

## ARACHNIDIANS.

BY CHARLES GIRARD.

## I. ARANEIDÆ.

## 1. MYGALE HENTZII, Girard.

ZOOLOGY, PL. XVI, 1-3. .

SPEC. CHAR.—Blackish brown; densely studded with hairs. Cephalothorax subcircular, with a median and transversely elliptical infundibulum upon its posterior half, whence shallow grooves radiate towards the periphery. Abdomen ovoid. Palpi composed of five joints besides the maxillæ, a hook in the male. Legs six-jointed.

DESCRIPTION.—This species is one of the largest of the genus hitherto found within the limits of the United States. The specimen figured, however, is much below the usual size. The cephalothorax is subcircular in shape, a little broader in the male than in the female. The eyes are disposed as in fig. 3, on a little eminence near the anterior margin, and upon the midial line. On the posterior half of the same region, on a line with the eyes, is a transverse infundibulum, sometimes subcrescentic, convex posteriorly. Shallow and sometimes irregular grooves radiate from that centre towards the margin of the cephalothorax. The abdomen is ovoid; considerably larger in the female than in the male. The labrum is quite small. The chelicerae are robust, regularly arched, terminated by a rather slender hook, similarly curved, and movable upon the chelicerae. The palpi are six-jointed; the basal joint, functioning as maxilla, is robust, and not otherwise distinguished from the following, except that it is provided along its inner margin with a brush-like series of hairs. The second joint is very short; the third is the longest; the fourth is a little larger than the second; the fifth a little shorter than the third; the fourth shorter than the fifth; the sixth is the size of the second, but differently shaped, being rounded at its extremity, at the inferior surface of which exists a hook, very stout at the base, tapering into an acute point curved downwards and outwards. In the female the sixth joint of the palpi is as long and of the same shape as the fifth, and deprived of the hook. The fourth pair of legs is the longest; the first pair comes next; the second pair is the smallest. They are all six-jointed, the first joint short and robust.

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The second joint is the longest; the third the smallest; the fifth is, after the second, the next in length; then the fourth, and finally the sixth. The external pair of fusi, or spinning apparatus, is slender, and, as usual, three-jointed; the internal pair is very small, and not conspicuous. The whole surface of the body and legs, above and below, is densely covered with fine setose hairs. The color is uniform blackish brown.

The *Mygale hentzii* is the large black spider known in the Southwest as the tarantula, where its bite is greatly dreaded.

A female specimen was collected on the 17th of May, on an open, barren prairie between Camps 2 and 3. Other specimens of both sexes were taken on the 28th of June, near the head of south fork of Red river.

Plate XVI, fig. 1 represents *Mygale hentzii* seen from above. Fig. 2 is an underview to exhibit the labrum (l), the maxillae (m), the chelicerae (c), and the palpi (p), also to show the fusi (f). Fig. 3 represents the disposition of the ocelli.

2. *LYCOSA PILOSA*, Girard.

ZOOLOGY, Pl. XVI, figs. 4 and 5.

SPEC. CHAR.—Hairs of a yellowish brown color, covering the upper parts. Beneath black; cephalothorax subpyriform; abdomen ovoid. Palpi composed of five joints besides the maxillae; terminal joint provided beneath with two small spines. Legs very long and slender; all six-jointed.

DESCRIPTION.—Of all the American *Lycosa* hitherto described the present species is the one in which the legs are the longest and the most slender. The size of the cephalothorax and abdomen is proportionally smaller, however, than in *L. fatifera*, Hentz.

The cephalothorax is longer than broad, elevated on its middle region, and anteriorly very prominent; subpyriform in its general outline; the narrowest part directed forwards. Its surface, when freed from its fur, exhibits shallow grooves radiating from the centre towards the periphery, pretty much in the same manner as in the *Mygale* just described, although much less conspicuous. There is no central infundibulum, which is replaced here by a minute longitudinal furrow about a tenth of an inch in length. The abdomen is ovoid, and, as usual, larger in the female than in the male.

The chelicerae are stout, with a very slight downwards inflexion, provided with small protuberances upon the inner margin of its anterior extremity, and terminated by a slender hook curved inwardly. The

labrum is comparatively small, whilst the maxillæ are stout. The palpi are slender, and composed of five joints. The first joint is very small, inconspicuous; the second is the longest and the most slender of all; the third is somewhat larger than the first, the fourth larger than the third, and the fifth larger than the fourth, which is swollen and sub-concave beneath, provided with two minute hooks inserted upon two tubercles. In the female the palpi are slenderer than in the male, and the last joint is simple and longer than the third. The legs are long and slender, composed of six joints: the hind pair is the longest; the first pair is the next in length; the third pair is the shortest. The third joint is the smallest in the four pairs; the first joint is the next in length, and the stoutest; the second pair is the longest in the three anterior pair; the fifth comes next, then the fourth and sixth. In the posterior pair the fifth joint is the longest; then the second; then the fourth and sixth. The fusi, four in number, are short, intimately grouped, and composed of a single joint. The whole surface of the body and legs, above and below, is densely covered with short hairs.

The color above is uniform grayish brown. The abdomen, cephalothorax, and first joint of legs beneath, are deep black. The second, third, and fourth joints are of the color of the upper parts upon their middle, and black near their articulations. The fifth and sixth joints are almost entirely black. The extremity of the chelicerae and palpi are black beneath. When the hairy covering is removed, the color is a uniform chestnut-brown.

The color may present some variations; thus in the notes of Captain Marcy, one is described as having "the back brown, belly dirty white, head and legs red."

One specimen preserved in alcohol exhibits a reddish band down the middle of the cephalothorax, and two black vittæ, one on each side of the abdomen. The cephalothorax beneath is reddish; and on the abdomen there are two elliptical light spots.

Specimens were collected the 16th of May on the open prairie, between Camps 1 and 2; and on the 19th of June, on Canadian river, Arkansas.

Plate XVI, fig. 4, represents the trophi, showing the labrum (l), the maxillæ (m), the palpi (p), and chelicerae (c). Fig. 5 exhibits the disposition of the ocelli.

## II. TARANTULIDÆ.

## THELYPHONUS EXCUBITOR, Girard.

Zoology, Pl. XVII, fig. 1-4.

SPEC. CHAR.—Blackish brown above, deep chestnut beneath; upper surface of body and legs minutely granular; beneath smooth, with scattered minute imprinted dots. First and second articles of the palpi very granular, remaining ones with a few granules and numerous imprinted dots. Caudal appendage very much developed, and composed of about fifty joints.

DESCRIPTION.—There is a very great resemblance between this species and *T. giganteus*.\* The only striking difference which exists between them is to be found in the structure of the palpi and in the length of the caudal appendage.

The cephalothorax is elongated, narrowest anteriorly, where it assumes almost a triangular shape. Its posterior margin is subtruncated, slightly concave in the middle. The central portion of the anterior third of the cephalothorax presents a perfectly plane surface, with a medial furrow, as it were; whilst posteriorly it is depressed, and sloping towards the margins, the surface showing shallow depressions, one upon the middle line, and more regular than the lateral ones. Near the anterior extremity, and in a subcircular depression on each side of a medial, smooth, and rounded elevation, are found the ocelli, circular, large and black. In advance of these ocelli, the rostrum is almost abruptly truncated, as seen in the centre of fig. 3. From the anterior ocelli to the lateral ones extends a linear series of granules, terminating upon the tuberculous elevations, upon which are seen three yellowish ocelli grouped, as exhibited in fig. 2.

The chelicerae are robust, but very slightly bent, composed of one large joint and a conical, curved, and acute spine; to the inner side of which are attached brushes of quite elongated and reddish setae. Palpi long and robust, in the shape of arms, and composed of six joints. The first joint is seen only from below (fig. 4, a), and exhibits a subtriangular and flat surface, terminated anteriorly by a conical point. The second joint is smaller than the first, scarcely to be seen viewed from below, but developed upon its upper surface into a flattened and irregular disk,

\* See Guérin's *Magazin de Zoologie*, 1835, Class VIII, for an illustrated monograph of the genus *Thelyphonus* by H. Lucas.

provided upon its anterior margin with five conical spines, varying in size: seen in front (fig. 3, b), it is elevated almost vertically from the horizontal position of the first. The third joint is the longest of all, slightly curved, and provided inwardly with two minute spines—one above, the other below. The fourth joint is somewhat shorter than the third, but is much longer than broad, subcylindrical, slightly bent, and provided at its inner, anterior, and upper edge, with a prominent, conical, and straight spine. The fifth joint is of the length of the fourth, but slenderer, and provided anteriorly with a stout and shorter spine. Finally, the sixth joint is a subconical and spiny process, moving against the spine of the fifth joint, constituting a forceps, and used as such to seize prey. The thoracic appendages (feet) are long and slender, especially the anterior and posterior pairs. The anterior pair may be readily distinguished from the three others, in not being provided with hooks upon their extremity. Its function is rather that of a pair of palpi than that of ambulatory organs. The first and second joints are short and stout; the third, fourth, and fifth long and slender; the fourth and fifth almost equal in length, and longer than the third. Eight small joints, together equal in length to the third, terminate these appendages. The three others are constructed upon the same plan, all having nine joints and terminal hooks, generally two in number. The first, second, and third joints are similar to those of the anterior pair; the third, however, is the longest; the fourth is but a little longer though slenderer than the second, and slightly curved; the fifth is much slenderer and a little shorter than the third. Next come four small joints, together smaller in length than the fifth, and provided upon their anterior margin with minute spines. The second of these four, or the seventh in the series, is the longest of the four; the third is the smallest; the first and fourth are equal in length, the latter much slenderer. Two hook-like and slender spines terminate these organs.

The abdomen is longer than the cephalothorax, oval in shape, though depressed, and composed of eight very distinct segments and a half, the anterior one. The stigmatiform bodies are quite conspicuous above (seven pairs), and below (four pairs). The anterior half segment is not seen from below. The seventh segment exhibits laterally a second pair of stigmatiform bodies, less conspicuous, however, than the others. The posterior segment has also faint traces of an analogous pair. The two first caudal rings are very narrow; the third is as large as the two others together. The filiform appendage is very long, and composed of about fifty joints.

five conical spines, varying in length almost vertically from the first joint is the longest of all, with two minute spines—one is somewhat shorter than the second, cylindrical, slightly bent, and broader at the base, with a prominent spine at the tip of the length of the first joint with a stout and shorter spine at the tip. The anterior spine is conical and spiny process, constituting a forceps, and the posterior spines are long and slender. The anterior spines are three others, in not being so long. Its function is rather different from the other spines. The first and second, fourth, and fifth long and slender in length, and longer than the third, terminate in small hooks, generally two on each joint are similar to those of the first; the fourth is but a little longer, and slightly curved; the fifth is shorter than the third. Next come the second, fourth, and fifth, and provided with spines. The second of these is the longest of the four; the third is the shortest in length, the latter much shorter than the others. The anterior half of the cephalothorax, oval in shape, with very distinct segments and a pair of bodies are quite conspicuous. The anterior half segment exhibits laterally a second spine, however, than the others. The third is of an atalagous pair. The fourth is as large as the two, and is very long, and composed of

The upper surface of the cephalothorax and abdomen is covered with minute granules extending over the palpi, being particularly dense on the three first articles, and over the three first joints of the thoracic appendages also. Minute impunctures are seen upon the remaining articles and joints, and also scattered upon the inferior surface of the appendages and body. Minute setæ are scattered over the appendages of the cephalothorax and abdomen, more densely towards their extremities.

The color is uniform blackish brown above, and deep chestnut beneath.

One specimen of this animal was collected.

Plate XVII, fig. 1, represents, seen from above, *Thelyphonus excubitor* the size of life.

Fig. 2 gives the position, number, and relative size of the ocelli.

Fig. 3 is a front view, exhibiting in the centre the chelicerae and the three first articles (a, b, c) of the palpi.

Fig. 4 represents the anterior portion of the cephalothorax from below: a, first article, b, second article, and c, third article of the palpi; and d, anterior pair of feet.

### III. SCORPIONIDÆ.

Although the collections made in the valley of Red river contained no specimens of this group of arachnides, we have brought them here to notice, satisfied as we are that they exist in that locality.

Scorpions are found in the southern Atlantic States, all along the Gulf of Mexico, through Texas and New Mexico to California, and through Louisiana to Arkansas.

#### 1. SCORPIO (TELEGONUS) BOREUS, Girard.

ZOOLOGY, PL. XVII, FGS. 5-7.

SPEC. CHAR.—Body greenish yellow; thoracic and caudal appendages yellowish. Lateral ocelli in close contiguity; posterior one the smallest. Median ocelli situated on the sides of an elongated and black elevation. Chelicerae terminated by a serrated claw. Palpi robust, shorter than the body. Caudal appendage as long as the body, the spine excepted. Abdominal comb with eighteen laminae.

DESCRIPTION.—The general form of the body is fusiform, anteriorly and posteriorly tapering. The cephalothorax proper is subquadrilateral,

longer than broad, narrower anteriorly than posteriorly; both of these extremities linear; lateral margin somewhat undulated. Its surface is carved with a few undulating grooves, giving to the rest an undulated appearance; and over the whole, minute granules. The median ocelli are black, situated a little in advance of the middle of the length of the thorax, and placed on the sides of an elongated, little, and black eminence, divided longitudinally by a groove. The lateral ocelli are set close together and situated near the anterior margin of the cephalothorax; the posterior one is much the smallest: they are represented with their relative proportions in fig. 7. The chelicerae are stout, two-jointed; the second being the largest, and is terminated by a minutely serrated claw. The palpi are five-jointed; the first joint is short and stout, and fulfils the function of jaws without denticulation. The second is the smallest. The third and fourth are more elongated; the third a little longer than the fourth. They are angular, the angles being margined with dense rows of minute granules. The fifth joint or hand (carpus) is stout and swollen, exhibiting eight undulating ribs (four above and four below), upon which is a row of minute granules. Two rows above and below are seen extending along the spiny immovable process of the hand, constituting, with a movable spine, a slender chela or claw, slightly curved inwards. Scattered setae may be seen on the whole length of the palpi; and also on the thoracic appendages (feet). The latter are slender; the fourth pair is the longest; the first pair the smallest, the second and third pairs being of intermediate proportions; the second longer than the first, and the third longer than the second. They are all flattened, seven-jointed, and terminated by minute hooks. The third joint is in every one the longest and most slender; the fifth, sixth, and seventh are small, the seventh being the smallest of all. There are generally three terminal hooks; occasionally minute spines may be seen near the articulation of the sixth and seventh joints. The first joint is the stoutest, and in the first pair of these appendages it has something to do with mastication, functioning perhaps as a lower lip. The abdominal combs are slender and elongated, and composed of a transverse triarticulated piece, and of eighteen little laminae attached to it. The dorso-abdominal shields, seven in number, increase in size from forwards backwards, the anterior one being the narrowest of all. Their surface exhibits minute granules not very conspicuous. There are only five ventral shields, nearly equal in size; the posterior one somewhat different in shape, and not provided with stigmata. The caudal appendage (tail) is as long as the body, and composed of five joints and a poison bag. The two first joints are the smallest, the fifth being the

longest; the poison bag is swollen up and provided with a slightly curved and acute hollow spine. The upper part of each joint is concave or grooved, whilst the inferior part is convex. They are carinated, and rows of conspicuous granules are observed along the carinæ.

The color of the body above is uniform greenish yellow; the thoracic appendages (feet) are yellowish, whilst the palpi and caudal appendage (tail) reflect a reddish shade upon the yellow ground.

The specimen figured was collected in the Valley of the Great Salt Lake of Utah, by Capt. Howard Stansbury.

A much smaller specimen was brought from Eagle Pass, Texas, by Mr. Arthur Schott, of the United States and Mexican boundary.

Plate XVI, fig. 5, represents, size of life, *S. (Telegonus) boreus* seen from above.

Fig. 6 is a view from beneath, to show the abdominal combs, first abdominal segment, and origin of fourth and third pairs of feet.

Fig. 7 represents the distribution of the ocelli.

## 2. SCORPIO (ATREUS) CALIFORNICUS, Girard.

General form of body and appendages slender when compared to the preceding species. The tail is almost twice the length of the body; there is not the same disproportion of length between the first and second joints and the remaining ones. The carinæ and rows of granules are much less conspicuous. The cephalothorax and dorso-abdominal shields exhibit carinæ and rows of granules not only on the palpi, but likewise on the feet. Rows of granules may be seen along the angular projections or carinæ. The chelæ are much slenderer, the hand (carpus) and poison bag much smaller. An exceedingly minute spine may be observed on the poison bag under the sting. The lateral ocelli are situated more anteriorly, more apart from each other, and equal amongst themselves. The abdominal combs are composed of twenty laminae.

Color light brown; palpi and tail deeper; upper part of abdomen blackish, with a median light vitta.

One specimen was collected in California and presented by Dr. Stone to the Smithsonian Institution.

## 3. SCORPIO (ATREUS) SAYI, Girard.

SYN.—*Buthus vittatus*, Say, Jour. Acad. Nat. Sc. Philad. II, 1821, 61.

Upon a close examination of several specimens of this species obtained from western Florida, we satisfied ourselves that it belongs to the sub-genus *Atreus* instead of *Buthus*, in which it was placed by Thomas Say. It so happens that the specific name of *vittatus* has since been given by Guérin to another South American species of scorpions; and if we propose here to replace Say's specific name, against the received law of priority, we would remark that when full grown, the vittæ entirely disappear, and the color becomes uniform deep reddish brown, the legs and under surface being lighter. In this species the tail is once and a half the length of the body. The palpi are proportionally small, and in the young, exiguous. The chelæ are slender, slightly curved, with an undulation at their base, but without marked denticulations. The upper surface is finely granular. There are from thirty to thirty-two laminae to the abdominal combs. "Fuscous, with three fulvous vittæ, sides black," applies strictly to the immature state.

Specimens of this species were sent from Pensacola, Florida, to the Smithsonian Institution, by Dr. Jeffrey, U. S. N., and Dr. J. F. Hammond, U. S. A.

A species very closely allied, if not identical with *Scorpio (Atreus) sayi*, is not uncommon in Texas, where several specimens were collected by Lieut. D. N. Couch, U. S. A.

#### IV. PSEUDOSCORPIONIDÆ.

##### OBSERVATIONS UPON GALEODES SUBULATA OF THOMAS SAY.

Two species of this genus are described by the same author in Major Long's Expedition;\* one under the name of *Galeodes pallipes*, the other under that of *G. subulata*, the only difference between them consisting in the structure of the chelicerae, which in *G. pallipes* are terminated by arcuated claws, armed within with many robust teeth, whilst in *G. subulata* the upper claw is nearly rectilinear, and the lower one alone possessed with two robust teeth.

Having but one individual of this genus at our command, we are not prepared to decide upon the question of the validity of both species. The specimen before us answers to Say's characters of *G. subulata*; and being perfectly satisfied that it belongs to the latter species, we propose to describe it a little more at length than was done by its discoverer.

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\*Account of an expedition from Pittsburg to the Rocky Mountains, performed in the years 1819 and '20. Vol. II, 1823, p. 3.

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ARACHNIDÆ.

DATA OF THOMAS SAY.

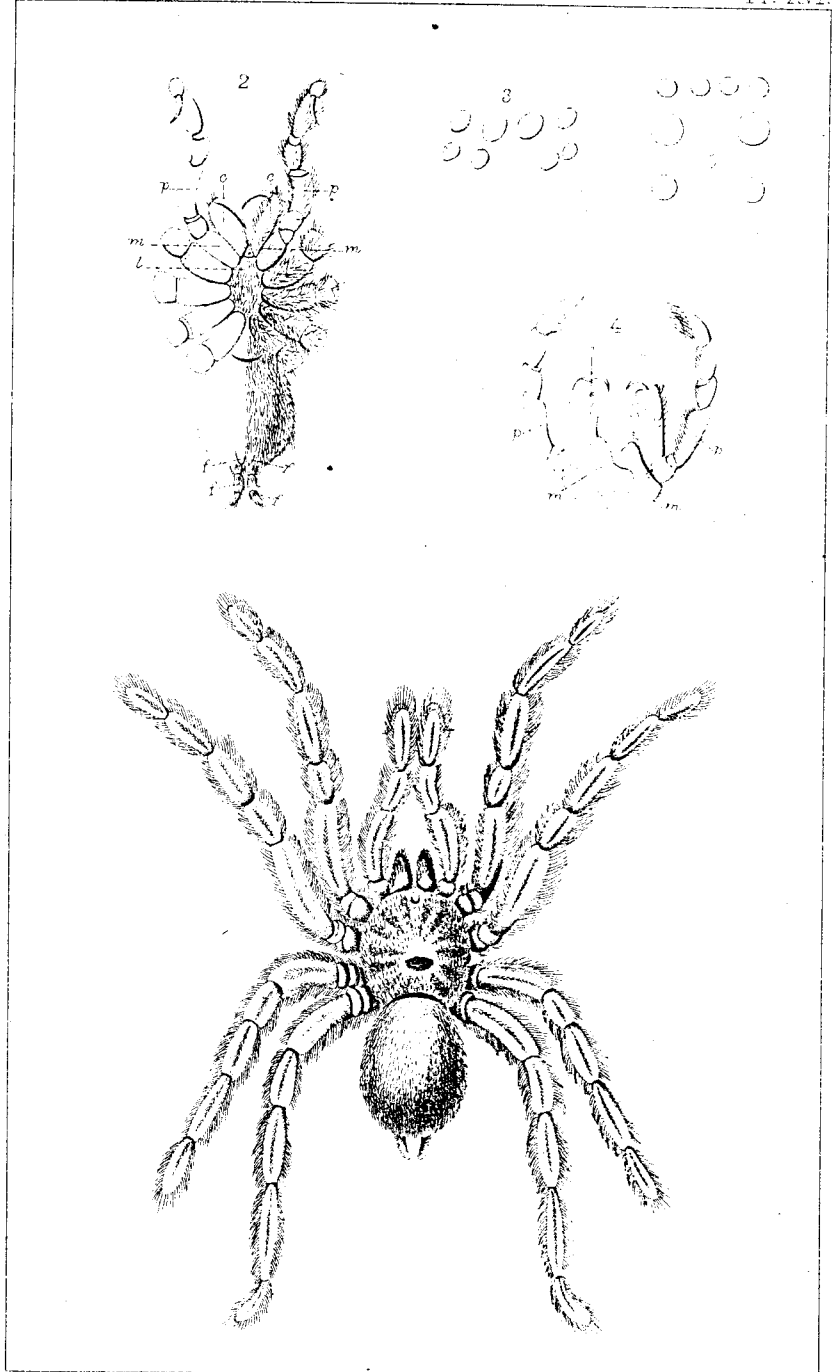
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The entire length, from the tip of the chelicerae to the end of the abdomen, is one inch and a quarter, the abdomen itself forming about one-half of that length. The cephalothorax is composed of three distinct segments; the anterior one much the largest, giving points of attachment to the parts of the mouth, to the palpi, and the two anterior pairs of legs; to the second thoracic segment is attached the third pair of legs, and to the third segment the fourth pair. The anterior segment of cephalothorax, seen from above, is subrhomboidal and smooth. At its anterior margin are situated the two ocelli, separated from each other by a deep groove. The chelicerae are very stout, and composed of one single joint densely covered with setose hairs, and terminated each by two spines, one above (finger of some authors), rigid, and another below (the thumb), moving vertically against the upper. The latter is compressed, acute, almost rectilinear, and smooth; the inferior one is subconical, curved upwards, acute towards the point, and provided at its base inwardly with two spiny small processes. The palpi are proportionally robust, stouter and longer than the three anterior pairs of legs; somewhat shorter than the fourth pair, but of a stouter appearance, as all the joints, four in number (the maxillae excepted), preserve the same diameter. They are covered on their whole length with hairs similar to those on the chelicerae. The maxillae are subtriangular, provided only with brushes of hairs. The next joint (the joint of the palpi) is very small and triangular; the second is the longest; the third is the next in length; then the fourth, the tip of which exhibits a minute smooth tuberculiform knob. The first pair of legs is the most slender of the thoracic appendages, and about the length of the third pair; the basal joint is quite short; the second is the shortest of all; the third is the longest; the fourth, fifth, and sixth smaller in the order enumerated. The last joint terminates like the palpi, bluntly. This anterior pair of legs is called by some *second pair of palpi*, upon the ground that their structure is most alike. The three remaining pairs of thoracic appendages are seven-jointed, thus composed of one joint more than in the first pair and palpi, and furthermore terminated by two minute curved claws. The first, second, and third joints are short, stoutish, and subequal; the remaining are longer and slenderer, the fourth being the longest, and the other diminishing gradually. They are covered upon their whole length with hairs similar to those which cover the palpi, but perhaps less densely so. The abdomen is subovoid, being a little depressed; it is densely hairy above and below, and composed, as usual, of nine segments or annuli.

Collected on June the 10th.



Lith. H. Lawrence - 66 John St. N. Y.

Figs. 1-3. MYGALE HENTZII, G. Figs. 4-5. LYCCSA PILOSA, G.