

NEW PREDACEOUS AND PARASITIC ACARINA.

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The new species of mites here described will nearly all be treated of more fully later. In this paper are included the descriptions of two species which have a prime economic importance, as they are two of the few species of mites which are largely responsible for holding in check the oyster shell and other scales. These forms, one a species of *Tydeus*, the other a *Tarsonemus*, were studied by the writer while working at the Iowa Experiment Station last summer, and will be treated of fully later by Mr. R. L. Webster in a special bulletin upon the oyster shell scale.

Another of the mites described is very interesting on account of both its scientific and economic importance. It is a new species of the genus *Stigmaodes*, and the first of this genus to be found in North America. The members of this genus are long drawn out, and have the body strongly constricted at the middle which causes them to resemble strongly a pair of twins which have been born attached to each other. This species was sent in by Mr. S. A. Johnson from the Colorado Experiment Station, where it is very abundant. It belongs to the group called the "Red Spiders" which are so notorious for their attacks upon greenhouse plants and shade trees, and is a species which deserves careful watching as it is liable to take up habits similar to the others of its group and cause serious damage to cultivated plants.

Two species of *Analgesidæ*, "Bird Mites," are described. One of these, an *Alloptes* was sent to me this last summer from the Bermuda Islands by Mr. A. O. Gross, who obtained the specimens in great quantities from a tropical bird.

Complete illustrations of most of these species will be published soon in a paper by the author on the "Phylogeny and Distribution of the Parasitic Acarina."

Gen. *Tydeus* Koch. (Eupodidæ.)

Tydeus coccophagus sp. nov.

Without color, being hyaline in appearance. Body and legs only sparsely clothed with moderate bristles.

Cephalothorax subconical. Eyes lateral and over twice their width from the posterior margin of cephalothorax. Mouth-parts in the form of a beak, and extending forward for about one-half the length of the first pair of legs.

Abdomen two-thirds as broad as long, and with the posterior end evenly rounded. A pair of small shoulder bristles present, and three pairs of bristles are situated on the posterior margin of the abdomen, the outer pair being slightly the longest.

First pair of legs slightly longer than the others. Second pair reaching to about the middle of the first pair. Hind pair of legs barely reaching the tip of the abdomen; tarsus one and a half times as long as the tibia, tibia one and a half times as long as the patella which is as broad as long.

Length, 0.20 mm.; breadth, 0.11 mm.

This species was found in abundance attacking the oyster shell scale during the month of August, at Ames, Ia. The individuals flee with great rapidity from under the scale when it is lifted with a knife-blade.

Gen. *Harpyrhynchus* Mégnin. (Cheyletidæ.)

Harpyrhynchus brevis sp. nov. (Pl. 7, fig. 4).

General appearance hyaline. Integument finely striated by concentric lines for a large zone next to the margins of the body. This striated area extends inward for about one-half the distance from the margin to the center of the body.

Beak large, stout, extending forward to about the tip of the first pair of legs. Dorsal hooks four in number, stout and strongly recurved. Each palpus bears a very long bristle about equal to the total length of the beak.

Body circular in outline with sinuate margins. On the dorsal surface near the base of the beak there is a large pair of posteriorly directed bristles which extend almost to the posterior margin of the body; a similar but slightly longer pair of lateral bristles is present just behind the second pair of legs.

Anterior group of legs stout, subequal, and terminated each with two claws; tibia and tarsus subequal in length, the former somewhat broader than the latter. Posterior group of legs very short and each terminated with from five to seven enormous bristles which are longer than the body of the mite. The last pair of legs extends to the margin of the abdomen.

Length, 0.28 mm.; breadth, 0.24 mm.

From *Coccothraustes vespertina* ♂. Described from three specimens.

Gen. *Syringophilus* Heller. (Cheyletidae.)*Syringophilus elongatus* sp. nov.

Hyaline; body enormously drawn out, about five times as long as broad. Integument striated except for the middle region of the cephalothorax.

Cephalothorax, including beak, almost as long as abdomen; beak conical; palpi short and extending to tip of beak where the small lance-like mandibles may be seen projecting forward. On the dorsal surface of the beak is a prominent pair of bristles about two-thirds as long as the beak itself. Dorsal surface of cephalothorax proper with at least six pairs of enormous, long bristles which extend about two-thirds the distance to the tip of abdomen.

Abdomen very long, cylindrical, and with about four pairs of large, dorsal bristles and two pairs of smaller terminal bristles. Posterior end of abdomen emarginate.

Legs subequal; first pair extending to tip of beak, posterior pair reaching about one-half the distance from the point of their origin to the tip of the abdomen. Segments of the legs subequal in width, the distal segment in each case with a large, bifid appendage, the parts of which are themselves each resolved into several elements. Tarsal claws of front group of legs stout, and strongly curved.

Length, 1.00 mm.; breadth, 0.18 mm.

From red winged blackbird, *Agelaius phoeniceus*. Described from about half a dozen specimens.

Gen. *Stigmaeodes* Canestrini. (Tetranychidae.)*Stigmaeodes cinctus* sp. nov. (Pl. 7, fig. 2).

Body and appendages of a light cardinal color; in the region of the eyes color much darker. Body with pronounced constriction at its middle, giving it the appearance of being girded and compressed with a belt, hence the name *cinctus*.

Cephalothorax as long and as broad as the abdomen. Mouth-parts rather small; beak extending about half way to the tips of the front legs. Palpi very small and just reaching the tip of the beak; distal segment bearing a spine-like bristle longer than the segment itself. A double pair of lateral eyes present at about half the distance from the anterior to the posterior end of the cephalothorax.

Abdomen conical in shape and tipped at the end with three pairs of simple, curved bristles, the inner pair being about two-thirds as long as the others. Abdomen broadest slightly in front of the third pair of legs. It bears dorsally only a few inconspicuous hairs.

Front group of legs situated far distant from the hind group; all the legs subequal; posterior pair extending about one-third their length beyond the hind margin of the abdomen. Each tarsus bears at its tip two small, curved claws and a much larger bifid, pectinated adhering organ.

Length, 0.40 mm.; breadth, 0.12 mm.

In wild grass. Collected at Fort Collins, Colorado by S. A. Johnson, from whom I received an abundance of live material. This is the first species of this rare genus which has been recorded from America. These mites are of very slow movement, and their long drawn out body causes their gait to appear ludicrous.

Gen. **Tarsonemus** Canestrini and Fanzago. (Tarsonemidæ.)

Tarsonemus chionaspivorus sp. nov.

Male. General appearance almost hyaline. Mouth-parts and posterior pair of legs more chitinized than the other parts.

Beak, or cephalic papilla, rather prominent; extending for three-fourths the length of the first pair of legs.

Cephalothorax as broad as long. Epimera of the first pair of legs united to a median piece so as to form a Y; those of the second pair of legs similarly united. The base of the Y formed by the epimera of the first pair of legs is joined to the fork of the Y formed by the epimera of the second pair of legs so that the two stem pieces of these Y's make a median longitudinal sternum.

Abdomen longer and broader than the cephalothorax. Genital papilla about as long, but broader than the cephalic papilla with its sides almost straight and parallel.

Anterior group of legs subequal and sparsely clothed with moderate, simple bristles; the second pair extending forward for one-half the length of the anterior pair. Third pair of legs similar but slightly longer than the second pair. Fourth pair of legs very stout, twice as thick as the third pair, strongly curved and ending in a stout, sharp claw about equal in length to the segment next to it. Near the base of this claw is situated a very long bristle slightly longer than the fourth leg itself.

Length, 0.15 mm.; breadth, 0.09 mm.

Female. Legs almost hyaline; body and beak, which have the integument more chitinized, brownish yellow.

Cephalic papilla two-thirds as broad as long; broadest at the base. Epimera of the first pair of legs united at the median line so as to form a Y; epimera of the second pair of legs not united. Cephalothorax broadest at its base where it joins the abdomen.

Sides of abdomen straight and approaching each other as you pass from the anterior to the posterior end. A pair of shoulder bristles present, about as long as the femur of leg III. Posterior margin of abdomen with but two minute bristles.

Legs of the anterior group subequal; those of the second pair extending forward for two-thirds of the length of the first legs. Tibia of third pair of legs about twice as long as tarsus. Last segment of leg IV about one-third as long as penultimate segment, and bearing at its free end two large bristles, the shortest of which is about twice as long as the segment itself; the longer bristle is fully twice as long as the shorter.

Length, 0.16 mm.; breadth, 0.08 mm.

From *Chionaspis* sp. on poplar. Specimens collected by the writer at Ames, Ia., while engaged in studying the oyster shell scale.

Gen. *Histiostoma* Kramer. (Tyroglyphidæ.)

Histiostoma phytophaga sp. nov.

Body granulate, greyish; legs flesh color. Cephalothorax as broad as long. Mandibles sharp, tapering; teeth sharp and uniform. Palpi moderate; anterior, lateral, hyaline projection tapering like a broad bristle, almost as long as tarsus of leg I; posterior, lateral projection strongly recurved and not more than half as long as the anterior.

Abdomen two-thirds as broad as long, evenly rounded behind and with a few, small, curved, simple bristles.

Anterior legs extending beyond the tips of the palpi by about one-third their length; tarsus very much narrowed near its base and ending in a stout claw, and a long seta which is equal to the segment itself in length. Near the tip of tarsus I on its outer margin is a stout spine almost as long as the tarsal claw; a very small bristle is on the lateral margin near its middle; on the inner margin near the tip are two small spines, and also a small one near the middle of the inner margin. Tibia of leg I as broad as long, and about one-third as long as the tarsus. Posterior pair of legs slightly larger than the third pair and reaching the tip of the abdomen.

Length, 0.31 mm.; breadth, 0.20 mm.

I found this species upon a very small plant in a little cell containing earth where I was rearing one of the common "Red Spiders." Described from two specimens.

Gen. *Alloptes* Canestrini. (Analgesidæ.)

Alloptes longipes sp. nov. (Pl. 7, fig. 3).

Integument well chitinized; posterior group of legs in the case of the adult males more strongly chitinized than the body.

Adult Male. Beak small, inconspicuous, reaching to about the middle of the third segment of leg I.

Body broadest in front of the third pair of legs then becoming rapidly narrowed until the tip is reached. Epimera of first pair of legs fused together at the median line; those of the second and third legs united into a Y on each side of the body. The bases of the two Y's thus formed are united to a medial strip which joins them to the epimera of the fourth pair of legs. From the posterior margin of the abdomen extends a long pair of bristles equal to the entire length of the body of the mite. Each of these bristles has an enormous swollen region near its middle.

Legs of the anterior group subequal; the anterior pair a little over twice as long as the beak. Legs of the posterior group very large, fourth pair exceeding the third considerably and reaching beyond the tip of the abdomen by about

one-half its length. Distal segments of last pair of legs large, stout, and hook-like; each bears two small, dull, tooth-like tubercles on its inner margin near the base; penultimate segment about as long as the last segment.

Females of the Copulating Stage. Several males were found in copulation with the young females. These females were much smaller than the males and of a hyaline appearance. Mature females were not found.

Length of male, 0.60 mm.; breadth, 0.41 mm.

From a tropical bird. Many specimens were sent to me by A. O. Gross from a sea bird killed in the Bermuda Islands.

Gen. *Analges* Nitzsch. (*Analgesidæ*.)

Analges passerinus Linn.?¹ (Pl. 7, fig. 1).

Male. Integument moderately and uniformly chitinized. Body and legs clothed with many very large, long bristles.

Cephalothorax much broader than long; beak rather small, palpi reaching its tip. From the posterior margin of the cephalothorax there extends backward two pairs of long bristles which reach as far as the tip of the abdomen.

Abdomen broadest at the insertion of the third pair of legs, rounded on the postero-lateral margin while it is terminated in two small projection near the median line. On its dorsal surface near the insertion of the third legs there are two very long bristles; on the lateral margins in front of the third legs are situated three pairs of very large bristles, the posterior of which are only about one-half as long as the other two pairs; at the tip of the abdomen are three pairs of bristles, the outer pair of which is less than half as long as the other two pairs.

Legs of the anterior group subequal. Legs of the third pair enormously enlarged, being almost equal to one-half the width of the body, and extending one-half their length beyond the tip of the abdomen; last segment formed into a great claw which has a tooth-like, bristle-bearing tubercle on its inner margin near the middle. This segment bears in all, four large bristles. Legs of the fourth pair reaching beyond the posterior margin of the abdomen by the length of their last segments.

Length, 0.45 mm.; breadth, 0.27 mm.

Female. Integument less chitinized than in the male; body subrectangular.

Cephalothorax much broader than long; beak of moderate size, palpi extending slightly beyond its tip. From near the posterior dorsal margin of the cephalothorax there extends a long pair of bristles which reaches to the posterior margin of the body.

Abdomen with sides about parallel; postero-lateral margin oval. On the shoulder is situated a pair of long bristles which extend beyond the posterior end of the body; two other pairs of bristles are found on the dorsal surface

¹ This species does not agree with the one which figures in Banks' "Treatise on the Acarina," Proc. U. S. Nat. Mus., vol. 28, p. 91, under the name of *A. passerinus*, but agrees perfectly with a named specimen of *A. passerinus* sent from Europe by Dr. Trouessart.

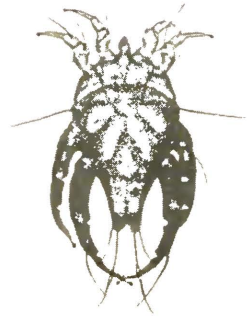


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of the abdomen each about half as long as the shoulder bristles; two long pairs of bristles are found situated at the tip of the abdomen.

Legs of the anterior group subequal, apophyses well developed. Legs of the posterior group longer than those of the anterior group; those of the fourth pair extending beyond the posterior margin of the abdomen by one-third their length.

On red winged blackbird, *Agelaius phœniceus*. Described from several specimens taken from blackbird skins in the Iowa State College Museum.

EXPLANATION OF PLATE 7.

From photomicrographs by the writer.

Fig. 1—*Analges passerinus* Linn.? dorsal view of male, $\times 75$.

Fig. 2—*Stigmaeodes cinctus* sp. nov. dorsal view showing marked constriction of the body, $\times 75$.

Fig. 3—*Alloptes longipes* sp. nov. dorsal view of male, $\times 45$.

Fig. 4—*Harpyrhynchus brevis* sp. nov. dorsal view, $\times 75$.



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