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NOTES ON SOME HEMIPTERA TAKEN
NEAR LAKE TAHOE, CALIFORNIA

BY
EDWARD P. VAN DUZEE

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In the summer of 1915 it was my privilege to spend about five weeks in the Sierra Nevada with the entomological field class of the University of California Summer School at Fallen Leaf Lake, Eldorado County, California. We reached Fallen Leaf Lodge, our headquarters, on June 21 and left on July 31, a period which covered the season of greatest abundance of insects in certain of the orders, notably the Hymenoptera, Diptera and Lepidoptera, and the Coleoptera were perhaps at their best before we left; the Hemiptera and Orthoptera were, however, just coming into season, so the material obtained in these orders was but fragmentary. Circumstances were such that I was able to devote much of my time to the collection of insects for the University Museum, and Professor Woodworth added a number of interesting forms during two brief visits to the Lodge, while other members of the party turned over to me some good things taken by them. Altogether over six thousand mounted insects were brought home, a study of which will undoubtedly make valuable additions to our knowledge of the Sierran insect fauna.

The present paper deals with the Hemiptera taken, but, owing to the earliness of the season, must be but an imperfect representation of the hemipterous fauna of that portion of the Sierra. Of the one hundred and forty species enumerated, perhaps one-third are known to inhabit the coast region of California and about one-fourth are common to the eastern and

northern portions of the United States and Canada. A number of forms characteristic of the Rocky Mountain region were taken, as well as several found in the hilly back-country of San Diego County, California. However, before any really useful studies on the distribution of the Hemiptera of this portion of the Sierra Nevada can be made, it will be necessary to do systematic collecting there during August and early September. It is interesting to note that twenty-one of the species taken, or approximately one-seventh, are new to science, which shows how little is now known of the Hemiptera of the Lake Tahoe region.

The following notes on localities will indicate the conditions under which most of the material was taken.

Lower end of Fallen Leaf Lake.—On the west side of the lake from Cathedral Park and the sawmill to the outlet and some distance north was an interesting locality with low, rich woods and open, marshy fields. Mosquitoes were a serious hindrance here but the Hemiptera were more numerous than elsewhere, perhaps because the season was earlier at this altitude, 6300 feet.

Lateral Moraine.—A sharp ridge along the eastern side of the upper end of Fallen Leaf Lake, with an elevation of about 800 feet above the lake. This ridge was well covered with chaparral and until about the tenth of July made an excellent collecting ground for the Hymenoptera, Diptera and Lepidoptera. After that date it became too dry for good collecting.

Angora Lakes.—Situated under the eastern escarpment of the Angora Ridge at an altitude of about 7500 feet. Collecting here was poor.

Glen Alpine Springs and Creek are situated in a valley running west from the upper end of Fallen Leaf Lake. Below Glen Alpine Springs the valley is well wooded and afforded excellent collecting places. Toward the last of July the northern side of the valley formed by the southern slope of Mount Tallac proved to be one of our best collecting grounds.

Cathedral Lake, in a valley on the eastern slope of Mount Tallac at an altitude of about 7500 feet, was a moderately productive place, especially lower down near Floating Island Lake.

Mount Tallac.—The sloping alpine meadow on the western aspect of the mountain was a wonderfully interesting place from about the twentieth of July. The altitude here varied from about 8000 to over 9000 feet.

Angora Ridge.—The western slope of this ridge was an alpine meadow of equal altitude and hardly less interesting than that on Mount Tallac.

Half Moon Lake under Dick's Peak at an altitude of about 8000 feet proved to be an interesting place in late July. Several eastern forms not found elsewhere were taken here.

Grass Lake in the valley above Glen Alpine Springs at an altitude of about 7500 feet did not yield much of interest, but might have been better if visited later in the season.

HETEROPTERA

Thyreocoris anthracinus Uhler. July. Taken in numbers from a low plant growing in grassy places along the roadside from Tallac to the sawmill at the lower end of Fallen Leaf Lake.

Homoemus bijugis Uhler. Taken with the preceding.

Eurygaster alternatus Say. Abundant with the foregoing species.

Trichopepla atricornis Stål. Found occasionally on rank weeds about the lower end of Fallen Leaf Lake, July 17.

Thyanta custator Fabr. Not uncommon on trees and bushes everywhere below 8000 feet.

Banasa sordida Uhler. A single specimen swept from weeds at Half Moon Lake in July.

Tollius curtulus Stål. Low ground near Tallac, July.

Alydus pluto Uhler. One example taken on weeds growing on a dry sandy spot near Tallac in July.

Harmostes reflexulus Say. Not uncommon with the preceding.

Corizus scutatus Stål. Common on the low lands between Tallac and Fallen Leaf Lake in July.

Corizus indentatus Hambl. Taken with the preceding.

Corizus hyalinus Fabr. Generally distributed, but not common, up to 8500 feet.

Corizus crassicornis Linn. Half Moon Lake, July 23.

Aradus debilis Uhler. This, our largest western aradid, is paler than most of our species, has the abdomen of the female much produced and attenuated at apex and the third antennal joint white with its extreme base and the large apical joint black. Mr. Ralph Hopping took a series on fungi under the bark of a dead pine tree near the margin of Fallen Leaf Lake, July 2, Dr.

Van Dyke found one in a similar situation, and I took a male near Glen Alpine Springs, June 30.

Aradus hubbardi Heid. A fine series of this species was taken from fungus growing on a fallen pine tree along the trail to Angora Lakes at an altitude of about 7000 feet, July 11. In all the specimens taken the tip of the second antennal joint is scarcely paler.

***Aradus persimilis*, new species**

Very close to *hubbardi*, differing principally in having the scutellum much broader at apex, the expanded portion of the costa longer and the antennae a little thinner, with their second segment perhaps a little longer and the third without a pale apex. Length, male 6.5 mm., female 7.5 mm.

Head as in *hubbardi*; anterior process thick, cylindrical, compressed toward the apex, reaching nearly to basal third of second antennal joint. Spine at base of antennae almost attaining the tip of first joint and armed exteriorly with a very short tooth. Occiput with a tubercle before the eye and another near its hind angle. Antennae about as in *hubbardi*, perhaps a shade thinner; first segment about one-half longer than wide, second about as long as the head, a little thickened at apex; third hardly one-half the length of second; fourth still shorter, narrowed to its base with a short conical tip. Pronotum about as in *hubbardi*, slightly longer and more broadly expanded about the humeri; sides irregularly dentate; four discal carinae nearly parallel, exterior percurrent, not becoming obsolete before as in the allied species. Abdomen as in *hubbardi*; genital segment of the female a little shorter and less expanded; genital lobes of the male shorter and more transverse. Rostrum nearly attaining hind margin of mesosternum.

Color fuscous-brown, becoming more ferruginous on the cephalic process, basal joints of antennae, pronotal carinae, principal elytral nervures, extreme tip of scutellum, and in places on abdomen. Antennae becoming black on apical two segments, conical tip of fourth sericeous pubescent. Expanded basal portion of costa and broad humeral areas and marginal serrations whitish-testaceous; elytral reticulations sometimes of the same pale color. Legs and beneath usually paler. Abdomen becoming more castaneous toward its margin, where it is often minutely pointed with green, the hind edge of the connexival segments pale; membranous veins distinctly pale.

Described from three male and two female specimens taken near Glen Alpine Creek, June 25 to July 3. While very near *hubbardi* this form seems to have good specific characters and is at least a valid subspecies. I possess one female, taken by Dr. J. C. Bradley in the Santa Cruz Mountains, California, in May, 1907, that differs from the types only in having the humeral expansion of the pronotum concolorous.

Aradus borealis Heid. Professor Woodworth took one example of this species on the eastern slope of Mount Tallac along the trail from Cathedral Lake to Floating Island Lake, on July 6, at an altitude of 7000 feet.

Aradus behrensi Bergr. A few examples were taken from trees near the upper end of Fallen Leaf Lake, June 25. The next day I took near the lower end of the lake two specimens of what I believed to be brachypterous or imperfectly developed specimens of the same species. In these the elytra reach only to the base of the fifth abdominal segment.

Aradus insolitus, new species

A small, black species marked with pale granules; humeral angles subacute, latero-anterior margins a little concavely arcuated, second antennal joint narrowly white at apex. Length 4 mm.

Form narrow ovate, about as in *tuberculifer* Kirby. Head with a short oblique impressed area on either side interior to the eye. Antenniferous tubercles with a large acute spine which surpasses the middle of first antennal segment. Antennae regularly but moderately thickened to apex of third joint; basal scarcely longer than broad, second about as long as the distance between the eyes, uniformly thickened toward its apex, white apical portion about as long as the thickness of the joint at base; third and fourth about equal in length, the latter fusiform. Pronotum rather small; humeri prominent, subacute, the margins behind them feebly rounded, the latero-anterior margin a little concavely arcuated with the anterior angles prominent and subacute; entire lateral margins quite regularly and minutely crenulate; disk a little depressed across the middle, marked posteriorly with four parallel carinae which become confused anteriorly. Scutellum narrow, about as long as pronotum, obtuse at apex, margins but little elevated. Elytra reaching nearly to tip of abdomen, but little narrowed apically; costa regularly but moderately dilated at base. Nervures of corium and membrane prominent. Rostrum reaching but little beyond the base of the head, encroaching upon base of the prosternum about the width of the sternal sulcus at its middle; this sulcus expanded at base and apex. Genital lobes of the male about as in *similis*, the oblique apical margins a little more rounded.

Color almost black; narrow apex of second antennal segment, tips of the humeri, broad but indefinite apex of scutellum, knees, tips of the tibiae and apical angles of the abdominal segments pale or whitish. Whole surface irregularly dotted with minute greenish-white granules, most numerous on the head, disk of scutellum and elevated areas of pronotum and elytra; granulations of connexivum becoming a clear sea-green in places.

Described from two males taken about the upper end of Fallen Leaf Lake, July 12. This species is very distinct from any other known to me by its subacute humeral angles and the concave latero-anterior margins of the pronotum. The short rostrum allies it with *Quilnus* and in some respects it is intermediate between that subgenus and the more typical aradids.

Aradus falleni Stål. One specimen taken from a fallen pine tree near Cathedral Lake on the eastern slopes of Mount Tallac, July 5.

Mezira moesta Stål. A single individual of this common form was taken near the upper end of Fallen Leaf Lake on July 2.

Lygaeus reclinatus Say. Found in numbers on a patch of milkweed near the sawmill at the lower end of Fallen Leaf Lake, July 25.

Lygaeus truculentus Stål. A few taken on flowers near the lower end of Fallen Leaf Lake in July.

Lygaeus bicrucis Say. Taken at Grass Lake and near Fallen Leaf Lake in late June and early July.

Nysius californicus Stål. Common at lower levels but also found at Half Moon Lake and up to 8500 feet on Mount Tallac.

Nysius ericae Schill. Half Moon Lake, July 23.

Nysius ericae minutus Uhler. A few taken near Tallac in July.

Ischnorrhynchus resedae Panz. One specimen was beaten from chaparral along the trail on the west shore of Fallen Leaf Lake, July 5.

Geocoris pallens decoratus Uhler. One example taken on the low lands near Tallac on July 25.

Ligyrocoris diffusus Uhler. With the preceding.

Sphragisticus nebulosus Fall. Swept from grass near the lower end of Fallen Leaf Lake, July 17.

Rhyparochromus angustatus Van D. This form may be roughly distinguished from *sodalicus* Uhl. by its having the third antennal joint entirely black, the lateral edges of the pronotum concolorous and the clavus ferruginous at base. It is a long narrow form and northern in its distribution. Here it was found near Tallac in July.

Scolopostethus thomsoni Reut. Three examples were taken at Tallac and about the upper end of Fallen Leaf Lake in July.

Ploiariodes sp. One example taken at the Lodge in July.

Nabis ferus Linn. Found everywhere. Here the species has every appearance of being a native insect and possibly it is indigenous to all the northern portions of this continent.

Anthocoris bakeri Popp. Taken near the Lodge, June 21. Poppius' paper describing this species never reached me and I was unaware of its existence until after the publication of my species *ornatus*, which is undoubtedly identical with *bakeri*.

Anthocoris antevolens White. Taken on the low lands about Fallen Leaf Lake in July.

Anthocoris melanocerus Reut. Two examples were beaten from the chaparral along the western shore of Fallen Leaf Lake, July 5.

Saldula interstitialis Say. One taken at Tallac July 25.

Saldula sp. Taken on the low lands about the lake and up to 8500 feet on the western slope of Mount Tallac.

Gerris orba Stål. Found on Fallen Leaf Lake, Cathedral Lake, Angora Lakes and elsewhere, in July.

Gerris gillettei L. & S. One example taken at the sawmill at the lower end of Fallen Leaf Lake, July 25.

Stenodema vicina Prov. Taken on grassy openings along Glen Alpine Creek, at Half Moon Lake, and on the western slopes of Angora Peaks, in July. No males were found but the females were not uncommon.

Platytylellus intercidenda Dist. Occasional on rank vegetation about the lower levels after July 16.

Phytocoris eximius Reut. Glen Alpine Springs, July 30. This species and the next were only just reaching maturity when I left, the last of July.

Phytocoris inops Uhler. With the preceding. This is a smaller species having the membrane varied with whitish and fuscous in coarser blotches, the antennae longer and more slender, with the basal joint more obviously banded and the pale incisures broader.

Ectopiocerus anthracinus Uhler. Occasional in July at the lower levels.

Poeciloscytus uhleri Van D. Taken at the level of Fallen Leaf Lake and up to 8500 on the west slope of Angora Peak, toward the last of July.

Poeciloscytus venaticus Uhler. Not uncommon on rank weeds about the lower end of Fallen Leaf Lake in July.

***Dichrooscytus speciosus*, new species**

Allied to *suspectus* but more polished. Black; disk of head, pronotum and elytra deep rich wine-red; scutellum, base of cuneus and legs white; antennae soiled white. Length nearly 6 mm.

Head broader and shorter than in *suspectus*, vertex strongly impressed before the basal margin and more broadly on either side; middle of vertex quite strongly swollen and polished, without the transverse striae seen in the allied species; basal carinae prominent across the whole width. Pronotum narrower anteriorly, meeting the vertex near the inner angle of the eye; surface more strongly punctured, callosities smaller and highly polished; median line obscure but evident. Scutellum prominent, narrower than in *suspectus*, polished, a little transversely shagreened toward the base. Elytra polished, very obscurely punctured and shagreened, almost parallel, costa straight basally.

Color black, highly polished; base of vertex obscurely reddish. Pronotum deep wine-red with anterior and posterior margins black. Scutellum ivory-white, becoming black on anterior lobe beneath base of pronotum. Elytra dark wine-red; broad margins of clavus about scutellum and the apex of corium black; cuneus black, the basal half ivory-white omitting the slender costal margin. Membrane deep fuscous, iridescent, the nervures concolorous. Legs including coxae white, coxae and trochanters sometimes tinged with greenish; apex of the tibiae and the tarsi slightly infuscated, last tarsal joint becoming black at apex. Antennae soiled white, a little more infuscated toward the apex. Tergum and apex of abdomen more or less sanguinous.

Described from numerous examples beaten from juniper trees during July, mostly on the south slope of Mount Tallac. The first mature examples were taken near the Lodge on July 5 but the adults did not become abundant until after the middle of the month. This is one of the most beautifully colored capsids known to me. The immature have paler colors but the pattern is distinct and characteristic.

Dichrooscytus suspectus Reut. Common on juniper trees during July. These individuals are more uniformly colored with rufous than those from Colorado determined for me by Dr. Reuter, but they can hardly be distinct.

Dichrooscytus irroratus Van D. Common on juniper and cedar trees everywhere between 6000 and 8000 feet. In most of these examples the elytra are of an almost uniform pinkish color with a deeper tint on the cuneus, and marked with a fuscous vitta on the apex of the corium; an oblique vitta on their middle and the apex of the membranal areoles are also fuscous.

Dichrooscytus elegans Uhler. Taken with the preceding forms but less abundantly and a little earlier.

Lygidea rebucula obscura Reut. Three examples were taken about the Lodge July 20 and 21. These differ in no respect from specimens taken in the state of New York.

Platylygus luridus Reut. Not uncommon on Jeffrey pines from July 8. These are larger than eastern specimens but do not otherwise differ.

Lygus pratensis Linn. The pale form with yellowish scutellum which is characteristic of the Californian fauna was common at all the lower levels and up to 8000 feet. Three examples of the dark eastern form were taken on July 23 at Half Moon Lake.

Lygus plagiatus Uhler. This form was common above 7500 feet but rarely was taken at lower levels.

Lygus campestris Linn. Common about Fallen Leaf Lake and up to 7800 feet at Half Moon Lake.

Xenoborus canadensis Van D.? One example which may represent a distinct species differs in being smaller and in having the basal joint of the antennae and the tylus concolorous.

Camptobrochis validus Reut. Four examples were taken about Fallen Leaf Lake and Grass Lake from June 23 to July 5.

Camptobrochis fulvescens Reut. Beaten from pine on the south slope of Mount Tallac on July 30. These specimens are glabrous and have much the aspect of *nitens* but the male genital characters are those of *fulvescens* and I prefer to so place them for the present.

***Deraeocoris ingens*, new species**

Large, deep black, polished; second antennal joint greatly thickened. Length 8 mm.

Aspect of *Capsus ater*, but much larger and more elongated, with antennae more clavate. Head as in *Camptobrochis*, prominent; hind margin of vertex and eyes nearly rectilinear. Vertex almost flat, basal margin subcarinate behind a shallow depression. Antennae stout, inserted before the eyes at a distance about equal to the thickness of first segment; this segment as long as the median width of vertex; second (3.5 mm.) longer than basal width of pronotum, at base more slender than first but regularly thickened to near its apex, where it is as thick as the antero-posterior diameter of the eye, its surface closely pubescent and armed with a few longer hairs; third and fourth segments short and slender but not setaceous, together equal to length of the anterior tarsi, third scarcely longer than fourth. Pronotum shaped much as in *Camptobrochis*

nigrita, much narrowed anteriorly, where it is a little wider than the base of the vertex; surface convex in both diameters, strongly punctured; callosities large, highly polished, impunctate, scarcely elevated and poorly defined; sides nearly straight or slightly concave. Scutellum more finely punctured. Elytra coarsely punctured, long, narrowed from the middle. Membrane long and narrow, nervure dividing the areoles obsolete or nearly so. Prosternal xyphus depressed with a carinate margin. Basal joint of hind tarsi stouter, as long as second and third together. Arolia as in *Camptobrochis*, wanting or very minute and connate with the claws, between which are two slender parallel setae. Male uncus formed about as in *Camptobrochis nitens* with a sharp curved hook at distal end which almost attains the line of the proximal extremity.

Color a uniform deep coal-black, brilliant; membrane a dead blackish-fuscous, scarcely lighter next the point of the cuneus; base of vertex and knees touched with fulvous. Second antennal joint nearly to its apex and the tarsi piceous, verging toward castaneous. Osteolar margin white.

Described from nine examples representing both sexes, all beaten from Jeffrey pines along the south slope of Mount Tallac above Glen Alpine Creek during late July. This is one of our largest capsids, and it seems strange that it should have remained unknown for so long unless it be restricted to the Jeffrey pine, which has a range in the Sierras and northwardly where little work on Hemiptera has been done. Dr. Poppius has recently sunk *Camptobrochis* as a synonym of *Deraeocoris*, but I think it better to restrict the latter genus to those species having a clavate second antennal joint.

***Deraeocoris fraternus*, new species**

This form seems to differ from *ingens* principally in being smaller (6 mm.) and in having the basal one-half of the second antennal joint and the legs pale or even bright rufus, with the apex of the tibiae darker and the tarsi black. Generally there is a pale annulus beyond the middle of the tibiae and the margins of the pleural pieces are whitish, usually broadly so.

Described from ten examples representing both sexes taken with the preceding. I would consider this but a color variety of *ingens* were it not for its much smaller size and the constancy of its characters.

***Largidea grossa*, new species**

Form nearly that of *marginata*, but larger; dull rufus-brown, whole upper surface closely and coarsely punctured. Length to tip of membrane 6 mm.

Head impunctate, polished, clothed with sparse, short appressed pale pubescence; viewed from above short, transverse, gently swollen before; width about twice its greatest length; when viewed from before five-angled, portion above the antennae almost quadrangular with sides straight and parallel, apex obtuse; base of clypeus but feebly distinguished from the front. Rostrum attaining the base of the intermediate coxae. Antennae as in *marginata*, inserted near lower angle of eye; basal joint scarcely longer than the eye; second joint is as long as vertex and pronotum taken together, flattened horizontally and broadly lanceolate, its width equal to length of first joint, its lower surface feebly convex, the upper deeply sulcate nearly to the apex; third and fourth thin, fusiform, each subequal to the first in length. Pronotum broader and less narrowed anteriorly than in *marginata*, sides straight, distinctly carinate, attaining the middle of the eyes; posterior lobe deeply closely punctured; anterior lobe nearly smooth, gray-pubescent, transverse impressed line deep, black, bent back in a barb at either side of the median line. Scutellum strongly convex, closely but not deeply punctured. Elytra closely punctured, the costa bent beyond the middle. Cuneus long, but moderately depressed. Membrane long, surpassing the abdomen by one-half its length. Basal joint of the tarsi broad and flattened, scooped out below, wider than the apex of the tibiae and as long as slender third joint; second short, slender like third, deeply inserted in upper surface of broad first joint. Oviduct beginning before middle of venter.

Color dull rufus-brown inclining to wine-red but not as deep a red as in the allied *marginata*. Whole surface closely but not conspicuously pale-pubescent; disk of head and much of lower surface blackish; costa paler; membrane black, nervures black at base, paler beyond. Antennae reddish. Tarsi and venter blackish.

Described from a single female example taken on Jeffrey pine on the south slope of Mount Tallac near Glen Alpine Springs, July 30, at an altitude of about 7000 feet. It is possible that the expanded basal joint of the tarsi and the fact that the second antennal joint is scooped out above instead of below would entitle this form to generic distinction, but it does not seem advisable to separate it until the male has been examined. In the type specimen the thickened apex of the second antennal joint is somewhat bent, making the antennae appear to be five-jointed when viewed from the side.

Dacerla inflata Uhler. This singular looking ant-mimic was quite abundant after the middle of July at most all locations but especially along the southern slope of Mount Tallac. A few were seen above 8000 feet on Angora Ridge. It was most abundant on the lodge-pole pine, but it occurred on other trees and

a few were swept from weeds near the lake. The males scarcely differ from the females and in both sexes some individuals are paler or reddish. The pronotum and parts of the elytra that are gray in the black form are ferruginous in the pale, but most of the material taken answers in every respect to the excellent description given by Dr. Uhler.

Coquillettia insignis Uhler. Three males of this pretty species were swept from weeds near the sawmill on Fallen Leaf Lake, July 25, and one was taken next day from the western slope of Angora Peak above 8000 feet.

Dicyphus californicus Stål. A few were taken about Fallen Leaf Lake late in July.

Dicyphus agilis Uhler. With the preceding but more abundant. I distinguish this from *californicus* by its larger size, paler colors, the almost entire want of red on the elytra, the more tumid and exposed base of the scutellum and especially by the shorter basal joint of the antennae.

Dicyphus vestitus Uhler. One example was taken July 17 near the lower end of Fallen Leaf Lake.

***Dicyphus crudus*, new species**

Form and size of *agilis*; pale greenish-white. Length 5 mm., width across the elytra little more than 1 mm.

Vertex less swollen than in *agilis*, eyes a little more prominent, with antennae longer and pronotal collar more elongated. Elytra very long, parallel, membrane surpassing abdomen by two-thirds its length.

Color pale greenish-white, deeper green on anterior lobe of pronotum, pleural pieces and base of scutellum. Eyes and tips of the tarsi black. Neck with a fuscous cloud behind each eye. Elytra almost pellucid, sparsely clothed with short appressed white hairs. Membrane with a faint longitudinal dusky cloud behind the areoles. Arolia long, lying near the small claws. Apical joint of the antennae, oviduct and genital segment of the male slightly embrowned.

Described from one pair taken on the flats near the lower end of Fallen Leaf Lake. This insect might be taken for the immature form of *agilis* were it not for the longer elytra, broader collar and flattened vertex. The fuscous cloud behind the eyes is also distinctive.

Labops hesperius Uhler. One example was taken July 31 on the shore of Lake Tahoe near the Hotel Tallac.

Lopidea nigridea Uhler. Several specimens of what I take to be a smaller form of this species were taken about Fallen Leaf Lake during July. This small form is but 4 mm. to the tip of the abdomen, the surface is more slaty-black with the stiff hairy vestiture more pronounced, and the markings are paler, being but rarely tinted with red. The male genital characters are nearly identical and it does not seem best to try to distinguish them at present.

Hadronema militaris Uhler. One example was taken on the shore of Half Moon Lake, July 23.

Hadronema robusta Uhler. A single specimen was taken with the preceding.

Paraproba hamata Van D. Upper end of Fallen Leaf Lake, June 21. A single specimen.

Orthotylus tibialis Van D. A good series of this very distinct species was taken in July from a low hirsute weed growing along the road between the sawmill on Fallen Leaf Lake and the Hotel Tallac. The descriptions of this and other new species in this genus will appear about simultaneously in the *Proceedings* of the California Academy of Science.

Orthotylus insignis Van D. A very pretty species, of which three examples were taken July 24 on the "short trail" to Glen Alpine Springs, where a tiny streamlet caused a rank growth of vegetation.

Orthotylus viridicatus Uhl. Not uncommon on the rank weeds growing near the lower end of Fallen Leaf Lake, at Half Moon Lake and near Glen Alpine Springs. The black membrane with conspicuous white veins will distinguish this pretty species.

Orthotylus uniformis Van D. A plain green species of which numbers were taken near Fallen Leaf Lake in July, mostly on the chaparral.

Orthotylus ovatus Van D. Common on junipers on the south slope of Mount Tallac late in July.

Orthotylus formosus Van D. Two examples of this very distinct form were beaten from alder bushes in a damp spot on the south slope of Mount Tallac about 200 feet above Glen Alpine Creek on July 30. I was unable to find any on the lower levels along the creek, but it is possible that the warmer location on the sunny hillside brought them out earlier than in the shaded valley.

Orthotylus affinis Van D. Abundant everywhere on willows

at the lower levels, but I also took them near Half Moon Lake at an altitude of about 8000 feet.

Orthotylus cuneatus Van D. Several specimens of this form were taken on willows about Fallen Leaf Lake in company of the preceding.

Labopidea nigripes Reut. A small series of this very distinct species were taken near the lower end of Fallen Leaf Lake in July.

Macrotylus multipunctatus Van D. The unique type of this interesting insect was taken by me near the lower end of Fallen Leaf Lake July 17. Its pale surface, closely dotted with round black points, will at once distinguish it from all the allied forms.

Macrotylus lineolatus Uhler. A few examples of this form were beaten from bushes about the lower end of Fallen Leaf Lake late in July.

Macrotylus infuscatus Van D. Taken with the preceding but in greater abundance. Unfortunately I neglected to note the food-plant of these species, but it may have been the willow which grew in several localities about there.

***Microphylellus alpinus*, new species**

Aspect of *Microphylellus rubricans* Prov. but larger and darker; piceous black with castaneous legs. Length 4.5 mm. to tip of membrane.

Head nearly as in *modestus*, a little shorter when viewed from the side; projecting below the eye for scarcely more than the width of the eye. Vertex without a basal carina. First joint of antennae a little shorter than in the type species, surpassing the clypeus by about half its length; second joint linear, distinctly incrassate, as thick as basal joint; third and fourth together about as long as second, setaceous. Pronotum proportionately shorter than in *modestus*; humeral angles slightly prominent, sides feebly sinuated and anterior angles well rounded; callosities large, distinct, the impressed line strongly arched either side; the disk minutely transversely wrinkled, sides subacute but hardly carinate. Rostrum attaining apex of hind coxae, basal joint surpassing base of the head.

Color piceous-black, deeper on the head, pronotum and scutellum; antennae uniformly concolorous; rostrum a little paler. Legs castaneous, becoming piceous on the coxae, on the base of the femora, at least the posterior, and on the tarsi.

Described from one male example taken on the alpine meadows on the western slope of Angora Ridge at an altitude of 8500 feet, on July 26. This species is not typical of genus *Microphylellus*,

differing in the shorter pronotum, more prominent callosities, larger basal joint of the rostrum and the stouter second segment of the antennae.

Microphylellus bicinctus Van D. Taken on the chaparral along the western shore of Fallen Leaf Lake early in July. Apparently rare.

Gerhardiella delicata Uhler. Two examples were beaten from the chinquapin oaks along the western shore of Fallen Leaf Lake late in July. There seem to be no good structural characters by which to distinguish between this genus and certain related genera such as *Psallus*, *Apocremnus* and *Plagiognathus*. By separating out the forms having the femora dotted in longitudinal series and the tibiae dotted with black we have a fairly homogeneous group including the types of the genera *Plagiognathus* and *Gerhardiella*, and I can see no harm in using the latter name for the red forms, as they have quite a different aspect from the more typical forms of *Plagiognathus*. If we do this, it would seem advisable to divide genus *Psallus*, placing those forms with ovate blackish bodies and dotted tibiae in genus *Apocremnus*. It is possible that further study may disclose good structural characters for distinguishing these genera, but I have not yet detected any that seem at all constant.

Apocremnus politus Uhler. Taken about the upper end of Fallen Leaf Lake and at Half Moon Lake in July. This species is smaller and more slender than the more typical *anchorifer* Fieb., but for the present I prefer to place it here rather than in *Plagiognathus*, as it has the black femora and the white scale-like vestiture of *Apocremnus*. In this species the second antennal joint is entirely black.

***Apocremnus nigerrimus*, new species**

Larger than *politus*, deep black, polished, clothed with coarse deciduous white hairs; apical joint of antennae concolorous, tibiae obscurely dotted. Length 3.5 mm. to tip of membrane.

Head about as in *anchorifer*, viewed from the side shorter, with the facial angle more acute; projecting below the eye for a distance equal to the greatest width of the eye. Vertex ecarinate, a little flattened. Antennae hardly shorter than in *anchorifer*; first joint surpassing clypeus by about one-third its length; second as long as pronotum and one-half the head; third and fourth together as long as second. Pronotum rather

long; its length a little more than half its basal width; the sides straight, with the anterior angles scarcely rounded. Rostrum attaining the posterior coxae, first joint reaching base of the head. Oviduct of the female long.

Color deep black, polished above, clothed with conspicuous white hairs; base of vertex with a fulvous sinuate line which (as in *politus*) simulates a carina; third and fourth antennal joints obscure castaneous, their bases narrowly blackish. Tibiae above obscure whitish, bristles and dots at their base black. Membrane almost as deeply colored as the corium, marked with a small pale spot next the tip of the cuneus, invading more or less the apex of the nervures. Osteolar orifice soiled white.

Described from twelve examples representing both sexes. Eight of these were taken by Mr. Fordyce Grinnell at Pasadena, California, June 5, 1909, and four I took about the upper end of Fallen Leaf Lake in July.

***Bolteria picta hirta* new subspecies**

Smaller and darker-colored than *picta*, clothed with stiff black hairs; dull yellowish-green, most of the head, two transverse bands on the pronotum, scutellum in part, inner margins of the clavus, a broad distal vitta on the corium, an oval spot on the cuneus and most of the lower surface black; femora dull fulvous, marked with large fuscous dots in longitudinal series. Length 4 mm.

Head shorter and less prominent than in *picta*. Vertex a little depressed before the base, which is thickened but hardly carinate. Front convex, polished. Antennae shorter than in *picta*; first segment but little surpassing the clypeus; third and fourth together subequal to second. Pronotum, scutellum and elytra as in *picta*, impunctate, polished, clothed with stiff black hairs which are somewhat longer and more dense on the head. Rostrum attaining the intermediate coxae.

Color a soiled greenish-yellow. Head polished black; a point next the inner angle of the eye and base of the vertex fulvous, median line of the front sometimes pale. Antennae and rostrum black, extreme apex of first antennal joint pale. Pronotum marked with a broad transverse band on the callosities and a narrower one on the hind margin, black. Incised line on scutellum black. Narrow scutellar and commissural margin of clavus, a broad longitudinal vitta on corium, a short mark within the costa placed near the apex and a large oval spot covering the disk of the cuneus, black. Membrane infuscated, a cloud in the apical areole and a curved ray beyond deeper black. Beneath black, polished, osteolar region and the lower margin of propleura whitish. Legs obscure fulvous, femora infuscated at base and apex and dotted with blackish in longitudinal series; tibial bristles black springing from small black points.

Described from eight female examples beaten from sagebrush (*Artemesia*) on the shore of Fallen Leaf Lake near the Lodge

on July 5. Typical examples of *Bolteria picta* Uhler received from Mr. Heidemann show but few black hairs and they seem to be entirely wanting from specimens taken by me on the plains about Denver, Colorado.

HOMOPTERA

Okanagana rimosa Say. Common at all levels from Fallen Leaf Lake up to 8500 feet on Angora Ridge, the first individuals appearing on July 3. This species has the habit of resting in trees fifteen or more feet above the ground, and being wary are very difficult to capture.

Okanagana ornata Van D. On July 11 I took from low oak bushes growing on the top of the lateral moraine east of Fallen Leaf Lake three male examples of a form agreeing entirely with *ornata* except that the orange colors are replaced with pale testaceous. Possibly the local conditions might account for this difference in color or these specimens may not have been fully colored.

Aphrophora permutata Uhler. Common at lower levels and first reaching maturity about July 15.

Stictocephala pacifica Van D. Not uncommon about Fallen Leaf Lake during July.

Telamona barbata Van D. On July 30 I took numbers of what may prove to be this species from a willow having pale green foliage, growing on the southern slope of Mount Tallac. These have the crest more erect and elevated than the types from New York State.

Telamona obsoleta Ball. One example of this form was beaten from a willow near Glen Alpine Springs, July 22.

Ogerius rhyparus Stål. Two fully grown examples were taken near the lower end of Fallen Leaf Lake July 17.

***Elidiptera woodworthi*, new species**

Closely allied to *septentrionalis*; broader, more mottled with white; front whitish with its base and the clypeus fulvo-testaceous. Length 7 mm.

Vertex a little shorter than in *septentrionalis*, scarcely as long as broad, the impressed median line almost obsolete in the female. Front a little narrower than in the allied species, sides almost rectilinear, at apex curving inward to base of clypeus. Pronotum as in *septentrionalis*, narrowly produced to about the middle of the eyes and truncate at apex.

Elytra broad as in *variegata* and *pallida*. Rostrum reaching to apex of penultimate ventral segment. Hind edge of genital segment feebly arcuated in the female, quite deeply notched in the male, leaving a conspicuous lobe or tooth at the lower angle next the ventral insicure; dorsal plate of the male long and triangular at apex. In the male of *septentrionalis* the genital segment is truncated, without a ventral notch, and the dorsal plate is short and truncated, not exceeding the plates.

Color fulvo-testaceous, becoming more gray on vertex and pronotum; elytra milky-white with pale nervures, varied with testaceous-brown and dotted with fuscous, the brown forming a longitudinal series of three squarish patches on each elytron, the anterior two sometimes obscurely united by a brownish cloud along the claval suture; inner apical cells mostly brown crossed by white nervures and veinlets; the fuscous dots arranged along nervures and on costal margin, where they form two irregular marks before the apical areoles. Wings infuscated at apex. Pronotum irrorate with brown, the fulvous mesonotum more obscurely so. Beneath and legs almost uniformly fulvo-testaceous with a dark lateral vitta covering the eye and shading below to black with the extreme edge of the inferior aspect of the pronotum clear white. Front whitish, with the base to a little below the upper angle of the eye darker and irrorate with brown. Edges of the pleural pieces and ventral segments whitish.

Described from numerous examples taken on the Jeffrey pine, especially along the southern slope of Mount Tallac, after July 19. They were also beaten from cypress bushes growing on this same slope and here the young were taken with the adults. This is of a clearer gray than any of our other species of *Elidiptera*. It has much the aspect of the eastern *variegata* but that is a larger and darker form with a shorter vertex. In my key of 1907 it runs directly to *septentrionalis* but may be distinguished from that form by its more whitish aspect, broader form, the mostly pale front and the different genital characters.

Catonina nemoralis, new species

Size and aspect of *grisea*, to which it is closely related; ashy gray with the elytra irrorated and mottled with fuscous and dotted with white veinlets, the front uniformly whitish-testaceous. Length 5 mm.

Vertex short, truncate, broader than in *grisea*, not as long as width of each compartment. Pronotum at the middle scarcely as long as vertex. Mesonotum shorter than in *grisea*, about twice length of vertex and pronotum together (in *grisea* three times as long). Front broader than in *grisea*, but little wider toward clypeus. Last ventral segment of the male truncated, with a subacute triangular median tooth about one-third the length of the valves, while in *grisea* it is nearly half their length. Plates oblong, a little narrowed at apex.

Color of head, pronotum and mesonotum fulvo-testaceous, becoming more brown on mesonotum, where the dark irrorations are more conspicuous. Pronotum darkened either side of the median carina, with about four brown points behind each eye; vertex sometimes showing dark irrorations. Elytra testaceous-gray with a tinge of brown and marked with two obscure transverse brown bands, one, more distinct, at the basal third, the other at the apex of the clavus, the costa with a narrow fuscous line; all the nervures, including the costal, pale, slenderly edged with fuscous and broken by numerous white transverse veinlets. Wings fuscous at apex with darker nervures. Front and clypeus whitish-testaceous, immaculate or nearly so. Pectus and legs brown, inferior aspect of pronotum testaceous, knees, tips of the tibiae and tarsi pale. Abdomen black, white-pruinose, the slender edges of segments and genital pieces pale. Antennae brown, the setae black.

Described from numerous examples taken June 20 to the last of July from the level of Lake Tahoe up to 8000 feet. This species seems to live entirely on the lodge-pole pine, although it was occasionally captured on other trees whence it had evidently flown from the pines.

Catonia succinea, new species

Form and aspect of *majusculus*; a little smaller and nearly immaculate but closely allied to it in most of its characters; pale amber-brown above, almost white beneath. Length 6 mm.

Vertex distinctly longer than in *majusculus*, passing the eye by about one-fourth its length, anterior edge parabolic and obviously carinate; median carina prominent, abbreviated before; hind edge almost truncate. Pronotum shorter than vertex, carinae prominent. Mesonotal carinae sharp, feebly arcuate at apex. The closed elytra almost parallel, a very little wider toward their apex. Front narrower than in *majusculus*, not obviously wider at apex, carinae prominent. Last ventral segment of the male truncate at apex, without a median tooth, plates contiguous at base, oblong, oblique at apex.

Color a uniform obscure amber-brown, quite strongly tinged with fulvous on mesonotum; surface of the elytral areoles subhyaline and beautifully green-iridescent when closed over the wings. Beneath whitish, tinged with fulvous or amber on the front, clypeus, mesopleura and apex of the tarsi; lateral carinae of the front pale.

Described from twelve examples, representing both sexes, taken about the upper end of Fallen Leaf Lake and along Glen Alpine Creek during July. Most of these I beat from cypress bushes and that probably is the native food-plant of the species.

Oliarus fidus Van D. One pair taken near Glen Alpine Creek in July. These are a little larger and darker than those from San Diego County but do not seem to differ otherwise.

Cixius basalis Van D. Not uncommon during July about Fallen Leaf Lake and at Half Moon Lake. This species has been taken in the Selkirk Mountains in British Columbia and in Colorado, and is common in the northeastern states and Canada.

Laccocera obesa Van D. Several females were found on the flats at the lower end of Fallen Leaf Lake, July 17.

Liburnia magnifrons Crawf. Taken with the preceding.

Liburnia sp. A species near *osborni* was very abundant on a marshy meadow near the Angora Lakes at an altitude of 7200 feet.

Koebelia californica Baker. Abundant on lodge-pole pine. They began reaching maturity about July 12 and by the last of the month few nymphs were seen.

Koebelia irrorata Ball. One pair was taken with the preceding on July 22. It is larger, with a longer vertex, and is paler in color and less mottled, and the genital characters are distinct.

Oncopsis variabilis Fitch. On alders about the upper end of Fallen Leaf Lake, July 5 to 19. These are all pale yellow or testaceous and are without the oblique elytral vitta. One male does not differ from the female in color.

Oncopsis pruni Prov. Two males taken at Half Moon Lake and one near Cathedral Lake, July 5.

Idiocerus amoena Van D. Taken at the lower levels during July.

Agallia californica Baker. Angora Lake, June 22, and Fallen Leaf Lake, July 16.

Helochara communis Fitch. Lower end of Fallen Leaf Lake, not uncommon.

Xerophloea viridis Fabr. One large rather gray specimen was taken with the preceding.

Gypona angulata Spangb. A single specimen taken near Glen Alpine Springs, July 12.

Errhomenellus maculatus G. & B. Two young and two adults of what I believe to be this species were taken along the Tallac short trail, July 5.

Parabolocratus viridis Uhler. Several were found near the sawmill at the lower end of Fallen Leaf Lake, July 17.

Aligia jucunda Uhler. Beaten from chinquapin oaks on the western shore of Fallen Leaf Lake, July 5.

Aligia inscripta Van D. Taken with the preceding and on the southern slope of Mount Tallac.

Deltocephalus affinis G. & B. Flats at lower end of Fallen Leaf Lake, July.

Deltocephalus vanduzeei G. & B. Not uncommon on the low lands and on the meadow near the Angora Lakes.

Deltocephalus punctatus O. & B. Two taken near Fallen Leaf Lake. This seems to be scarcely more than a pale form of *fuscinervosus*.

Phlepsius ovatus Van D. Taken at the lower end of Lake Tahoe, July 17.

Phlepsius occidentalis Baker. Lower end of Fallen Leaf Lake, July 25.

Euscelis exitiosus Uhler. Common up to 7500 feet.

Euscelis striolus Fall. One example was taken on the meadows near the Hotel Tallac, July 31.

Thamnotettix geminata Van D. Common about the lower end of Fallen Leaf Lake in July.

Thamnotettix longiseta Van D. Two examples taken with the preceding.

Cicadula laeta Uhler. One pair taken with the foregoing, July 17.

Cicadula sexnotata Fall. Abundant about the Angora Lakes, Half Moon Lake and Grass Lake. Here as elsewhere it lives on fine grasses growing near water or in damp situations.

Balclutha impicta Van D. Two females were taken in a swampy meadow at the foot of Angora trail in July.

Eugnathodus abdominalis Van D. Not uncommon in fields about Hotel Tallac during July.

Dicraneura carneola Stål. Abundant in a swampy meadow near the Angora Lakes and more rarely in grassy places about Fallen Leaf Lake and Grass Lake.

Empoa commissuralis Stål. Near Glen Alpine Creek, three examples.

Aphalara calthae Linn. Beaten from chaparral along the western shore of Fallen Leaf Lake in July.

Euphyllura arbuticola Crawf. Three examples taken with the preceding.

Euphyllura nevadensis Crawf. Common on *Ceanothus* with the preceding.

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