nat. Sci. Philadelphia, LIII, p. 584.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., VI, p. 248.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 63.—MARX, 1890, Proc. U. S. National Museum, XII, p. 554.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, p. 180, Pl. XI, fig. 11.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 333.

Xysticus limbatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 32–37, Pl. I, fig. 16 (male, not female).—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57; 1895, Annals N. Y. Acad. Sci., VIII, p. 427.—HARRINGTON, 1897, Ottawa Naturalist, X, pp. 191.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 430.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, LXVI, p. 79.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 333; 1928, Univ. Toronto Studies, Biol., XXXII, p. 45.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.

A female is 7.80 mm. long.

Color and structure in both sexes in close agreement with *Xysticus elegans* Keyserling.

	Length	Width
CARAPACE	3.90 mm.	3.75 mm.
FRONT	1.05	2.19
STERNUM	1.80	1.32
LABIUM	0.78	0.54
ENDITE	1.04	0.35
ABDOMEN	5.25	5.10

Clypeal margin with nine principal spines. Eyes of the first row narrower than the second (65/77), recurved, the medians separated by three and one-half diameters (20/70), nearer the laterals (20/30). Second row of eyes recurved, the medians separated by more than three diameters (20/67), farther from the laterals (20/77). Median ocular quadrangle broader than long (107/98), narrowed in front (107/105). Ratio of the eyes: ALE:AME:PLE:PME = 35:20:28:20. Clypeus nearly three times as high as the diameter of an anterior median eye (20/55).

First leg spined as follows: femur, prolateral 3. Tibia, ventral 1–2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–1–2–2 and occasional additional sublaterals. First leg: femur, 3.33 mm., patella, 1.83 mm., tibia, 2.49 mm., metatarsus, 2.34 mm. and tarsus, 1.08 mm. long.

Vulva as illustrated in Fig. 197.

A male is 6.40 mm. long.

	Length	Width
CARAPACE	3.28 mm.	3.20 mm.
FRONT	0.78	1.60
STERNUM	1.52	1.08
LABIUM	0.64	0.44
ENDITE	0.90	0.38
ABDOMEN	3.40	3.00

Clypeal margin with nine principal spines. Eyes of the first row narrower than the second (55/63), recurved, the medians separated by about two diameters (22/50), a diameter from the laterals (22/23). Second row of eyes recurved, the medians separated by two and one-half diameters (21/51), three diameters from the laterals (21/62). Median ocular quadrangle broader than long (95/77), slightly narrowed behind (95/93). Ratio of the eyes: ALE:AME:PLE:PME = 38:22:25:21. Clypeus slightly more than twice as high as the diameter of an anterior median eye (22/50).

First leg spined as follows: femur, prolateral 10, dorsal 4. Tibia, prolateral and retrolateral

1–1–1, ventral 1–2–2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2–2. First leg: femur, 3.16 mm., patella, 1.48 mm., tibia, 2.32 mm., metatarsus, 2.32 mm. and tarsus, 1.16 mm. long.

Palpus as illustrated in Figs. 158 and 159.

TYPE LOCALITY.—Female type of *emertoni* from Georgia in the Museum d'Histoire Naturelle, Paris (Simon collection). Male cotypes of *limbatus* from Colorado and Texas in the Museum d'Histoire Naturelle.

DISTRIBUTION.—Canada. United States.

RECORDS.—NEW HAMPSHIRE: Mount Washington (Keyserling, 1880). Idem, male, females (Banks). Tuckermann's Ravine, White Mountains, female (Keyserling, 1880). Chocorua, June 3, 1912, females (Bryant). Franconia, two males (Slosson). VERMONT: Clarendon, July, 1930, female (Miller). MASSACHUSETTS: Holliston, July 1, 1923, female (Bryant). Idem, June 9, 1929, male. Woods Hole, July 8, 1901, female (Britcher). NEW YORK: Tackawasick Pond, Rensselaer County, female, June 25, 1920. Upper Cayuga Lake Basin, two males (Banks). Ithaca, male (Banks). DISTRICT OF COLUMBIA: Potomac Hills, near Chain Bridge, November (Marx, 1892). GEORGIA: Female type (Keyserling, 1880). NEW MEXICO: Beulah, female, 1901. TEXAS: (Keyserling, 1880). UTAH: Fish Lake, Sevier County, July 29, 1930, male (Gertsch). COLORADO: (Keyserling, 1880, male). Fort Collins (Banks, 1895). WYOMING: Yellowstone National Park, August, 1931, male (Gertsch). MINNESOTA: Lake Superior (fide Keyserling).

CANADA.—ONTARIO: Ottawa, male (Banks). Idem, 1918, male, female (Waugh). MANITOBA: Aweme, September, females (Criddle). QUEBEC: Seven Islands, July 4, 1922, male. Montreal, April 28, 1915, female (Beaulne). ALBERTA: Banff, July 12, 1917, male. Calgary, August, 1924, female. Cowley, male. Fawcett, May–June, 1931, male. Medicine Hat, Aug. 1–16, 1930, male. Mt. Sentinel, July, female. Seba, June–July, three males, one female. East of Fitzgerald, 1930, two males, female (Hicks).

Xysticus texanus Banks

Figures 186, 187 and 193

Xysticus texanus BANKS, 1904, Journ. New York Ent. Soc., XII, p. 112; 1910, Bull. U. S. Nat. Mus., LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 441.—GERTSCH, 1934, American Mus. Novitates, No. 707, p. 13, Fig. 8.

A female is 5.40 mm. long.

Carapace with two broad side bands of a uniform dark brown or black color that coalesce in front to include the clypeus and the eye region. Median pale band halted abruptly just behind the second eye row, divided for half its length by a longitudinal narrow dark streak. Mouth parts, sternum and coxae yellow. Femora of the first two pairs of legs pale yellow, the patellae light brown, the tibiae black, the metatarsi light brown and the tarsi pale yellow. Last two legs uniform pale yellow in color. Abdomen dark gray above, without a definite pattern, the venter paler.

	Length	Width
CARAPACE	2.55 mm.	2.42 mm.
FRONT	0.60	1.75
STERNUM	1.15	0.90
LABIUM	0.52	0.37
ENDITE	0.75	0.30
ABDOMEN	3.25	2.75

Pars cephalica very broad, the width at the second eye row three-fourths of the greatest width (75/97). Carapace provided with numerous very short spines, the clypeus with nine short marginal principal spines and several smaller intermediate ones. Abdomen set with rows of short spines.

Eyes of the first row narrower than the second (63/70), recurved, the medians separated by three and one-half diameters (16/56), nearer the laterals (16/28). Second row of eyes recurved, the medians separated by four diameters (16/65), farther from the laterals (16/70). Median ocular quadrangle broader than long (97/63), narrower in front (97/87). Ratio of the eyes: ALE:AME:PLE:PME = 28:16:22:16. Clypeus equal in height to about two diameters of an anterior median eye (16/30).

Legs provided with small black hairs and set with short spines. Armature of the first leg as follows: femur, prolateral 3. Tibia, ventral 2–2–2–2, and two smaller intermediate pairs. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2–2. First leg: femur, 2.07 mm., patella, 1.25 mm., tibia, 1.57 mm., metatarsus, 1.37 mm. and tarsus, 0.70 mm. long.

Vulva as illustrated in Fig. 193.

A male is 4.38 mm. long.

Pattern as in the female but the striking colors even more distinct, strongly contrasting. First and second legs with the patellae and tibiae black, the femora occasionally darkened at the distal end, the remainder of that joint and the metatarsi and tarsi yellow. Last two legs pale

yellow. Abdomen darker brown above, white on the sides.

	Length	Width
CARAPACE	2.42 mm.	2.35 mm.
FRONT	0.50	1.37
STERNUM	1.12	0.82
LABIUM	0.42	0.30
ENDITE	0.62	0.25
ABDOMEN	2.42	1.95

Clypeal margin with nine short principal spines. Pars cephalica two-thirds as broad at the second eye row as the greatest width of the carapace (63/93), without the heavy clothing of short spines or bristles present in the female.

Eyes of the first row narrower than the second (51/60), recurved, the medians separated by nearly three diameters (16/45), nearer the laterals (16/25). Second row of eyes recurved, the medians separated by three diameters (16/51), farther from the laterals (16/56). Median ocular quadrangle broader than long (83/55), narrowed in front (83/75). Ratio of the eyes: ALE:AME:PLE:PME = 30:16:21:16. Clypeus slightly higher than a diameter of an anterior median eye (16/20).

Spinal armature of the first leg as follows: femur, prolateral 4, dorsal 3. Tibia, prolateral and retrolateral 0, ventral (1)–2–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2–2. First leg: femur, 2.30 mm., patella, 1.25 mm., tibia, 1.80 mm., metatarsus, 1.75 mm. and tarsus, 0.87 mm. long.

Palpus as illustrated in Figs. 186 and 187.

TYPE LOCALITY.—Female type from San Antonio, Texas, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Southeastern United States. Texas. Colorado.

RECORDS.—TEXAS: Edinburg, immature females, 1932 (Mulaik). Idem, male, female, 1933 (Mulaik). COLORADO: Canyon City, female. KANSAS: Delphos, female (Banks). LOUISIANA: Tallulah, June 18, 1930, two males. GEORGIA: Atlanta, young female (Emerton). FLORIDA: Alachua County, young female (Wallace).

Xysticus acquiescens Emerton

Figures 172, 184 and 185

Xysticus acquiescens EMERTON, 1919, Canadian Entomologist, LI, p. 107, fig. 15; 1920, Trans. Royal Canadian Inst., XII, p. 333.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.

A female is 6.50 mm. long.

Color in both sexes as in *Xysticus bicuspis* Keyserling.

	Length	Width
CARAPACE	2.25 mm.	2.17 mm.
FRONT	0.55	1.37
STERNUM	1.00	0.82
LABIUM	0.45	0.33
ENDITE	0.62	0.25
ABDOMEN	4.00	3.60

Clypeus with nine principal marginal spines. Eyes of the first row narrower than the second (48/55), recurved, the medians separated by four diameters (12/50), nearer the laterals (12/30). Second row of eyes recurved, the medians separated by four and one-half diameters (12/56), about as far from the laterals (12/55). Median ocular quadrangle broader than long (80/58), narrowed in front (80/74). Ratio of the eyes: ALE:AME:PLE:PME = 23:12:16:12. Clypeus twice as high as the diameter of an anterior median eye (12/26).

Legs spinose, the first armed as follows: femur, prolateral 3. Tibia, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2. First leg: femur, 1.65 mm., patella, 1.00 mm., tibia, 1.12 mm., metatarsus, 1.00 mm. and tarsus, 0.57 mm. long.

Vulva as illustrated in Fig. 172.

A male is 4.50 mm. long.

	Length	Width
CARAPACE	2.25 mm.	2.17 mm.
FRONT	0.50	1.25
STERNUM	1.00	0.80
LABIUM	0.40	0.30
ENDITE	0.60	0.25
ABDOMEN	2.25	2.00

Clypeal margin with nine principal spines. Eyes of the first row narrower than the second (44/51), the medians separated by more than three diameters (13/45), recurved, nearer the laterals (13/20). Second row of eyes recurved, the medians separated by about four diameters (13/50), as far from the laterals (13/50). Median ocular quadrangle broader than long (76/57), narrowed in front (76/70). Ratio of the eyes: ALE:AME:PLE:PME = 25:13:18:13. Clypeus equal in height to one and one-half diameter of an anterior median eye (13/20).

First leg spined as follows: femur, prolateral 6, dorsal 5. Tibia, prolateral and retrolateral 1–1–0, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 1–2–2–2. First leg: femur, 1.75 mm., patella, 1.00 mm., tibia, 1.35 mm., metatarsus, 1.35 mm. and tarsus, 0.75 mm. long.

Palpus as illustrated in Figs. 184 and 185.

TYPE LOCALITY.—Male and female cotypes from Saskatoon, Saskatchewan, in the Museum of Comparative Zoölogy (Emerton collection).

DISTRIBUTION.—Alberta. Ontario. New Hampshire.

RECORDS.—NEW HAMPSHIRE: Chocorua, June 3, 1912, males (Bryant).

CANADA.—ALBERTA: Medicine Hat, May 15, June 5, 1930, males, females (Carr). ONTARIO: Ottawa, female (Banks).

Xysticus arizonicus, new species

Figure 195

FEMALE.—Total length, 5.80 mm.

Carapace dark brown on the sides, variegated with numerous irregular pale markings, the median longitudinal pale band much invaded by brown in front, the posterior declivity white, with a small median black maculation at the position of the median groove. Ocular region with a transverse white band. Sternum, mouth parts and coxae pale yellow, with brown spots. Legs concolorous with the carapace but with more numerous white spots. Abdomen mainly brown, the dorsum variegated with numerous black markings. General appearance much as in *Coriarachne versicolor*.

	Length	Width
CARAPACE	2.50 mm.	2.50 mm.
FRONT	1.30	0.70
STERNUM	1.15	0.90
LABIUM	0.50	0.40
MAXILLA	0.70	0.30
ABDOMEN	3.50	3.70

Carapace with a thin covering of short clavate hairs and the usual arrangement of longer spines which are for the most part clavate. Clypeal margin with seven principal long spines and three shorter intermediate ones on each side. Width of the head at the second eye row, 1.50 mm. Abdomen evenly set with short clavate to spatulate spines. Eyes of the first row recurved, the medians separated by scarcely two diameters (18/35), about a diameter from the laterals (18/17). Second row of eyes recurved, the medians separated by two diameters (18/35), farther from the laterals (18/49). Median ocular quadrangle broader than long (70/64), narrowed in front (70/65). Ratio of the eyes: ALE: AME:PLE:PME = 27:18:22:18. Clypeus equal in height to scarcely two diameters of an anterior median eye (18/31).

Legs armed with clavate hairs and stout setaceous spines, the first leg spined as follows: femur, prolateral 3. Tibia, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2–2. First leg: femur, 2.40 mm., patella, 1.35 mm., tibia, 1.85 mm., metatarsus, 1.85 mm. and tarsus, 0.95 mm. long.

Vulva as illustrated in Fig. 195.

TYPE LOCALITY.—Female holotype from Black Mountain, San Xavier del Bac Indian Reservation, near Tucson, Arizona, Aug. 4, 1937 (Peter Steckler), in The American Museum of Natural History. Female paratype from three miles east of Carlsbad Cavern, New Mexico, Aug. 20, 1931.

DISTRIBUTION.—Arizona and New Mexico.

Xysticus bicuspis Keyserling

Figures 152, 153 and 189

Xysticus bicuspis KEYSERLING, 1887, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXVII, pp. 478–479, Pl. VI, fig. 38.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 554.—BANKS, 1910, Bull. U. S. Nat. Mus., LXXII, p. 47.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 437.

Xysticus graminis EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, pp. 364–365, Pl. XXIX, fig. 2.—BANKS, 1892, Ann. New York Acad Sci., VIII, p. 427 (*gramineus*); 1892, Journ. New York Ent. Soc., I, p. 126 (*gramineus*); 1895, idem, III, p. 89 (*gramineus*).—SLOSSON, 1898, idem, VI, p. 248.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 64.—BANKS, 1910, Bull. U. S. Nat. Mus., LXXII, p. 48 (*gramineus*).—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 439.—BARROWS, 1924, Ohio Journ. Sci., XXIV, p. 313.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Expt. Sta., Memoir 101, p. 1060.

A female is 4.85 mm. long.

Pattern as in *orizaba* but the color usually darker, the marginal and median longitudinal bands on the carapace more distinct. Eye region with a transverse white band.

	Length	Width
CARAPACE	2.10 mm.	2.10 mm.
FRONT	0.55	1.50
STERNUM	1.07	0.85
LABIUM	0.50	0.37
ENDITE	0.65	0.25
ABDOMEN	2.87	2.75

Structure essentially as in *orizaba*. Clypeal margin with nine principal spines.

Eyes of the first row narrower than the second (53/60), recurved, the medians separated by nearly four diameters (15/57), nearer the laterals (15/20). Second row of eyes recurved, the medians separated by four diameters (14/62), lightly nearer the laterals (14/58). Median ocular quadrangle broader than long (90/60), narrowed in front (90/83). Ratio of the eyes: ALE:AME:PLE:PME = 25:15:20:14. Clypeus scarcely as high as two diameters of an anterior median eye (15/25).

Legs spinose, the armature of the first one as follows: femur, prolateral 4. Tibia, prolateral and retrolateral 0, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 0–1–0, ventral 2–2–2. First leg: femur, 1.82 mm., patella, 1.00 mm., tibia, 1.32 mm., metatarsus, 1.25 mm. and tarsus, 0.75 mm. long.

Vulva as illustrated in Fig. 189.

A male is 4.00 mm. long.

Pattern as in *orizaba* but the carapace and the first two legs darker.

	Length	Width
CARAPACE	2.15 mm.	2.15 mm.
FRONT	0.45	1.25
STERNUM	1.00	0.75
LABIUM	0.42	0.27
ENDITE	0.57	0.22
ABDOMEN	2.25	2.00

Clypeal margin with seven or nine principal spines. Eyes of the first row narrower than the second (25/31), recurved, the medians separated by nearly three diameters (15/42), nearer the laterals (15/18). Second row of eyes recurved, the medians separated by more than three diameters (14/46), as far from the laterals (14/45). Median ocular quadrangle broader than long (74/50), narrowed in front (75/66). Ratio of the eyes: ALE:AME:PLE:PME = 24:15:20:14. Clypeus one and one-half times as high as the diameter of an anterior median eye (15/22).

First leg spined as follows: femur, prolateral 4, dorsal 3. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2. First leg: femur, 2.00 mm., patella, 0.95 mm., tibia, 1.37 mm., metatarsus, 1.37 mm. and tarsus, 0.85 mm long.

Palpus as illustrated in Figs. 152 and 153.

TYPE LOCALITY.—Male type of *bicuspis* from Montana in the United States National Museum. Male type of *graminis* from Peabody, Mass., in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Eastern United States.

RECORDS.—MAINE: Portland (Bryant, 1908). VERMONT: Passumpsic, males, females, 1930 (Granger). NEW HAMPSHIRE: Franconia (Slosson, 1898). MASSACHUSETTS: Chatham, May 10, male (Emerton). Brookline, July 12, 1877, females (Henshaw). Saugus, males (Emerton, 1892). Peabody, males (Emerton, 1892). Blue Hills (Bryant, 1908). RHODE ISLAND: Providence, 2 females (Banks). CONNECTICUT: Norwalk, June 18, 1933, male, female (Gertsch). NEW YORK: McLean, May 5, 1920, male. Ithaca (Banks, 1893). Sea Cliff, Long Island, male (Banks). Cold Spring Harbor, L. I., June 22, 1932, female (Gertsch). NEW JERSEY: Short Hills, June 10, 1908, male (Petrunkevitch). MARYLAND: Hagerstown, May 31, 1913, female (Hyslop). DISTRICT OF COLUMBIA: Female (Banks). ILLINOIS: Urbana, males, females. MICHIGAN: Albion, July 6, 1929, female (Chickering). OHIO: Columbus, May 8, 1918, 2 males (Barrows). Idem, June, male (Barrows). INDIANA: Westfield, male. MISSOURI: Columbia, male, June (Crosby). IOWA: Ames, immature female (Banks). VIRGINIA: Falls Church, male (Banks). ALABAMA: Auburn, male, females (Banks). COLORADO: Fort Collins, male, females (Banks). MONTANA: (Keyserling, 1887).

Xysticus orizaba Banks

Figures 154, 155 and 190

Xysticus orizaba BANKS, 1898, Proc. California Acad. Sci., I, p. 260, Pl. XVI, fig. 6.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 441.—GERTSCH, 1934, American Museum Novitates, No. 707, pp. 12–13 (synonymizes *paiutus* Gertsch).

Xysticus paiutus GERTSCH, 1935, American Museum Novitates, No. 593, pp. 17–19, Figs. 16 and 20.

A female is 9.00 mm. long.

Carapace pale yellow, with a light median longitudinal band as wide as the anterior eye row, bounded on each side by a brown stripe and with a median brown streak from the posterior median eyes to the cephalic suture, the cephalic portion of the band suffused with light brown and white dashes, the thoracic portion unmarked white except for the customary black maculation at the median groove. Margins of the carapace with a narrow black stripe as wide as that bounding the median band, the intervals between these dark bands pale yellow, occasionally somewhat or rarely completely covered with darker chromatism. Legs concolorous with the carapace, marked with black, with three white lines the length of the legs above, the intervals between often darkened to form bands. Abdomen pale yellowish brown, the dorsum with an indefinite pattern of black spots and tan streaks, the venter light immaculate yellow.

	Length	Width
CARAPACE	3.75 mm.	3.50 mm.
FRONT	0.87	2.00
STERNUM	1.75	1.25
LABIUM	0.75	0.50
ENDITE	1.00	0.37
ABDOMEN	5.75	6.00

Carapace very broad in front, the width at the second eye row four-sevenths of the greatest width (87/140). Clypeal margin with nine principal spines and a number of smaller intermediate ones.

Eyes of the first row narrower than the second (67/82), recurved, the medians separated by four diameters (18/75), nearer the laterals (18/44). Second row of eyes recurved, the medians separated by five diameters (17/83), as far from

the laterals (17/83). Median ocular quadrangle much broader than long (117/85), narrowed in front (117/111). Ratio of the eyes: ALE: AME:PLE:PME = 33:18:25:17. Clypeus equal in height to about two diameters of an anterior median eye (18/40).

Legs with short robust spines, the armature of the first as follows: femur, prolateral 3. Tibia, prolateral and retrolateral 0, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 3.00 mm., patella, 1.75 mm., tibia, 2.12 mm., metatarsus, 1.90 mm. and tarsus, 1.05 mm. long.

Vulva as illustrated in Fig. 190.

A male is 5.00 mm. long.

Color and structure as in the female.

	Length	Width
Carapace	2.50 mm.	2.50 mm.
Front	0.55	1.25
Sternum	1.25	0.95
Labium	0.50	0.37
Endite	0.75	0.32
Abdomen	2.75	2.50

Clypeal margin with nine long principal spines. Eyes of the first row narrower than the second (19/24), recurved, the medians separated by more than two diameters (18/47), nearer the laterals (18/20). Second row of eyes recurved, the medians separated by more than two diameters (17/46), four diameters from the laterals (17/54). Median ocular quadrangle broader than long (80/63), narrowed in front (80/75). Ratio of the eyes: ALE:AME:PLE:PME = 28:18:22:17. Clypeus equal in height to more than the diameter of an anterior median eye (18/25).

First leg spined as follows: femur, prolateral 4, dorsal 5. Tibia and metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.50 mm., patella, 1.25 mm., tibia, 1.85 mm. metatarsus, 1.90 mm. and tarsus, 1.05 mm. long.

Palpus as illustrated in Figs. 154 and 155. Tibia with two processes, the inferior one curved, distally truncated, the superior apophysis about as long but not as heavy as the other. Tutaculum quite prominent, a rounded spur. Embolus rather heavy, the truncus black, about the same size throughout its length. Median apophysis of the bulb a large black spur which is attached near its middle. Distal apophysis a heavy black spur which projects beneath the other apophysis.

Type Locality.—Male and female cotypes of *orizaba* Banks from Orizaba, Mexico, in the California Academy of Sciences, presumably destroyed. Other cotypes still extant in the Museum of Comparative Zoölogy. Male holotype and female allotype of *paiutus* Gertsch from St. George, Utah, in the collection of the University of Utah.

Distribution.—Southwestern United States. Mexico.

Records.—Idaho: Boise River, above Arrowrock Dam, male and female (Ivie). Notus, male paratype of *paiutus* (Ivie collector). Utah: Mill Creek Canyon, near Salt Lake City, September, 1930, female. Little Cottonwood Canyon, near Salt Lake City, female paratype of *paiutus*. St. George, Washington County, 1926, males and females (types and paratypes of *paiutus*) (Woodbury collector). West of St. George, April 23, 1930, male and female (Gertsch). Beaver Dam Wash, Washington County, April 18, 1932, two males and two females (Ivie). New Mexico: Jemez Springs, Oct. 30, two females (Dietz). Albuquerque, May, 1930, two females. Arizona: Thatcher, two female paratypes of *paiutus*. Texas: Brazos County, male (Robinson).

Group B

Tibia of the male palpus with a ventral, a retrolateral, and a well-developed tubercular intermediate apophysis (except in *lutzi*). Bulbal apophyses two, broadly joined at the base. Tutaculum very well developed. Vulva of female without a median septum. Clypeal margin with seven principal spines.

Type of the Group.—*Xysticus concursus* Gertsch.

These interesting species are closely related to the forms placed by Simon in a separate group, with *Xysticus longipes* Dalmas as type. They differ in the possession of a well-developed tutaculum and, except in *lutzi*, in having an intermediate apophysis on the tibia. They may be separated by the following key.

1.—Tibia of palpus without an intermediate apophysis. Female unknown..... ..... *X. lutzi* Gertsch.
Tibia of palpus with an intermediate apophysis set with spines. Females...2.
2.—Each side of the carapace with a conspicuous longitudinal dark stripe, the margins pale. Intermediate apophysis of male palpus less well developed (See Figs. 204 and 205) ..... *X. aprilinus* Bryant.
Sides of the carapace uniformly darkened or mottled. Intermediate apophysis of the male palpus strongly developed (Figs. 206 and 208).....3.
3.—Intermediate tibial apophysis of male palpus a broadly rounded tubercle set with short bristles. Epigynum of female suborbicular in outline.....*X. coloradensis* Bryant.

Intermediate tibial apophysis a broad flattened process, armed with strong spines, set at a right angle to the tarsus. Epigynum of female longer than broad, subtriangular.....*X. concursus* Gertsch.

Xysticus coloradensis Bryant

Figures 199, 206 and 207

Xysticus coloradensis Bryant, 1930, Psyche, XXXVII, pp. 133–134, Figs. 1, 3 and 7.—Gertsch, 1933, American Mus. Novitates, No. 593, pp. 19–20, Fig. 18.

A female is 5.55 mm. long.

Carapace mottled, light brown on the sides, the midline with a broad longitudinal pale stripe that is somewhat constricted on the posterior declivity, the anterior portion of the band invaded by brown markings. Sternum, mouth parts and coxae white to gray, marked with small black spots. Legs white to gray, all with pale dorsal stripes, the femora with large black maculations. Abdomen near uniform gray, without definite darker or lighter pattern.

	Length	Width
Carapace	2.31 mm.	2.25 mm.
Front	0.62	1.35
Sternum	1.05	0.90
Labium	0.45	0.33
Endite	0.60	0.25
Abdomen	3.60	3.60

Carapace evenly clothed with short spines, the cephalic portion with longer setaceous spines, the clypeal margin with seven principal ones and others of lesser length. Carapace highest at the second coxae, rather strongly convex, the width of the pars cephalica at the second eye row about two-thirds the greatest width (60/87).

Eyes of the first row recurved, the medians separated by nearly three diameters (16/46), half as far from the laterals (16/24). Second row of eyes recurved, the medians separated by three diameters (14/46), farther from the laterals (14/55). Median ocular quadrangle broader than long (74/67), as wide in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 27:16:19:14. Clypeus equal in height to two diameters of an anterior median eye (16/30).

First leg spined as follows: femur, prolateral 3, dorsal 0. Tibia, prolateral, 0, retrolateral, 1 basal, ventral (1)–2–2–2. Metatarsus, prolateral 0–1–1, retrolateral 0 and ventral 2 (or 1)–2–2–2. First leg: femur, 1.70 mm., patella, 0.98 mm., tibia, 1.10 mm., metatarsus, 1.12 mm. and tarsus 0.63 mm. long.

Vulva (Fig. 199) a transversely oval, shallowly excavated depression without a median septum.

A male is 5.30 mm. long.

Carapace with a median longitudinal pale band scarcely as wide as the first eye row, the cephalic portion somewhat suffused with brown, the median cephalic maculation poorly defined. Sides of the carapace brown to black, with a few paler flecks. Abdomen white above, marked with black and tan spots, the venter whitish.

	Length	Width
Carapace	2.70 mm.	2.64 mm.
Front	0.74	1.26
Sternum	1.26	1.05
Labium	0.48	0.36
Endite	0.72	0.30
Abdomen	2.70	2.67

Carapace spines as in typical species of *Xysticus*, the clypeal margin with seven long principal spines. Carapace slightly longer than broad, highest between the second and third coxae, the width at the second eye row half the greatest width.

Eyes of the first row recurved, the medians separated by more than two diameters (17/40), a diameter from the laterals (17/17). Second row of eyes recurved, the medians separated by two diameters (16/35), three diameters from the laterals (16/54). Median ocular quadrangle slightly longer than broad (78/74), slightly broader in front (74/67). Ratio of the eyes: ALE:AME:PLE:PME = 25:17:20:16. Clypeus twice as high as the diameter of an anterior median eye (17/34).

Tibia of the palpus (Figs. 206 and 207) broader than long, armed with the conventional ventral and retrolateral apophyses and in addition with a conspicuous oval tubercle which is clothed with short black bristles. Cymbium a little broader than long, the tutaculum well developed, the outer cymbial portion, as seen in ventral view, a triangular piece, as viewed from the lateral aspect, a V-shaped elongation of the main cymbial body; inner cymbial portion of the tutaculum strongly sclerotized, glabrous. Bulbal apophyses broadly fused at the base, distally bifid, the median portion directed cephalad and armed with a short tooth near the apex, the distal portion pointing prolaterad. Embolus attached to the tegulum on the prolateral side near the base, the truncus a black acuminate tube supported by a broad pars pendula for two-thirds its length which conforms to the contour of the tutaculum.

Spination of first leg as follows: femur, prolateral 5, dorsal 5. Tibia and metatarsus, prolateral and retrolateral 1–1–1, and ventral 2–2–(2)–2–2. First leg: femur, 3.04 mm., patella, 1.20 mm., tibia, 2.32 mm., metatarsus, 2.56 mm. and tarsus, 1.20 mm. long.

Type Locality.—Male holotype from Fort Collins, Colorado, in the Museum of Comparative Zoölogy.

Distribution.—Southwestern United States.

Records.—Colorado: Fort Reynolds, two female cotypes. New Mexico: Las Vegas, female cotype. Albuquerque, females (Banks). Las Cruces, female (Banks). Mesilla, female (Banks). Utah:

Hanksville, April 20, 1928, female (Gertsch). East of Tintic Standard, Tooele County, October, 1928, male (R. V. Chamberlin, Jr.). TEXAS: El Paso, April 5, two female cotypes.

Xysticus aprilinus Bryant

Figures 204 and 205

Xysticus aprilinus BRYANT, 1930, Psyche, XXXVII, p. 132, Fig. 4.

FEMALE.—Total length, 6.00 mm.

Carapace with a conspicuous dark brown longitudinal band on each side beginning at the lateral eye and going caudad to the margin, the interval between these bands forming a median longitudinal pale stripe as broad as the first eye row which continues without narrowing to the caudal margin. Margins on each side of the carapace white, concolorous with the median stripe, forming side bands as wide as the dark stripes. Underside of the carapace and the appendages white, the basal joints of the legs heavily stippled with fine black markings and with a narrow white stripe above. Last two pairs of legs with dark spots on the basal joints. Dorsum of the abdomen gray to white, with a curved dark longitudinal stripe on each side; the venter unmarked.

	Length	Width
CARAPACE	2.75 mm.	2.70 mm.
FRONT	0.80	1.40
STERNUM	1.20	1.00
LABIUM	0.55	0.40
MAXILLA	0.70	0.35
ABDOMEN	3.70	3.20

Carapace spined as in *cunctator*, the clypeal margin with seven principal setaceous spines. Eyes of the first row recurved, the medians separated by more than two diameters (16/42), nearer the laterals (16/20). Second row of eyes recurved, the medians separated by more than two diameters (16/42), farther from the laterals (16/52). Median ocular quadrangle longer than broad (77/70), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 27:16:21:16. Clypeus equal in height to two diameters of an anterior median eye (16/32). Abdomen set with rows of setaceous spines.

First leg spined as follows: femur, prolateral, 3, dorsal 0. Tibia, prolateral and retrolateral, 0, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral, 0–1–1, ventral, 2–2–2–2. First leg: femur, 2.50 mm., patella, 1.25 mm., tibia, 1.80 mm., metatarsus, 1.85 mm. and tarsus, 1.05 mm. long.

The female described above is not quite mature, presumably lacking one moult.

MALE.—Total length, 5.00 mm.

Color pattern essentially as in the female, the sides of the carapace with the distinctive dark longitudinal bands on a light brown base. Femora, patellae and tibiae of the two first legs black, the terminal joints white. Dorsum of abdomen light brown, with an indistinct longitudinal darker stripe on each side.

	Length	Width
CARAPACE	2.70 mm.	2.65 mm.
FRONT	0.75	1.33
STERNUM	1.20	1.05
LABIUM	0.50	0.38
MAXILLA	0.70	0.33
ABDOMEN	2.90	2.40

Clypeal margin with seven principal spines. Eyes essentially as in the female, the median ocular quadrangle slightly longer than broad (75/70).

First tibia with five pairs, the metatarsus with four pairs of ventral spines. First leg: femur, 3.25 mm., patella, 1.33 mm., tibia, 2.25 mm., metatarsus, 2.68 mm. and tarsus, 1.30 mm. long.

Palpus as illustrated in Figs. 204 and 205, suggestive in general of that of *coloradensis* but with a less pronounced intermediate apophysis on the tibia and differing in the details of the apophyses of the bulb.

TYPE LOCALITY.—Female type from El Paso, Texas, April (Soltau), in the Museum of Comparative Zoölogy.

DISTRIBUTION.—The extreme western part of Texas. Arizona.

RECORDS.—ARIZONA: White Mountains, 9200 ft., Aug. 23, 1935, immature female (T. H. Hubbell). Santa Rita Mountains, Oct. 3, 1937, male (Crandall).

Xysticus concursus Gertsch

Figures 198, 208 and 209

Xysticus concursus GERTSCH, 1934, American Museum Novitates, No. 707, pp. 9–10, Fig. 13.

The female holotype is 5.40 mm. long.

Carapace gray to white, with a well-marked median longitudinal pale band as wide as the first eye row which is invaded by a large central gray maculation. Sides of the carapace and the clypeus brown. Integument of the legs nearly white but the color is nearly completely covered by tiny gray flecks and spots. Abdomen gray, with a pattern of transverse light bands which are made up of white spots.

	Length	Width
CARAPACE	2.37 mm.	2.50 mm.
FRONT	0.80	1.42
STERNUM	1.00	0.75
LABIUM	0.43	0.30
ENDITE	0.54	0.32
ABDOMEN	3.62	4.00

Spines on the carapace as in the male. First row of eyes narrower than the second (47/60), recurved, the medians separated by three diameters (12/35), nearer the laterals (12/15). Eyes of the second row in a recurved line, subequidistantly spaced, the medians separated by

three diameters (12/39). Ratio of the eyes: ALE:AME:PLE:PME = 8:5:6:5. Clypeus equal in height to twice the diameter of an anterior median eye.

First leg spined as follows: femur, dorsal 1, prolateral 3. Tibia, ventral 2–2–2, elsewhere 0. Metatarsus, prolateral 0–1–1, retrolateral 0–1–0, ventral 2–2–2–2. First leg: femur, 2.80 mm., patella, 1.26 mm., tibia, 1.66 mm., metatarsus, 1.66 mm. and tarsus, 0.87 mm. long.

Vulva as illustrated in Fig. 198.

A male is 4.25 mm. long.

Carapace dark brown on the sides, variegated somewhat with white markings near the margin, the midline with a broad longitudinal pale stripe that is increased in width somewhat at the posterior declivity, this band invaded with brown or completely filled in the cephalic portion by a brown triangular maculation. Eye area with a transverse white band. Sternum white, the mouth parts and coxae white, flecked with brown. Femora, patellae and the proximal half of the tibiae of the first two pairs of legs black, with a few lighter streaks, the distal joints of these legs yellow to light brown. Abdomen with an irregular white longitudinal figure and four pairs of brown spots on each side, the venter pale yellow.

	Length	Width
Carapace	2.20 mm.	2.20 mm.
Front	0.70	1.25
Sternum	0.87	0.70
Labium	0.37	0.25
Endite	0.57	0.25
Abdomen	2.12	2.10

Carapace set with setaceous spines as in typical *Xysticus*, the clypeal margin with seven long principal spines and several very small ones. Pars cephalica at the second eye row half as wide as the greatest width (46/88). Dorsum of the abdomen set with rows of long, robust spines.

Legs armed with strong spines, the spination of the first leg as follows: femur, prolateral 7, dorsal 5. Tibia, prolateral 1–1–1, retrolateral 0–0–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1 distal, ventral (1)–2–2–2–2. First leg: femur, 2.60 mm., patella, 1.10 mm., tibia, 1.80 mm., metatarsus, 2.10 mm. and tarsus, 1.05 mm. long.

First row of eyes narrower than the second (13/16), recurved, the medians separated scarcely two diameters (17/31), much nearer the laterals (17/20). Second row of eyes recurved, the medians separated by fully two diameters (17/36), farther from the laterals (17/45). Median ocular quadrangle as broad as long (70/70), narrowed in front (70/65). Ratio of the eyes: ALE:AME:PLE:PME = 28:17:22:17. Clypeus scarcely as high as twice the diameter of an anterior median eye (17/30).

Male palpus of the same type as that of *Xysticus coloradensis* Bryant but the interval between the three apophyses of the tibia more deeply excavated, the intermediate apophysis a much flattened, broad process near and at a right angle to the base of the tibia, the outer margin armed with long spines. Details as in Figs. 208 and 209.

Type Locality.—Female holotype from Edinburg, Texas (Mulaik), in the collection of The American Museum of Natural History.

Distribution.—Texas.

Records.—Texas: Edinburg, female holotype (S. Mulaik); idem, male (S. Mulaik). Childress, Sept. 4, 1933, female (W. Ivie).

Xysticus lutzi Gertsch

Figures 210 and 211

Xysticus lutzi Gertsch, 1935, American Museum Novitates, No. 792, p. 27.

Male.—Total length, 4.05 mm.

Integument of the carapace light brown, heavily masked by irregular dark brown and black maculations, armed with short hairs and erect spines. Dorsum of the carapace with an indistinct median pale band which is scarcely as broad as the first eye row. Posterior declivity with four large black maculations. Legs lighter brown than the carapace, the distal joints yellow, the basal joints of the first two pairs heavily marked with brown. Abdomen with a basal and three caudal indistinct transverse light bands.

	Length	Width
Carapace	2.50 mm.	2.42 mm.
Front	0.55	1.12
Sternum	1.07	0.90
Labium	0.47	0.30
Endite	0.67	0.25
Abdomen	2.25	2.00

Carapace moderately convex, the sides well rounded, the cephalic portion scarcely half as broad as the greatest width. Eyes of the first row recurved, the medians separated by about two diameters, half as far from the laterals. Eyes of the second row recurved, the medians separated by two diameters, slightly farther from the laterals. Median ocular quadrangle longer than broad (7/6), the posterior eyes slightly larger. Clypeus as high as the diameter of an anterior lateral eye.

Legs provided with black hairs and strong spines. Tibia and metatarsus of the first leg with four pairs of robust ventral spines. First leg: femur, 3.00 mm., patella, 1.20 mm., tibia, 2.10 mm., metatarsus, 2.38 mm. and tarsus, 1.00 mm. long.

Tibia and patella of the palpus as long as the tarsus, the tibia armed with a retrolateral and ventral apophysis. Truncus of the embolus a black tube, free of the accessory embolic pars pendula at the distal end of the tarsus, which is strongly curved on the retrolateral bulbal surface

to fit the deeply excavated tutaculum. Processes on the bulb intimately joined at the base, the upper one (median) much smaller than the lower (distal) apophysis. Other details as in Figs. 210 and 211.

TYPE LOCALITY.—Male holotype from Kits Peak Rincon, Baboquivari Mountains, Arizona, July 31–Aug. 3, 1916 (F. E. Lutz), in the collection of The American Museum of Natural History.

DISTRIBUTION.—Arizona. Only the type is known.

GROUP C

Tibia of male palpus with a ventral and a retrolateral apophysis. Bulb armed with one or two apophyses, the median one much reduced, T-shaped, or virtually obsolete, represented by a very small pale process or spur at the base of the distal apophysis. Embolus attached near the base of the tegulum, the truncus a very heavy black tube or band, supported for most of its length by a broad pars pendula, the distal end of the truncus armed with a strongly sclerotized apical sclerite, or occasionally without this sclerite (*furtivus*). Tutaculum well developed. Vulva oval to suborbicular in outline, with a low septum. Clypeal margin with seven principal spines.

TYPE OF THE GROUP.—*Xysticus cunctator* Thorell.

The American species grouped around *Xysticus cunctator* Thorell form a special section of the genus characterized by the great reduction in size or the virtual loss of the median apophysis of the bulb. In *Xysticus ferox* (Hentz) and *X. fraternus* Banks this apophysis is a discrete subfusiform process attached near the middle by a very short stem. In the majority of the species the median apophysis is obsolete. With but one exception, *Xysticus furtivus* Gertsch, the group is further characterized by the development on the embolus of a distinctive apical sclerite. The females are closely related and somewhat difficult to separate. The vulva is provided with a low inconspicuous septum at each side of which is an atriobursal orifice.

This group seems to be restricted to North America where the species are common and characteristic forms. *Xysticus facetus* Cambridge is a Mexican representative closely allied to but distinct from *ferox*. The following key will prove useful in separating the males. The key to the females is less satisfactory because of the nearness of some of the species and the variability of the leg spines.

KEY TO THE MALES

1.—Median apophysis a subfusiform process attached near the middle.....2.
Median apophysis virtually obsolete, at most a short curved spur.....3.
2.—Distal apophysis a long plate that lies on the prolateral side of the bulb.....
.....*X. fraternus* Banks.
Distal apophysis much shorter, shallowly grooved.....*X. ferox* (Hentz).
3.—Embolus without an apical sclerite.....4.
Embolus with a well-developed apical sclerite.....5.
4.—Median apophysis a distinct hook. Distal apophysis curved, pointed at the end (See Group B).....*X. lutzi* Gertsch.
Median apophysis an inconspicuous spur. Distal apophysis truncated at the distal end.....*X. furtivus* Gertsch.
5.—Apical sclerite as viewed from the side with a black accessory spur that is directed laterad.....6.
Apical sclerite without such a spur (Fig. 222).
.....*X. cunctator* Thorell.
6.—Apical sclerite with two processes, a black accessory spur and a broad, grooved lobe (Fig. 216).....*X. banksi* Bryant.
Apical sclerite with a single pointed process..
.....*X. quinquepunctatus* Keyserling.

KEY TO THE FEMALES

1.—Median ocular quadrangle longer than broad. Each side of the carapace with a conspicuous longitudinal dark stripe, the margins white (Group B)....*X. aprilinus* Bryant.
Median ocular quadrangle at least as broad as long. Sides of the carapace uniformly darkened or mottled.....2.
2.—Median septum of the vulva a very narrow carina not broadened behind.....
.....*X. furtivus* Gertsch.
Median septum not of this form.....3.
3.—Vulva large, about as broad as the length of the fourth coxa, the atriobursal orifices widely separated in two suborbicular depressions (Fig. 224)...*X. fraternus* Banks.
Vulva not as above.....4.
4.—First tibia with five pairs of ventral spines. Color reddish brown...*X. ferox* (Hentz).
First tibia usually with four pairs of ventral spines. Color gray to white.....5.
5.—Median septum of the vulva enlarged to form a moderately broad, flask-shaped figure (Fig. 226)...*X. cunctator* Thorell.
Median septum more strongly broadened behind.....6.
6.—Fig. 228. Western United States.....
.....*X. quinquepunctatus* Keyserling.
Fig. 229. Eastern United States.....
.....*X. banksi* Bryant.

Xysticus fraternus Banks

Figures 214, 215 and 224

Xysticus hamatus Keyserling, 1884, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXIV, pp. 521–523, Pl. xiii, fig. 22.—Marx, 1890, Proc. U. S. Nat. Mus., XII, p. 555.—Banks, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 178, Pl. xi, fig. 7.

Xysticus fraternus Banks, 1895, Journ. New York Ent. Soc., III, p. 90; 1910, Bull. U. S. Nat. Mus., LXXII, p. 48.—Petrunkevitch, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 439.—Barrows, 1918, Ohio Journ. Sci., XVIII, p. 312.—Crosby and Bishop, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—Bryant, 1930, Psyche, XXXVII, pp. 134–135, Figs. 6 and 8.

Xysticus hamatinus Banks, 1910, Bull. U. S. Nat. Mus., LXXII, p. 48. (New name for *hamatus* Keyserling, preoccupied.)—Petrunkevitch, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 438.

A female is 4.50 mm. long.

Carapace dark brown on the sides, the midline with a pale longitudinal band that is one-third as broad as the carapace and goes to the caudal margin, the cephalic portion somewhat invaded by brown markings and a V-shaped white maculation present at the position of the median groove. Sternum and mouth parts mainly dark brown. Legs light to dark brown, the distal joints pale, the basal joints heavily marked with brown. Last two pairs of legs paler. Dorsum of the abdomen with a broad median serrate light stripe which is flanked with three or four pairs of distinct or suffused spots in the caudal half.

	Length	Width
Carapace	2.25 mm.	2.17 mm.
Front	0.60	1.25
Sternum	1.07	0.85
Labium	0.50	0.35
Endite	0.70	0.27
Abdomen	2.50	2.40

Carapace with the spinal arrangement of typical *Xysticus*, the clypeal margin with seven principal and smaller intermediate spines. Pars cephalica at the second eye row about three-fourths as broad as the greatest width of the carapace (57/78). Abdomen set with rows of weak setaceous spines.

Eyes of the first row broader than the second (16/18), recurved, the medians separated by two diameters (17/36), a diameter from the laterals (17/20). Second row of eyes recurved, the medians separated by nearly three diameters (15/40), four diameters from the laterals (15/64). Median ocular quadrangle broader than long (70/58), slightly narrowed in front (70/69). Ratio of the eyes: ALE:AME:PLE:PME = 30:17:22:15. Clypeus nearly twice as high as the diameter of an anterior median eye (17/30).

First leg spined as follows: femur, prolateral 3. Tibia, ventral 2–2–2–2. Metatarsus, prolateral 0–1–1, retrolateral 0–1–0, ventral 2–2–2–2. First leg: femur, 1.80 mm., patella, 1.00 mm., tibia, 1.37 mm., metatarsus, 1.25 mm. and tarsus, 0.70 mm. long.

Vulva as in Fig. 224, oval in outline, very shallowly excavated, the round atriobursal orifices separated by their diameter by a broad, low median septum.

A male is 3.50 mm. long.

Carapace as in the female in some specimens, in others strongly melanic, the only markings in this case being the V-shaped light maculation in an indistinct median longitudinal pale band. Underside and femora, patellae and proximal fourth of the tibiae dark brown, the distal joints of the legs light brown. Abdomen dark brown, the dorsum with a basal and three transverse white bands in the caudal half.

	Length	Width
Carapace	2.00 mm.	1.92 mm.
Front	0.55	1.10
Sternum	1.00	0.80
Labium	0.40	0.30
Endite	0.52	0.25
Abdomen	1.75	1.75

Carapace with the usual strong spines, the clypeal margin with seven principal spines. Eyes of the first row narrower than the second, recurved, the medians separated by nearly two diameters (18/30), a diameter from the laterals (18/17). Second row of eyes recurved, the medians separated by about two diameters (16/30), nearly three diameters from the laterals (16/44). Median ocular quadrangle broader than long (60/52), as wide in front as behind. Clypeus nearly one and one-half times as high as the diameter of an anterior median eye (18/26).

Legs strongly spinose, the armature of the first as follows: femur, prolateral 5, dorsal 4. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2. Metatarsus as the tibia, but the distal retrolateral spine often absent. First leg: femur, 1.87 mm., patella, 0.90 mm., tibia, 1.35 mm., metatarsus, 1.35 mm. and tarsus, 0.80 mm. long.

Tibia of male palpus (Figs. 214 and 215) armed with a broad, truncate, ventral apophysis and one of about equal proportion on the retrolateral side. Median apophysis of the bulb a long straight spur, attached at the middle. Distal apophysis greatly enlarged, a flat, very long, distally rounded or emarginated lamina which lies above the pars pendula on the prolateral side. Cymbium about as broad as long, with a salient ventral elongation near the base on the retrolateral side. Truncus a black tube, accompanied for its length by a broad pars pendula, the terminal part with a subdistal hooked process, broadly rounded to lie in the cavity formed by the finger-like cymbial process. Palpus as illustrated in figure 214.

Type Locality.—Male type of *fraternus* from Long Island, New York, in the

Museum of Comparative Zoölogy. Male and female cotypes of *hamatus* from Kentucky in the Museum of Comparative Zoölogy.

DISTRIBUTION.—United States east of the Rocky Mountains.

RECORDS.—MASSACHUSETTS: Sharon, June 1, 1903, female (Emerton). Cohasset, June 24, 1914, female. CONNECTICUT: Norwalk, June 15, 1933, males and females (Gertsch). NEW YORK: Ithaca, July 12, 1925, female (Banks). Mountainville, Orange County, May 11, 1923, female (Crosby). Long Island, males, females (Banks, 1895). NEW JERSEY: Near Newark, July 8, 1913, male. Short Hills, July, 1907, female (Petrunkevitch). Ramsey, Sept. 20, 1934, males, females (Gertsch). PENNSYLVANIA: Lehighton, female. MARYLAND: South Mountains, July 5, 1916, female (Hyslop). VIRGINIA: Falls Church, male, females (Banks). WEST VIRGINIA: Aurora, female (Banks). KENTUCKY: Near Mammoth Cave, May, 1874, two males (Sanborn). Quicksand, June 25, 1925, male, female (Crosby). NORTH CAROLINA: Canton, female (Holden). MICHIGAN: Albion, May 21, 1933, male, female (Chickering). Idem, Aug. 15, 1932, female (Chickering). Idem, March 13, 1933, two males (Chickering). MINNESOTA: Lake Minnetonka, June 27, 1926, female (Fletcher). ILLINOIS: Ogle County, June, female (Allen). Urbana, Aug. 28, 1926, female (Smith). Idem, Aug. 16, 1926, female (Smith). Salts, June 27, 1926, female (Smith). OHIO: Flint, May 27, 1918, three females (Barrows). Columbus, June 12, 1916, three males, female (Barrows). Gambier, 1904, female (Nelson). MISSOURI: Springfield, male (Banks). INDIANA: Richmond; Crooked Lake; and Valparaiso (Elliott, 1932). LOUISIANA: Chastine, March 24, 1915, female (Schmidt). ALABAMA: Mount Vernon, March 20, 1932, male, two females. FLORIDA: Rock Bluff, females. Gainesville, female. NEW MEXICO: Las Vegas (Bryant, 1930).

Xysticus ferox (Hentz)

Figures 212, 213, 225 and 233

Thomisus ferox HENTZ, 1847, Journ. Boston Soc. Nat. Hist., V, p. 445, Pl. XXIII, fig. 3; 1895, Spiders U. S., p. 77, Pl. X, fig. 3.—MARX, 1890, Proc. U. S. Nat. Mus., XII, p. 557.

Xysticus stomachosus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 7–10, Pl. I, fig. 1.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 52, Pl. III, fig. 1.—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 362, Pl. XXVIII, figs. 3–3d.—MARX, 1892, Proc. Eng. Soc. Washington, II, p. 159; 1892, idem, p. 195.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1895, Journ. N. Y. Ent. Soc., III, p. 89.—SLOSSON, 1898, idem, VI, p. 248.—BANKS, 1906, 31st Ann. Rept. Dept. Geol., Indiana, p. 743.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 65.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, VIII, p. 178; 1916, idem, LXVI, p. 79.—BARROWS, 1918, Ohio Journal Sci., XVIII, p. 312.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.

Xysticus distinctus BANKS, 1892, Proc. Acad. Nat. Sci., pp. 52–53, Pl. III, fig. 89; 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 438.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, LXVI, p. 79.

Xysticus transversus BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, pp. 54–55, Pl. III, figs. 6, 6*a* and 6*b*; 1906, 31st Ann. Rept. Dept. Geol., Indiana, p. 743; 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 441.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, LXVI, p. 79.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 428.

Xysticus maculatus BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57 (not *maculatus* Keyserling, 1880); 1916, Proc. Acad. Nat. Sci. Philadelphia, LXVI, p. 79.

Xysticus ferox BANKS, 1910, Bull. U. S. National Museum, p. 48; 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 541.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 438.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 67.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—CHICKERING, 1932, Papers Michigan Acad. Sci., XV, p. 353.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 41.—GERTSCH, 1934, American Mus. Novitates, No. 707, p. 11.

A female is 6.50 mm. long.

Carapace with a median longitudinal pale band scarcely as wide as the anterior row of eyes, the cephalic portion invaded by orange brown, the thoracic portion yellow, a black patch at the median groove. Lateral eyes and the anterior medians on yellow tubercles, the posterior medians ringed with brown. Sides of the carapace light to dark brown, streaked, the posterior declivity with a large black maculation on each side. Sternum and coxae white to yellow, thickly spotted in orange and brown. Integument of the legs white to dull yellow, the first two pairs darker above, the metatarsi and tarsi

immaculate brown, the other joints thickly marked with brown spots, the last two pairs of legs with many black maculations. Dorsum of the abdomen with an indefinite pattern of several transverse yellow streaks, the intervals gray to brown, with a few darker markings, the venter dirty gray.

	Length	Width
CARAPACE	3.00 mm.	3.00 mm.
FRONT	0.75	1.60
STERNUM	1.40	1.12
LABIUM	0.62	0.47
ENDITE	0.87	0.35
ABDOMEN	3.75	3.87

Carapace set with many long black spines that are most numerous on the pars cephalica, seven long ones on the margin of the clypeus. Carapace heavy, highest between the coxae of the second and third pairs of legs, as wide as long, slightly longer than the femur of the first leg, the width of the front slightly greater than one-half the greatest width of the carapace.

Eyes of the first row narrower than the second (19/23), recurved, the medians separated by three diameters (18/58), much nearer the laterals (18/25). Second row of eyes recurved, the medians separated by three diameters (18/55), farther from the laterals (18/63). Median ocular quadrangle broader than long (91/80), as wide in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 32:18:25:18. Clypeus twice as high as the diameter of an anterior median eye (18/40).

Legs strongly spinose, the first leg armed as follows: femur, prolateral 4. Tibia, ventral 2–2–2–2 and 2–1 small intermediate spines. Metatarsus, prolateral 1–1–1, retrolateral 1–1–0, ventral 2–2–2–2. First leg: femur, 2.85 mm., patella, 1.50 mm., tibia, 2.17 mm., metatarsus, 2.00 mm. and tarsus, 0.95 mm., long.

Vulva as in Fig. 225, oval to suborbicular in outline, shallowly excavated, medially with a weakly indicated septum that is very narrow at the front end but rapidly expands to two-thirds the width at the middle.

A male is 5.10 mm. long.

Carapace with the median pale band more faintly indicated, the thoracic portion yellow, the anterior portion invaded by reddish brown, concolorous with the sides, the median suture with the customary black maculation. Sides of the carapace reddish brown or darker, the usual black markings present on the posterior declivity. All legs dark reddish brown, the metatarsi and tarsi yellow, the last two pairs somewhat paler but with numerous contrasting black markings. Abdomen brown, the dorsum with three or four white transverse bands which are often creamy white in tone.

	Length	Width
CARAPACE	2.42 mm.	2.42 mm.
FRONT	0.65	1.30
STERNUM	1.12	0.97
LABIUM	0.55	0.40
ENDITE	0.72	0.30
ABDOMEN	2.50	2.50

Clypeal margin with seven principal spines. Eyes of the first row narrower than the second (33/38), recurved, the medians separated by more than two diameters (18/47), nearer the laterals (18/20). Second row of eyes recurved, the medians separated by about two diameters (18/41), farther from the laterals (18/50). Median ocular quadrangle broader than long (75/67), slightly narrowed in front (77/75). Clypeus nearly twice as high as the diameter of an anterior median eye (18/32).

First leg spined as follows: femur, prolateral 5, dorsal 5. Tibia, prolateral and retrolateral 1–1–1, ventral, 2–2–2–2. Metatarsus spined as the tibia. First leg: femur, 2.50 mm., patella, 1.17 mm., tibia, 2.00 mm., metatarsus, 1.90 mm. and tarsus, 1.00 mm. long.

Palpus as illustrated in Figs. 212 and 213. Tibia armed with a stout ventral and retrolateral apophysis. Median apophysis of the bulb reduced in size, T-shaped, the distal apophysis a heavy, excavated, curved spur. Truncus a heavy black tube, supported by a broad pars pendula for all its length, and embellished at the terminal end with a heavy, toothed apical sclerite.

TYPE LOCALITY.—Male and female cotypes of *stomachosus* Keyserling from Baltimore, Maryland (Koch Coll.); female cotype from Peoria, Illinois, in the University of Breslau. Female type of *Thomisus ferox* Hentz from the "United States," the specimen lost. Female and male cotypes of *X. transversus* Banks from the Upper Cayuga Lake Basin, New York, in the Museum of Comparative Zoölogy (Banks collection). Female type of *X. distinctus* Banks from Indian Spring, Upper Cayuga Lake Basin, New York, in the Museum of Comparative Zoölogy (Banks collection).

DISTRIBUTION.—Eastern United States and Canada, west to Utah, Montana and Alberta.

RECORDS.—MAINE: Holden, June 13, 1929, female, eating *Agrotis* sp. (Hawkins), NEW HAMPSHIRE: Franconia (Slosson, 1898). VERMONT: Passumpsic, 1930, female (Granger). South Newfane, July, 1931, male (Bryant). MASSACHUSETTS: Readville, female (Emerton). Brookline,

male (Emerton). Saugus, males and females (Emerton, 1892). Swampscott, males, females (Emerton, 1892). Sharon (Bryant, 1908). Warwick, male (Bryant, 1908). North Adams, August, 1908. Cohasset, female. Idem, May, 1907, female (Petrunkevitch). Woods Hole, May, 1927, male, female (Chamberlin). Hollister, June 10–17, 1923, males, females (Emerton). Franklin Park, May, 1901, males (Bryant). Blue Hills, June 19, male (Emerton). Riverside, June 17, 1899, male. Woods Hole, females. CONNECTICUT: New Haven, males, females (Emerton, 1892). Norwalk, June and July, 1933, males, females (Gertsch). RHODE ISLAND: Portsmouth, June, 1922, female. NEW YORK: Bush's Landing, Lowville, Aug. 11, 1931, male (Bishop). Penfield, May 31, 1931, female (Newman). McLean, May 10, 1931, female (Crosby). Johnstown, male (Banks). Catskills, female (Banks). Pulaski, June 20, 1924, female (Bailey). Dinwoodie, Westchester County, May 3, 1925, male. Ithaca, Oct. 7, 1924, female; Oct. 18, 1902, female; Oct. 4, 1902, female; Oct. 18, 1902, 2 females; June 30, 1915, male from the stomach of the Pickerel frog; Cayuga Lake Basin, female (Banks). Sheepshead Bay, June and July, 1903, male (Crosby). Spencer, June 3, 1915, male from the stomach of meadow frog. Slaterville, June 3, 1927, male (Needham). Genoa, June 15, 1917, male from the stomach of meadow frog. Peru, January, 1916, male. Enfield Glen, August, 1926, males and females (Rea). Portage, June 13, 1915, males. Lake Keuka, June, male. Garden City, Long Island, June 15, 1924, female (Wolf). Sea Cliff, L. I., males, females (Banks). Montauk, L. I., July 2, 1928, female (Latham). Sag Harbor, L. I., June 17, 1928, male (Latham). Tottenville, Staten Island, August, 1925, female (Davis). NEW JERSEY: Short Hills, June, 1906, 7 females, 2 males (Petrunkevitch). Idem, June, 1907, male, female (Petrunkevitch). Idem, July, 1907, 2 males, female (Petrunkevitch). Montclair, male. Anglesea, male, female (Banks). Ramsey, July, males, females (Gertsch). PENNSYLVANIA: Orangeville, August, 1931, female (Hughes). Washington, July, 1930, female (Long). Glenside, July 4, 1892, female (Nell). York Furnace, June, 1899, female (Stone). Germantown, May, 1899, male (Stone). Conyngham, May 27, 1925, males, females (Dietz). Idem, male, June 30, 1925, female (Dietz). DISTRICT OF COLUMBIA: Potomac Hills and Rock Creek (Marx, 1892). Washington, 2 females (Fox). Male as *funestus*, May, 1888 (Fox). VIRGINIA: Salem, female, 1927. Fredricksburg, female (Banks). Glencarlyn, male (Banks). Falls Church, male, females (Banks). MARYLAND: Baltimore (Keyserling, 1880). TENNESSEE: Knoxville, June, 1928, male, female (Stanley). NORTH CAROLINA: Canton, females (Banks). Oteen, Oct. 15, 1923, female (Bishop and Crosby). Pineola (Banks, 1911). MISSOURI: St. Charles, female, 1926 (Brown). Columbia, June, female, males (Brown). ARKANSAS: Hope, June 8, 1931, female (Louise Knobel). Idem, May 12–20, 1926, female (Dietz). Idem, June and July, male (Knobel). GEORGIA: Tallulah Falls, June 18, 1930, female. OHIO: Columbus, May 11, 1904, male (Barrows). Cedar Point, August, 1913, female (Barrows). Gates Mills, July 1, 1930, female (Worley). Marietta, male, female (Holden). Buckeye Lake, June 24, 1917, female. Columbus, June, 1917, female (Barrows). Gambier, August, 1907, male (Nelson). Idem, June 10, 1907, female (Nelson). INDIANA: Vincennes, Aug. 23; Arlington, June 10, young; Wyandotte, July 25, young; Bass Lake, June 22, young; Culver, June 29; Greencastle (Banks, 1906). New Harmony, Feb. 23, 1906, immatures (Banks). MICHIGAN: Albion, June 2, 1931, male; July 5, 1928, male, female (Chickering). Pine Lake, July 27, 1930, female (Chickering). Douglas Lake (Chickering, 1931). ILLINOIS: Peoria, female (Keyserling, 1880). MINNESOTA: Minneapolis, June 1, 1931, males, females (Gertsch). Itasca Park, May 30, 1932, male, female (Gertsch). WISCONSIN: St. Croix Falls, male (Banks), IOWA: Dallas County, female (Allen). KANSAS: Manhattan, female (Banks). NEBRASKA: "Entire state from Plattsmouth, Lincoln,

Elmwood and Sprague, west to Cheyenne, Wyoming, March 28–Nov. 30, matures in May and early June" (Worley and Pickwell, 1927) KENTUCKY: Glascow Junction, May, 1874, female (Sanborn). Quicksand, August, 1925, two females (Mrs. Funkhouser). UTAH: Richfield, Aug. 20, 1930, female (Gertsch). COLORADO: (Keyserling, 1880). Ward, July 6, 1909, female (Lutz). Strontia Springs, July 28, 1930, female (Dietz). WYOMING: Cheyenne (Worley and Pickwell, 1927). MONTANA: Ravalli County, May, 1934, males (Jellison).

CANADA.—ALBERTA: Edmonton, June 10, 1921, male (O. Bryant). MANITOBA: Two males (Banks). ONTARIO: Toronto (Emerton, 1920). LABRADOR: (Marx, 1892).

Xysticus banksi Bryant

Figures 216, 217 and 229

Xysticus pallidus BRYANT, 1930, Psyche, XXXVII, pp. 138–139, Figs. 11, 12 and 14 (not *Xysticus pallidus* Cockerell, 1890).

? *Xysticus 5-punctatus* MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159 (not *Xysticus quinquepunctatus* Keyserling, 1880).

Xysticus banksi BRYANT, 1933, Bull. Mus. Comp. Zoölogy, LXXIV, p. 178. (New name for *Xysticus pallidus* Bryant, preoccupied.)

FEMALE.—Total length, 6.00 mm.

Color and structure essentially as in the female of *cunctator*.

	Length	Width
CARAPACE	2.12 mm.	2.20 mm.
FRONT	0.67	1.25
STERNUM	1.07	0.90
LABIUM	0.45	0.32
MAXILLA	0.62	0.25
ABDOMEN	3.87	3.87

Eyes of the first row narrower than the second (32/37), recurved, the medians separated by nearly four diameters (15/56), more than a diameter from the laterals (15/20). Second row of eyes recurved, the medians separated by three diameters (14/45), farther from the laterals (14/52). Median ocular quadrangle broader than long (73/70), narrowed in front in the same ratio (73/70). Ratio of the eyes: ALE:AME:PLE:PME = 25:15:20:14. Clypeus twice as high as the diameter of an anterior median eye (15/30).

First leg spined as follows: femur, prolateral 3, dorsal 0 or 1 (weak), elsewhere 0. Tibia, prolateral and retrolateral, 0, ventral 1–2–2–2. Metatarsus, prolateral 0–1–1, retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.12 mm., patella, 1.12 mm., tibia, 1.57 mm., metatarsus, 1.60 mm. and tarsus, 0.90 mm. long.

Vulva (Fig. 229) essentially as in *X. ferox*, the median septum narrow at the anterior end, abruptly broadened behind, the atriobursal orifices two grooves running obliquely caudad from the midline of the septum.

MALE.—Structure as in *cunctator*. Male palpus (Figs. 216 and 217) as in *Xysticus quinquepunctatus* but the apical sclerite presenting, in addition to the accessory black spine, a bilobed basal portion.

TYPE LOCALITY.—Male and female types from Ipswich, Massachusetts, June 14, 1914, in the Museum of Comparative Zoölogy (Bryant collector).

DISTRIBUTION.—Atlantic States.

RECORDS.—NEW YORK: Montauk Point, Long Island, June 25, 1928, female (Crosby). Sag Harbor, Long Island, June 17, 1928, female (Latham). NEW JERSEY: Haddonfield, July 8, 1932, three females (Gertsch). MASSACHUSETTS: Ipswich (Bryant, 1930).

Xysticus furtivus Gertsch

Figures 218, 219 and 227

Xysticus furtivus GERTSCH, 1936, American Museum Novitates, No. 852, p. 15.

FEMALE.—Allotype. Total length, 3.75 mm.

Color as in *cunctator* but the carapace somewhat more mottled with black, the cephalic portion of the pale longitudinal stripe considerably invaded by dark markings. Legs white, the basal joints with distinct large black maculations. Abdomen mainly gray, inconspicuously spotted with black.

	Length	Width
CARAPACE	1.75 mm.	1.85 mm.
FRONT	0.53	1.00
STERNUM	0.87	0.72
LABIUM	0.30	0.40
ENDITE	0.55	0.25
ABDOMEN	2.12	2.50

Carapace clothed with conspicuous erect black spines, placed as usual in the genus, the clypeal margin with seven. Pars cephalica at the second eye row about two-thirds as wide as the greatest width (47/75). Abdomen set with long black spines.

Eyes of the first row narrower than the second (28/31), recurved, the medians separated by nearly three diameters (14/38), a diameter from the laterals (14/16). Second row of eyes recurved, the medians separated by two and one-half diameters (13/32), farther from the laterals (13/45). Median ocular quadrangle broader than long (63/55), broader in front (63/58). Ratio of the eyes: ALE:AME:PLE:PME = 22:14:18:13. Clypeus about twice as high as the diameter of an anterior median eye (14/25).

Legs clothed with strong hairs, the spinal armature being as follows: femur, prolateral, 3, otherwise, 0. Tibia, prolateral and retrolateral, 0, ventral, 1–2–2–2. Metatarsus, prolateral, 0–1–1, retrolateral, 0–1–0, ventral, 1–2–2–2. First leg: femur, 1.57 mm., patella, 0.92 mm., tibia, 1.12 mm., metatarsus, 1.12 mm., tarsus 0.62 mm. long.

Vulva (Fig. 227) oval to suborbicular in outline, shallowly excavated, provided with a very narrow median septum that is only slightly expanded near the caudal end. Atriobursal orifices running obliquely forward from near the caudal end to the median septum.

MALE.—Holotype. Total length, 3.00 mm.

Color as in the female but the carapace darker, reddish brown, the median band virtually obsolete. Basal joints of the legs heavily maculate in black.

	Length	Width
CARAPACE	1.60 mm.	1.60 mm.
FRONT	0.42	0.87
STERNUM	0.80	0.65
LABIUM	0.32	0.25
ENDITE	0.42	0.18
ABDOMEN	1.60	1.60

Spinal armature of the carapace and abdomen as in the female.

Eyes of the first row narrower than the second (23/26), recurved, the medians separated by two diameters (13/30), a diameter from the laterals (13/13). Second row of eyes recurved, the medians separated by two diameters (12/27), three diameters from the laterals (12/35). Median ocular quadrangle broader than long (53/46), slightly broader in front (53/51). Ratio of the eyes: ALE:AME:PLE:PME = 23:13:17:12. Clypeus about as high as the diameter of an anterior median eye (13/18).

Spines of the first leg: femur, prolateral, 4, dorsal, 3. Tibia, prolateral and retrolateral, 1–1–1, ventral, 2–2–2–2. Metatarsus, prolateral, 0–1–1, retrolateral, 0–0–1, ventral 2–2–2. First leg: femur, 1.62 mm., patella, 0.75 mm. tibia, 1.12 mm., metatarsus, 1.25 mm. and tarsus, 0.70 mm. long.

Palpus (Figs. 218 and 219) essentially as in *cunctator* but the embolus completely lacks a pars pendula.

TYPE LOCALITY.—Male holotype and female allotype from Edinburg, Texas (Mulaik collector), in the collection of The American Museum of Natural History.

Xysticus quinquepunctatus Keyserling

Figures 220, 221 and 228

Xysticus quinquepunctatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 28, Pl. 1, fig. 12.—MARX, 1889, Proc. U. S. National Mus., XII, p. 555.—GERTSCH, 1934, American Museum Novitates, No. 707, p. 4, Fig. 4 (reinstates *quinquepunctatus* Keyserling).

Xysticus cunctator BANKS, 1895, Annals. N. Y. Acad. Sci., VIII, p. 427 (part: synonymizes *quinquepunctatus* Keyserling).—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 438 (Part).

FEMALE.—Total length, 5.30 mm.

Carapace with a white median stripe which is as broad as the first row of eyes, invaded by black dots in the anterior half and with a small black marking at the median furrow. Sides of the carapace brown. Sternum, labium and maxillae white, punctate in black. First three pairs of legs white, regularly punctate in black, the last pair with larger maculations on the femora, patellae and tibiae. Abdomen white, with three pairs of very small spots above.

	Length	Width
CARAPACE	1.80 mm.	1.73 mm.
FRONT	0.60	1.00
STERNUM	0.83	0.66
LABIUM	0.33	0.26
ENDITE	0.50	0.26
ABDOMEN	3.50	3.50

Eye rows recurved, the first narrower than the second (39/45). Ratio of the eyes: ALE: AME:PLE:PME = 7:4:5.5:4. Anterior median eyes separated by a little more than two diameters, half as far from the larger laterals. Posterior median eyes separated by little more than two diameters, scarcely three diameters from the laterals. Median ocular quadrangle broader than long (9/8), as broad behind as in front. Clypeus as high as twice the diameter of an anterior median eye.

Spines of the first leg: femur, prolateral, 3 dorsal, 0. Tibia, prolateral, 0 retrolateral, 0 ventral, 1–2–2–2. Metatarsus, prolateral, 0–1–1 retrolateral, 1–1–0 ventral, 2–2–2–2. First leg: femur, 1.60 mm., patella, 0.76 mm., tibia, 1.06 mm., metatarsus, 1.06 mm. and tarsus, 0.66 mm. long.

Vulva (Fig. 228) essentially as in *Xysticus ferox*, the atriobursal orifices set at a right angle to the median septum.

MALE.—Total length, 3.80 mm.

Carapace with a broad median longitudinal light band nearly one-third as broad as the carapace which encloses a V-shaped light maculation that begins at the black marking of the median suture and runs forward to the eyes. Sides of the carapace dark brown. Sternum creamy white, brown-flecked, the labium and maxillae darker. Femora, patellae and a small part of the tibiae of the first two pairs of legs dark brown, the distal joints yellow or light brown, the last two pairs of legs heavily maculate in black and white, the tarsi and metatarsi lighter. Abdomen creamy white above, with three transverse black bands behind and a few basal spots, the venter irrorate in black.

	Length	Width
CARAPACE	1.86 mm.	1.86 mm.
FRONT	0.53	1.00
STERNUM	0.86	0.76
LABIUM	0.33	0.26
ENDITE	0.55	0.26
ABDOMEN	2.00	2.00

Clypeal margin with seven principal spines. Eye rows recurved, the first narrower than the second (40/45). Ratio of the eyes: ALE: AME:PLE:PME = 8:4.5:5.5:4. Anterior median eyes separated by two diameters, little more than half as far from the larger laterals. Posterior median eyes separated by two and one-half diameters, three diameters from the laterals. Median ocular quadrangle a little broader than long, almost imperceptibly broader in front than behind (18/17.5). Clypeus scarcely twice as high as the diameter of an anterior median eye.

First leg spined as follows: femur, prolateral 5. Tibia, ventral 2–2–2–2. Metatarsus, prolateral 1–1–1, retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 1.93 mm. patella, 0.86 mm., tibia, 1.40 mm., metatarsus, 1.66 mm. and tarsus, 0.86 mm. long.

Male palpus (Fig. 220 and 221) essentially as in *Xysticus cunctator* but differing in the details of the apical sclerite which presents a laterally directed accessory black spur from the main mass of the sclerite, the basal part a simple lobe.

TYPE LOCALITY.—Female type from Colorado in the Museum d'Histoire Naturelle, Paris (Simon collection).

DISTRIBUTION.—Rocky Mountain States. Pacific Coast.

RECORDS.—CALIFORNIA: Claremont, males. Mohave Desert, May 19, 1922, female. UTAH: Clear Creek, near Elsinore, Sevier County, June 15, 1930, male, female (Gertsch). Richfield, Sevier County, May 25, 1931, male (Gertsch). Monroe Canyon, Sevier County, July 6, 1930, female (Gertsch). IDAHO: Adelaide, May 27, 1931, male (Fox). Montpelier, Bear Lake County, July 26, 1928, male (Gertsch). Castleford, May 12, 1931, female (Fox). COLORADO: Near Denver, Sept. 18, 1931, female (Gertsch). WASHINGTON: Seattle, male (Exline).

CANADA.—ALBERTA: Medicine Hat, June, 1930, females (Carr). BRITISH COLUMBIA: Kamloops. May 25, 1919, male (Anderson).

Xysticus cunctator Thorell

Figures 222, 223, 226, 234 and 235

Xysticus cunctator THORELL, 1877, Bull. U. S. Geol. Survey, III, pp. 494–496.—MARX, 1890, Proc. U. S. National Museum, XII, p. 554.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427 (synonymizes *lenis* and *quinquepunctatus* Keyserling); 1901, Proc. Acad. Nat. Sci. Philadelphia, LIII, p. 584; 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 438.—WORLEY AND PICKWELL, 1927, Univ. Studies, Nebraska, XXVII, p. 66.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV (1), p. 29.—GERTSCH, 1934, American Museum Novitates, No. 707, p. 11 (synonymizes *californicus* Keyserling and *ancistrophor* Chamberlin and Gertsch).

Xysticus lenis KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 27–28, Pl. I, fig. 11.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, XIII, p. 178.

Xysticus californicus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 37–38, Pl. I, fig. 17.—MARX, 1890, Proc. U. S. National Museum, XII, p. 554.—BANKS, 1904, Proc. California Acad. Sci., (3) III, p. 351.—COOLIDGE, 1907, Canadian Ent., XXXIX, p. 376.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1910, Bull. American Museum Nat. Hist., XXIX, p. 437.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 333.—WORLEY, 1932, Univ. Washington Publ. Biology, I, p. 42.

Xysticus cunctator var *pallidus* COCKERELL, 1893, Trans. American Micro. Soc., XX, p. 369.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 438.

Xysticus cunctator var *nigrescens* COCKERELL, 1893, Trans. American Micro. Soc., XX, p. 369.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 438.

Xysticus ferox CHAMBERLIN AND GERTSCH, 1928, Proc. Biol. Soc. Washington, XLI, p. 183 (not *ferox* Hentz).

Xysticus nervosus CHAMBERLIN AND GERTSCH, 1928, idem, p. 183.—CHAMBERLIN AND WOODBURY, 1929, idem, XLII, p. 137.

Xysticus ancistrophor CHAMBERLIN, 1928 idem, p. 183 (*nomen nudum*).

Xysticus ancistrophor CHAMBERLIN AND GERTSCH, 1929, Journal Ent. and Zool., Pomona College, XXI, pp. 4–5, Pl. IV, fig. 40.

FEMALE.—Total length, 6.75 mm.

Carapace with a broad median longitudinal pale band as wide as the first eye row, the cephalic portion light brown to orange, the thoracic portion white with a brown triangular spot at the median furrow. Sides of the carapace brown, with two dark maculations on the posterior declivity. Sternum gray, with numerous small brown spots. Legs light in color, darker distally, the first two femora with large brown markings on the upper surfaces, the last two femora with a large square distal maculation and a smaller median one above. Abdomen gray to white, the dorsum with indistinct caudal markings, the venter unmarked.

	Length	Width
Carapace	2.57 mm.	2.50 mm.
Front	0.75	1.40
Sternum	1.15	0.87
Labium	0.50	0.35
Maxilla	0.70	0.27
Abdomen	4.00	4.00

Carapace spined as usual in typical members of the genus, the clypeal margin with seven principal spines. Eyes of the first row narrower than the second (6/7), the medians separated by three diameters (17/51), slightly more than a diameter from the laterals (17/20). Second row of eyes recurved, the medians separated by over three diameters (15/50), four diameters from the laterals (15/60). Median ocular quadrangle broader than long (83/73), slightly narrowed behind (83/80). Ratio of the eyes: ALE: AME:PLE:PME = 28:17:20:15. Clypeus twice as high as the diameter of an anterior median eye (17/38).

First leg spined as follows: femur, prolateral 3, dorsal 1. Tibia, prolateral and retrolateral 0–0–0, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.07 mm., patella, 1.12 mm., tibia, 1.62 mm., metatarsus, 1.62 mm. and tarsus, 0.80 mm. long.

Vulva as illustrated in Fig. 226.

Male.—Total length, 4.00 mm.

Carapace with the broad median white band as in the female, the whole of which is more or less invaded by streaks and lines of brown, a small triangular marking at the median furrow. Sides of the carapace evenly colored in brown. Sternum, labium and maxillae white, thickly covered with brown markings of varying sizes. Legs yellow to white, the femora thickly punctate in brown, the distal joints lighter. Abdomen gray to white, almost completely suffused with brown and black in no definite pattern or often with four large brown spots on each side.

	Length	Width
Carapace	2.00 mm.	2.00 mm.
Front	0.57	1.15
Sternum	1.00	0.80
Labium	0.40	0.30
Maxilla	0.60	0.25
Abdomen	1.95	1.85

Eyes of the first row narrower than the second (29/34), the medians separated by more than two diameters (16/36), half as far from the laterals (18/36). Second row of eyes recurved, the medians separated by two and one-half diameters (15/38), three diameters from the laterals (15/44). Median ocular quadrangle broader than long (68/65), slightly narrowed in front. Ratio of the eyes: ALE:AME:PLE: PME = 27:16:20:15. Clypeus equal in height to one and one-half times the diameter of an anterior median eye (16/23).

First leg spined as follows: femur, prolateral 6, dorsal 4. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.00 mm., patella, 0.95 mm., tibia, 1.55 mm., metatarsus, 1.75 mm. and tarsus, 0.90 mm. long.

Palpus as illustrated in Figs. 222 and 223.

Type Locality.—Female type of *cunctator* from Boulder, Colorado, presumably in the Stockholm Museum (Thorell collection). Female type of *lenis* Keyserling from Colorado in the Museum d'Histoire Naturelle, Paris (Simon collection). Female type of *californicus* Keyserling from Mariposa, California, in the Museum d'Histoire Naturelle, Paris (Simon collection). Types of *pallidus* and *nigrescens* Cockerell from Custer County, Colorado. Male holotype of *X. ancistrophor* Chamberlin and Gertsch from Verdure, Utah, in the University of Utah.

Distribution.—Western United States and Canada, east to Nebraska.

Records.—Nebraska: Mitchell, June 21–24, 1923, 4 females. Oklahoma: Comanche County, June 7, 1928 (Banks, 1932). New Mexico: Las Vegas, male (Banks). Jemez Springs, female, October, 1930 (Dietz). Albuquerque (Banks, 1901). Beulah and Mesilla Park (vertical range from 3800 to 8000 feet) (Banks, 1901). Colorado: Fort Collins, May, June, males, females (Banks). Colorado Springs, Aug. 20, 1910, female. Strontia Springs, July 29, 1930, female (Dietz). Clear Creek, July 12, 1926, male. Ward, July 6, 1909, female (Lutz). Poudre Canyon, June 20, 1929, female (Klots). Custer County (Mid Alpine Zone), (Cockerell, 1893). Wyoming: Yellowstone River, July 2, 1926, female. Yellowstone National Park, Aug. 29, 1927, female (Woodbury). Montana: Helena, female (Banks). Bozeman, July 10, 1902. Idaho: Castleford, June 12, 1931, males, females (Fox). Utah: Logan, July, 1921, female. 10 mi. west of Tremonton, July 8, 1931, females, egg sac (Ivie). West side of Utah Lake, Sept. 20, 1930, male, females (Gertsch). Grouse Creek, Raft River Mountains, Aug. 8, 1932, female (Ivie). Payson, May 8, 1928, female (Bates). Bluff, April 17, 1928, female (Gertsch). Verdure,

April 17, 1928, male. Price, April 14, 1928, male. St. George, female (Woodbury). Montaqua, Washington County, April 12, 1932, male (Ivie). San Rafael Desert, April 20, 1928, female (Woodbury). Cainesville, April, 1928, female (Chamberlin). Summit County, August, 1919, female (Chamberlin). Fish Lake, Sevier County, June 9, 1930, males, females (Gertsch). Near Salt Lake City, June, July, many males and females (Gertsch). NEVADA: Ormsby County, males, females (Banks). Charleston Mountains, 6500 feet, female. CALIFORNIA: Salada Beach, male (Banks). Sisson, July 1, 1905, male, females (Emerton). Berkeley, June, 1905, males, females (Emerton). Goose Lake, Siskiyou County, females. Pasadena, female (Banks). Marin County, female (Banks). Los Angeles, male, females (Banks). Elsinore, females (Banks). Glenwood, Santa Cruz Mts., May, 1907, female. Burbank, March 1, 1930, females (Dietz). Sonoma County, Feb. 5, 1928, female (Dietz). Claremont, males (Chamberlin). Stanford Univ. Campus, males (Chamberlin). Northford, 1920, male (Dietrich). Humboldt County, June 19, 1907, male (Bradley). Felton, Santa Cruz Mts., May 22, 1907, male (Bradley). Santa Cruz Island, April, 1913, male (Chamberlin). Claremont, males, females (Lutz). Berkeley, January, 1920, female (Dietrich). Redlands (Emerton, 1920). Downieville, Sierra County, August (Fuchs). Coulterville, Mariposa County, July (Eisen). Santa Rosa Island, July (Eisen). OREGON: Portland, June, female. Corvallis, males, females (Banks). Idem, June 23, 1912, female (Ewing). Sucker Creek, out of Homedale, Idaho, Aug. 15, 1931, male (Ivie). WASHINGTON: Ellensburg, Yakima River, female (Henshaw). Pullman, male, female (Banks). Wawawai, males, females (Banks). Olympia, males, females (Banks). Mt. Ranier, Paradise Peak, July 20, 1905, female (Emerton). Friday Harbor, June, July, male, females (Shackleford).

CANADA.—BRITISH COLUMBIA: Victoria, male (Banks). Vancouver (Emerton, 1920). ALBERTA: Medicine Hat, June, 1930, female (Carr).

GROUP D

(Genera *Psammitis* Menge and *Spiracme* Menge)

Tibia of the male palpus armed with a ventral and a retrolateral apophysis. Bulb without apophyses. Embolus usually attached to the tegulum on the prolateral side near the base, the truncus a black tube supported for most of its length by a broad pars pendula, the distal end of the truncus an acuminate spine. Embolus more rarely short, attached at the distal end of the tegulum. Tutaculum well developed in most cases. Clypeus with seven, nine or more well-developed marginal spines. Carapace clothed with setaceous spines.

TYPE OF THE GROUP.—*Xysticus sabulosus* C. Koch.

The males of this group of species are characterized particularly by having the bulb of the palpus devoid of apophyses. It is presumed that these structures have been lost, and that the condition represents a simplification or advance beyond the usual *Xysticus* type. In most of the females of the group there is a corresponding difference in the vulva in that the floor of the structure is not elevated to form a median longitudinal septum. In other females the typical elevated margin or rim delimiting the atrium of the vulva is nearly obsolete and the floor elaborated by the development of a lobe or tubercle analogous to the median septum of typical females. The development of this septum is correlated with the obliteration of the rim of the vulva.

The majority of the species of this section are boreal in distribution. The two spiders of Group E are closely allied and probably do not deserve being placed in a distinct group. They are included in the keys to Group D.

KEY TO THE MALES

1.—Tibia of male palpus with three apophyses, a retrolateral, a ventral and a small intermediate spur ..... 9.
Tibia of male palpus without an intermediate apophysis ..... 2.
2.—First metatarsus with three pairs of ventral spines ..... 3.
First metatarsus with four pairs of ventral spines 7
3.—Truncus of embolus spiraliform (Fig. 248). ..... *X. labradorensis* Keyserling.
Truncus of embolus not spiraliform ..... 4.
4.—First tibia with lateral spines ..... 5.
First tibia without lateral spines ..... 6.

5.—Palpus as in Fig. 242..*X. lutulentus* Gertsch.
Palpus as in Fig. 244..*X. knowltoni* Gertsch.
6.—Carapace with a broad pale stripe the full length.....*X. punctatus* Keyserling.
Carapace with a V-shaped white maculation on the midline, otherwise yellowish brown .....*X. floridanus* Banks.
7.—Embolus of the palpus short, broad, subtriangular, the juncture with the tegulum at the apical end.....
.....*X. benefactor* Keyserling.
Embolus of the palpus long, the truncus an acuminate spine, the juncture with the tegulum on the prolateral side.....8.
8.—Ventral tibial apophysis rounded at the end, about equal in length to the retrolateral apophysis.....*X. triangulosus* Emerton.
Ventral tibial apophysis asymmetrically bifid at the end, much shorter than the retrolateral apophysis.....
.....*X. montanensis* Keyserling.
9.—Carapace thickly set with spatulate spines. Clypeal margin closely set with stout spatulate spines, without a series of long setaceous spines.....
.....*X. nigromaculatus* Keyserling.
Carapace with setaceous spines. Clypeal margin with a series of long setaceous spines.....*X. moestus* Banks.

KEY TO THE FEMALES

1.—Carapace thickly set with short spatulate spines. Clypeal margin closely set with stout spatulate spines, without a series of longer setaceous spines.....
.....*X. nigromaculatus* Keyserling.
Carapace set with spines which are setaceous to subclavate in form. Clypeal margin with a series of longer principal spines..2.
2.—Margin or rim of the vulva obsolete, the floor with a well-developed, elevated, median lobe (see Figs. 261, 266 and 267).....3.
Rim of the vulva fairly well developed, the floor without an elevated lobe (see Figs. 260, 262, etc.).....5.
3.—Median lobe of the vulva long, spatuliform, the end broadly rounded.....
.....*X. moestus* Banks.
Median lobe relatively short, excavated, or emarginated behind.....4.
4.—Median lobe of the vulva as in Fig. 266....
.....*X. nicholsi*, new species.
Median lobe as in Fig. 261.....
.....*X. triangulosus* Emerton.
5.—First tibia and metatarsus with three pairs of ventral spines.....
.....*X. labradorensis* Keyserling.
First tibia and metatarsus with more than three pairs of ventral spines, usually four pairs beneath each article.....6.
6.—Dorsum of the abdomen with a median serrate white stripe.....
.....*X. punctatus* Keyserling.
Dorsum of the abdomen often with paler markings but without such a conspicuous stripe.....7.
7.—Head broad, the median ocular quadrangle much broader than long (60/51), slightly narrowed in front.....
.....*X. montanensis* Keyserling.
Head less broad, the median ocular quadrangle slightly broader than long (about in ratio 60:55), not narrowed in front.....8.
8.—Vulva as in Fig. 260.....
.....*X. benefactor* Keyserling.
Vulva as in Fig. 262..*X. lutulentus* Gertsch.

Xysticus punctatus Keyserling

Figures 236, 237 and 265

Xysticus punctatus KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, pp. 30–31, Pl. I, fig. 13.—MARX, 1890, Proc. U. S. National Mus., XXII, p. 555.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 441.—GERTSCH, 1934, American Mus. Novitates, No. 707, p. 11 (synonymizes *formosus* Banks).

Xysticus formosus BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 56, Pl. III, fig. 9.—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, p. 365, Pl. XXIX, figs. 3, 3*a*.—BANKS, 1895, Annals New York Acad. Sci., VIII, p. 427.—SLOSSON, 1898, Journ. New York Ent. Soc., VI, p. 248.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII, p. 63.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48; 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 451.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 439.—BANKS, 1916, Proc. Acad. Nat. Sci. Philadelphia, LI, p. 70; 1916, Proc. U. S. National Museum, LI, p. 70.—EMERTON, 1924, Canad. Ent., LVI, p. 124; 1928, Univ. Toronto Studies, Biol., XXXII, p. 45.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1060.—WORLEY, 1932, Univ. Washington Publ. Biol., I, p. 42.

FEMALE.—Total length, 5.40 mm.

Sides of the carapace uniform light to dark brown, the midline with a broad longitudinal pale band that narrows slightly caudad and which may be invaded to an extent by brown. Sternum, mouth parts and coxae lighter, somewhat mottled with brown markings. Legs concolorous with the sides of the carapace, the femora of the first legs and all the joints of the last two pairs strongly marked with white. Abdomen light brown to reddish brown on the sides of the dorsum, medially with a characteristic broad serrate white band, the side extensions of which may divide the brown side bands into spots; the venter mottled with brown and white.

	Length	Width
CARAPACE	2.49 mm.	2.43 mm.
FRONT	0.65	1.38
STERNUM	1.20	0.90
LABIUM	0.51	0.36
ENDITE	0.70	0.30
ABDOMEN	3.12	2.85

Carapace clothed with setaceous spines as in the other species, the clypeal margin with seven principal longer spines and other shorter intermediate ones. Cephalothorax about two-thirds as wide at the second eye row as the greatest width (12/19) of the carapace. Carapace broadest and highest between the second and third coxae.

Legs clothed with black hairs and setaceous spines as follows: First leg: femur, prolateral 4, dorsal 1, otherwise 0. Tibia, ventral 1–2–2–2 and occasionally two additional smaller pairs of spines, elsewhere 0. Metatarsus, ventral 1–2–2–2, otherwise 0. First leg: femur, 2.40 mm., patella, 1.20 mm., tibia, 1.80 mm., metatarsus, 1.50 mm. and tarsus, 0.85 mm. long.

Vulva (Fig. 265) oval to quadrangular in outline, very shallowly excavated, the caudal half with a low process that exceeds the caudal margin of the vulva.

MALE.—Total length, 3.69 mm. Color as in the female but the pattern generally darker. Median pale stripe of the carapace with a V-shaped white maculation at the middle.

	Length	Width
CARAPACE	2.10 mm.	2.10 mm.
FRONT	0.57	1.14
STERNUM	1.02	0.84
LABIUM	0.36	0.30
ENDITE	0.46	0.25
ABDOMEN	2.16	1.74

Structure essentially as in the female. Eyes of the first row recurved, the medians separated by three diameters (11/33), much nearer the laterals (11/18). Second row of eyes recurved, the medians separated by three diameters (12/37), slightly farther from the laterals (12/40). Median ocular quadrangle broader than long (62/52), slightly narrowed in front (62/55). Ratio of the eyes: ALE:AME:PLE:PME = 22:11:16:12. Clypeus nearly twice as high as the diameter of an anterior median eye (11/20).

Legs spined as in the female. First leg: femur, 2.49 mm., patella, 1.08 mm., tibia, 1.89 mm., metatarsus, 1.86 mm. and tarsus, 0.99 mm. long.

Tibia of palpus (Figs. 236 and 237) slightly broader than long, armed with a broad asymmetrically bifid ventral apophysis and an acutely ended retrolateral apophysis of about equal length. Cymbium slightly longer than broad, the tutaculum a long narrow groove on the retrolateral margin. Tegulum about as broad as long, the embolus attached near the base on the prolateral side. Truncus a slender tube, accompanied for one-third its length by a very narrow pars pendula.

TYPE LOCALITY.—Male type of *punctatus* Keyserling from North Carolina in the Museum d'Histoire Naturelle, Paris (Simon collection). Female cotypes of *formosus* Banks from "woods west of Varna, Upper Cayuga Lake Basin, New York, March," in the Museum of Comparative Zoölogy (Banks collection).

DISTRIBUTION.—United States and Canada.

RECORDS.—MAINE: Greenville (Bryant, 1908). NEW HAMPSHIRE: Pike, July 1–19, 1908, female (Hayhurst). Franconia (Slosson, 1898). Gilmanton, July 12–18, 1926, female (Bryant). Intervale, July, 1913, 2 females (Bryant). VERMONT: South Newfane, June 16–23, 1926, female (Bryant). NEW YORK: Oakland Valley, May 26, 1920, female (Crosby). Indian Lake, June 17, 1925, female. Tsatsawassa Lake, June 25, 1920, female. Ithaca, males. Long Island, females (Pike). Peru, Jan. 16, female. Wilmington, August; McLean, May; Dormansville, June; Oakland Valley, May; Tackawasick Pond, June (Crosby and Bishop, 1928). MASSACHUSETTS: Woods Hole, July 10, 1919, female. West Roxbury, male (Emerton, 1892). Brookline (Bryant, 1908). NEW JERSEY: Female, no specific locality data. PENNSYLVANIA: Conyngham, July 30, 1925, female (Dietz). Idem, June 20, 1928, female (Dietz). Drums, May 25, 1926, female (Dietz). WEST VIRGINIA: Aurora, Aug. 7–14, female (Banks). NORTH CAROLINA: Black Mountains (Beutenmuller). MICHIGAN: Birch, July 2, 1932, female (Chickering). COLORADO: Grand Junction, female. Long's Peak, female. Ward, July 6, 1909, female (Lutz). Fort Collins (Banks, 1892). WASHINGTON: Blakeley Island, females; San Juan Island, females; Aug. 2 and 10, 1927 (Worley, 1932).

CANADA.—BRITISH COLUMBIA: Kaslo, June 24 (Banks, 1916). Powder Creek, June 26 (Banks, 1916). ONTARIO: Ottawa, female (Banks). NOVA SCOTIA: Barrington, September, 1933, female (Bryant).

Xysticus floridanus Banks

Xysticus floridanus BANKS, 1896, Trans. American Ent. Soc., XXIII, p. 70; 1904, Proc. Acad. Nat. Sci. Philadelphia, p. 132; 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 439.—BRYANT, 1930, Psyche, XXXVII, p. 134, Figs. 2 and 5.

MALE.—Total length, 3.75 mm.

Carapace clear yellowish brown, with a V-shaped white maculation at the middle, the eye tubercles white. Sternum, mouth parts and legs yellowish brown, somewhat flecked with white. Abdomen as in *Xysticus punctatus* Keyserling, with a dorsal serrate longitudinal white band and brown side stripes made up of four or five spots, the venter paler.

	Length	Width
Carapace	1.89 mm.	1.83 mm.
Front	0.48	1.08
Sternum	0.99	0.84
Labium	0.33	0.27
Maxilla	0.46	0.23
Abdomen	2.10	1.64

Carapace broad, moderately convex, the width of the front at the second eye row two-thirds as broad as the greatest width (24/36). Spines setaceous, those on the clypeal margin longest, seven in number.

Eyes of the first row recurved, the medians separated by two and one-half diameters (10/25), about half as far from the laterals (10/13). Second row of eyes recurved, the medians separated by nearly four diameters (9/33), about as far from the laterals (9/34). Median ocular quadrangle broader than long (51/40), narrowed in front (51/45). Ratio of the eyes: ALE: AME:PLE:PME = 22:10:13:9. Clypeus one and one-half times as high as the diameter of an anterior median eye (10/15).

Legs spined as in *punctatus*. First leg: femur, 1.74 mm. patella, 0.75 mm., tibia, 1.39 mm., metatarsus, 1.20 mm. and tarsus, 0.63 mm. long.

Male palpus indistinguishable from that of *Xysticus punctatus* Keyserling.

Type Locality.—Male type from Punta Gorda, Florida, in the Museum of Comparative Zoölogy (Banks collection).

Distribution.—Florida.

Records.—Florida: Punta Gorda, March, April, male, female (Banks,1 904). Newberry, male (J. H. Ebert).

Xysticus montanensis Keyserling

Figures 238, 239 and 263

Xysticus montanensis Keyserling, 1887, Verhandl. k. k. Zool.-Bot. Gesell, Wien, XXXVII, pp. 479–481, Pl. VI, fig. 40.—Marx, 1890, Proc. U. S. National Museum, XII, p. 555.—Banks, 1895, Annals N. Y. Acad. Sci., VIII, p. 427 (*X. bimaculatus* Emerton incorrectly synonymized); 1901, Proc. Acad. Nat. Sci. Philadelphia, LIII, p. 583, Pl. XXXIII, fig. 19; 1910, Bull. U. S. National Museum, LXXII, p. 48 (part: not *pulverulentus* Emerton).—Petrunkevitch, 1911, Bull. American Museum Nat. Hist., XXIX, p. 440 (part: not *pulverulentus* Emerton).—Banks, 1916, Proc. U. S. National Museum, LI, p. 70.—Emerton, 1920, Trans. Royal Canadian Inst., XII, p. 334.—Worley, 1932, Univ. Washington Publ. Biology, I, p. 43.

Xysticus hesperus Gertsch, 1934, American Museum Novitates, No. 707, p. 6, Fig. 11.

Female.—Total length, 5.60 mm.

Carapace with a median longitudinal light band anteriorly as wide as the eye rows which gradually narrows caudally to about half the width, the cephalic portion of the band brown or tan, with brown flecks and dots, the thoracic portion on the posterior declivity immaculate white, except for the black maculation at the median cephalic suture. Sides of the carapace brown for the most part but often showing lighter flecks and spots. Integument of the legs gray to white, the first two pairs with the femora black above, the tibiae all black, the remaining joints with some black spots, the last two legs lighter, with the markings heaviest on the tibiae. Abdomen with an indistinct pattern above.

	Length	Width
Carapace	2.43 mm.	2.34 mm.
Front	0.56	1.38
Sternum	1.20	0.96
Labium	0.48	0.36
Maxilla	0.60	0.30
Abdomen	3.33	3.00

Carapace set with setaceous spines, the clypeal margin with seven principal ones, and three additional less developed spines on each side, the pars cephalica with numerous short spines and a few longer ones in the characteristic arrangement for the genus. Carapace about as long as broad, highest between the second and third coxae, the width of the front at the second eye row two-thirds the greatest width (58/86).

Eyes of the first row recurved, the medians separated by three diameters (11/35), nearer the laterals (11/20). Second row of eyes recurved, the medians separated by nearly four diameters (11/40), farther from the laterals (11/41). Median ocular quadrangle broader than long (60/51), narrowed in front (60/55). Ratio of the eyes: ALE:AME:PLE:PME = 22:11:14:11. Clypeus twice as high as the diameter of an anterior median eye (11/25).

Legs armed with black hairs and strong spines. First leg: femur, prolateral 3, dorsal 1 or 0, otherwise 0. Tibia, prolateral and retrolateral 0, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 1.95 mm., patella, 1.14 mm., tibia, 1.29 mm., metatarsus, 1.23 mm. and tarsus, 0.69 mm. long.

Vulva (Fig. 263) oval to subtriangular in outline, very shallowly excavated, the caudal half with a low, broad extension of the floor that exceeds the caudal margin.

Male.—Total length, 3.36 mm.

Color extremely variable, the integument in albinic specimens nearly white, in melanic examples dark brown or dusky. Carapace with a median longitudinal light band that is not as wide as the anterior row of eyes and narrows

caudally to half the width of this row, the cephalic portion with large brown markings, the posterior portion white to yellow, a black mark present at the cephalic suture. Sides of the carapace dark brown to black, with very few lighter markings. Legs varying from light brown to black, the metatarsi and tarsi yellow, all the other joints heavily suffused with dark, the color in the last two pairs usually broken up into spots. Abdomen brown to black, with three black maculations on each side of the dorsum, otherwise marked in white. In melanic specimens the dorsum is often black. Venter gray, flecked with brown.

	Length	Width
Carapace	1.84 mm.	1.84 mm.
Front	0.47	1.04
Sternum	0.96	0.75
Labium	0.39	0.30
Maxilla	0.56	0.25
Abdomen	1.60	1.60

Structure as in the female. Eyes of the first row recurved, the medians separated by two diameters (10/20), nearer the laterals (10/13). Second row of eyes recurved, the medians separated by two and one-half diameters (10/25), farther from the laterals (10/28). Median ocular quadrangle broader than long (45/39), narrowed in front (45/40). Ratio of the eyes: ALE:AME:PLE:PME = 20:10:13:10. Clypeus equal in height to twice the diameter of an anterior median eye (10/17).

First leg spined as follows: femur, prolateral 3, dorsal 3, otherwise 0. Tibia and metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 1.76 mm., patella, 0.80 mm., tibia, 1.36 mm., metatarsus, 1.28 mm. and tarsus, 0.80 mm. long.

Tibia of the palpus (Figs. 238 and 239) broader than long, armed with a broad, asymmetrically bifid ventral apophysis and a longer, acutely ended retrolateral apophysis. Cymbium about as broad as long, the tutaculum a long, inconspicuous groove on the retrolateral margin. Tegulum as broad as long, the embolus attached somewhat above the base on the prolateral side. Truncus accompanied by a broad pars pendula for half its length, the terminal part a fine acuminate spine.

Type Locality.—Male and female cotypes of *montanensis* from Montana in the United States National Museum (Marx collection). Male holotype of *hesperus* from Atherton, California, female allotype from Los Angeles, California, in The American Museum of Natural History.

Distribution.—Western United States.

Records.—Colorado: Fort Collins, female (Gillette). Male and female, 1905, no specific locality (Oslar). Pagosa Springs, June 2, 1931, female (Bryant). Sugar Loaf Mountain, May (Cockerell). Utah: Salt Lake City, May 9, 1928, male, female (Gertsch). Ferron, July, 1932, female paratype of *hesperus* (Ivie). Little Castle Valley, near Castleton, Oct. 31, 1931, male, female (Ivie). Uinta County, October, 1928, two males (Gertsch). Fish Lake, Sevier County, June 22, 1930, 2 females (Gertsch). San Rafael River, April 21, 1928, female (Woodbury). Pine Spring, Henry Mountains, Aug. 11, 1929, male (Gertsch). East of Tintic Standard, Tooele County, October, 1928, 2 males (Chamberlin). Clear Creek, Raft River Mountains, Aug. 4, 1932, male (Ivie). Idaho: Montpelier, July, 1928, male, female (Gertsch). Wyoming: Afton, July, 1928, male, female (Gertsch). Montana: Bozeman, July 19, 1929, female (Leonard). Gird's Creek, Ravalli County, May 22, 1932, male (Jellison). New Mexico: San Geronimo, female (Banks), labelled *benefactor*. California: Claremont, May 25, 1930, female paratype of *hesperus*. Claremont, male. Claremont, Feb. 25, 1930, female (Brandt). Santa Cruz Island, April, 1913, two female paratypes of *hesperus*. San Juan Hot Springs, July 3, 1931, female (Chamberlin). Felton, Santa Cruz Mountains, May 22, 1907, female (Bradley). Sisson, females. San Gregorio Beach, San Mateo County, 1921–22 (Chamberlin). San Francisco, male (Banks). Salada Beach, 2 females (Banks) as *benefactor*. Oregon: Portland, male, female (Emerton, 1920). Corvallis, Dec. 25, 1911, 2 males, female. Washington: Tacoma, Aug. 9, 1929, 2 females. Olympia, males, females (Banks). Friday Harbor, June 27, 1926, female (Worley). Sucia Islands, Aug. 16, 1927, female (Worley).

Canada.—Alberta: Hudson Bay R. R., Mile 214 (Emerton, 1920). Laggan (Emerton, 1920). British Columbia: Kaslo, July 16 (Banks, 1916).

Xysticus lutulentus Gertsch

Figures 242, 243 and 262

Xysticus pulverulentus Emerton, 1894, Trans. Connecticut Acad. Arts and Sci., IX, p. 417, Pl. iv, fig. 6, 6*a* and 6*b*.—Gertsch, 1934,

American Museum Novitates, No. 707, p. 12. (Name preoccupied: not *Xysticus pulverulentus* C. L. Koch, 1837.)

Xysticus lutulentus GERTSCH, 1934, American Museum Novitates, No. 707, pp. 8–9, Fig. 9.

FEMALE.—Total length, 4.80 mm.

Carapace dark brown on the sides, variegated with lighter markings, the midline with a broad longitudinal pale band that is as wide as the posterior eye row in front but is abruptly constricted at the posterior declivity, the stripe much invaded by brown markings in front. Sides of the posterior declivity brown. Sternum, mouth parts and coxae light brown, flecked with white. Basal joints of the legs concolorous with the sides of the carapace, marked with white, the metatarsi and tarsi pale yellowish brown. Abdomen gray to brown above, marked with white and black transverse maculations, the venter dark brown.

	Length	Width
CARAPACE	2.43 mm.	2.34 mm.
FRONT	0.62	1.35
STERNUM	1.20	0.96
LABIUM	0.48	0.39
MAXILLA	0.57	0.30
ABDOMEN	3.15	3.15

Clypeal margin with seven principal spines and others somewhat shorter. Eyes of the first row recurved, the medians separated by three diameters (12/36), about half as far from the laterals (12/16). Second row of eyes recurved, the medians separated by three diameters (12/36), slightly farther from the lateral eyes (12/38). Median ocular quadrangle broader than long (60/55), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 21:12:15:12. Clypeus scarcely twice as high as the diameter of an anterior median eye (12/20).

Legs clothed with black hairs and armed with strong spines, the first one with the following spinal formula: femur, prolateral 3, otherwise 0. Tibia, prolateral and retrolateral 0, ventral (2)–2–2–2. Metatarsus, prolateral 1–1–1, retrolateral 1–1–0, ventral 2–2–2–2.

Vulva (Fig. 262) an elongate oval or subquadrangular shallow depression without a median septum, the caudal half with two oblique, curved tubes showing through the integument.

MALE.—Total length, 3.66 mm.

Color of the carapace and appendages as in the female. Abdomen dark brown, with a basal white band and two or three pairs of white side maculations.

	Length	Width
CARAPACE	1.95 mm.	1.95 mm.
FRONT	0.50	1.02
STERNUM	0.99	0.84
LABIUM	0.39	0.33
MAXILLA	0.46	0.25
ABDOMEN	1.95	1.86

Clypeal margin with seven principal spines. Eyes of the first row recurved, the medians separated by two and one-half diameters (11/28), nearer the laterals (11/14). Second row of eyes recurved, the medians separated by about three diameters (11/32), three diameters from the laterals (11/33). Median ocular quadrangle broader than long (54/48), narrowed in front (54/50). Ratio of the eyes: ALE:AME:PLE:PME = 18:11:14:11. Clypeus nearly as high as two diameters of an anterior median eye (11/20).

Legs armed with strong spines, the armature of the first as follows: femur, prolateral 5 to 7, dorsal 4, otherwise 0. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral (1)–1–(1), ventral 2–2–2.

Tibia of the male palpus (Figs. 242 and 243) broader than long, armed with a heavy, distally excavated, ventrally directed apophysis, and a much longer retrolateral apophysis that is curved retrolaterad, the terminal part acutely ended. Cymbium as broad as long, the tutaculum a smooth deep groove. Tegulum about as broad as long, the embolus attached near the distal end on the retrolateral side. Embolus very heavy, the terminal part a robust black spur.

TYPE LOCALITY.—Male and female types of *pulverulentus* Emerton from near Laggan, Alberta, Canada, in the Museum of Comparative Zoölogy. Female type of *lutulentus* Gertsch from Tilamook County, Oregon, August, 1932, in The American Museum of Natural History.

DISTRIBUTION.—Northwestern United States and Canada. Rocky Mountains.

RECORDS.—UTAH: Silver Lake, July 10, 1933, 2 males (Crosby). WYOMING: Slouth Creek, Yellowstone National Park, August, 1931, male (Walter E. Gertsch). MINNESOTA: Itasca Park, May 27, 1932, two males, female (Gertsch). OREGON: Tilamook County, female type of *lutulentus* (Macy collector). ALASKA: Two females from no specific locality.

CANADA.—ALBERTA: Edmonton, female (Rowan). Fawcett, May–June, 1931, female. BRITISH COLUMBIA: Agassiz, May, 1919, male (Anderson). Chase, May, 1919, male (Anderson). LABRADOR: Seven Islands, June 26, 1927, male.

Xysticus triangulosus Emerton

Figures 240, 241 and 261

Xysticus triangulosus EMERTON, 1894, Trans. Connecticut Acad. Arts and Sci., IX, p. 416, Pl. IV, figs. 4 and 4*a*.—BANKS, 1910, Bull. U. S. National Mus., LXXII, p. 48.—PETRUNKE-

VITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 441.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.

FEMALE.—Total length, 7.70 mm.

Carapace uniform light to dark brown on the sides, with a broad median longitudinal pale stripe as wide as the first row of eyes which anteriorly is somewhat invaded with brown coloration, the posterior declivity white. Cephalic portion of the pale stripe nearly obliterated by bright brown coloration in one of the females from Manitoba. Underside and the mouth parts dull to bright brown, with numerous small spots. Legs with a longitudinal pale stripe above, light brown, variegated with white spots. Abdomen dirty white to reddish brown, with three narrow transverse white bands in the caudal half.

	Length	Width
CARAPACE	3.35 mm.	3.40 mm.
FRONT	1.00	2.15
STERNUM	1.60	1.20
LABIUM	0.68	0.55
MAXILLA	0.85	0.40
ABDOMEN	4.70	4.50

Carapace evenly clothed with setaceous spines of moderate length and longer setaceous spines in the usual arrangement for the genus. Spines in general much longer and less numerous than in *Xysticus moestus* Banks. Clypeal margin with nine or eleven principal long setaceous spines. Eyes of the first row recurved, the medians separated by three diameters (16/42), much nearer the laterals (16/20). Second row of eyes recurved, the medians separated by three diameters (16/42), farther from the laterals (16/51). Median ocular quadrangle as broad as long, equally wide in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 24:16:19:16. Clypeus equal in height to two diameters of an anterior median eye (16/35).

Legs evenly clothed with short setaceous hairs and set with robust spines, the armature of the first leg as follows: femur, prolateral 4. Tibia, prolateral 0–1–1–0, retrolateral 0, ventral 2–2–2–2. Metatarsus, prolateral 1–1–1–1, retrolateral 1–1–1–0, ventral (1)2–2–2–2. First leg: femur, 3.35 mm., patella, 1.70 mm., tibia, 2.40 mm., metatarsus, 2.40 mm. and tarsus, 1.15 mm. long.

Vulva as illustrated in Fig. 261.

MALE.—Total length, 5.28 mm.

Carapace dark brown on the sides, mottled, the sides of the posterior declivity darker. Median pale band on the carapace as wide as the eye group in front, gradually narrowed to half that width at the caudal margin. Sternum and coxae lighter, spotted with brown. Mouth parts dark brown. Legs mainly light yellowish brown, the basal joints heavily spotted with darker brown, the distal joints paler. Abdomen with an irregular median yellowish band, brown on the sides, marked with four pairs of transverse white bars.

	Length	Width
CARAPACE	2.40 mm.	2.28 mm.
FRONT	1.02	1.71
STERNUM	1.14	0.90
LABIUM	0.45	0.33
MAXILLA	0.62	0.25
ABDOMEN	3.00	2.70

Carapace armed with setaceous spines, the clypeal margin with seven or nine principal ones and smaller intermediate spines, the cephalic portion with the usual long spines. Carapace rather high in front, the width at the second eye row five-ninths the greatest width. Eyes of the first row recurved, the medians separated by two and one-half diameters (12/30), half as far from the laterals (12/15). Second row of eyes recurved, the medians separated by two and one-half diameters (12/30), more than three diameters from the laterals (12/38). Median ocular quadrangle longer than broad (60/53), as wide in front as behind. Clypeus two and one-half times as high as the diameters of an anterior median eye.

Legs clothed with fine black hairs, the first spined as follows: femur, dorsal 1–1–1–1, prolateral 5, otherwise 0. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2, dorsal 1–1–1. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.49 mm., patella, 1.17 mm., tibia, 1.92 mm., metatarsus, 1.92 mm. and tarsus, 0.93 mm. long.

Palpus as illustrated in Figs. 240 and 241, the ventral apophysis of the tibia single, a slightly curved, moderately broad, distally rounded spur.

TYPE LOCALITY.—Male type from near Laggan, Alberta, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Western Canada. Rocky Mountains.

RECORDS.—COLORADO: Pikes Peak, male. UTAH: Uintah Mountains, young male. WYOMING: Bridge Creek, Yellowstone National Park, August, 1930, male (Walter E. Gertsch). MICHIGAN: Male, female (Banks collection).

CANADA.—ALBERTA: Banff, female (Banks). East of Fitzgerald, 1920, immature female (Hicks). Laggan, Lake Louise, August, 1905, male (Emerton). Jasper Park, August, 1915, female. BRITISH COLUMBIA: North of Burgess Pass, 7000 feet, July, 1930, male (Raymond). MANITOBA: Le Pas, July 1, 1917, two immature females. Churchill, Aug. 17, 1937, two females (D. G. Denning). Churchill River, twenty miles from Churchill, Aug. 5, 1937, immature male (D. G. Denning). Kettle Rapids (Emerton, 1920).

Xysticus nicholsi, new species

Figure 266

FEMALE.—Total length, 6.00 mm.

Carapace tan to dusky brown, the median longitudinal pale stripe as wide as the first eye row, margined by narrow dark brown stripes on each side which are enlarged to form a dark maculation on the posterior declivity. Sides of the carapace dusky brown, not much darker than the median stripe. Sternum, mouth parts and coxae light yellowish brown, marked with small brown spots. Legs concolorous with the pale stripe of the carapace, the first two with few markings, the last two pairs with a dark ring at the end of the femora, on the patellae, and narrower basal and distal rings on the tibiae. Abdomen with a broad tan median stripe above, the sides rusty, the venter darker, the dorsum further showing an indistinct pattern of transverse dark bands accompanied with white bars.

	Length	Width
CARAPACE	2.65 mm.	2.50 mm.
FRONT	0.80	1.30
STERNUM	1.10	0.90
LABIUM	0.46	0.36
MAXILLA	0.65	0.25
ABDOMEN	3.50	3.20

Spines and hairs on the carapace and abdomen setaceous, the clypeal margin with seven principal spines. Eyes of the first row recurved, the medians separated by two diameters (19/44), half as far from the laterals (19/20). Second row of eyes recurved, the medians separated by about two diameters (19/47), farther from the laterals (19/54). Median ocular quadrangle as broad as long, slightly narrowed in front (82/79). Ratio of the eyes: ALE:AME:PLE:PME = 31:19:24:19. Clypeus equal in height to twice the diameter of an anterior median eye(19/40).

Spination of the first leg as follows: femur, prolateral 3, dorsal 1 small. Tibia, prolateral 1–1–1, retrolateral 0–(1)–(1) small, ventral 1–2–2–2. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2.

Vulva as illustrated in Fig. 266, of the same general type as in *Xysticus triangulosus* Emerton but differing in the shape of the median lobe.

TYPE LOCALITY.—North section of Broad Pass, 2400 feet, Cantwell, Alaska, Aug. 15, 1937, female holotype, collected by Mr. D. G. Nichols, in the collection of The American Museum of Natural History.

Xysticus knowltoni, new species

Figures 244 and 245

MALE.—Total length, 3.70 mm.

Integument of the carapace pale, gray to white, thickly pointed and marked with brown, the median longitudinal pale stripe indistinct in front. Posterior declivity black but divided into large side spots by the much narrowed white median band. Underside of the carapace and the appendages thickly marked and spotted in brown as the carapace, the distal joints of the legs paler. Dorsum of the abdomen with indistinct black side bars in the caudal half, with a dull red area in front.

	Length	Width
CARAPACE	1.80 mm.	1.68 mm.
FRONT	0.48	0.85
STERNUM	0.85	0.70
LABIUM	0.35	0.25
MAXILLA	0.46	0.23
ABDOMEN	1.90	1.70

Carapace clothed with rows of short clavate hairs and set with longer linear spines in the usual arrangement, the clypeal margin with seven principal setaceous spines. Abdomen set with rows of short clavate spines. Eyes of the first row recurved, the medians separated by nearly two diameters (14/24), a diameter from the laterals. Second row of eyes recurved, the medians separated by two diameters (14/30), farther from the laterals (14/40). Median ocular quadrangle slightly longer than broad (55/53), narrowed in front (53/50). Ratio of the eyes: ALE:AME:PLE:PME = 23:14:18:14. Clypeus equal in height to one and one-half diameters of an anterior median eye (14/21).

First leg spined as follows: femur, dorsal, 1 median, prolateral, 3. Tibia, prolateral and retrolateral, 1–1–1, ventral, 2–2–2–2. Metatarsus, prolateral, 0–1–1, retrolateral, 1–1–0, ventral, 2–2–2. First leg: femur, 1.50 mm., patella, 0.75 mm., tibia, 1.06 mm., metatarsus, 1.14 mm. and tarsus, 0.65 mm. long.

Palpus as illustrated in Figs. 244 and 245.

TYPE LOCALITY.—Male holotype from Vernon, Utah, May 2, 1936, collected by Dr. G. F. Knowlton, in the collection of The American Museum of Natural History.

Xysticus benefactor Keyserling

Figures 246, 247 and 260

Xysticus benefactor KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 22–24, Pl. 1, fig. 8.—MARX, 1890, Proc. U. S. National Museum, XII, p. 544.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 426; 1902, Proc. U. S. National Museum, XXV, p. 215; 1910, Bull. U. S. National Museum, LXXII, p. 47.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 437.—BANKS, 1913, Proc. Acad. Nat. Sci. Philadelphia, XXX, p. 178.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 333.—WORLEY, 1932, Univ. Washington Publ., Biology, I, p. 41.—GERTSCH, 1934, American Museum Novitates, No. 707, p. 12 (synonymizes *vernilis* Keyserling).

Xysticus vernilis KEYSERLING, 1881, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXI, pp. 304–305, Pl. XI, fig. 23.—MARX, 1890, Proc. U. S. National Museum, XII p., 555.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1910, Bull. U. S. National Museum, LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 442.

FEMALE.—Total length, 5.25 mm.

Carapace with a broad median longitudinal pale band which is narrowed caudally, anteriorly much invaded by brown streaks and spots, immaculate behind except for the customary black spot at the median furrow. Sides of the carapace bright chocolate-brown, with a few lighter markings showing through. Sternum white, flecked with brown. Legs essentially brown in color, with lighter markings. Integument of the abdomen gray to white, with four or five pairs of brown spots on the dorsum, each with a dark transverse bar, the venter gray with brown spots.

	Length	Width
CARAPACE	2.28 mm.	2.28 mm.
FRONT	0.52	1.26
STERNUM	1.08	0.93
LABIUM	0.48	0.36
MAXILLA	0.65	0.30
ABDOMEN	3.60	3.60

Carapace spined as in the other species, the clypeal margin with seven principal spines. First row of eyes recurved, the medians separated by more than three diameters (10/37), about half as far from the laterals (10/17). Second row of eyes recurved, the medians separated by three diameters (105/34), farther from the laterals (105/36). Median ocular quadrangle broader than long (54/50), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 17:10:15:10.5. Clypeus two and one-half times as high as the diameter of an anterior median eye (10/25).

Legs clothed with fine black hairs and armed with spines as follows: First leg: femur, prolateral 3, dorsal 1, elsewhere 0. Tibia, prolateral and retrolateral 0, ventral 2–2–2–2, dorsal 0. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2(2)–2(2)–2(2)–2, the paired spines in brackets often absent and less robust.

Vulva as illustrated in Fig. 260.

MALE.—Total length, 3.69 mm.

Carapace with a median pale band as in the female, the cephalic portion invaded by brown, the caudal portion yellow, the brown maculation present at the median groove. Sides of the carapace dark brown, variegated to some extent with paler markings. Sternum, labium and maxillae dark brown, with some lighter markings. Basal joints of the legs dark brown, the distal joints yellow. Abdomen silvery white on the sides, the dorsum with four pairs of dark brown maculations, the venter brown.

	Length	Width
CARAPACE	1.95 mm.	1.95 mm.
FRONT	0.45	1.05
STERNUM	1.05	0.90
LABIUM	0.36	0.30
MAXILLA	0.54	0.23
ABDOMEN	1.95	1.83

Spines on the carapace as in the female. First row of eyes recurved, the medians separated by nearly three diameters (10/28), half as far from the laterals (10/14). Second row of eyes recurved, the medians separated by scarcely three diameters (10/28), as far from the laterals (10/28). Median ocular quadrangle broader than long (45/42), as wide in front as behind (45/45). Ratio of the eyes: ALE:AME:PLE:PME = 16:10:13:10. Clypeus equal in height to twice the diameter of an anterior median eye (10/20).

First leg spined as follows: femur, prolateral 4, dorsal 4, otherwise 0. Tibia, proatleral and retrolateral 1–1–1, ventral 2–2–2–2. Metatarsus, prolateral and retrolateral 0–1–1, ventral 2–2–2–2.

Tibia of the male palpus (Figs. 246 and 247) broader than long, armed with a broad ventral, distally slightly excavated apophysis and a longer acutely ended retrolateral apophysis. Cymbium as broad as long, the tutacluum fairly well developed. Tegulum as broad as long, the embolus attached near the distal end. Embolus connate, the three elements intimately fused into a broad subtriangular spur, the terminal part a short heavy spine that lies in the upper half of the tutaculum.

TYPE LOCALITY.—Male and female cotypes of *benefactor* from Colorado in the Museum d'Histoire Naturelle, Paris (Simon collection). Female type of *vernilis* from Bridger Basin, Utah, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Rocky Mountains to the Pacific Coast.

RECORDS.—COLORADO: West Cliff, female (Banks). Fort Collins, 2 females (Banks). Steamboat Springs, July (Banks, 1895). Clear Creek, July 12, 1927, male (Dietz). Strontia Springs, July 12, 1927, male (Dietz). Pagosa Springs, June 21–23, 1931, males (Lutz). Pingree Park, August, 1924, female (Crosby). NEW MEXICO: Pecos, female (Banks). ARIZONA: Williams, June 5–July 20, male, female (Banks, 1902). UTAH: Chalk Creek, females (Chamberlin). City Creek Canyon, Salt Lake City, June 10, 1928, males, females (Gertsch). Lakota, west shore of Bear Lake, July 10, 1929, 2 males, 2 females (Gertsch). IDAHO: Bloomington, July 7,

1928, male, female (Gertsch). Montpelier July 5, 1929, female (Gertsch). WYOMING: Yellowstone National Park, August, 1921, male (W. E. Gertsch). Afton, July 25, 1928, females (Gertsch). CALIFORNIA: Santa Barbara, female. WASHINGTON: Olympia, 2 males (Banks). Klikitat (Worley, 1932). Wenas (Worley, 1932). Ellensburg (Worley, 1932).

MONTANA: Butte, 1931, female (Jellison).

CANADA.—ALBERTA: Banff (Emerton, 1920).

Xysticus labradorensis Keyserling

Figures 248, 249 and 268

Xysticus labradorensis KEYSERLING, 1887, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXVII, p. 479, Pl. VI, fig. 30.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555.—MARX, 1892, Proc. Entom. Soc. Washington, II, p. 195.—PACKARD, 1888, Canadian Ent., XX, p. 141.—BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 440.

Xysticus bimaculatus EMERTON, 1894, Trans. Connecticut Acad. Arts and Sci., IX, pp. 416–417, Pl. IV, figs. 5, 5*a*; 1919, Canadian Arctic Expedition of 1913–1918, III, Insects, Part II, p. 6H, Pl. II, figs. 18, 19 and 20; 1920, Trans. Royal Canadian Inst., XII, p. 333; 1921, Psyche, XXVIII, p. 166.

Xysticus deichmanni SORENSEN, 1898, Videnskabelige Meddel., X, pp. 228–229.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 438.

Xysticus discursans BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48 (part).—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 438 (part).

FEMALE.—Total length, 4.65 mm.

Carapace mottled, light brown on the sides, the midline with a broad longitudinal pale band, much invaded by brown in the anterior half, the caudal portion white. Posterior declivity with two black spots on each side. Sternum white, finely pointed with numerous small black spots. Mouth parts and coxae white, flecked with brown. Legs mainly white to gray, flecked with brown and black, the last pairs marked with large black spots. Abdomen gray to white, the dorsum with pairs of indistinct black spots, the venter concolorous.

	Length	Width
CARAPACE	1.26 mm.	1.26 mm.
FRONT	0.50	1.01
STERNUM	0.87	0.72
LABIUM	0.39	0.27
MAXILLA	0.50	0.25
ABDOMEN	2.85	2.91

Carapace spined as in typical *Xysticus*, the clypeal margin with seven principal spines. Pars cephalica about three-fifths as broad as the greatest width of the carapace (9/14).

Eyes of the first row recurved, the medians separated by scarcely three diameters (11/30), half as far from the laterals. Second row of eyes recurved, the medians separated by three diameters (11/33), farther from the laterals (11/38). Median ocular quadrangle broader than long (55/52), narrowed in front (55/52). Ratio of the eyes: ALE:AME:PLE:PME = 20:11:16:11. Clypeus about twice as high as the diameter of an anterior median eye (11/20).

Legs clothed with black hairs and armed with strong spines as follows: First leg: femur, prolateral 3, elsewhere 0. Tibia, prolateral and retrolateral 0, ventral 2–2–2, dorsal 0. Metatarsus, prolateral 0–1–1, retrolateral 0–1–0, ventral, 2–2–2, dorsal 0.

Vulva (Fig. 268) about as long as broad, narrowly truncated behind, the floor moderately convex, without a median septum.

MALE.—Total length, 4.44 mm.

Color and pattern as in the female.

	Length	Width
CARAPACE	1.90 mm.	1.84 mm.
FRONT	0.44	0.90
STERNUM	0.96	0.69
LABIUM	0.33	0.27
MAXILLA	..	..
ABDOMEN	2.49	2.70

Structure and spinal armature of the carapace as in the female. Eyes of the first row recurved, the medians separated by more than two diameters (11/24), nearer the laterals (11/14). Second row of eyes recurved, the medians separated by three diameters (10/30), farther from the laterals (10/35). Median ocular quadrangle broader than long (50/47), narrowed in front (50/46). Ratio of the eyes: ALE:AME:PLE:PME = 19:11:14:10. Clypeus a little higher than the diameter of an anterior median eye (11/15).

Spines of the first leg as follows: femur, prolateral 3, dorsal 3, elsewhere 0. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2. Metatarsus, prolateral and retrolateral 1–1–0, ventral 2–2–2.

Tibia of the male palpus (Figs. 248 and 249) broader than long, armed with a stout, ventrally directed apophysis that in lateral view is deeply excavated at the middle, and a longer retrolateral apophysis. Cymbium as broad as long, the tutaculum a short, broad groove. Cymbium broader than long, the embolic portion attached at the middle on the prolateral side. Embolus very broad for half the length, the terminal part a heavy spiraloid tube.

TYPE LOCALITY.—Female type of *labradorensis* Keyserling from Ungava (Ungoa) Bay, Labrador (Turner), in the United States National Museum (Marx

collection). Female type of *Xysticus deichmani* Sorensen from "eastern Greenland," presumably in the Stockholm Museum. Female cotypes of *bimaculatus* from Laggan, Alberta, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Greenland. Canada. Alaska. Rocky Mountains.

RECORDS.—WASHINGTON: Ashford, Aug. 29, female (Emerton). CALIFORNIA: Los Angeles, female (Banks coll.). WYOMING: Yellowstone National Park, August, female (Walter E. Gertsch). COLORADO: Mt. Lincoln, 11,000 feet, 1877 (Bowditch). ALASKA: Fort Yukon (Keyserling, 1883). Popof Island, Kadiak, July (Banks, 1900). Kongongevik, Camden Bay, June 27, 1914, young male and female (Emerton, 1919).

CANADA.—LABRADOR: Ungava (Ungoa) Bay, female (Keyserling, 1887). Kangalaksioniuk Bay, Aug. 1–10, 1908, male, female (O. Bryant). ALBERTA: Above Laggan, 6700–8500 feet, male, females (Bean). Medicine Hat, July 5, 1930, female (Carr).

GROUP E

(Genus *Proxysticus* Dalmas)

Characters of Group D but the tibia of the male palpus armed with a ventral, retrolateral and a smaller intermediate apophysis.

TYPE OF THE GROUP.—*Xysticus robustus* (Hahn).

Several species of this group have been described from Europe but only two from North America fully conform to it. One of them, *Xysticus nigromaculatus* Keyserling, is most unusual in the spinal clothing. The whole spider is closely set with short clavate spines and the clypeal margin lacks the usual long setaceous or clavate spines present in all other species. The two American species may be separated by reference to the keys under Group D.

Xysticus nigromaculatus Keyserling

Figures 250, 251 and 264

Xysticus nigromaculatus KEYSERLING, 1883, Verhandl. k. k. Zool.-Bot. Gesell., Wien, XXXIII, pp. 670–671, Pl. XXI, fig. 18.—MARX, 1880, Proc. U. S. National Museum, XII, p. 555.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1910, Bull. U. S. National Museum, LXXII, p. 48.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 441.—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 334.—WORLEY, 1932, Univ. Washington Publ., Biol., I, p. 43.

FEMALE.—Total length, 8.50 mm.

Carapace mainly brown, with a median paler longitudinal stripe feebly indicated, the posterior declivity white. Pattern almost completely masked by a thick covering of short spatulate spines. Sternum, mouth parts and coxae lighter in color, heavily marked with black, clothed with setaceous and spatulate spines. Legs concolorous with the carapace, with pale longitudinal stripes, thickly clothed with spines. Abdomen light to dark brown, the dorsum thickly set with short spatulate spines, the venter with setaceous spines and finer hairs.

	Length	Width
CARAPACE	4.12 mm.	4.12 mm.
FRONT	1.25	2.50
STERNUM	1.82	1.55
LABIUM	0.80	0.57
MAXILLA	1.05	0.50
ABDOMEN	5.25	5.35

Carapace thickly clothed with short spatulate spines, the clypeal margin with twenty or more of about equal size, the sides of the head with three that are somewhat larger than the others. Pars cephalica very broad, the width at the second eye row being nearly two-thirds of the greatest width (11/17). Eyes rather small for the genus, the first row four-fifths as wide as the second, recurved, the medians separated by five diameters (15/75), much nearer the laterals (15/40). Eyes of the second row recurved, the medians separated by six diameters (13/78), as far from the laterals (13/78). Median ocular quadrangle broader than long (105/87), slightly narrowed in front (105/100). Ratio of the eyes: ALE:AME:PLE:PME = 20:15:15:13. Clypeus equal in height to nearly three diameters of an anterior median eye (15/40).

Legs thickly clothed with rows of clavate spines and short robust setaceous spines as follows: First leg: femur, prolateral 2, otherwise 0. Tibia, prolateral 2 (small), retrolateral 2 (small), ventral four pairs or 1–2–2–2. Metatarsus, prolateral 4, retrolateral 4, ventral four (or occasionally five) pairs. First leg: femur, 3.25 mm., patella, 2.17 mm., tibia, 2.62 mm., metatarsus, 2.37 mm. and tarsus, 1.10 mm. long.

Vulva (Fig. 264) presenting two semilunar atriobursal orifices separated by an elongate tubercle which is divided into two lobes in the caudal half.

MALE.—Total length, 5.40 mm.

Color and structure in close agreement with the female.

	Length	Width
CARAPACE	3.12 mm.	3.12 mm.
FRONT	0.80	1.62
STERNUM	1.38	1.02
LABIUM	0.57	0.42
ENDITE	0.75	0.40
ABDOMEN	3.12	3.06

First row of eyes recurved, the medians separated by about four diameters (14/50), much nearer the laterals (14/22). Second row of eyes recurved, the medians separated by more than four diameters (12/53), about as far from the laterals (12/51). Median ocular quadrangle broader than long (77/68), narrowed in front (74/77). Ratio of the eyes: ALE:AME: PLE:PME = 23:14:17:12. Clypeus about twice as high as the diameter of an anterior median eye (14/30).

Spines on the legs more strongly developed than in the female. First leg: femur, prolateral 3, dorsal 2, otherwise 0. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2 robust and (2)–(2)–(1) weak. Metatarsus, prolateral 1–1–(1)–1, retrolateral 1–1–2–1, ventral 2(2)–2–2(2)–2, dorsal 0. First leg: femur, 3.03 mm., patella, 1.68 mm., tibia, 2.22 mm., metatarsus, 2.22 mm and tarsus, 1.05 mm. long.

Tibia of male palpus (Figs. 250 and 251) slightly broader than long, armed with a rather slender ventral apophysis that is directed slightly retrolaterad and ends in a small rounded knob, and a broader retrolateral spur of equal length. Intermediate apophysis a rounded lobe between the principal spurs. Cymbium about as broad as long, the tutaculum an inconspicuous groove. Tegulum as broad as long, the embolic portion attached near the middle on the prolateral side. Embolus accompanied by a narrow pars pendula, the terminal part a long acuminate spine. Tegulum in retrolateral view presenting a rounded median lobe.

TYPE LOCALITY.—Female type from Colorado in the United States National Museum (Marx collection).

DISTRIBUTION.—Western United States and Canada.

RECORDS.—KANSAS: (Worley, 1932). Lakin, Sept. 1, 1877, female (Bowditch). NEW MEXICO: (Worley, 1932). COLORADO: Fort Collins, female (Banks, 1896). Grand Junction, July 17, 1931, male. Florissant, female (Banks). UTAH: Chalk Creek, immature female (Chamberlin). IDAHO: Hot Springs, Bear Lake, July 21, 1928, female (Gertsch). WASHINGTON: Yakima River, opposite Ellensburg, July 8, 9, 1889, females.

CANADA.—MANITOBA: Aweme, immature female (Criddle).

Xysticus moestus Banks

Figures 252, 253 and 267

Xysticus ferrugineus EMERTON, 1894, Trans. Connecticut Acad. Arts and Sci., IX, p. 415, Pl. IV, figs. 3, 3*a*. (Not *Xysticus ferrugineus* Menge, 1876.)

Xysticus moestus BANKS, 1910, Bull. U. S. National Museum, LXXII, p. 48 (new name for *Xysticus ferrugineus* Emerton).—EMERTON, 1920, Trans. Royal Canadian Inst., XII, p. 333. —PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 440.

Xysticus keyserlingi BRYANT, 1930, Psyche, XXXVII, pp. 135–136, Figs. 9 and 10.

MALE.—Total length, 6.00 mm.

Carapace light reddish brown, the sides mottled with darker brown, with dorsum with an indistinct median longitudinal paler stripe, the posterior declivity paler. Sternum, mouth parts and legs concolorous with the carapace, variegated with yellow flecks and streaks. Abdomen light brown, the sides white, the dorsum with a median hastate darker maculation and three pairs of black spots in the caudal half.

	Length	Width
CARAPACE	2.60 mm.	2.52 mm.
FRONT	0.80	1.52
STERNUM	1.24	0.96
LABIUM	0.52	0.40
ENDITE	0.75	0.35
ABDOMEN	2.52	2.60

Carapace clothed sparsely with short setaceous spines, the clypeal margin with nine principal ones and smaller intermediate shorter ones, the pars cephalica with the usual armature of other species of the genus. Pars cephalica at the second eye row more than half as broad as the carapace (11/19). Eyes of the first row recurved, the medians separated by two and one-half diameters (12/30), a diameter from the laterals (12/12). Second row of eyes recurved, the medians separated by two and one-half diameters (12/30), farther from the laterals (12/33). Median ocular quadrangle slightly longer than broad (57/54), as wide in front as behind. Ratio of the eyes: ALE:AME:PLE: PME = 21:12:15:12. Clypeus twice as high as the diameter of an anterior median eye (12/24).

Legs clothed with rows of fine black hairs and stronger spines as follows: First leg: femur, prolateral 4, dorsal 2, otherwise 0. Tibia, prolateral and retrolateral 1–1–1, ventral 2–2–2–2, dorsal 0. Metatarsus, prolateral and retrolateral 1–1–1, ventral 2–2–2–2. First leg: femur, 2.40 mm., patella, 1.24 mm., tibia, 1.80 mm., metatarsus, 1.80 mm. and tarsus, 1.04 mm. long.

Male palpus as in *Xysticus nigromaculatus* but the ventral apophysis of the tibia more strongly inclined retrolaterad and the intermediate apophysis a little longer. Tegulum in retrolateral aspect presenting an acute, ventrally directed spur. Details of palpus as in Figs. 252 and 253.

FEMALE.—Immature females agree well with the male in color and general structure. The following measurements are taken from one that measures 5.25 mm. in total length. Dried females from the Bean collection are much darker in color, a rusty brown, and are larger in size.

	Length	Width
CARAPACE	2.52 mm.	2.46 mm.
FRONT	0.70	1.50
STERNUM	1.20	0.90
LABIUM	0.57	0.39
MAXILLA	0.70	0.30
ABDOMEN	3.00	3.00

Eyes of the first row recurved, the medians separated by three diameters (12/36), half as far from the laterals (12/18). Second row of eyes recurved, the medians separated by about three diameters (12/35), farther from the laterals (12/45). Median ocular quadrangle as long as broad (60/60), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 20:12:15:12. Clypeus about twice as high as the diameter of an anterior median eye (12/27).

Carapace evenly and thickly clothed with short clavate to subspatulate spines with which are interspersed longer ones, the clypeal margin with numerous short robust spines of which nine are longer. Clothing of the abdomen somewhat less dense but the spines are also relatively short, clavate to subspatulate in shape.

First leg of an adult female in which the carapace is 3.80 mm. long: femur, 3.40 mm., patella, 2.00 mm., tibia, 2.60 mm., metatarsus, 2.35 mm. and tarsus, 1.30 mm. long. Spination of the first leg: femur, prolateral 3. Tibia, prolateral 1, retrolateral 0, ventral (1)2–2–2–2, all about half as long as the thickness of the joint. Metatarsus, prolateral 2–1–1–1, retrolateral 2–1–2–0, ventral (2)–2–2–2–2. Second metatarsus with six pairs of ventral spines.

Epigynum as illustrated in Fig. 267.

TYPE LOCALITY.—Female type of *Xysticus ferrugineus* Emerton from Laggan, Alberta (Bean), in the Museum of Comparative Zoölogy. Dried females, one labelled by Emerton and presumably a cotype, in The American Museum of Natural History. Male holotype of *Xysticus keyserlingi* Bryant from Las Vegas, New Mexico, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Rocky Mountains of the United States and Canada.

RECORDS.—NEW MEXICO: Las Vegas, male holotype (Bryant, 1930). COLORADO: Steamboat Springs, July 16, male, immature females (Gertsch).

CANADA.—ALBERTA: Laggan, females (Bean) (Emerton, 1894). Idem, dried male and female from the Bean collection.

CORIARACHNE THORELL

Thomisus C. KOCH, 1837, Uebers d. Arach.-Syst., I, p. 25 (part).

Xysticus C. KOCH, 1838, idem, IV, p. 67 (part).

Xysticus SIMON, 1864, Histoire Naturelle des Araignées, p. 427 (part).—SIMON, 1895, idem, I, p. 1035 (part).

Coriarachne THORELL, 1870, On European Spiders (Upsala, 1869–1870), p. 186.

Coriarachne KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, p. 53.

Platyxysticus GERTSCH, 1932, American Museum Novitates, No. 563, p. 1.

Carapace as broad or broader than long, very much flattened, the cephalic sutures deep grooves. Clothing of the carapace long setaceous or shorter filiform to subspatulate spines. Lateral eyes on large, well-separated tubercles. Eyes of the first row nearly straight (*depressa* and *brunneipes*), very weakly recurved (*floridana*) or slightly recurved (*versicolor* and *utahensis*), the medians farther apart than their distance from the much larger laterals. Second row of eyes more strongly recurved, the laterals larger, the medians nearer each other (*depressa* and *brunneipes*) or subequidistant from the laterals. Median ocular quadrangle a little broader than long. Tarsal claws with four or five teeth.

GENOTYPE.—*Coriarachne depressa* (C. Koch).

The genus *Coriarachne* is a very recent offshoot from the *sabulosus* group of the genus *Xysticus* and represents, phylogenetically speaking, one of the most highly developed genera of the subfamily. The genotype is a high mountain form and is closely allied structurally to *Coriarachne brunneipes* Banks of the northwestern United States and Canada. In *C. versicolor* Keyserling, the common member of the genus in the eastern United States, we have a form which closely approximates species of *Xysticus*. Simon placed *Coriarachne* and *Tharpyna* in a special group, Coriarachneae, in a position relatively remote from the normal species of the Misumeninae. The basis for this separation was the absence of a band of hairs on the inner side of the retromargin of the chelicera. The utilization of this single character for the separation of all the genera into two sections is of questionable merit. Furthermore, Simon stated (Histoire Naturelle des Araignées, I, p. 1013) that many of the species placed in *Coriarachne* belong in *Xysticus* and enumerated the following: *C. versicolor* Keyserling, *C. japonica* Karsch, *C. melancholica* Simon and *C. baudueri* Simon. That *C. versicolor* is congeneric with *C. depressa* is incontroversible and that both should be placed in close prox-

imity to *Xysticus* seems certain. In 1932 I proposed the name *Platyxysticus* for the American species, without having seen specimens of *depressa*, on the basis of Simon's disposition of *versicolor*. That name, already used by Dalmas in a slightly different spelling, is a synonym of *Coriarachne*.

Of the eight species of *Coriarachne* known from the world four are endemic to the United States. The other species are found in Europe (*C. depressa* C. Koch), in China (*C. melancholica* Simon), in Japan (*C. japonica* Karsch) and in India (*C. nigrostriata* Simon). The American forms may be separated by means of the following artificial key.

MALES

1.—Terminal part of the embolus curved to form a hook. Posterior eye row strongly recurved, the medians much nearer each other than the laterals (44/58). Prolateral tibial apophysis without a fine terminal spur.....*C. brunneipes* Banks.
Terminal part of the embolus curved evenly around the margin of the cymbium. Eyes of the posterior row subequidistant. Prolateral tibial apophysis with a fine terminal spur.....2.
2.—Embolus thickened and curved at the middle, the terminal portion long, acuminate. Distal spur of the prolateral tibial apophysis directed laterad.....*C. versicolor* Keyserling.
Embolus little thickened and not curved at the middle, the terminal portion relatively shorter. Terminal spur of the prolateral tibial apophysis erect, directed cephalad.....3.
3.—Lower edges of the eyes of the first row in a straight line. Tegulum as broad as long. First two pairs of legs almost uniform brown.....*C. floridana* Banks.
Lower edges of eyes of the first row in a slightly recurved line. Tegulum longer than broad. Legs usually variegated with white.....*C. utahensis* (Gertsch).

FEMALES

1.—Lower margins of the eyes of the first row in a distinctly procurved line. Posterior median eyes nearer each other than the laterals. Second tibia with five or six pairs of ventral spines. Spines of the clypeal margin long, setaceous.....*C. brunneipes* Banks.
Lower margins of the eyes of the first row in a straight or slightly recurved line. Posterior eyes subequidistant. First and second tibiae with four pairs of ventral spines. Spines on the clypeal margin shorter, filiform or subspatulate.....2.
2.—Atriobursal orifices separated by more than their width. Median ocular quadrangle broader than long (70/60).....*C. versicolor* Keyserling and *utahensis* (Gertsch).
Atriobursal orifices separated by less than their width. Median ocular quadrangle much broader than long (80/57).....*C. floridana* Banks.

Coriarachne versicolor Keyserling

Figures 254, 255 and 269

Coriarachne versicolor KEYSERLING, 1880, Die Spinnen Amerikas, Laterigradae, I, pp. 53–56, Pl. I, fig. 27.—MARX, 1890, Proc. U. S. National Museum, XII, p. 555.—BANKS, 1892, Proc. Acad. Nat. Sci. Philadelphia, p. 57, Pl. III, fig. 13.—EMERTON, 1892, Trans. Connecticut Acad. Arts and Sci., VIII, pp. 367–368, Pl. XXIX, figs. 7, 7*a*.—MARX, 1892, Proc. Ent. Soc. Washington, II, p. 159.—BAKER, 1894, Ent. News, Philadelphia, V, p. 164.—EMERTON, 1894, Trans. Connecticut Acad. Arts and Sci., IX, p. 417.—BANKS, 1895, Annals N. Y. Acad. Sci., VIII, p. 427; 1895, Journ. N. Y. Ent. Soc., III, p. 90.—HARRINGTON, 1897, Ottawa Naturalist, X, p. 191.—SLOSSON, 1898, Journ. N. Y. Ent. Soc., VI, p. 248.—BANKS, 1900, Proc. Acad. Nat. Sci. Philadelphia, L, p. 537.—BANKS, 1901, idem, LI, p. 584; 1904, idem, LIV, p. 132; 1906, 31st Ann. Rept. Dept. Geol., Indiana, p. 742; 1910, Bull. U. S. National Museum, LXXII, p. 49; 1911, Proc. Acad. Nat. Sci. Philadelphia, LXI, p. 452; 1916, Proc. U. S. National Museum, LI, p. 70.—BARROWS, 1918, Ohio Journal Science, XVIII, p. 311.—EMERTON, 1924, Canad. Ent., LVI, p. 123.—WORLEY, 1927, Univ. Studies, Nebraska, XXVII, p. 60.—EMERTON, 1928, Univ. Toronto Studies, Biol., XXXII, p. 45.—BANKS, 1932, Publ. Univ. Oklahoma, Biol. Survey, IV, p. 27.

Xysticus versicolor SIMON, 1895, Histoire Naturelle des Araignees, I, p. 1035.—BRYANT, 1908, Occas. Papers Boston Soc. Nat. Hist., VII (9), p. 66.—PETRUNKEVITCH, 1911, Bull. American Museum Nat. Hist., XXIX, p. 442.—EMERTON, 1913, Appalachia, XII, p. 155.—CROSBY AND BISHOP, 1928, Cornell Univ. Agr. Exp. Sta., Memoir 101, p. 1061.—ELLIOTT, 1932, Proc. Indiana Acad. Sci., XLI, p. 429.—WORLEY, 1932, Univ. Washington Publ. Biol., I, p. 43.

Platyxysticus versicolor GERTSCH, 1932, American Museum Novitates, No. 563, pp. 3–4, Fig. 1.

Females average 5.50 mm. in total length; males, 4.50 mm.

Carapace in the female mainly dark brown, variegated with numerous white spots and light streaks. Posterior eye row enclosed in a darker brown region, the eye tubercles brown. Margin of the carapace darker, near black, with two large irregular black maculations at each side of the cephalic furrow. Clypeus and region of

anterior eye row lighter, speckled in brown, the eye tubercles yellow. Chelicerae yellow, with a dark marking near the distal end, otherwise heavily marked with brown. Sternum yellow, thickly blotched with brown and black, heaviest on the margins. Labium and maxillae uniform brown. Coxae dark to light brown, with a median lighter streak below. The basal color of all the legs and the palpi is yellow to white but they are so thickly marked with brown and black spots that in many cases the lighter color is completely missing. Distal ends of the femora on all the legs with a large black maculation above. Abdomen gray, the margins darker, the pattern usually indefinite, or with two or three pairs of large white markings on the dorsum, the venter irrorate in brown. Spinnerets brown basally, distally gray.

A female from Ramsey, N. J., 5.50 mm. in total length was used for the following structural analysis.

	Length	Width
Carapace	2.55 mm.	2.75 mm.
Front	0.50	1.40
Sternum	1.25	1.05
Labium	0.60	0.32
Endite	0.80	0.30
Abdomen	3.55	3.62

Carapace low and flat, about the same height throughout, the cephalic sutures fairly well defined, the sides gently rounded to the margins. Carapace slightly broader than long, suborbicular, anteriorly constricted, posteriorly truncated, the sides rounded, longer than the femur of the first leg, the width of the head at the front more than half its width at the widest point. Clypeus armed with nine projecting spines, eight of them marginal (four on a side) and a single median one just above the margin which is directed dorsad. Eye region thickly set with spines. Carapace sparsely clothed with small filiform to subspatulate spines.

First row of eyes narrower than the second (17/19), the eyes slightly recurved, a line along the lower margins of the laterals cutting through the lower third of the medians, the medians separated by more than two diameters (16/42), nearer the laterals (16/23). Second row of eyes recurved, the medians separated by nearly four diameters (13/47), a little farther from the laterals (13/50). Median ocular quadrangle broader than long (75/57), slightly narrowed in front (73/75). Ratio of the eyes: ALE: AME:PLE:PME = 28:16:18:13. Clypeus about one and one-half times as high as the diameter of an anterior median eye (16/27).

Leg formula, 1234, the first two pairs subequal, the legs clothed with black spines which are distributed as follows: First leg: femur, dorsal 3, prolateral 4 or 5, otherwise 0. Tibia, dorsal 2 (weak), ventral 2–2–2–2, otherwise 0. Metatarsus, prolateral 1–1–1, retrolateral 1–1–1, ventral 2–2–2–2, dorsal 0. Second legs as the first but lacking the prolaterals on the femora.

	I	II
Femur	2.20 mm.	2.40 mm.
Patella	1.25	1.25
Tibia	1.50	1.50
Metatarsus	1.50	1.55
Tarsus	0.82	0.82
Total	7.27	7.52
	III	IV
Femur	1.70 mm.	1.62 mm.
Patella	0.75	0.75
Tibia	1.07	1.07
Metatarsus	0.90	0.90
Tarsus	0.57	0.57
Total	4.99	4.91

Vulval margins practically obsolete, the atria separated by a broad, rather high, subtriangular septum (Fig. 269).

Male.—Structure essentially as in the female. A male from Ramsey, New Jersey, 4.12 mm. long, was used for the following diagnosis.

	Length	Width
Carapace	2.40 mm.	2.17 mm.
Front	0.50	1.17
Sternum	1.10	0.92
Labium	0.50	0.25
Endite	0.62	0.35
Abdomen	2.40	2.45

First row of eyes narrower than the second (28/33), slightly recurved, the medians separated by more than two diameters (16/36), scarcely a diameter from the laterals (16/15). Second row of eyes recurved, the medians separated by nearly three diameters (14/40), a little farther from the (14/42). Median ocular quadrangle broader than long (68/54), as wide in front as behind (68/68). Clypeus equal to one and one-third times the diameter of an anterior median eye (16/22). Ratio of the eyes: ALE:AME: PLE:PME = 25:16:18:14.

Legs proportionately longer than in the female, the spines as in that sex but the first two legs with a single dorsal row of six erect spines.

	I	II
Femur	2.32 mm.	2.40 mm.
Patella	1.05	1.05
Tibia	1.60	1.65
Metatarsus	1.67	1.72
Tarsus	0.87	0.87
Total	7.51	7.69
	III	IV
Femur	1.70 mm.	1.57 mm.
Patella	0.75	0.75
Tibia	1.12	1.15
Metatarsus	1.00	1.00
Tarsus	0.57	0.60
Total	5.14	5.07

Femur of the palpus as long as the patella and tibia which are subequal in length. Tibia broader than long, armed with a strong ventral

apophysis and a retrolateral apophysis of equal size, the latter surmounted with a short, laterally directed, colorless spur. Cymbium a shallow cup-like receptacle about as broad as long, the tutaculum an inconspicuous groove. Tegulum as broad as long, without apophyses. Embolus originating on the prolateral side, the pars pendula broad at the origin but obsolete for two-thirds of the length of the truncus. Truncus a black tube that is enlarged at the middle of its length and curved strongly ventrad at that point, the terminal portion an acuminate spine. Palpus as illustrated in Figs. 254 and 255.

TYPE LOCALITY.—Cotypes from Boston, Massachusetts, Georgia, Peoria, Illinois, and Mariposa, California, in the Museum d'Histoire Naturelle, Paris (Simon collection) and in the British Museum (Koch collection).

DISTRIBUTION.—United States east of the Rocky Mountains.

RECORDS.—MAINE: Brunswick, 3 immatures (Packard). NEW HAMPSHIRE: Squam Lake, female. South Lyndeboro, June 5–11, 1923, male. Shelburne, September–October, 1914, female. Monadnock, June 22–27, 1924, male (Emerton). Gilmanton, June, 1925, male. Intervale, July, 1913, female. Franconia, female (Slosson). Chocorua, June 3, 1912, female (Bryant). Lake Winnepesaukee (Bryant, 1908). Fitzwilliam, June, 1920, female (Bryant). VERMONT: Lake Champlain, August, 1919, female. Passumpsic, male (Granger). MASSACHUSETTS: Shirley, June 25, 1904, male (Bryant). Franklin Park, Boston, March 2, 1901, young. Readville, June 25, 1904, male. Allston, June 3, 1918, male. Sharon, June, 1900, males. Danvers; Boston; Brookline (Bryant, 1908). CONNECTICUT: New Haven, June 21, male, females (Emerton). Durham, June, 1901, female (Emerton). Norwalk, June, 1933, female (Gertsch). NEW YORK: Alexandria Bay, June 20–26, 1930, male. Rochester, Nov. 28, 1916, female. Black Rock, Jan. 6, 1916, male. Mendon Ponds, Monroe County, May 18, 1930, male (Crosby and Bishop). Hither Hills, April 5, 1931, 2 females. Crown Point, 1932, male (Hammer). Ithaca, Oct. 29, 1912, female. Black Hook, Jan. 6, 1916, female. Ithaca, May 21, 1910, male. Idem, May 16, 1873, female. Idem, Nov. 20, 1902, immature female. Lake Keuka, September–October, 1903, 5 males, females. Upper Cayuga Lake Basin, female (Banks). Long Island, March, November (Banks). Cranberry Lake; Gloversville, April, October; Geneva, November; West Winfield, June; Valcour Island, August; Scotia, June; Karner, November; Albany, June; Poughkeepsie (Crosby and Bishop, 1928). NEW JERSEY: Short Hills, May, 1906, 3 males, 2 females. Idem, 1906, male, female (Petrunkevitch). Ramsey, Aug. 10, 1934, male, females (Gertsch). PENNSYLVANIA: Arendtsville, July 3, 1928, male. Conyngham, June 30, 1926, female (Dietz). VIRGINIA: Glencarlyn, September, male (Banks). Falls Church, male (Banks). NORTH CAROLINA: Black Mountains, female (Beutenmuller). GEORGIA: Dewitt, March, 1913, female. TENNESSEE: Glenraven, Robertson County, June–July, 1904, female (Fox). ALABAMA: Mobile, 1921, female (Dukes). Idem, Jan. 3, 1932, 2 females (Dietrich). Auburn, male, female (Banks). LOUISIANA: Tallulah, March 9, 1925, female (Folsom). MISSISSIPPI: Lucedale, March 9, 1925, immature female. Idem, January, 1930 and 1931, males (Dietrich). Idem, March, 1930, 2 males, female (Dietrich). Idem, February, 1930, 3 females (Dietrich). State Line, March 19, 1931, female (Dietrich). Augusta, 3 females (Crosby). FLORIDA: Sebastian, December, 1921, male, female. Gainesville, Feb. 28, 1925, 2 females. Idem, Feb. 7, 1924, female. Dunedin, Dec. 15–Jan. 9, 1925–1926, 2 females (Blatchley). Micanopy, March 6, 1927, female (Barrows). Runnymede, November; Biscayne Bay, March, April; Punta Gorda (Banks, 1904). MINNESOTA: Stillwater, March 6, 1933, immature male (Mickel). Minneapolis, May 5, 1931, males, females (Gertsch). MICHIGAN: Albion, March 28, 1929, 3 females. Idem, April 18, 1929, 2 females. Montcalm, March 12, 1929, female. Montcalm Lake, Oct. 15, 1928, 4 females. Marquette, June 30, 1932, male. Pine Lake, northeast of Lansing, June 20, 1921, female (Barrows). Wolf Lake, July 23, 1933, female (Chickering). IOWA: Ames, female (Banks). INDIANA: Wyandotte, female (Banks). Chesterton, July 24, 1906, fe-

male (Chapman). Grand Chain, April 19; Mecca, April 27; New Albany, March 4; Greencastle (Banks, 1906). MISSOURI: Springfield, female. Columbia, October, 2 females (Crosby). Idem, May, male, female (Crosby). OHIO: Columbus, June 13, 1917, male, female (Barrows). Cedar Point, July 24, 1913, female (Barrows). Buckeye Lake, June 24, 1917, female (Barrows). KANSAS: Manhattan, females. ARKANSAS: Hope, June, 1929, female (Dietz). KENTUCKY: Kentucky River, Anderson County, June 18–23, 1919, female. NEBRASKA: Lincoln; Havelock; Waverly; Murdock Roca (Worley, 1927). OKLAHOMA: Grady County, Feb. 1, 1931 (Banks, 1932). NEW MEXICO: Placita, female (Banks). Mesilla, immature male (Banks, 1901). TEXAS: Fifteen miles southwest of Harlingen, Nov. 18, 1934, males, females (Mulaik).

CANADA.—MANITOBA: Aweme (Emerton, 1920). Lake Winnepegosis (Emerton, 1920). ONTARIO: Ottawa, female (Banks). St. Thomas, female (James). Nepigon Lake, October, 1894, male. NOVA SCOTIA: Wolfville, June 29, 1915, female. Truro, May 3, 1913, 4 immature females.

Coriarachne utahensis (Gertsch)

Platyxysticus utahensis GERTSCH, 1932, American Museum Novitates, No. 563, pp. 5–7, Fig. 2.

Average size slightly larger than in *C. versicolor* but color and structure essentially identical. Females average 6.50 mm. in length; males, 5.00 mm.

The following diagnosis is based on the female allotype which is 6.50 mm. long.

	Length	Width
CARAPACE	2.60 mm.	2.67 mm.
FRONT	0.55	1.42
STERNUM	1.30	1.10
LABIUM	0.60	0.37
ENDITE	0.72	0.30
ABDOMEN	4.00	4.50

Eyes of the first row narrower than the second (31/37), slightly recurved, the medians separated by more than two diameters (17/36), much nearer the laterals (17/23). Second row of eyes more strongly recurved, the medians separated by three diameters (14/42), slightly farther from the laterals (14/47). Median ocular quadrangle broader than long (7/6), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 27:17:20:14. Clypeus slightly higher than the diameter of an anterior median eye (19/17).

Spines on the legs as in the female of *versicolor*.

	I	II
FEMUR	2.30 mm.	2.40 mm.
PATELLA	1.25	1.25
TIBIA	1.62	1.72
METATARSUS	1.52	1.52
TARSUS	0.85	0.85
TOTAL	7.54	7.74
	III	IV
FEMUR	1.65 mm.	1.45 mm.
PATELLA	0.80	0.80
TIBIA	1.07	1.20
METATARSUS	0.92	1.00
TARSUS	0.65	0.62
TOTAL	5.09	5.07

Vulva indistinguishable externally from that of *C. versicolor* Keyserling.

The following structural analysis is from the male holotype which is 5.00 mm. long.

	Length	Width
CARAPACE	2.37 mm.	2.57 mm.
FRONT	0.45	1.30
STERNUM	1.15	1.00
LABIUM	0.57	0.35
ENDITE	0.75	0.31
ABDOMEN	2.62	2.82

First row of eyes broader than the second (15/17), recurved, the median eyes separated by more than a diameter (19/30), nearer the laterals (19/20). Second row of eyes recurved, the medians more than two diameters apart (15/36), farther from the laterals (15/46). Median ocular quadrangle broader than long (65/54), as broad in front as behind. Ratio of the eyes: ALE:AME:PLE:PME = 29:19:21:15. Clypeus as high as the diameter of an anterior median eye (19/19).

Spines on the legs and carapace as in the male of *versicolor*.

	I	II
FEMUR	2.75 mm.	2.87 mm.
PATELLA	1.20	1.20
TIBIA	1.92	1.82
METATARSUS	2.07	2.12
TARSUS	1.00	1.00
TOTAL	8.94	9.01
	II	IV
FEMUR	1.92 mm.	1.85 mm.
PATELLA	0.75	0.75
TIBIA	1.25	1.30
METATARSUS	1.15	1.32
TARSUS	0.75	0.70
TOTAL	5.82	5.92

Palpus essentially as in *versicolor* but differing in the following respects. Terminal spur of the retrolateral apophysis of the tibia erect, directed cephalad. Tegulum longer than broad. Truncus of the embolus not enlarged or curved at the

middle, the terminal portion a shorter, heavier spine.

TYPE LOCALITY.—Male holotype and female allotype from Salt Lake City, Utah, in the collection of The American Museum of Natural History.

DISTRIBUTION.—United States and Canada west of the Rocky Mountains.

RECORDS.—COLORADO: Lump Creek, near Gilpin, Sept. 16, 1934, male (Rodeck). Fort Collins, female. Arboles, male. Grand Junction, males, females. Strontia Springs, Aug. 10, 1927, female (Dietz). Greeley, March 13, 1926, male, females. UTAH: Fillmore, female (Chamberlin). Washington County, male. Moab, Grand County, female. Green River, Emery County, male. Salt Lake City, June to September, males, females (Gertsch). IDAHO: Moscow Mountains, September, males. Montpelier, May, 1928, males, females (Gertsch). Mountain Home, April 11, 1931, female (Fox). MONTANA: Hamilton, Ravalli County, April 20, 1934, female (Jellison). Birch Creek, Ravalli County, April 8, 1934, female (Jellison). LaSalle, Flathead County, May, June, 1934, male (Jellison). ARIZONA: Catalina Springs, May, females. Madera Canyon, Santa Rita Mountains, females (Banks, 1901). Williams, June 5, July 1–4, July 27 (Banks, 1902). NEVADA: Reno, female (Dolen). CALIFORNIA: Los Angeles, females (Grant). Berkeley, November, 1919, females. Marin County, Sept. 18, 1919, female (Dietz). Berkeley, October, 1919, male, three females (Dietz). Dalton Creek, Fresno County, May, 1920, 4000 feet, male (Dietrich). Santa Clara (Cooleidge). OREGON: Portland, 1933, female (Dimich). Corvallis, May 3–6, 1935, male (Larson). Idem, March 5, 1935, females (Schuh). Alsea, May 5, 1935, female (Pierson). Jackson County, 1935, male, females (Lawrence). Rogue River Valley, April, 1934, male, female, 1300 feet (Lawrence). WASHINGTON: Olympia, male, females. Wenas (Worley, 1932). Seattle, females, male (Kincaid).

CANADA.—BRITISH COLUMBIA: Terrace, male and immatures (Hippishley). Kaslo, June, July, July 2 (Banks, 1916). Creston (Emerton, 1920). ALBERTA: Fawcett, May 15–June 3, male. Seba, June 3, July 6, males.

Coriarachne floridana Banks

Figures 256, 257 and 270

Coriarachne floridana BANKS, 1896, Trans. American Ent. Soc., XXIII, p. 71; 1904, Proc. Acad. Nat. Sci. Philadelphia, p. 132; 1910, Bull. U. S. Nat. Mus., LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 403.

Platyxysticus floridanus GERTSCH, 1932, American Museum Novitates, No. 563, pp. 2–3, Fig. 3.

Carapace of the female mainly rusty red, darker in the eye region, the sides and midline with a few white markings, the caudal declivity covered by two large brown maculations that enclose a white spot on each side. Sternum white, punctate in brown. Mouth parts and coxae uniform reddish brown. Legs rusty red, speckled with small white spots. Dorsum of the abdomen nearly black, with a median longitudinal dentate white figure, the venter paler.

A female from Vernal, Mississippi, is 6.00 mm. long.

	Length	Width
CARAPACE	2.80 mm.	2.92 mm.
FRONT	0.42	1.50
STERNUM	1.35	1.10
LABIUM	0.65	0.45
ENDITE	0.80	0.37
ABDOMEN	3.25	3.50

Carapace very flat, slightly broader than long, the sides weakly convex, the pars cephalica broader than in *versicolor*, five-ninths as broad as the carapace, the furrows shallow but well marked. Clypeus vertical, armed with nine principal linear spines, eight of which are marginal and one in a median position slightly above the margin, the margin with additional smaller spines. Carapace sparsely clothed with small linear to clavate spines. Abdomen suborbicular, armed above with rows of short linear to clavate spines. Venter and spinnerets clothed with fine black hairs.

First row of eyes narrower than the second (37/41), very weakly recurved, a line along the ventral margins of the laterals scarcely cutting the ventral edges of the medians, the medians separated by about three diameters (16/50), nearly two diameters from the laterals (16/30). Second row of eyes recurved, the medians separated by nearly five diameters (12/56), a little farther from the laterals (12/62). Median ocular quadrangle broader than long (80/57), as wide in front as behind (80/80). Ratio of the eyes: ALE:AME:PLE:PME = 25:16:18:12. Clypeus as high as the diameter of an anterior median eye (16/16).

Leg formula, 2134, the first two pairs subequal.

Spination as in the female of *versicolor* but the spines shorter and more robust.

	I	II
FEMUR	2.57 mm.	2.70 mm.
PATELLA	1.30	1.30
TIBIA	1.67	1.75
METATARSUS	1.50	1.65
TARSUS	0.85	0.85
TOTAL	7.89	8.25

	III	IV
FEMUR	1.82 mm.	1.57 mm.
PATELLA	0.75	0.75
TIBIA	1.17	1.25
METATARSUS	1.00	1.00
TARSUS	0.50	0.50
TOTAL	5.24	5.07

Vulva (Fig. 270) as in *versicolor* but the septum much narrower in the few specimens I have seen.

A male from Gainesville, Florida, is 4.50 mm. long.

Carapace and appendages wholly dark brown or variegated with a few small white spots. Sternum, mouth parts and coxae paler brown. Dorsum of the abdomen dark brown, with a creamy white basal band and three transverse pale bands, two in the caudal third of the dorsum. Venter pale.

	Length	Width
CARAPACE	2.25 mm.	2.50 mm.
FRONT	0.40	1.25
STERNUM	1.12	1.05
LABIUM	0.55	0.35
ENDITE	0.67	0.30
ABDOMEN	2.45	2.55

Structure essentially as in the female.

First row of eyes narrower than the second (15/17), slightly recurved, the medians separated by two diameters (16/32), slightly more than a diameter from the laterals (16/18). Second row of eyes recurved, the medians separated by nearly four diameters (11/40), fully four diameters from the laterals (11/45). Median ocular quadrangle broader than long (62/45), slightly broader in front (65/62). Ratio of the eyes: ALE:AME:PLE:PME = 26:16:18:11. Clypeus as high as the diameter of an anterior median eye.

Leg formula, 2134, the first two pairs subequal, spined as in the female but the first two femora with eight or ten dorsal spines. Spines in the male longer, mostly acuminate, rarely short and linear.

	I	II
FEMUR	2.45 mm.	2.62 mm.
PATELLA	1.10	1.10
TIBIA	1.70	1.80
METATARSUS	1.70	1.80
TARSUS	0.81	0.81
TOTAL	7.76	8.13

	III	IV
FEMUR	1.75 mm.	1.50 mm.
PATELLA	0.62	0.62
TIBIA	1.15	1.12
METATARSUS	1.00	1.00
TARSUS	0.57	0.57
TOTAL	5.09	4.81

Palpus (Figs. 256 and 257) agreeing in detail with that of *utahensis*, the tegulum proper a little broader.

TYPE LOCALITY.—Male and female cotypes from Punta Gorda, Florida, in the Museum of Comparative Zoölogy.

DISTRIBUTION.—Florida. Mississippi.

RECORDS.—FLORIDA: Gainesville, Nov. 25, 1935, female, "on trunk of long-leaf pine" (Hubbell). Gainesville, Alachua County, March 6, 1934, male (Wallace). Enterprise, female. Cleveland, Nov. 14, 1911, male. Punta Gorda, male and female cotypes (Slosson). MISSISSIPPI: Vernal, female.

Coriarachne brunneipes Banks

Figures 258, 259 and 271

Coriarachne brunneipes BANKS, 1893, Journ. New York Ent. Soc., I, p. 133; 1904, Proc. California Acad. Sci., (3) III, p. 35; 1910, Bull. U. S. National Mus., LXXII, p. 49.—PETRUNKEVITCH, 1911, Bull. American Mus. Nat. Hist., XXIX, p. 403.—EMERTON, 1928, Univ. Toronto Studies, Biol., XXXII, p. 45; 1920, Trans. Royal Canadian Inst., XII, p. 334.—WORLEY, 1932, Univ. Washington Publ., Biol., I, p. 39.

Platyxysticus brunneipes GERTSCH, 1932, American Museum Novitates, No. 563, p. 2, Fig. 4.

Mature females average about 6.50 mm. in total length; the males, 4.50 mm.

Color similar in both sexes. Carapace more uniform in color than in *versicolor*, dull reddish brown, sparingly supplied with creamy white markings. Sternum, mouth parts and coxae pale reddish brown. Legs concolorous with the carapace, almost wholly dark reddish brown but usually somewhat variegated by white maculations and lighter dorsal stripes on the femora. Integument of the abdomen black, the midline with a more or less well-defined longitudinal dentate white stripe. Venter paler.

A female from Seattle, Washington, 7.00 mm. long was used for the following diagnosis.

	Length	Width
CARAPACE	3.40 mm.	3.50 mm.
FRONT	0.60	1.85
STERNUM	1.62	1.25
LABIUM	0.75	0.42
ENDITE	0.87	0.42
ABDOMEN	4.25	3.75

Carapace very flat, about as long as broad, the sides weakly convex, the pars cephalica well differentiated by shallow furrows, five-ninths as wide at the second eye row as the greatest width of the carapace. Clypeus vertical, armed with seven long acuminate spines, three marginal on each side and one median just above the margin, and with lesser intermediate spines. Eye region supplied with numerous long spines, the carapace otherwise sparsely clothed with shorter ones. Sternum, mouth parts and coxae clothed with short black hairs. Abdomen longer than broad, the dorsum armed with numerous short spines, the venter with soft black hairs.

First row of eyes narrower than the second (23/25), weakly recurved, the lower margins of the four eyes forming a straight line, the medians separated by more than two diameters (25/54), nearer the larger, protruding laterals (24/30). Second row of eyes strongly recurved, the medians separated by four diameters (15/66), over five diameters from the laterals (15/83). Median ocular quadrangle broader than long (95/70), slightly wider in front (98/95). Ratio of the eyes: ALE:AME:PLE:PME = 37:24:27:15. All eyes on distinct tubercles. Clypeus a little higher than the diameter of an anterior median eye (28/24).

Leg formula, 2143, the first two pairs subequal, the legs spotted, clothed with black spines. Spines of first leg: femur, three dorsal, five prolateral, near the base, otherwise none; tibia, ventral four principal pairs and three or four intermediate spines on the prolateral margin; metatarsus, prolateral three, retrolateral three, dorsal none, ventral four principal pairs and an occasional additional intermediate spine. Second leg as the first but lacking the prolaterals on the femur.

	I	II
Femur	3.25 mm.	3.50 mm.
Patella	1.62	1.62
Tibia	2.25	2.42
Metatarsus	2.00	2.20
Tarsus	1.12	1.12
Total	10.24	10.86

	III	IV
Femur	2.42 mm.	2.25 mm.
Patella	1.07	1.07
Tibia	1.62	1.80
Metatarsus	1.37	1.37
Tarsus	0.82	0.87
Total	7.30	7.36

Vulva (Fig. 271) essentially as in *versicolor* but the median septum much broader and the atriobursal orifices oval in outline.

A male from Seattle, Washington, is 4.50 mm. long.

	Length	Width
Carapace	2.35 mm.	2.35 mm.
Front	0.50	1.37
Sternum	1.17	0.95
Labium	0.50	0.30
Endite	0.62	0.25
Abdomen	2.40	2.25

Structure essentially as in the female, the carapace equally as long as broad. First row of eyes narrower than the second (17/19), weakly recurved, the medians separated by less than two diameters (20/34), a diameter from the laterals (20/22). Second row of eyes strongly recurved, the medians separated by about three diameters (14/44), more than four diameters from the laterals (14/58). Median ocular quadrangle broader than long (72/55), equally wide in front as behind. Ratio of the eyes: ALE: AME:PLE:PME = 34:20:23:14. Clypeus slightly wider than the diameter of an anterior median eye (22/20).

Leg formula, 2143, the first pairs subequal, the spination as in the female but often lacking some of the intermediate spines beneath the first tibia.

	I	II
Femur	2.55 mm.	2.70 mm.
Patella	1.07	1.07
Tibia	1.80	1.82
Metatarsus	1.82	1.82
Tarsus	0.87	0.87
Total	8.11	8.28

	III	IV
Femur	1.92	1.82
Patella	0.75	0.75
Tibia	1.35	1.67
Metatarsus	1.10	1.25
Tarsus	0.62	0.62
Total	5.74	6.11

Palpus (Figs. 258 and 259) as in *versicolor* but differing in the following particulars: Retrolateral apophysis of the tibia completely lacking a terminal spur. Embolus heavy in the middle, the terminal portion curved to form a hook.

Type Locality.—Male and female cotypes from Olympia, Washington, in the collection of the Museum of Comparative Zoölogy.

Distribution.—Northwestern United States and Canada.

Records.—Washington: Mt. Constitution, 1929, two males. Orcus Island, two females. Friday Harbor, female. Seattle; Olympia (Emerton, 1920). "Western Washington, south to Olympia and north through the Olympic Peninsula and the San Juan Islands" (Worley, 1932). "Immature females, June 22 to September

under logs on San Juan and Spieden Islands and on Mt. Angeles" (Worley, 1932). Olympia, Nov. 20, 1930, males and females (Exline). Seattle, Oct. 22, 1931, females; July, 1932, male and female (Exline). OREGON: Independence, July, 1934, female (Larson). Jackson County, August–November, 1934, male and female (Lawrence). McMinnville, female (Fender). Near Medford, 1934, female (Lawrence). Portland, 1933, female (Dimick and Roaf). Eight miles southeast of Colton, April and May, 1934, immatures (Pierson). Portland May 20–30, 1934, immatures (Pierson). CALIFORNIA: Los Angeles, female. Mt. Shasta, male, immature female (Lembert). Echo Lake, July 15, 1934, female. NEVADA: Elko, Aug. 23, 1934, female (Macy). UTAH: Smith and Morehouse Canyon, Uinta Mountains, Nov. 10, 1932, two females from "under bark of a dead tree" (Ivie). IDAHO: Montpelier, Aug. 28, 1931, three females (Gertsch). MONTANA: West Fork, Ravalli County, March 11, 1934, two immature females (Jellison).

CANADA.—BRITISH COLUMBIA: Terrace, female and immatures (Hippishley). Victoria, two females. ALBERTA: Banff (Emerton, 1920).

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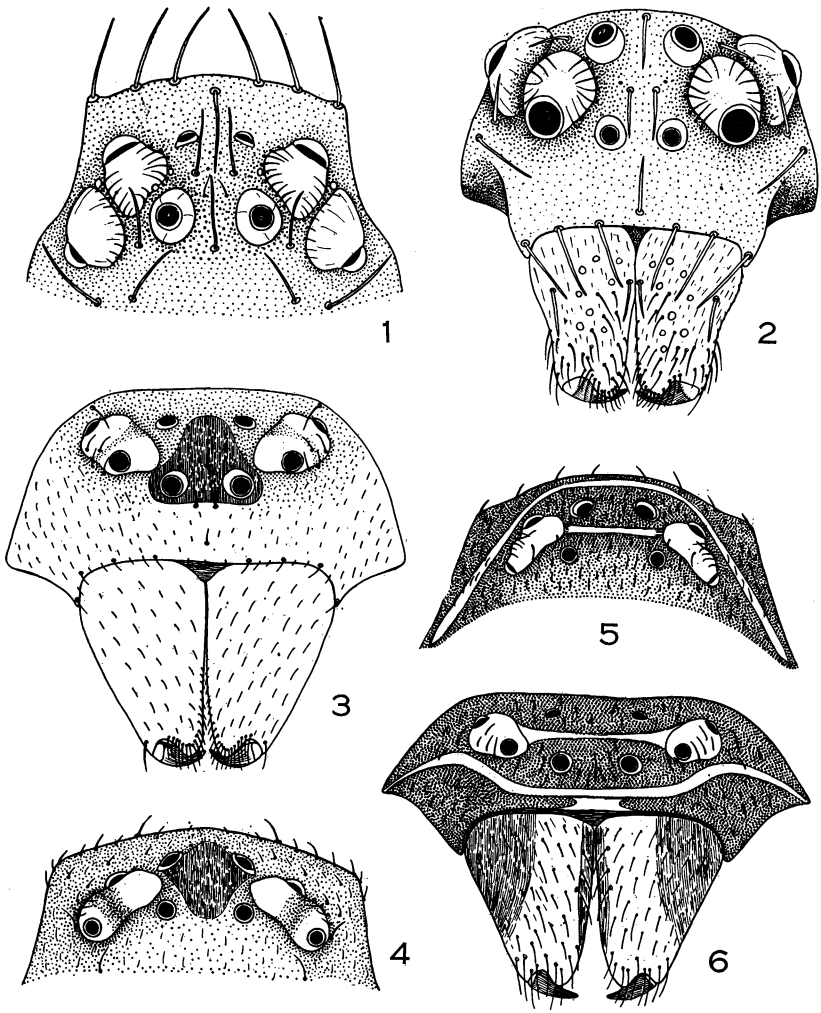


Fig. 1. *Tmarus piger* (Walckenaer), female, dorsal view of eyes.
Fig. 2. Idem, female, frontal view of head.
Fig. 3. *Misumena calycina* (Linnaeus), female, frontal view of head.
Fig. 4. Idem, female, dorsal view of eyes.
Fig. 5. *Misumenoides aleatorius* (Hentz), female, dorsal view of eyes.
Fig. 6. Idem, female, frontal view of head.

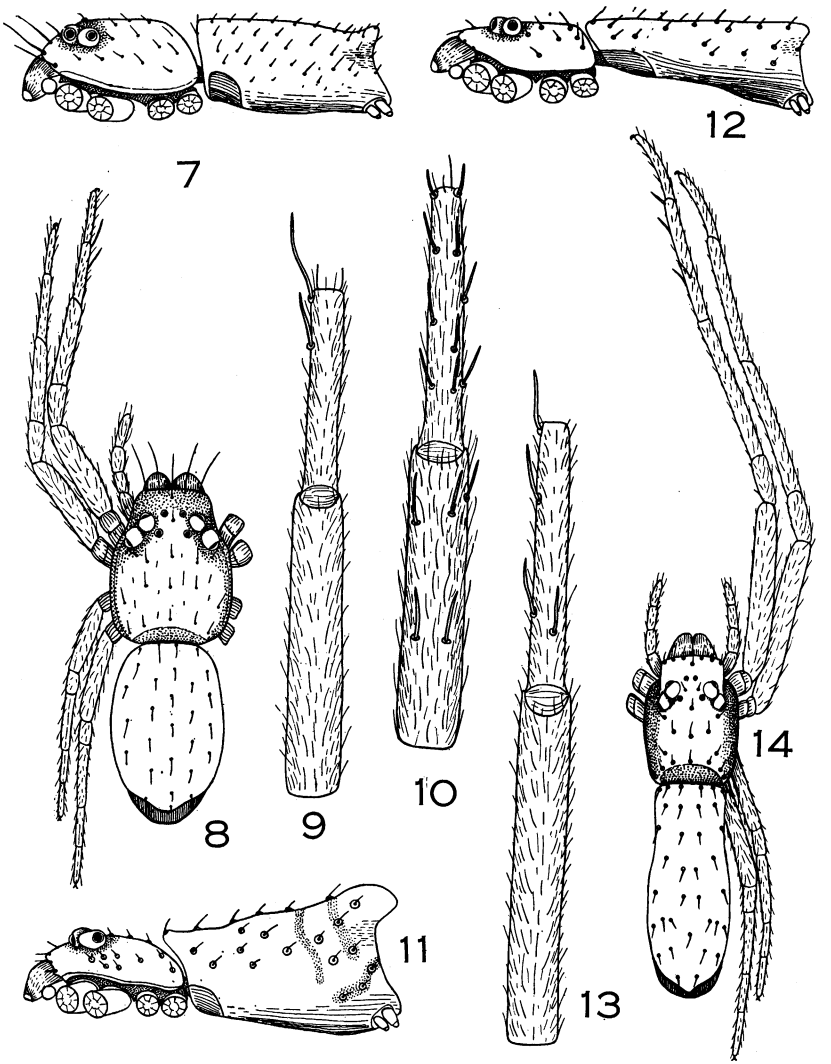


Fig. 7. *Tmarus minutus* Banks, female, lateral view of body, appendages omitted.
Fig. 8. Idem, female, dorsal view.
Fig. 9. Idem, female, ventral view of tibia and metatarsus of first left leg.
Fig. 10. *Tmarus piger* (Walckenaer), female, ventral view of tibia and metatarsus of first left leg.
Fig. 11. *Tmarus angulatus* (Walckenaer), female, lateral view of body, appendages omitted.
Fig. 12. *Tmarus unicus* Gertsch, female, lateral view of body, appendages omitted.
Fig. 13. Idem, female, ventral view of tibia and metatarsus of first left leg.
Fig. 14. Idem, female, dorsal view.

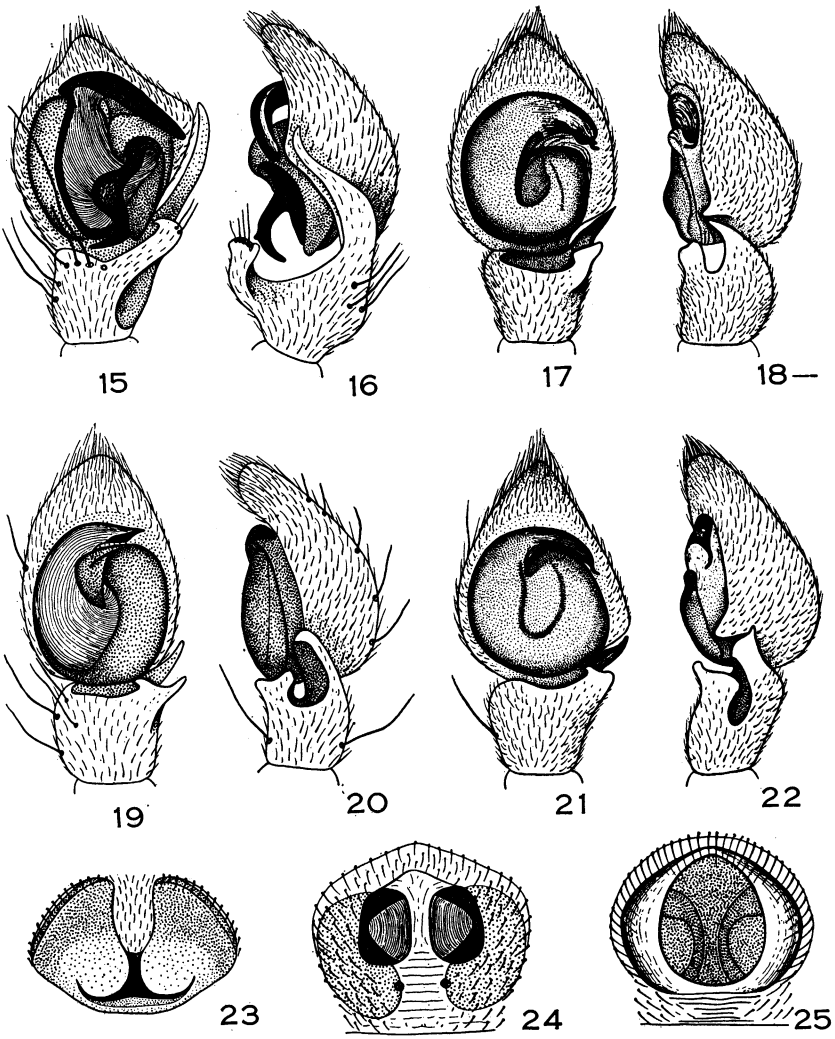


Fig. 15. *Tmarus floridensis* Keyserling, left male palpus, ventral view.
Fig. 16. Idem, left male palpus, retrolateral view.
Fig. 17. *Tmarus rubromaculatus* Keyserling, left male palpus, ventral view.
Fig. 18. Idem, left male palpus, retrolateral view.
Fig. 19. *Tmarus minutus* Banks, left male palpus, ventral view.
Fig. 20. Idem, left male palpus, retrolateral view.
Fig. 21. *Tmarus angulatus* (Walckenaer), left male palpus, ventral view.
Fig. 22. Idem, left male palpus, retrolateral view.
Fig. 23. *Tmarus floridensis* Keyserling, vulva of female.
Fig. 24. *Tmarus rubromaculatus* Keyserling, vulva of female.
Fig. 25. *Tmarus angulatus* (Walckenaer), vulva of female.

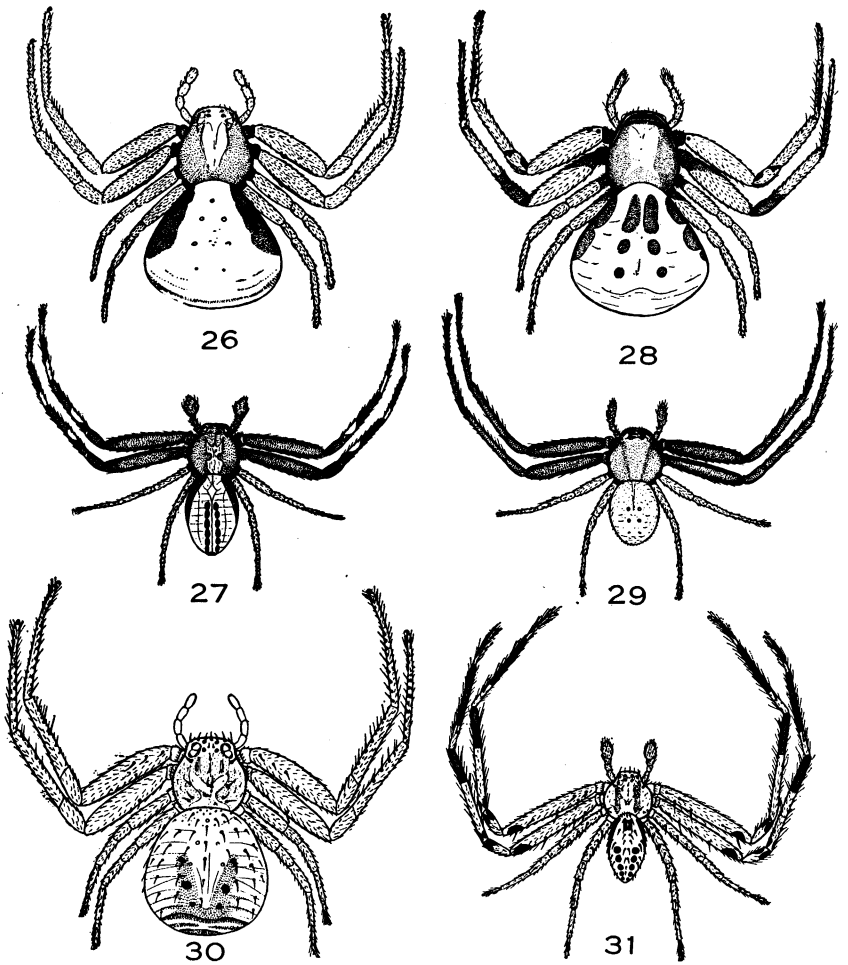
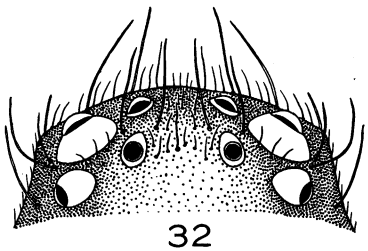


Fig. 26. *Misumena calycina* (Linnaeus), female, dorsal view.
Fig. 27. Idem, male, dorsal view.
Fig. 28. *Misumenoides aleatorius* (Hentz), female, dorsal view.
Fig. 29. Idem, male, dorsal view.
Fig. 30. *Misumenops celer* (Hentz), female, dorsal view.
Fig. 31. Idem, male, dorsal view.



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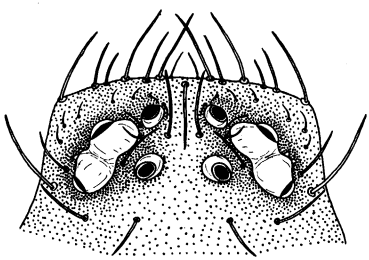

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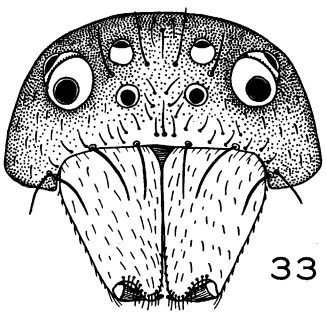

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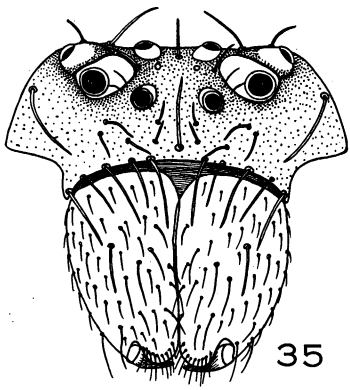

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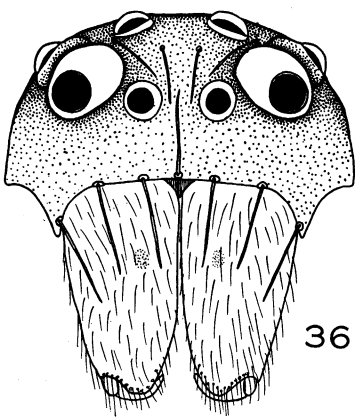

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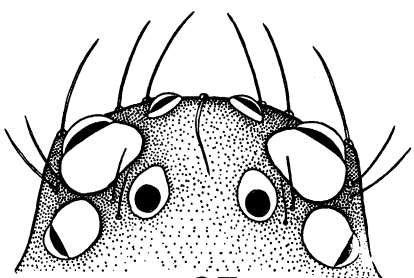

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Fig. 32. *Synema globosum* (Fabricius), female, dorsal view of eyes.
Fig. 33. Idem, female, frontal view of head.
Fig. 34. *Misumenops asperatus* (Hentz), female, dorsal view of eyes.
Fig. 35. Idem, female, frontal view of head.
Fig. 36. *Diaea dorsata* (Fabricius), female, frontal view of head.
Fig. 37. Idem, female, dorsal view of eyes.

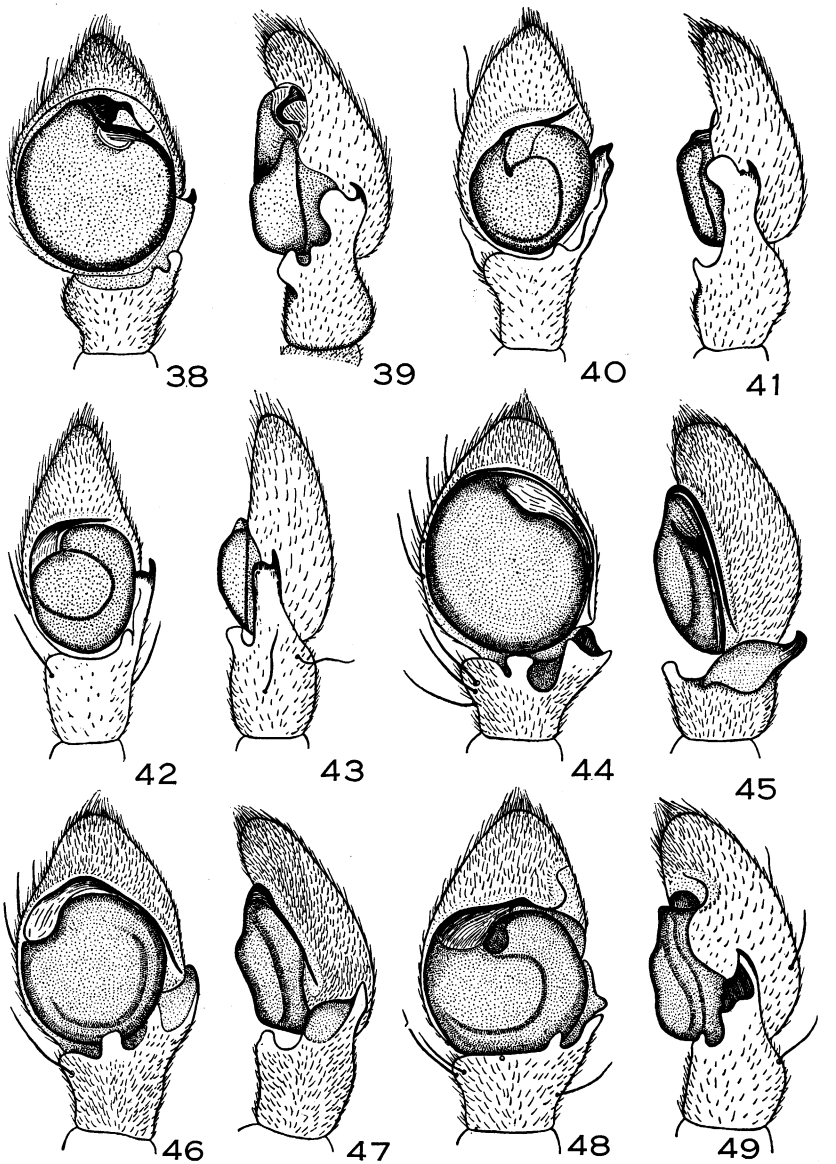

Fig. 38. *Misumena calycina* (Linnaeus), left male palpus, ventral view.
Fig. 39. Idem, left male palpus, retrolateral view.
Fig. 40. *Misumenoides aleatorius* (Hentz), left male palpus, ventral view.
Fig. 41. Idem, left male palpus, retrolateral view.
Fig. 42. *Misumenoides annulipes* Cambridge, left male palpus, ventral view.
Fig. 43. Idem, left male palpus, retrolateral view.
Fig. 44. *Misumenops oblongus* (Keyserling), left male palpus, ventral view.
Fig. 45. Idem, left male palpus, retrolateral view.
Fig. 46. *Misumenops bellulus* (Banks), left male palpus, ventral view.
Fig. 47. Idem, left male palpus, retrolateral view.
Fig. 48. *Misumenops dubius* (Keyserling), left male palpus, ventral view.
Fig. 49. Idem, left male palpus, retrolateral view.

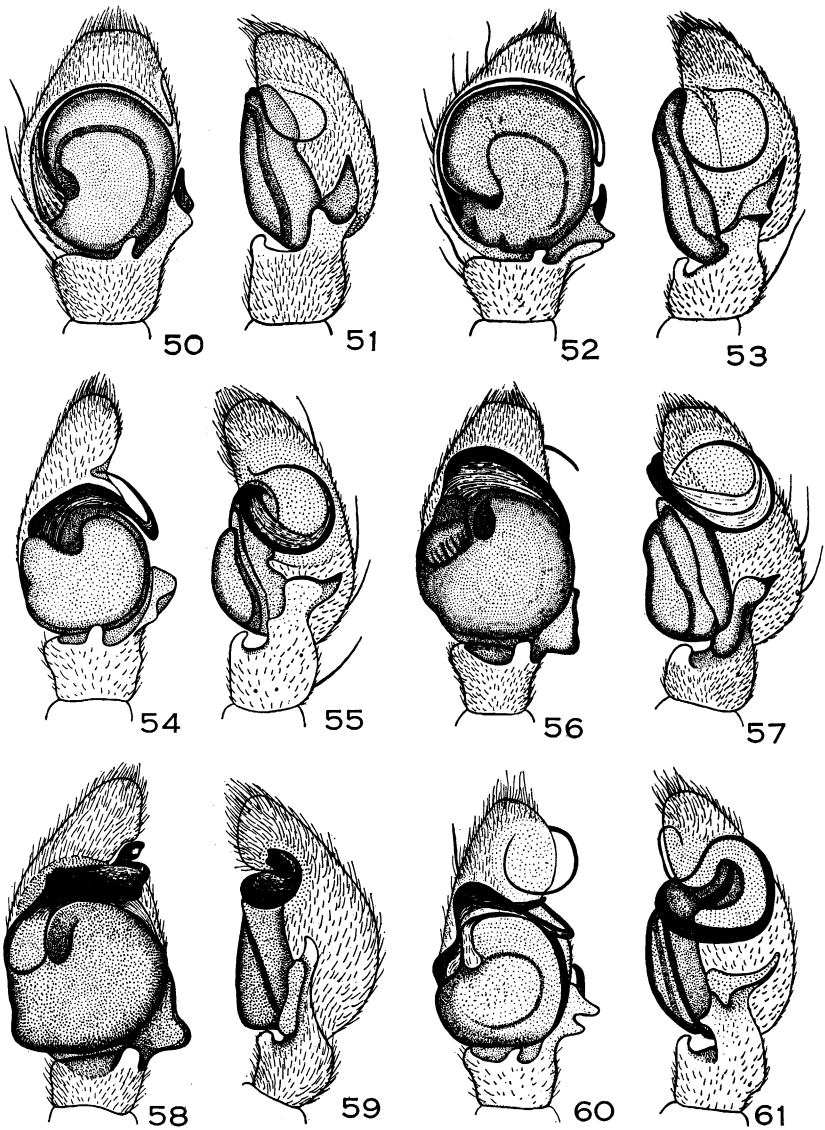

Fig. 50. *Misumenops celer* (Hentz), left male palpus, ventral view.
Fig. 51. Idem, left male palpus, retrolateral view.
Fig. 52. *Misumenops californicus* (Banks), left male palpus, ventral view.
Fig. 53. Idem, left male palpus, retrolateral view.
Fig. 54. *Misumenops decorus* (Banks), left male palpus, ventral view.
Fig. 55. Idem, left male palpus, retrolateral view.
Fig. 56. *Misumenops asperatus* (Hentz), left male palpus, ventral view.
Fig. 57. Idem, left male palpus, retrolateral view.
Fig. 58. *Misumenops devius*, new species, left male palpus, ventral view.
Fig. 59. Idem, left male palpus, retrolateral view.
Fig. 60. *Misumenops coloradensis* Gertsch, left male palpus, ventral view.
Fig. 61. Idem, left male palpus, retrolateral view.

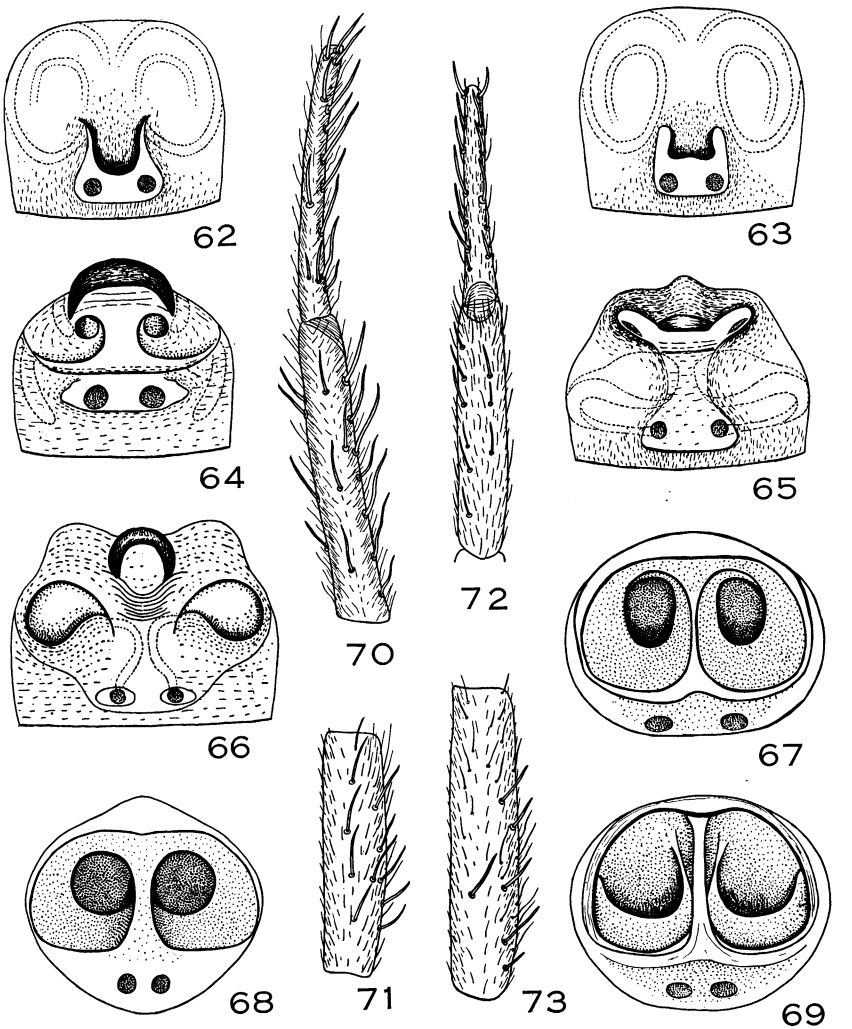

Fig. 62. *Misumenops oblongus* (Keyserling), vulva of female.
Fig. 63. Idem, vulva of another female.
Fig. 64. *Misumenops dubius* (Keyserling), vulva of female.
Fig. 65. *Misumenops bellulus* (Banks), vulva of female.
Fig. 66. *Misumenops coloradensis* Gertsch, vulva of female.
Fig. 67. *Misumenops californicus* (Banks), vulva of female.
Fig. 68. *Misumenops celer* (Hentz), vulva of female.
Fig. 69. *Misumenops asperatus* (Hentz), vulva of female.
Fig. 70. *Diaea pictilis* (Banks), female, tibia and metatarsus of first left leg, prolateral view.
Fig. 71. *Synema globosum* (Fabricius), female, femur of first left leg, dorsal view.
Fig. 72. *Misumenops asperatus* (Hentz), female, tibia and metatarsus of first left leg, ventral view.
Fig. 73. Idem, female, femur of first left leg, dorsal view.

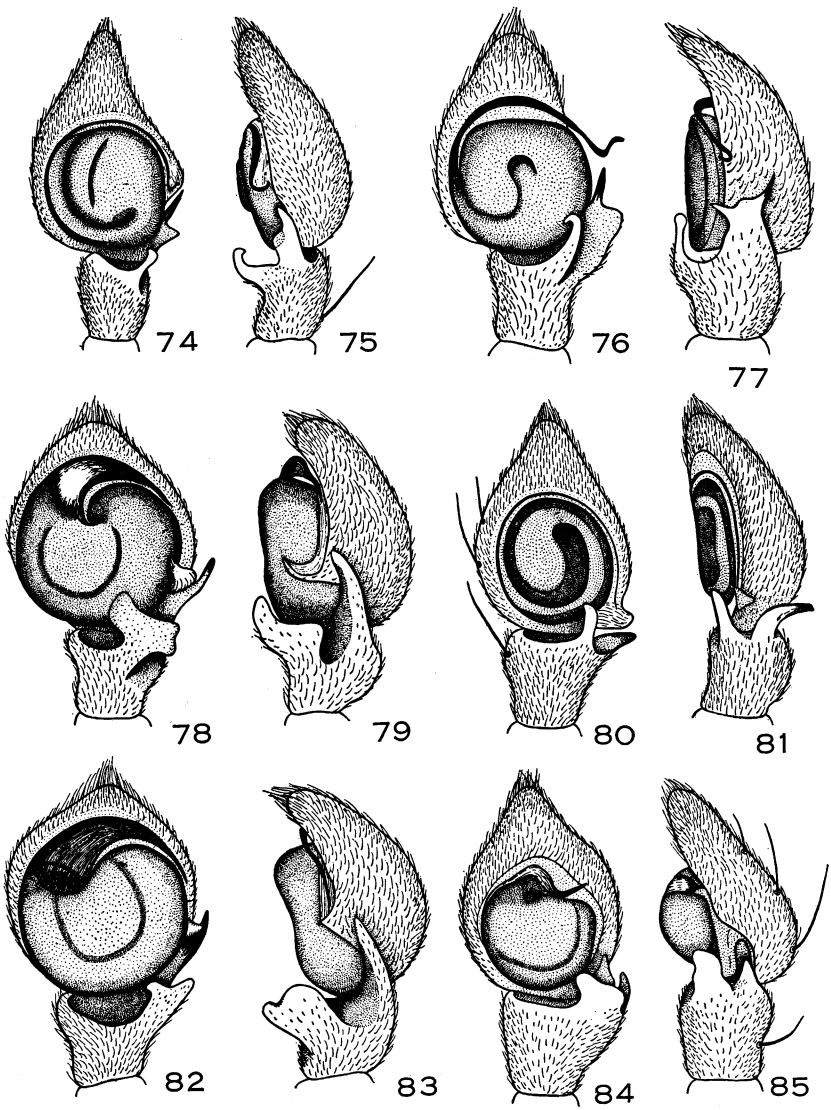

Fig. 74. *Diaea pictilis* (Banks), left male palpus, ventral view.
Fig. 75. Idem, left male palpus, retrolateral view.
Fig. 76. *Diaea seminola*, new species, left male palpus, ventral view.
Fig. 77. Idem, left male palpus, retrolateral view.
Fig. 78. *Synema obscurum* Keyserling, left male palpus, ventral view.
Fig. 79. Idem, left male palpus, retrolateral view.
Fig. 80. *Synema parvulum* (Hentz), left male palpus, ventral view.
Fig. 81. Idem, left male palpus, retrolateral view.
Fig. 82. *Synema bicolor* Keyserling, left male palpus, ventral view.
Fig. 83. Idem, left male palpus, retrolateral view.
Fig. 84. *Synema viridans* (Banks), left male palpus, ventral view.
Fig. 85. Idem, left male palpus, retrolateral view.

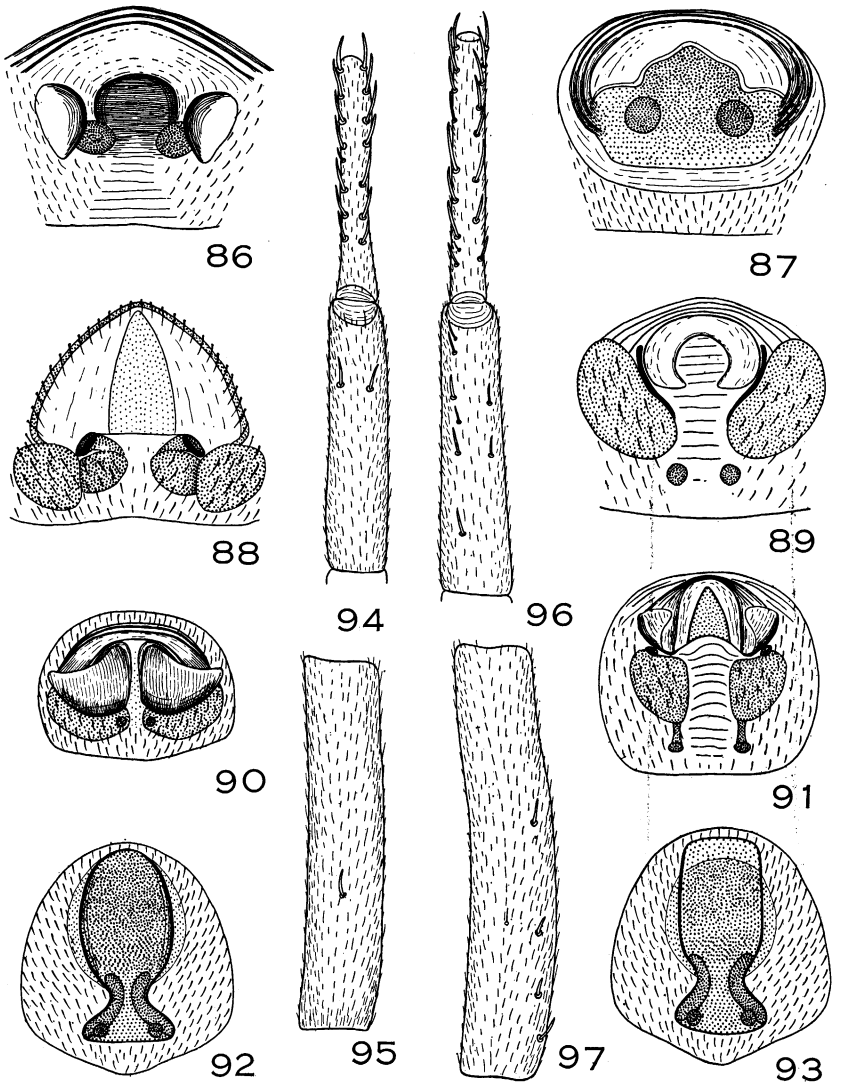

Fig. 86. *Misumena calycina* (Linnaeus), vulva of female.
Fig. 87. *Misumenoides aleatorius* (Hentz), vulva of female.
Fig. 88. *Synema parvulum* (Hentz), vulva of female.
Fig. 89. *Synema viridans* (Banks), vulva of female.
Fig. 90. *Tmarus minutus* Banks, vulva of female.
Fig. 91. *Diaea pictilis* (Banks), vulva of female.
Fig. 92. *Synema bicolor* Keyserling, vulva of female.
Fig. 93. *Synema obscurum* Keyserling, vulva of female.
Fig. 94. *Misumenoides aleatorius* (Hentz), female, tibia and metatarsus of first left leg, ventral view.
Fig. 95. Idem, female, femur of first left leg, dorsal view.
Fig. 96. *Misumena calycina* (Linnaeus), female, tibia and metatarsus of first left leg, ventral view.
Fig. 97. Idem, female, femur of first left leg, dorsal view.

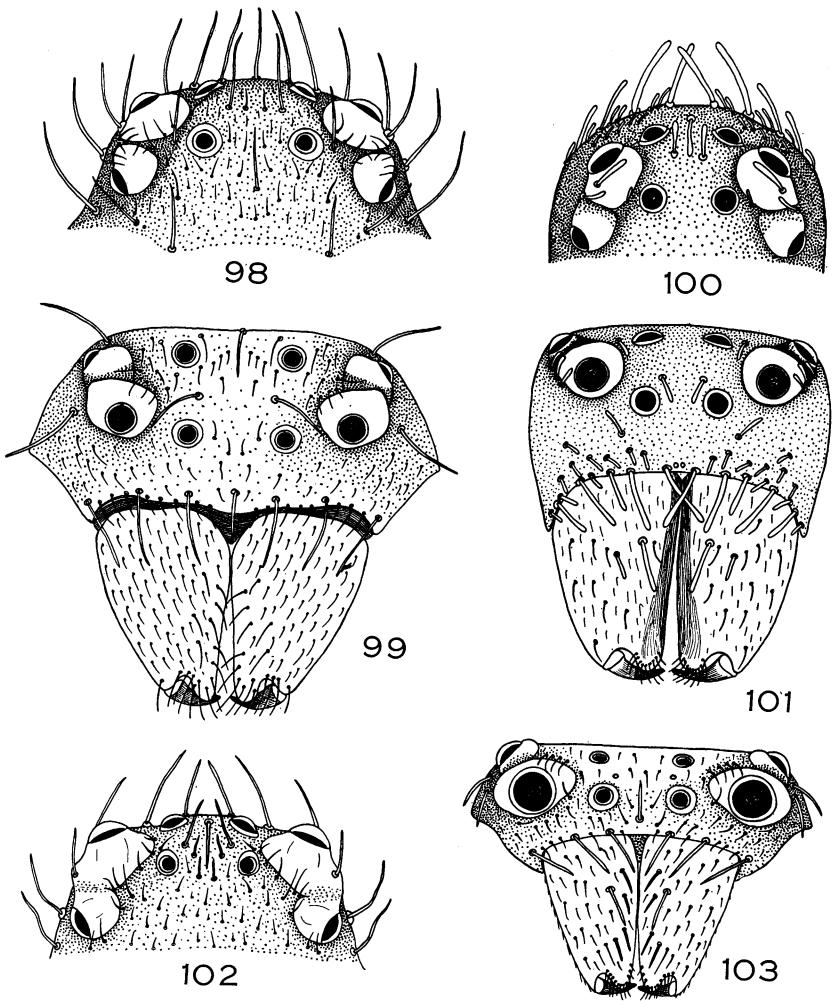

Fig. 98. *Xysticus cristatus* (Clerck), female, dorsal view of eyes.
Fig. 99. Idem, female, frontal view of head.
Fig. 100. *Ozyptila americana* Banks, female, dorsal view of eyes.
Fig. 101. Idem, female, frontal view of head.
Fig. 102. *Coriarachne depressa* (C. L. Koch), female, dorsal view of eyes.
Fig. 103. Idem, female, frontal view of head.

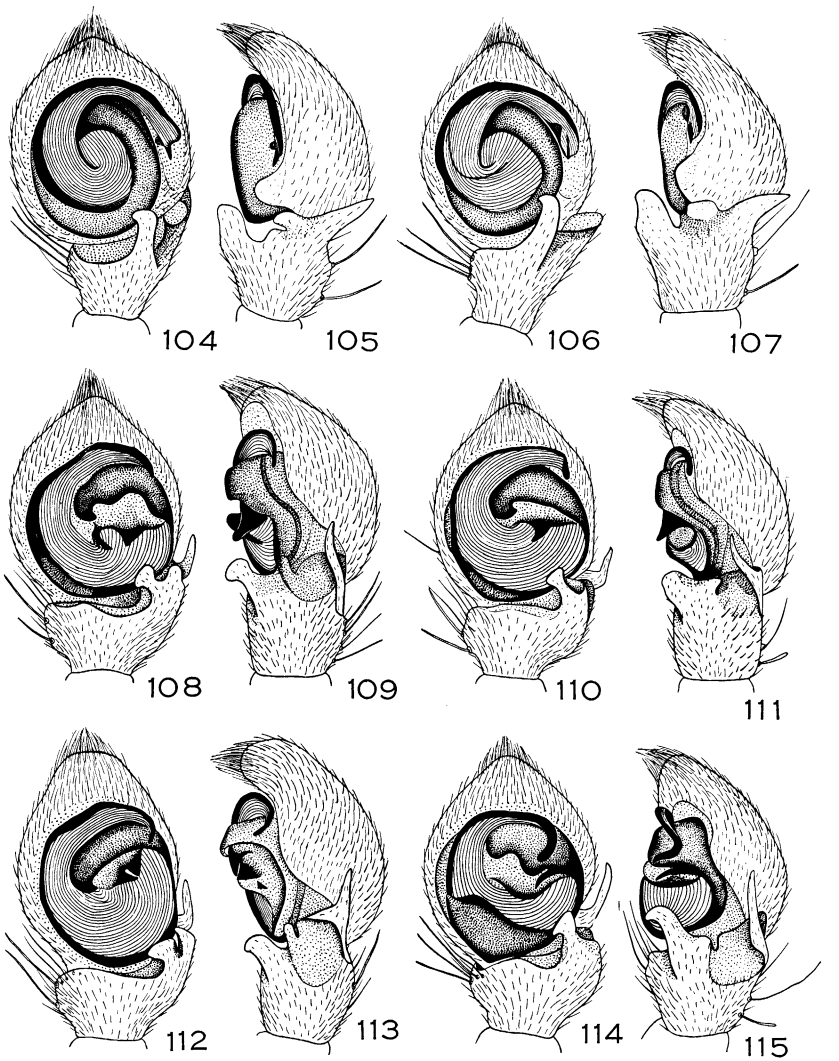

Fig. 104. *Ozyptila modesta* (Scheffer), left male palpus, ventral view.
Fig. 105. Idem, left male palpus, retrolateral view
Fig. 106. *Ozyptila floridana* Banks, left male palpus, ventral view.
Fig. 107. Idem, left male palpus, retrolateral view.
Fig. 108. *Ozyptila bryantae*, new species, left male palpus, ventral view.
Fig. 109. Idem, left male palpus, retrolateral view.
Fig. 110. *Ozyptila monroensis* Keyserling, left male palpus, ventral view.
Fig. 111. Idem, left male palpus, retrolateral view.
Fig. 112. *Ozyptila nevadensis* Keyserling, left male palpus, ventral view.
Fig. 113. Idem, left male palpus, retrolateral view.
Fig. 114. *Ozyptila americana* Banks, left male palpus, ventral view.
Fig. 115. Idem, left male palpus, retrolateral view.

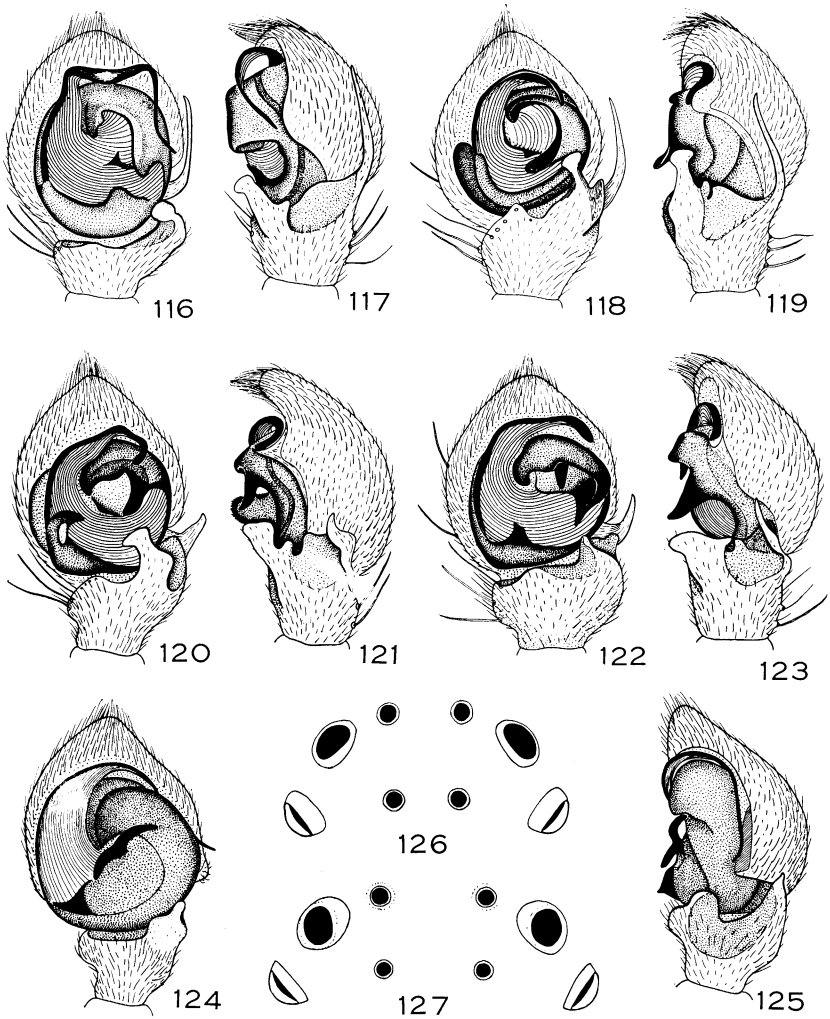

Fig. 116. *Ozyptila conspurcata* Thorell, left male palpus, ventral view.
Fig. 117. Idem, left male palpus, retrolateral view.
Fig. 118. *Ozyptila formosa* Bryant, left male palpus, ventral view.
Fig. 119. Idem, left male palpus, retrolateral view.
Fig. 120. *Ozyptila barrowsi*, new species, left male palpus, ventral view.
Fig. 121. Idem, left male palpus, retrolateral view.
Fig. 122. *Ozyptila pacifica* Banks, left male palpus, ventral view.
Fig. 123. Idem, left male palpus, retrolateral view.
Fig. 124. *Xysticus lassanus* Chamberlin, left male palpus, ventral view.
Fig. 125. Idem, left male palpus, retrolateral view.
Fig. 126. *Ozyptila americana* Banks, female, eyes from above.
Fig. 127. *Ozyptila modesta* (Scheffer), female, eyes from above.

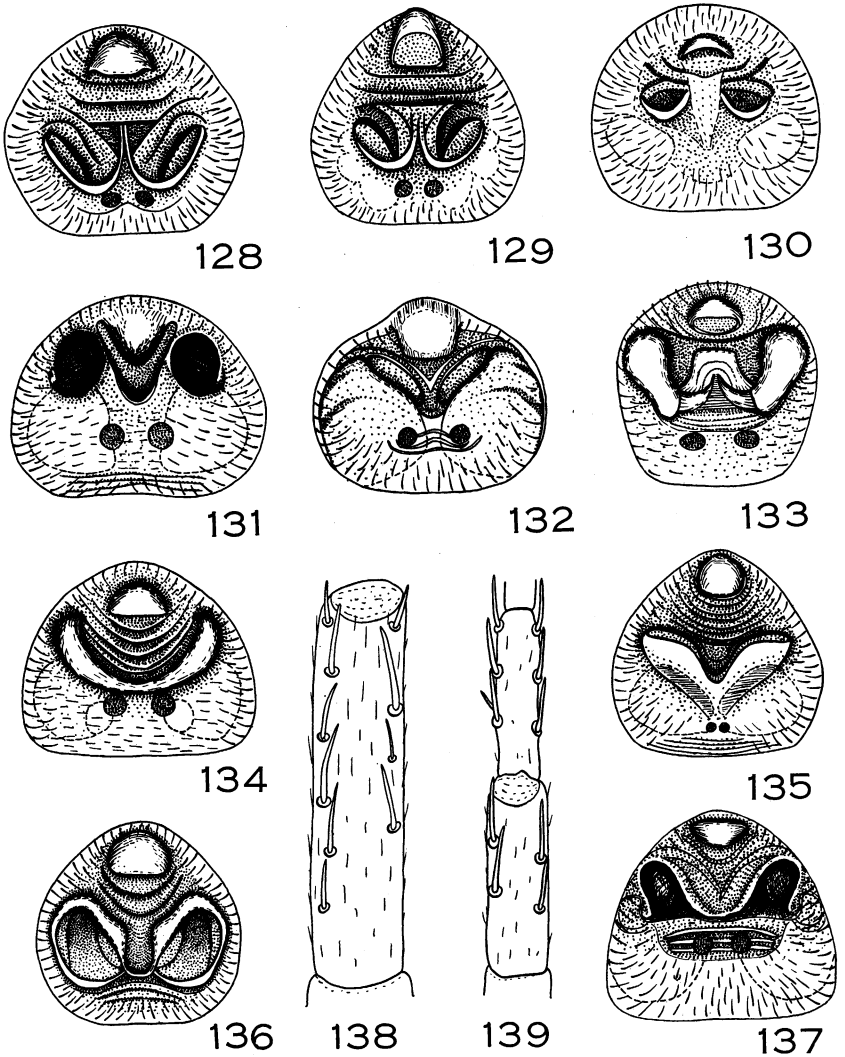

Fig. 128. *Ozyptila modesta* (Scheffer), vulva of female.
Fig. 129. *Ozyptila floridana* Banks, vulva of female.
Fig. 130. *Ozyptila okefenokensis* Gertsch, vulva of female.
Fig. 131. *Ozyptila monroensis* Keyserling, vulva of female.
Fig. 132. *Ozyptila nevadensis* Keyserling, vulva of female.
Fig. 133. *Ozyptila americana* Banks, vulva of female.
Fig. 134. Idem, vulva of female.
Fig. 135. *Ozyptila conspurcata* Thorell, vulva of female.
Fig. 136. *Ozyptila formosa* Bryant, vulva of female.
Fig. 137. *Ozyptila pacifica* Banks, vulva of female.
Fig. 138. *Ozyptila okefenokensis* Gertsch, female, left first tibia, ventral view.
Fig. 139. *Ozyptila americana* Banks, female, left first tibia and metatarsus, ventral view.

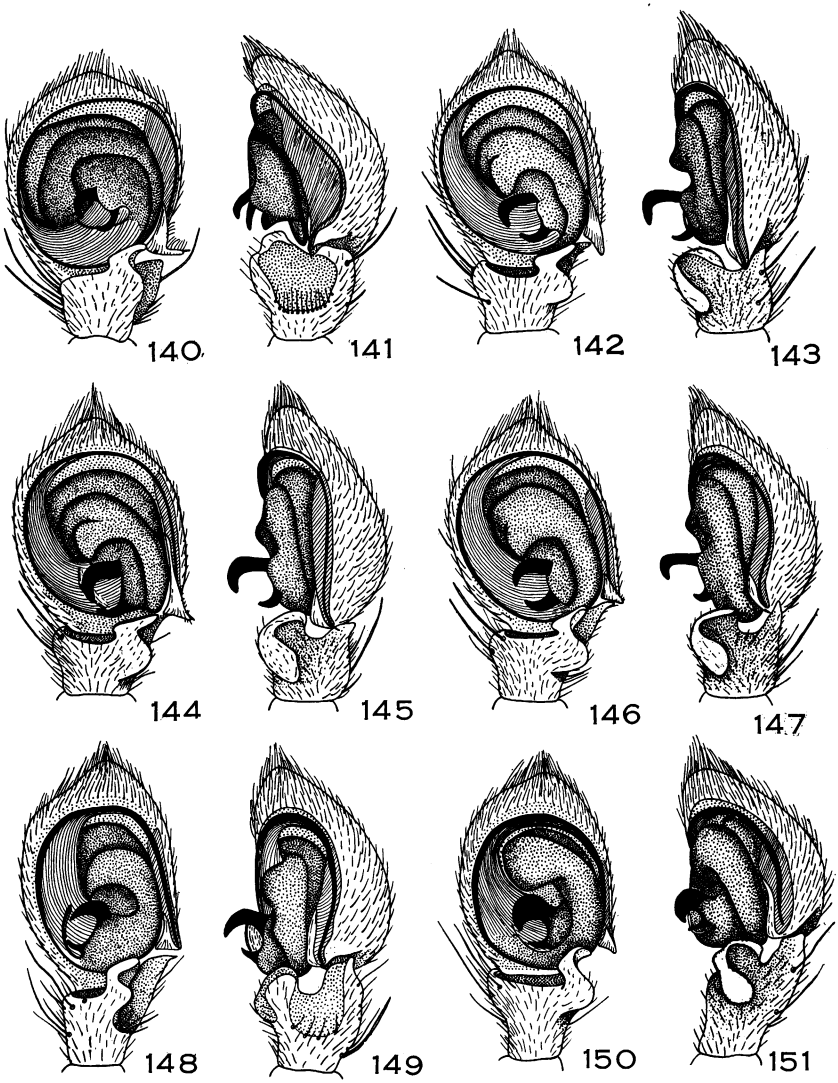

Fig. 140. *Xysticus gulosus* Keyserling, left male palpus, ventral view.
Fig. 141. Idem, left male palpus, retrolateral view.
Fig. 142. *Xysticus locuples* Keyserling, left male palpus, ventral view.
Fig. 143. Idem, left male palpus, retrolateral view.
Fig. 144. *Xysticus apachecus* Gertsch, left male palpus ventral view.
Fig. 145. Idem, left male palpus, retrolateral view.
Fig. 146. *Xysticus gosiutus* Gertsch, left male palpus, ventral view.
Fig. 147. Idem, left male palpus, retrolateral view.
Fig. 148. *Xysticus canadensis* Gertsch, left male palpus, ventral view.
Fig. 149. Idem, left male palpus, retrolateral view.
Fig. 150. *Xysticus discursans* Keyserling, left male palpus, ventral view.
Fig. 151. Idem, left male palpus, retrolateral view.

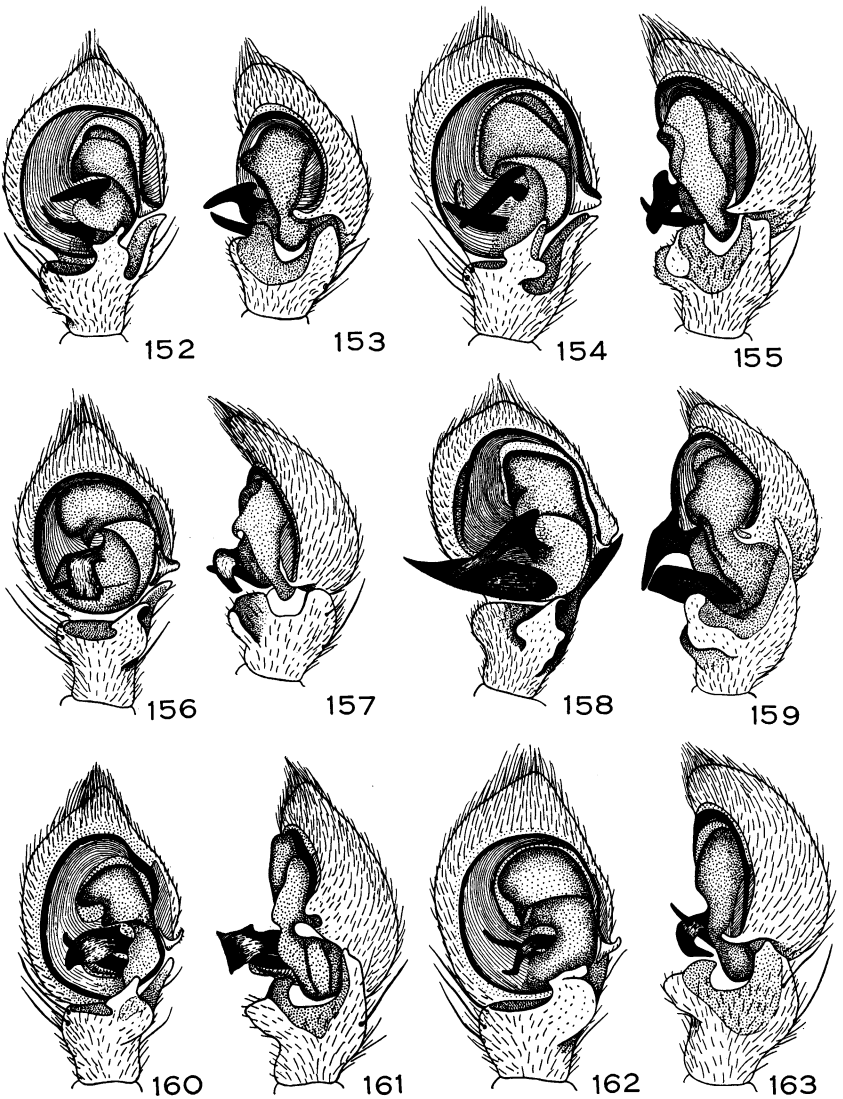

Fig. 152. *Xysticus bicuspis* Keyserling, left male palpus, ventral view.
Fig. 153. Idem, left male palpus, retrolateral view.
Fig. 154. *Xysticus orizaba* Banks, left male palpus, ventral view.
Fig. 155. Idem, left male palpus, retrolateral view.
Fig. 156. *Xysticus elegans* Keyserling, left male palpus, ventral view.
Fig. 157. Idem, left male palpus, retrolateral view.
Fig. 158. *Xysticus emertoni* Keyserling, left male palpus, ventral view.
Fig. 159. Idem, left male palpus, retrolateral view.
Fig. 160. *Xysticus luctans* (Koch), left male palpus, ventral view.
Fig. 161. Idem, left male palpus, retrolateral view.
Fig. 162. *Xysticus funestus* Keyserling, left male palpus, ventral view.
Fig. 163. Idem, left male palpus, retrolateral view.

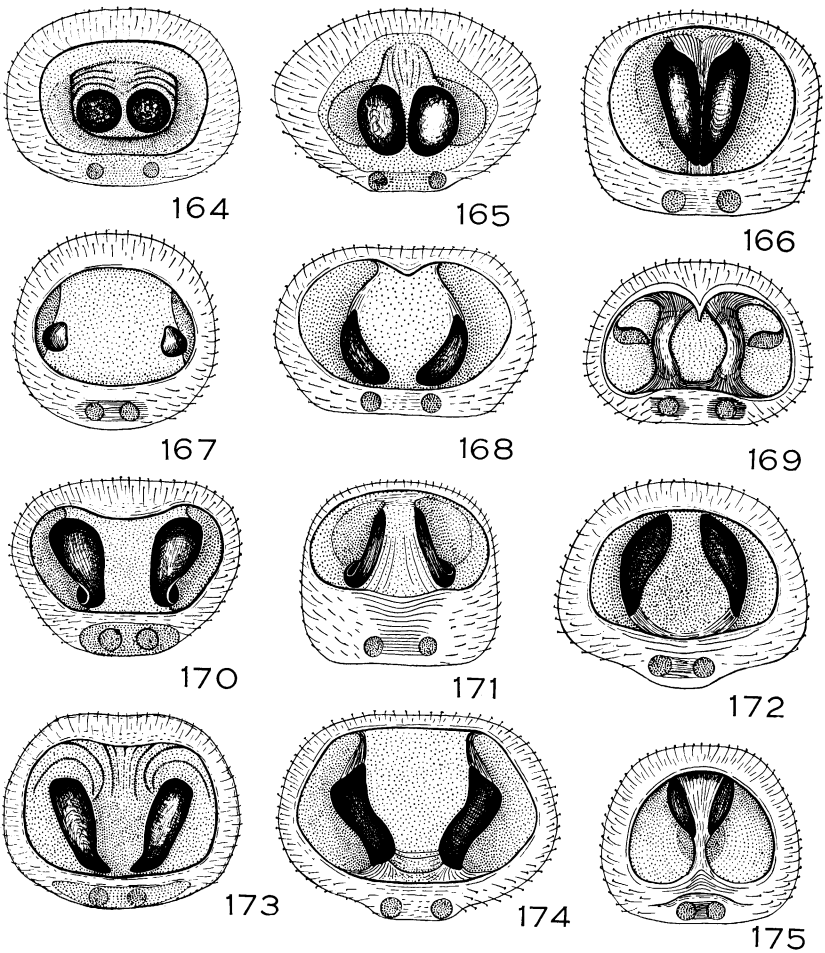

Fig. 164. *Xysticus ontariensis* Emerton, vulva of female.
Fig. 165. *Xysticus gulosus* Keyserling, vulva of female.
Fig. 166. *Xysticus britcheri* Gertsch, vulva of female.
Fig. 167. *Xysticus pretiosus* Gertsch, vulva of female.
Fig. 168. *Xysticus discursans* Keyserling, vulva of female.
Fig. 169. *Xysticus triguttatus* Keyserling, vulva of female.
Fig. 170. *Xysticus gosiutus* Gertsch, vulva of female.
Fig. 171. *Xysticus variabilis* Keyserling, vulva of female.
Fig. 172. *Xysticus acquiescens* Emerton, vulva of female.
Fig. 173. *Xysticus canadensis* Gertsch, vulva of female.
Fig. 174. *Xysticus apachecus* Gertsch, vulva of female.
Fig. 175. *Xysticus funestus* Keyserling, vulva of female.

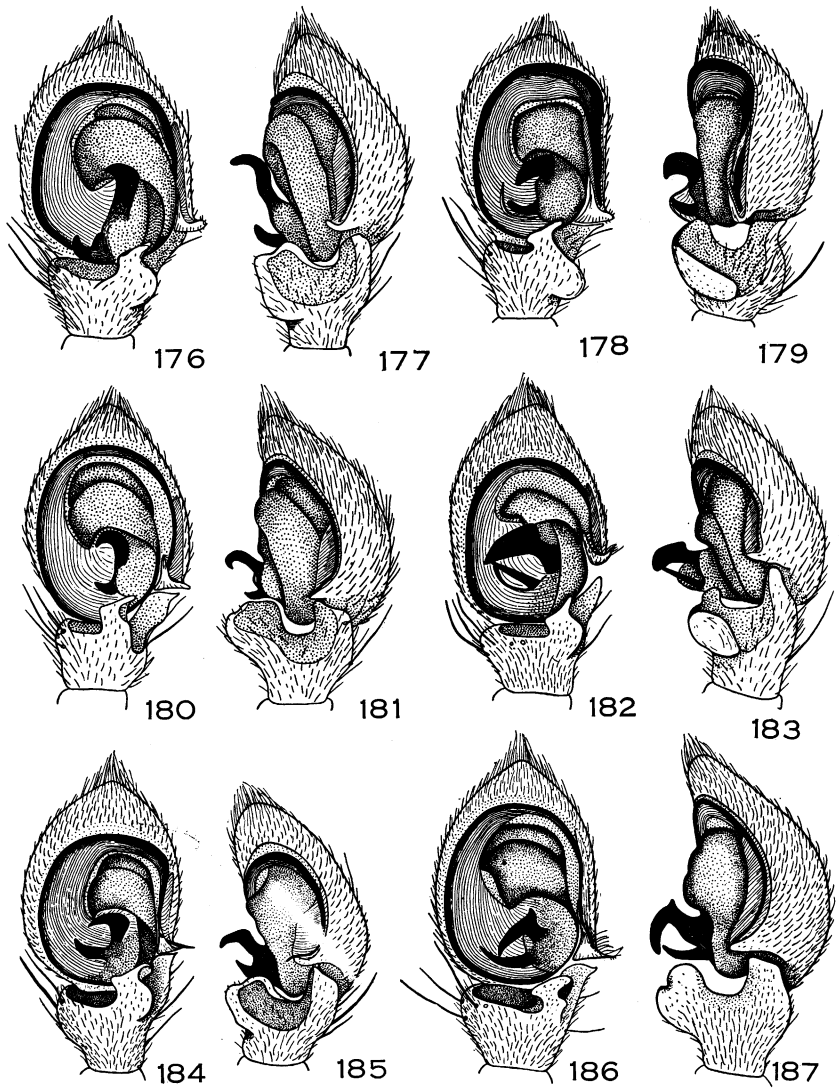

Fig. 176. *Xysticus auctificus* Keyserling, left male palpus, ventral view.
Fig. 177. Idem, left male palpus, retrolateral view.
Fig. 178. *Xysticus triguttatus* Keyserling, left male palpus, ventral view.
Fig. 179. Idem, left male palpus, retrolateral view.
Fig. 180. *Xysticus peninsulanus* Gertsch, left male palpus, ventral view.
Fig. 181. Idem, left male palpus, retrolateral view.
Fig. 182. *Xysticus laticeps* Bryant, left male palpus, ventral view.
Fig. 183. Idem, left male palpus, retrolateral view.
Fig. 184. *Xysticus acquiescens* Emerton, left male palpus, ventral view.
Fig. 185. Idem, left male palpus, retrolateral view.
Fig. 186. *Xysticus texanus* Banks, left male palpus, ventral view.
Fig. 187. Idem, left male palpus, retrolateral view.

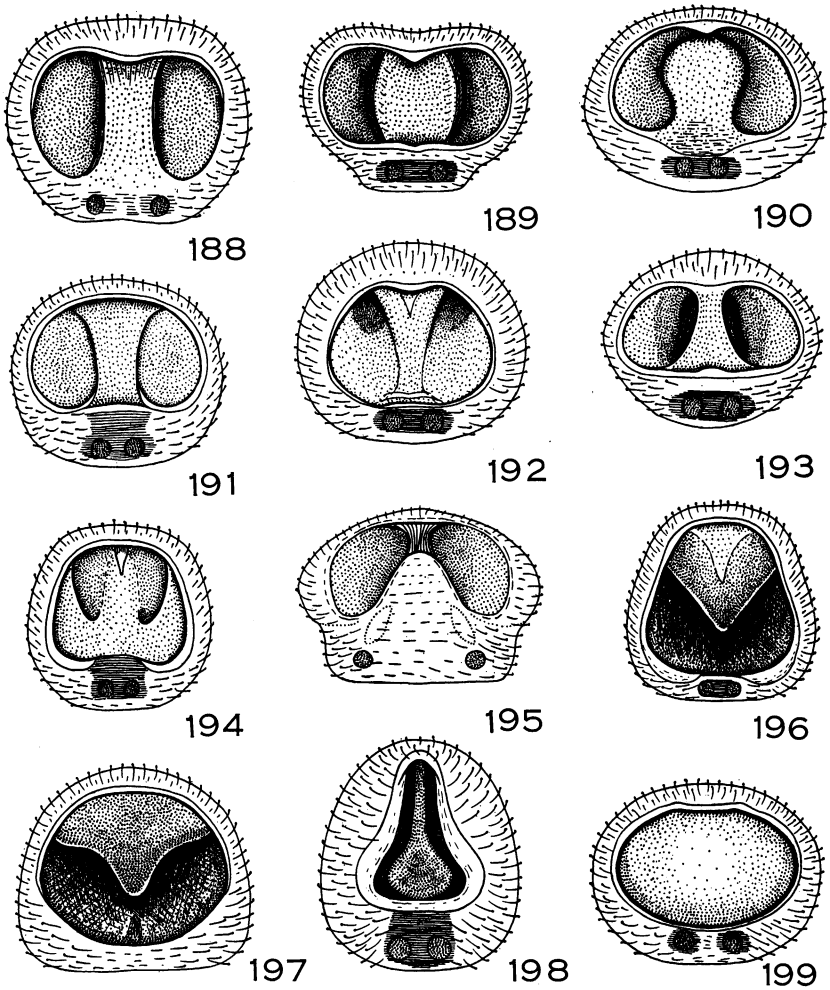

Fig. 188. *Xysticus auctificus* Keyserling, vulva of female.
Fig. 189. *Xysticus bicuspis* Keyserling, vulva of female.
Fig. 190. *Xysticus orizaba* Banks, vulva of female.
Fig. 191. *Xysticus laticeps* Bryant, vulva of female.
Fig. 192. *Xysticus elegans* Keyserling, vulva of female.
Fig. 193. *Xysticus texanus* Banks, vulva of female.
Fig. 194. *Xysticus peninsulanus* Gertsch, vulva of female.
Fig. 195. *Xysticus arizonicus*, new species, vulva of female.
Fig. 196. *Xysticus luctans* (Koch), vulva of female.
Fig. 197. *Xysticus emertoni* Keyserling, vulva of female.
Fig. 198. *Xysticus concursus* Gertsch, vulva of female.
Fig. 199. *Xysticus coloradensis* Bryant, vulva of female.

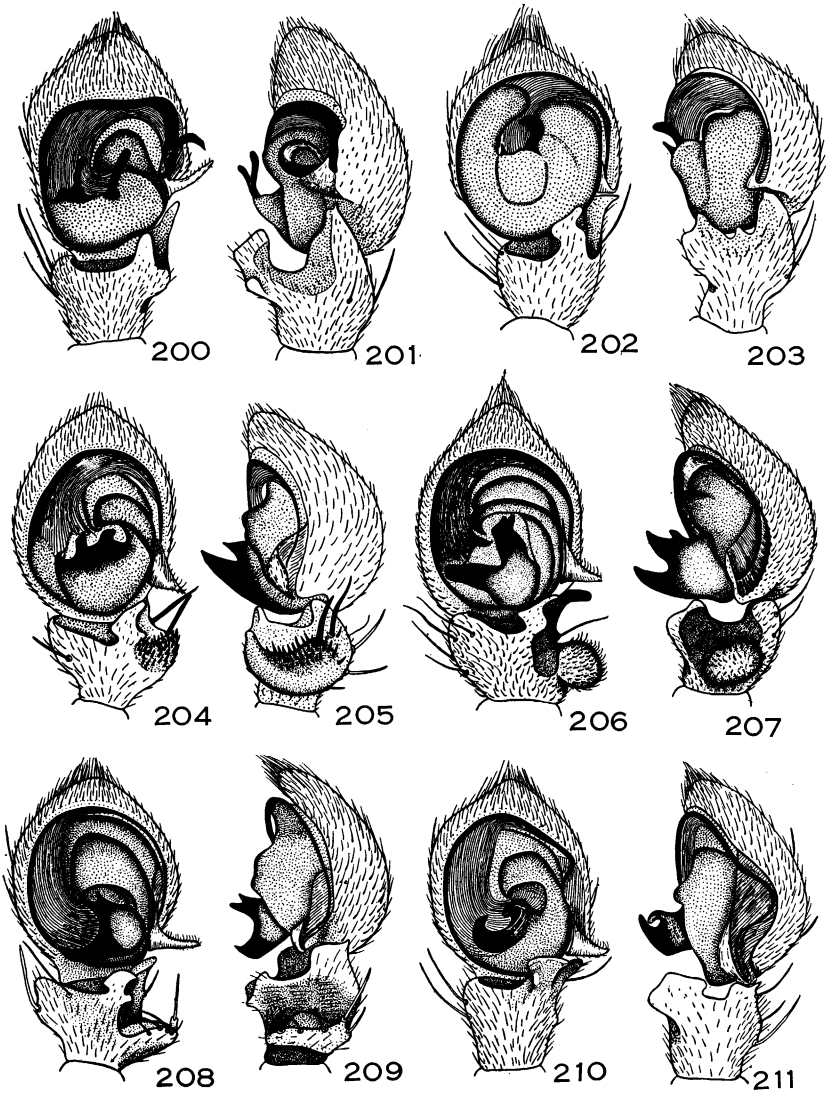

Fig. 200. *Xysticus variabilis* Keyserling, left male palpus, ventral view.
Fig. 201. Idem, left male palpus, retrolateral view.
Fig. 202. *Xysticus pretiosus* Gertsch, left male palpus, ventral view.
Fig. 203. Idem, left male palpus, retrolateral view.
Fig. 204. *Xysticus aprilinus* Bryant, left male palpus, ventral view.
Fig. 205. Idem, left male palpus, retrolateral view.
Fig. 206. *Xysticus coloradensis* Bryant, left male palpus, ventral view.
Fig. 207. Idem, left male palpus, retrolateral view.
Fig. 208. *Xysticus concursus* Gertsch, left male palpus, ventral view.
Fig. 209. Idem, left male palpus, retrolateral view.
Fig. 210. *Xysticus lutzi* Gertsch, left male palpus, ventral view.
Fig. 211. Idem, left male palpus, retrolateral view.

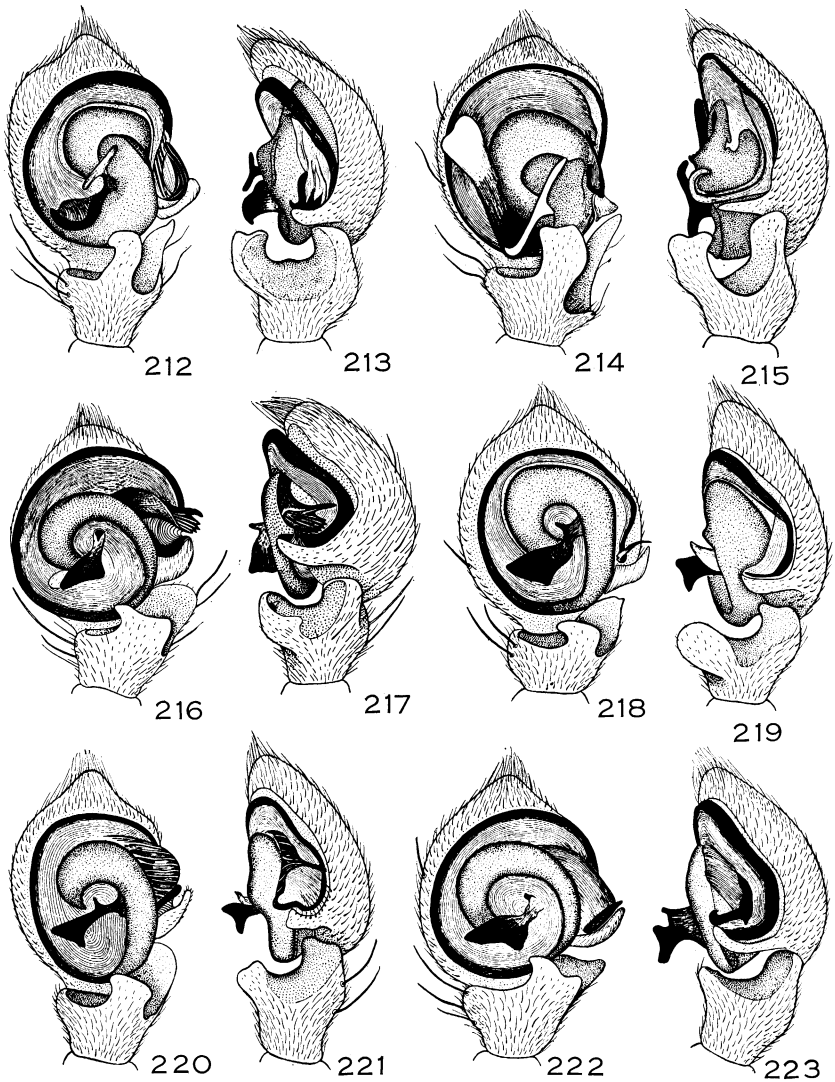

Fig. 212. *Xysticus ferox* (Hentz), left male palpus, ventral view.
Fig. 213. Idem, left male palpus, retrolateral view.
Fig. 214. *Xysticus fraternus* Banks, left male palpus, ventral view.
Fig. 215. Idem, left male palpus, retrolateral view.
Fig. 216. *Xysticus banksi* Bryant, left male palpus, ventral view.
Fig. 217. Idem, left male palpus, retrolateral view.
Fig. 218. *Xysticus furtivus* Gertsch, left male palpus, ventral view.
Fig. 219. Idem, left male palpus, retrolateral view.
Fig. 220. *Xysticus quinquepunctatus* Keyserling, left male palpus, ventral view.
Fig. 221. Idem, left male palpus, retrolateral view.
Fig. 222. *Xysticus cunctator* Thorell, left male palpus, ventral view.
Fig. 223. Idem, left male palpus, retrolateral view.

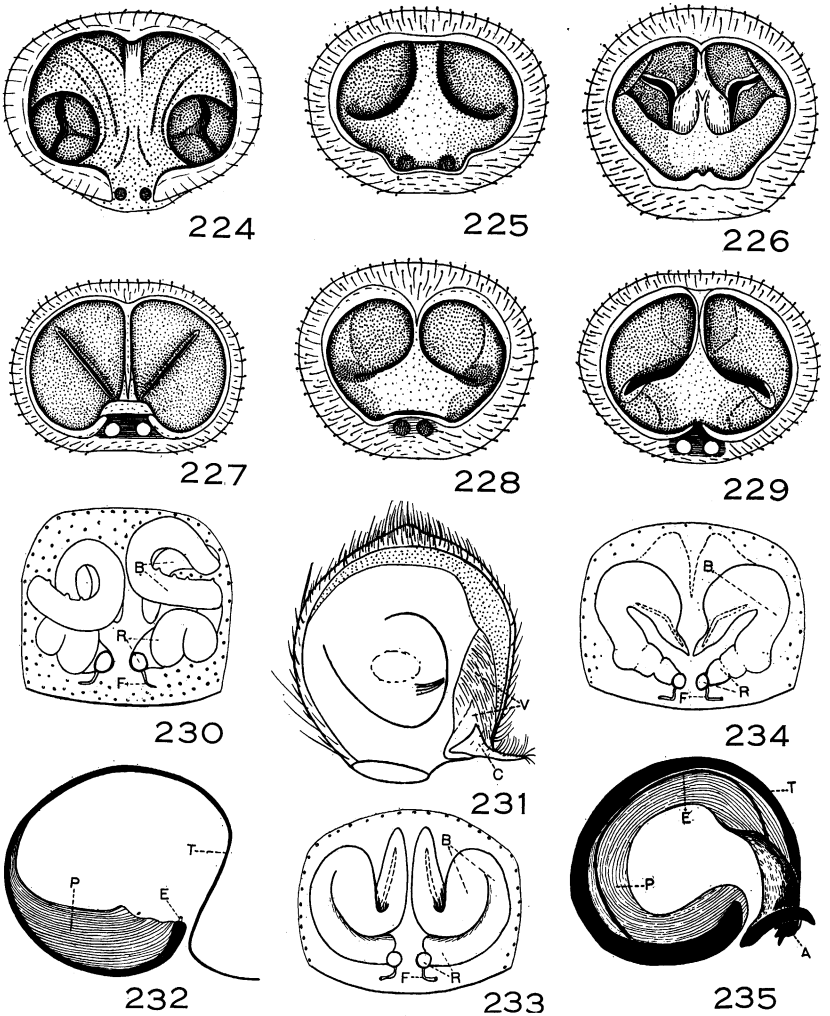

Fig. 224. *Xysticus fraternus* Banks, vulva of female.
Fig. 225. *Xysticus ferox* (Hentz), vulva of female.
Fig. 226. *Xysticus cunctator* Thorell, vulva of female.
Fig. 227. *Xysticus furtivus* Gertsch, vulva of female.
Fig. 228. *Xysticus quinquepunctatus* Keyserling, vulva of female.
Fig. 229. *Xysticus banksi* Bryant, vulva of female.
Fig. 230. *Xysticus gulosus* Keyserling, vulva of female, internal view.
Fig. 231. Idem, cymbium of male palpus, ventral view.
Fig. 232. Idem, embolus of male palpus (lacking distal apophysis), ventral view.
Fig. 233. *Xysticus ferox* (Hentz), vulva of female, internal view.
Fig. 234. *Xysticus cunctator* Thorell, vulva of female, internal view.
Fig. 235. Idem, embolus of male palpus (lacking distal apophysis), ventral view.

(A—Apical sclerite; B—bursa copulatrix; C—cymbial portion of tutaculum; E—ejaculatory duct; F—fertilization canal; P—pars pendula; R—receptaculum seminis; T—truncus; V—alveolar portion of tutaculum.)

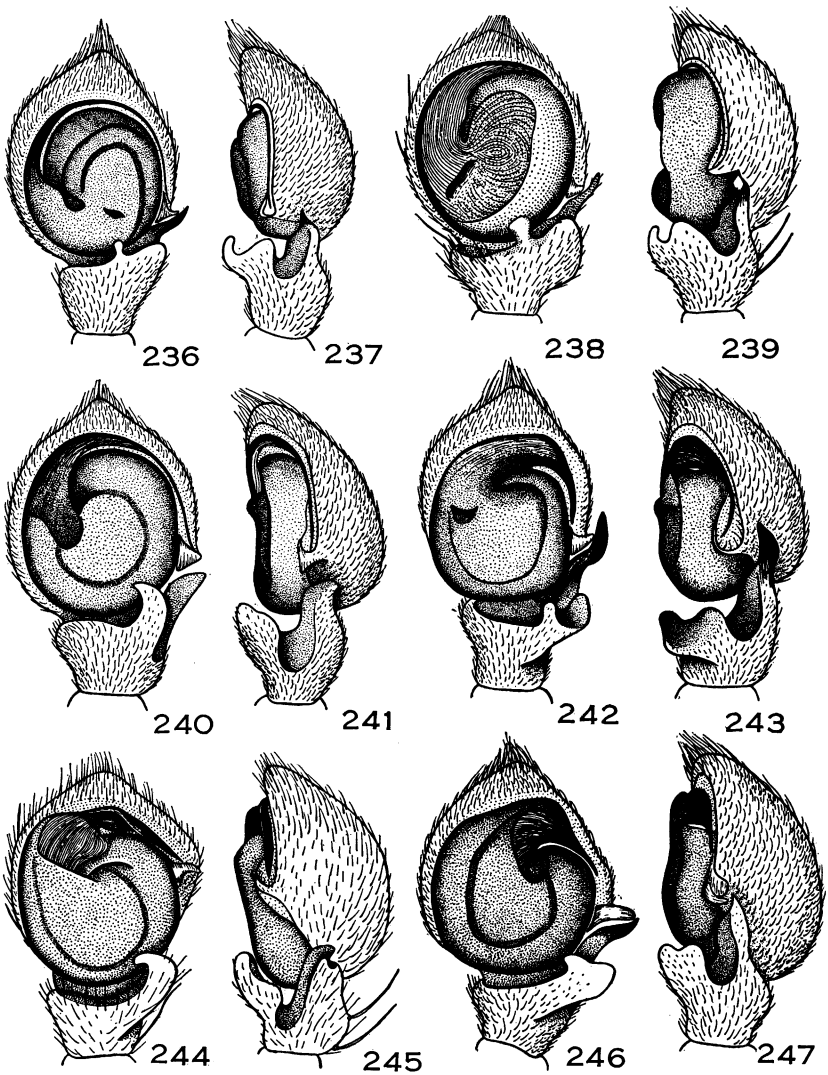

Fig. 236. *Xysticus punctatus* Keyserling, left male palpus, ventral view.
Fig. 237. Idem, left male palpus, retrolateral view.
Fig. 238. *Xysticus montanensis* Keyserling, left male palpus, ventral view
Fig. 239. Idem, left male palpus, retrolateral view.
Fig. 240. *Xysticus triangulosus* Emerton, left male palpus, ventral view.
Fig. 241. Idem, left male palpus, retrolateral view.
Fig. 242. *Xysticus lutulentus* Gertsch, left male palpus, ventral view.
Fig. 243. Idem, left male palpus, retrolateral view.
Fig. 244. *Xysticus knowltoni*, new species, left male palpus, ventral view.
Fig. 245. Idem, left male palpus, retrolateral view.
Fig. 246. *Xysticus benefactor* Keyserling, left male palpus, ventral view.
Fig. 247. Idem, left male palpus, retrolateral view.

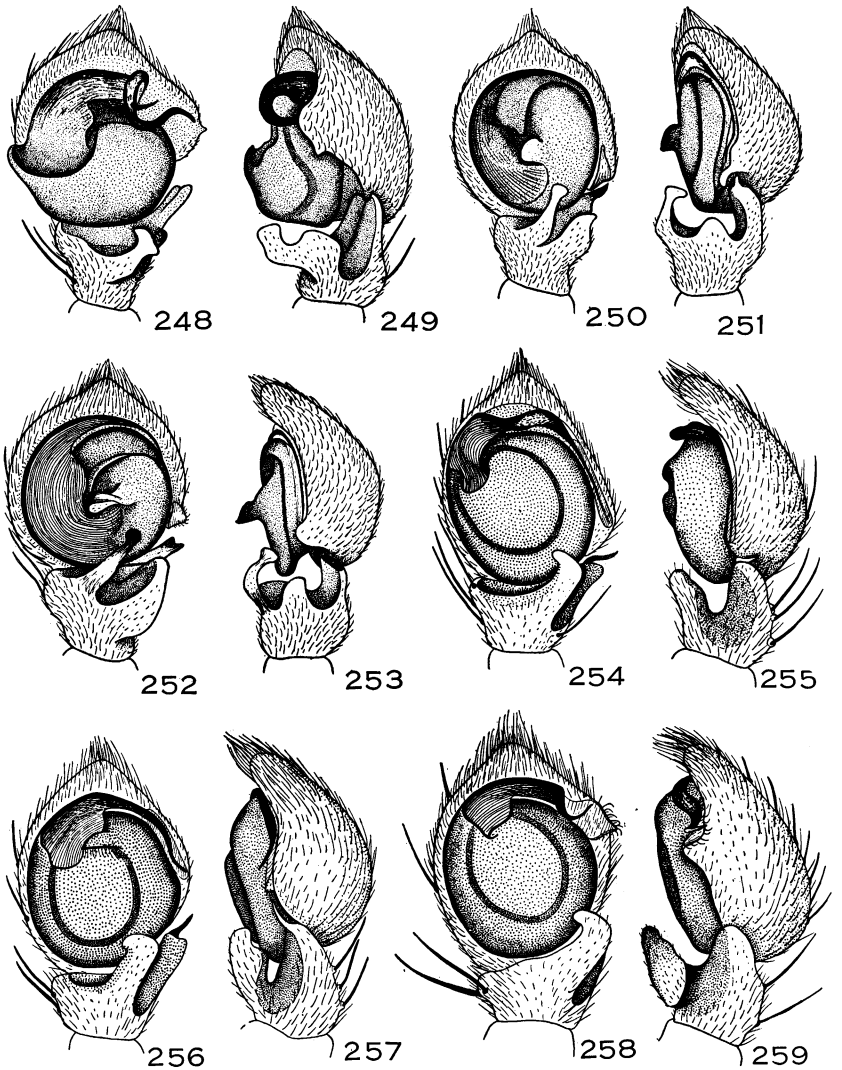

Fig. 248. *Xysticus labradorensis* Keyserling, left male palpus, ventral view.
Fig. 249. Idem, left male palpus, retrolateral view.
Fig. 250. *Xysticus nigromaculatus* Keyserling, left male palpus, ventral view.
Fig. 251. Idem, left male palpus, retrolateral view.
Fig. 252. *Xysticus moestus* Banks, left male palpus, ventral view.
Fig. 253. Idem, left male palpus, retrolateral view.
Fig. 254. *Coriarachne versicolor* Keyserling, left male palpus, ventral view.
Fig. 255. Idem, left male palpus, retrolateral view.
Fig. 256. *Coriarachne floridana* Banks, left male palpus, ventral view.
Fig. 257. Idem, left male palpus, retrolateral view.
Fig. 258. *Coriarachne brunneipes* Banks, left male palpus, ventral view.
Fig. 259. Idem, left male palpus, retrolateral view.

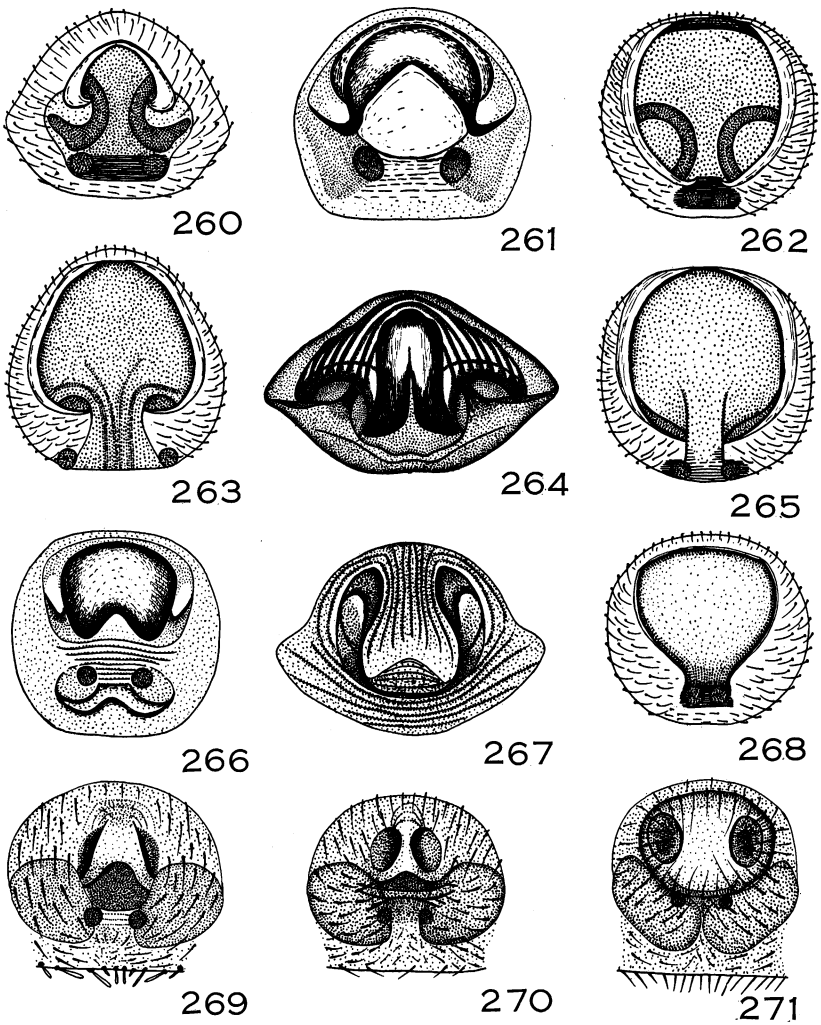

Fig. 260. *Xysticus benefactor* Keyserling, vulva of female.
Fig. 261. *Xysticus triangulosus* Emerton, vulva of female.
Fig. 262. *Xysticus lutulentus* Gertsch, vulva of female.
Fig. 263. *Xysticus montanensis* Keyserling, vulva of female.
Fig. 264. *Xysticus nigromaculatus* Keyserling, vulva of female.
Fig. 265. *Xysticus punctatus* Keyserling, vulva of female.
Fig. 266. *Xysticus nicholsi*, new species, vulva of female.
Fig. 267. *Xysticus moestus* Banks, vulva of female.
Fig. 268. *Xysticus labradorensis* Keyserling, vulva of female.
Fig. 269. *Coriarachne versicolor* Keyserling, vulva of female.
Fig. 270. *Coriarachne floridana* Banks, vulva of female.
Fig. 271. *Coriarachne brunneipes* Banks, vulva of female