Descriptions of New Species of Mallophaga Collected
By C. H. Merriam While in the Government Geological
Survey of the Rocky Mountains, Professor F. V. Hayden, United States Geologist.

By A. S. Packard, Jr., M. D.

Menopon piccola, n. sp. (Fig. 58.)
Body slightly more than twice as long as broad. Head lunate, being
much shorter than wide, well rounded in front, with a lobe on each side.
Antennae short and slender, terminal
joint nearly twice as long as penultimate. Head with three long hairs
from posterior division, and two oblique dark spots in the middle.
Prothorax with a median square area half as wide as head, with two
rings on each side, making the entire segment three-fifths as wide
as head. Abdomen regularly oval, two-thirds as wide as long, terminal
segment large and broad. Segments
convex, with a slight ridge crossing
behind the middle of each segment.
Two or three long hairs project from
hind edge of each segment, and nu-
merous finer hairs. Legs moderately
long, tibiae long, a third longer than
femora; tarsi with second joint long
and slender, ending in two large
claws. Pale horn color.

Length, .05 inch. Ten specimens.
From Piceioles arctica and P. dor-
salis. (Nos. 230 and 237.) August 26,
1872, at Lower Geyser Basin, Wyom-
ing Territory. This is more closely
allied to M. citrinella, Denny, than
any other species I am acquainted with, but differs in the shorter,
broad head. The form of the prothorax is very different, being
transversely oval instead of squarish, as in M. citrinella.

Gonioides Merriannanus, n. sp. (Fig 59; a, male antennae.)
Head about as broad as long, full, convex, broad, and regularly
rounded in front of insertion of antennae. Deeply excavated in middle,
receiving basal two-thirds of basal joint of antenna; on posterior edge
of the notch a prominence, and still posteriorly a large prominence,
giving a square appearance to head posteriorly, which at hinder edge
suddenly contracts where it is articulated to prothorax. Head about
two-thirds as wide as abdomen. Prothorax about half as wide as head.
Abdomen ovate or pear-shaped, being broadest just before the end. It

is whitish, cornous on the edges. Antennae recurved, four-jointed, basal very large, second as long as first is thick, third and fourth slender, subequal; fourth as long as second is thick. Legs stout, second pair with stout spines on inner side of tibia; tarsal joints very indistinct, short, with a long curved claw.

Length, 10 inches. One specimen.

From Tet venicholius, (No. 219.) Collected August 5, 1872, at North Fork of Snake River, Idaho.

It is very different from G. tetrasis Denny, and closely allied to G. Colchici Denny, especially in the pyriform shape of the abdomen. The head in one species is rather longer and more produced in front of the antennae, the prothorax is rather longer and broader, and the mesothorax wider and shorter in proportion.

*Goniodes methitites*, n. sp. (Fig. 60.)

Head short, about as long as broad, well rounded in front, with a narrow curved sinus in the middle; widest behind the middle, with well-marked lateral projections. Two dark spots on each side of the sinus; side of head in front of the projections lined with black. A transverse black line across hind edge of head, ending on each side in two black points, and sending obscure prolongations anteriorly. Antennae four-jointed; basal joint very large, three outer ones filiform, third considerably longer than second, fourth minute, short. Prothorax cornous, slightly narrower but distinct from mesothoracic segments, the sides of which are produced hook-like beyond it. Abdomen large, orbicular, but little longer than broad, white. Legs white, hind tibia dilated distally, with several long spines on the inner side, one especially large; several long hairs on the outer side. The tarsal joint ends in a curved slender claw as long as itself, seen with the naked eye; head and thorax appear pale testaceous; abdomen white.

Length, 36 inches. Seven specimens.

From a skunk (*Mephitis*) collected August 13, 1872, at Fire-Hole Basin, Wyoming Territory.

It differs from any species figured by Denny in the notch in front of head, and short, broad lunate mesothoracic segment, and long oval form of abdomen.

*Xylocerus latimundus*, n. sp. (Fig. 61.)

A very large species, long and slender; head long, oblong, subtrapezoidal, half as wide in front as at base; front truncate, with prominent rounded lateral wings on each side of head, behind insertion of antennae, most prominent. Antennae just reach as far as the front edge of head; four-jointed; two basal joints of much the same size and length, two outer much smaller, fourth slenderer, and a third longer than third. A large, round inflated swelling on under side, just behind the mouth, and behind the single-jointed minute labial palpus, apparently forming a sucker to draw up fluid near to skin of host. Mental region behind flattened, rather narrow. Prothorax small, rounded square, incised on each side; a transverse impressed line crossing the anterior third, and, with the longitudinal line, dividing the surface into four square spaces, the two anterior half as long as two posterior. Abdomen, including meso and meta thorax, regularly ovovallate, two and a half times as long as wide, with fine long hairs along edge. Legs rather large and long, with tarsi on three hinder pair of legs, basal joints much swollen and enlarged, with a white swollen disk-like undersurface for holding on to skin of host; second joint remarkably long and slender. Edge of head white, and whole body black, front edge of head white, hind edge black, a dark scutellate spot just behind the middle of the head; two round black spots under base of head; two black spots projecting inward at front edge of mesothorax; a brown stripe across hind edge of each abdominal segment, interrupted on anterior four rings by median line of the body. Joints of legs edged with black brown.

Specimens vary much in extent and intensity of dark lines and spots, as usual.

Length, 50 inches. Twelve specimens.

From Buteo scutatus, (No. 239.) Collected August 27, 1872, at Lower Geyser Basin, Wyoming Territory.

Differs remarkably in form and size from any figured by Denny.

I have in describing this species used, for comparison, a specimen of this genus from Goose Lake, Siskiyous County, Cal. (J. Holleman,) in which the head is triangular, and the tarsal joints not dilated, and second joint is much shorter and thicker. Its host not indicated.

*Doporhopus squamati*, n. sp. (Fig. 62; a, anterior; b, hind leg.

Head a little longer than broad, being a little longer than usual; two-thirds as wide as abdomen. Mouth cavity deeply excavated. Tracheae small, acutely pointed, projecting slightly beyond the head. Two oblique chitinized bands arise from base of head to upper side of base of tracheae; antennae slender, of the usual form; five-jointed; fourth joint much shorter than fifth. Prothorax trapezoidal, half as wide as head; mesothorax wide, projecting considerably beyond the succeeding segment; edge more bulging.
is whitish, corneous on the edges. Antennae recurved, four-jointed, basal very large, second as long as first is thick, third and fourth slender, subequal; fourth as long as second is thick. Legs stout, second pair with stout spines on inner side of tibia; tarsal joints very indistinct, short, with a long curved claw.

Length, 10 inch. One specimen.

From Tetaro Richardson, (No. 219.) Collected August 5, 1872, at North Fork of Snake River, Idaho.

It is very different from G. tetragonis Denny, and closely allied to G. Coelocercus Denny, especially in the pyriform shape of the abdomen. The head in one species is rather longer and more produced in front of the antennae, the prothorax is rather longer and broader, and the mesothorax wider and shorter in proportion.

Goniodes mephitidis, n. sp. (Fig. 60.)

Head short, about as long as broad, rounded in front, with a narrow curved sinus in the middle; widest behind the middle, with well-marked lateral projections. Two dark spots on each side of the sinus; side of head in front of the projections lined with black. A transverse black line across hind edge of head, ending on each side in two black spots, and sending obscure prolongations anteriorly. Antenna four-jointed; basal joint very large, three outer ones filiform, third considerably longer than second, fourth minute, short. Prothorax corneous, slightly narrower but distinct from mesothoracic segments, the sides of which are produced hook-like beyond it. Abdomen large, orbicular, but little longer than broad, white. Legs white, hind tibia dilated distally, with several long spines on the inner side, one especially large; several long hairs on the outer side. The tarsal joint ends in a curved slender claw as long as itself, seen with the naked eye; head and thorax appear pale testaceus; abdomen white.

Length, 40 inch. Twelve specimens.

From Ruthe Secialis, (No. 239.) Collected August 5, 1872, at Lower Geyser Basin, Wyoming Territory.

Differ remarkably in form and size from any figured by Denny.

I have in describing this species used, for comparison, a specimen of this genus from Goose Lake, Siskiyou County, Cal., (J. Howland,) in which the head is triangular, and the tarsal joints not dilated, and second joint is much shorter and thicker.

Its host not indicated.

Dociopera syrni, n. sp. (Fig. 62.)

Head a little longer than broad, being a little longer than usual; two-thirds as wide as abdomen. Mouth cavity deeply excavated. Trabeiculae small, acutely pointed, projecting slightly beyond the head. Two oblique oblong bands diverge from base of head to upper side of each trabeicula; antennae slender, of the usual form; five-jointed; fourth joint much shorter than fifth. Prothorax trapezoidal, half as wide as head; mesothorax wide, projecting considerably beyond the succeeding segment; edge more bulging

head, and short, broad lunate mesothoracic segment, and long oval form of abdomen.

Nirmus butobicephalus, n. sp. (Fig. 61.)

A very large species, long and slender; head long, oblong, subtrapezoidal, half as wide in front as at base; front truncate, with prominent rounded lateral wings on each side of head, behind insertion of antennae more prominent than usual. Antenna just reach as far as the front edge of head; four-jointed; two basal joints of much the same size and length, two outer much smaller, fourth slenderer, and a third longer than third. A large, round inflated swelling on under side, just behind the mouth, and behind the single-jointed minute labial palpi, apparently forming a sucker to draw mouth near to skin of host. Mental region behind side, Coelocercus Denny, especially in the pyriform shape of the abdomen.

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DESCRIPTION OF NEW PARASITIC WORMS FOUND IN THE BRAIN AND OTHER PARTS OF BIRDS.

By A. S. Packard, Jr., M. D.

Among the zoological specimens collected by Mr. C. H. Merriam in explorations under Professor Hayden in the summer of 1872, were specimens of an apparently undescribed worm found "under the eyes" of a hawk. In describing this worm, we had occasion to compare it with an undescribed species of the same genus of worm in the museum of the Peabody Academy of Science, and found by Mr. Walker in the brain of the night-hawk.

Indeed, one of the most obscure subjects in zoology is the history and development of animal parasites, and especially those which take up their abode in the brain of different animals. Professor Wyman has described, in the "Proceedings of the Boston Society of Natural History" for October 7, 1868, a species of round worm in the brain of seventeen out of nineteen specimens of the Anhinga, or snake-bird, shot in Florida, thus proving that "their presence in the cranial cavity might be called the normal condition of this bird." He remarks that "parasites have occasionally been found infesting the brain or its membranes in man and animals, but far less frequently than in the other regions of the body. The number of species thus far observed is quite small, and... chiefly referable to the genera Taenia, Filaria, Trichina, and Diplostomum, and confined almost wholly to man and domesticated animals, such as the sheep, reindeer, dromedary, horse, and ox; and, among wild animals, to the chamois, roebuck, and a few others. That they have not been more frequently seen in the wild species is, without doubt, due to the fact that the brains of these have been so seldom examined for the purpose of detecting them." These worms, "which correspond very nearly, if not identical, with the Eustrongylus papillosus, Diesing," were found in every instance coiled up on the back of the cerebellum, their number varying from two to eight. The male is only half as thick as the female, and the end of its body is always more closely coiled than in the female.

This worm is viviparous, the young hatching in the oviduct. Their earlier stages are unknown, but the analogy of the Gordiaceae and other worms leads to the supposition that the parasite of the brain of the Anhinga is one of the migratory kinds, and that a part of its life, at least, is passed in a locality quite different from that in which it was detected. The manner in which the transfer of the embryo is effected, outwardly to some other animal, or the water, and then back to another Anhinga, is wholly unknown.

Eustrongylus buttonis, n. sp.

This thread-worm seems to agree generically with the species of Eustrongylus, said by Professor Wyman to "correspond very nearly, if not identical, with the Eustrongylus papillosus Diesing; found in the brain of the Anhinga bird of Florida. Our species is, however, much shorter and thicker.

*An abstract, with figures, of this interesting paper may also be found in the "American Naturalist," vol. 2, p. 41, 1880.*
SIXTH ANNUAL REPORT

OF THE

UNITED STATES GEOLOGICAL SURVEY

OF

THE TERRITORIES,

EMBRACING

PORTIONS OF MONTANA, IDAHO, WYOMING, AND UTAH;
BEING A REPORT OF PROGRESS OF THE EXPLORATIONS FOR THE YEAR 1872.

BY

F. V. HAYDEN,
UNITED STATES GEOLOGIST.

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