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ERIOPHYID STUDIES XXI

BY H. H. KEIFER
California Department of Agriculture

Installment XX of this series appeared in this Bulletin, Vol. 41, No. 3, p. 147, Sept. 22, 1952. The present installment contains descriptions of 12 new species of Eriophyids. Nine of these are native to California and are of no economic importance. The remaining three have been submitted to the writer for identification since they cause considerable plant damage. The first of these is a species of *Nalepella* which seriously damages hemlock in the eastern United States. The second is a species of *Aceria* which blisters the leaves of a Solanaceous plant, *Acnistus cauliflorus*, in Brazil. The last is a species for which a new genus is described, that blackens the leaves of Moon-flower, *Calonyction aculeatum*, in Florida.

On page 2 of the Bulletin of the California Insect Survey (U. C. Press) Vol. 2, No. 1, 1952, I made the statement—"Eriophyid mites are creatures of perennial plants since annuals do not afford a stable basis for development and colony founding." Since the publication of this bulletin, extensive infestations of wheat by *Aceria tulipae* (K) in Alberta, Canada, and in Nebraska and Kansas, have been called to my attention. As wheat is an annual, this makes my original statement partly inaccurate, but still correct for the vast majority of Eriophyids. Perhaps in the case of wheat a closely related perennial such as *Agropyron repens* (L.) is implicated in the carry-over of the mite. At any rate, this situation will be further clarified as publications on these wheat infestations appear.

***Nalepella tsugifoliae* Keifer, new species**

Plate 221

Female 180-250 μ long, 90 μ thick; robust, fusiform; color orange-yellow. Rostrum 55 μ long, curved down. Shield 65 μ long, 85 μ wide, anterior lobe projecting a short distance over rostrum; shield surface set with fine short longitudinal streaks. Dorsal tubercles produced papilla-like, 53 μ apart, set ahead of the rear shield margin; dorsal setae 115-140 μ long, strong, projecting well ahead of the mite. Anterior shield seta pointing forward, 20-25 μ long. Forelegs 65 μ long, tibia 20 μ long, with seta, spines on rear edge, lower outer apical spur present; tarsus 3 μ long, claw 12 μ long, curved down, slight knob; featherclaw 9-rayed, a thick central stalk. Hindlegs 65 μ long, tibia 22 μ long, spines on rear edge; tarsus 8 μ long, claw 12 μ long. Anterior coxae barely touching each other, heavily spined on proximal half, these spines also on the suboral plate ahead of the coxae. Abdomen with many narrow rings set with microtubercles that project over the margin of the ring but do not form definite spinules; about 60 to 70 tergites, and 90 to 105 sternites. Lateral seta 20 μ long, on about ring 9; first ventral seta 40 μ long, on about sternite 32; second ventral 60 μ long, on about sternite 53; third ventral seta 40 μ long, on about sternite 8 from rear. Accessory seta present. Female genitalia 38 μ wide, 25 μ long, cover-flap smooth; seta about 40 μ long.

Male 200 μ long and 90 μ thick.

Type locality: Richmond, Virginia. **Collected:** April 10, 1953, and submitted to the U. S. Bureau of Entomology by F. R. Freund of the Division of Plant Industry, Virginia Department of Agriculture. Sent

to the writer under U. S. Bureau No. 53-3889. **Host:** *Tsuga canadensis* Carr. (Pinaceae), Canada hemlock. **Relation to host:** the mites brown the leaves and when in large numbers (as in this case) seriously injure the hemlock needles. **Type material:** a type slide and five paratype slides bear the above data. In addition to the above locality, this mite has also come to the writer previously from Hyattsville, Maryland; and Elm Grove, West Virginia. This mite evidently becomes active early in the spring since the damage it does has been noted particularly in March, April, and May. The relation this mite bears to the other North American members of *Nalepella* is shown by the following key:

- A. Tibia with prominent spines on rear edge and longer than patella and tarsus combined; on *Tsuga canadensis* in the eastern United States
tsugifoliae, new species
- A. Tibia smooth on rear edge and shorter than combined lengths of tarsus and patella B.
- B. Shield design obscure; microtubercles rounded; no spinules on suboral plate; on *Tsuga mertensiana* in California *tsugae* K.
- B. Shield definitely lined, the median line and the admedians present; microtubercles pointed; spinules on suboral plate; on *Abies magnica* in California *ednae* K.

Aceria acnisti Keifer, new species

Plate 222

Female up to 200 μ long, 45-70 μ thick; form wormlike, the younger individuals slender, the older females attaining a robust inflated form; color light yellowish. Rostrum small, 20 μ long, projecting diagonally down. Shield 30 μ long, 34 μ across; set with numerous short dashes and microtubercles, obscuring the shield design; median line absent; admedians curving in and out, anteriorly of dots, strong posteriorly, curving toward each other and ending ahead of rear shield margin; submedian lines of dots, with branches, ending ahead of dorsal tubercles. A band of spinules between the dorsal tubercles. Sides of shield somewhat granular. Dorsal tubercles 25 μ apart on rear shield margin; dorsal setae 33 μ long, projecting backward. Forelegs 35 μ long, tibia 10 μ long, with seta; tarsus 8 μ long, claw 6 μ long, curving but little; featherclaw 4-rayed. Hindlegs 32 μ long, tibia 7 μ long, tarsus 7 μ long, claw 7 μ long. Anterior coxae connate, all four coxae set with microtubercles and dashes. Abdomen with 70-80 rings, considerable doubling of rings in both dorsal and ventrad directions; microtubercles rounded-elongate. Lateral seta 23 μ long, on about ring 12; first ventral seta 45 μ long, on about ring 24; second ventral 35 μ long, on about ring 42; third ventral seta 35 μ long, on ring 7 from rear; accessory seta present. Female genitalia 20 μ wide, 13 μ long, coverflap with about 5 diagonal furrows on each side; seta 12 μ long.
 Male not studied.

Type locality: Ouro Preto, State of Minas Gerais, Brazil. **Collected:** December, 1952, and forwarded to the writer by Dr. Flavio da Fonseca. **Host:** *Acnistus cauliflorus* Schott (Solanaceae). **Relation to host:** The mites form conspicuous blisters in the leaves in which the colonies develop. **Type material:** a type slide and five paratype slides bear the above data. This mite is chiefly distinctive by possessing spinules on the shield between the dorsal tubercles. The bodies of the older females have enlarged abdomens which are quite out of proportion to the size of younger individuals. The figure only partly conveys the appearance of these enlarged individuals.

Oxypleurites acerivagrans Keifer, new species

Plate 223

Female 170-185 μ long, 40 μ wide, 30 μ thick; fusiform, orange in color. Rostrum 26 μ long, projecting down. Shield 35 μ long, 43 μ wide, subtriangular, the anterior lobe moderately acute in dorsal view, rather blunt in side view. Shield design obscure, but with scattered tubercles in central area. Dorsal tubercles 22 μ apart, set next to rear margin, but projecting up. Dorsal seta 8 μ long, projecting up and centrally. Forelegs 35 μ long, tibia 6 μ long, with seta; tarsus 8 μ long, claw 6 μ long, with rather large knob. Hindlegs 29 μ long, tibia 5.5 μ long, tarsus 6.5 μ long, claw 6 μ long. Anterior coxae contiguous, some-

Type material: a type slide and five paratype slides bear the above data. The projecting tergites at the rear of the dorsal trough are a peculiar feature. As well as the type locality, this mite also occurs on the same host at Camp Meeker, Sonoma County. This latter collection bears the date August 9, 1952.

Vasates pritchardi Keifer, new species

Plate 225

Female 130-140 μ long, 45 μ wide, 41 μ thick, fusiform, light orange in color. Rostrum 30 μ long, projecting down. Shield 40 μ long, 30 μ wide, subtriangular, prominent anterior lobe; a low central crest present on the main part of the shield, the median line hardly evident; admedian lines present on each side of the crest, ending posteriorly in an obtuse V-shaped mark; slight lateral lines. Dorsal tubercles 25 μ apart, on rear margin, dorsal setae 9 μ long, projecting backward. Forelegs 30 μ long, tibia 7 μ long, with seta; tarsus 6 μ long, claw 6 μ long, tapering; featherclaw 5-rayed. Hindlegs 27 μ long, tibia 6 μ long, tarsus 6 μ long, claw 6 μ long. Coxae somewhat granular and lined, the anterior coxae connate. Abdomen with about 27 tergites which lack microtubercles; sternites 55-60 in number, about three terminating at the end of each tergite; sternites set with rounded microtubercles. Lateral seta 16 μ long, on about sternite 9; first ventral seta 28 μ long, on about sternite 21; second ventral 8 μ long, on about sternite 38; third ventral seta 13 μ long, on about sternite 5 from rear; accessory seta present. Female genitalia 20 μ wide, 12 μ long, coverflap with about 12 longitudinal furrows; seta 16 μ long.

Male not studied.

Type locality: Mt. Diablo, Contra Costa County, California. **Collected:** August 5, 1952, by Dr. E. A. Pritchard, and the writer. **Host:** *Ceanothus cuneatus* (Hook). (Rhamnaceae), Buck brush. **Relation to host:** The mites are vagrants on the leaves, mostly on the hairy under-surface, where they appear as minute orange-colored bodies. They do not damage their host, not being especially numerous. **Type material:** a type slide and five paratype slides bear the above data. In the key to California species of *Vasates* on page 17 of the Bulletin of the California Insect Survey, Vol. 2, No. 1, 1952, this species runs to *ambrosiae*. *Vasates pritchardi*, is, however, not similar to *ambrosiae*, having a much larger frontal lobe. *Anthocoptes hesperus* K. on this same host from Southern California is very similar to *pritchardi*, except in the structure of the tergites. I take pleasure in naming this mite for Dr. Pritchard, who helped in the collection of the type series.

Vasates populivagrans Keifer, new species

Plate 226

Female 160-175 μ long, 55-60 μ wide, 45 μ thick; fusiform in shape; color light yellow-white. Rostrum 30 μ long, projecting down. Shield 48 μ long, 60 μ wide; shield design indistinct for the most part, the median line present to rear, admedians present and branching to median; anterior lobe prominent and with a small median spine; lateral shield lobes projecting, broadly rounded. Dorsal tubercles 32 μ apart, on rear margin; dorsal setae 18 μ long, projecting to rear. Forelegs 36 μ long, tibia 9 μ long, with seta; tarsus 8.5 μ long, claw 6.5 μ long, curved, knobbed; featherclaw 4-rayed. Hindlegs 30 μ long, tibia 6 μ long, tarsus 6 μ long, claw 6 μ long. Coxae somewhat granular, the anterior coxae broadly connate. Abdomen with about 28-30 tergites, 55 sternites; microtubercles small on the sternites, elongate on the tergites. Lateral seta 27 μ long, on about sternite 8; first ventral seta 45 μ long, on about sternite 20; second ventral 25 μ long, on about sternite 37; third ventral 26 μ long, on sternite 4 from rear; accessory seta absent. Female genitalia 23 μ wide, 15 μ long, coverflap with about 10 longitudinal furrows; seta 15 μ long.

Male very similar to female but smaller; 150 μ long, 45 μ wide, 40 μ thick.

Deutogyne appearing late in the season.

Type locality: Sacramento, California. **Collected:** July 24, 1952, by the writer. **Host:** *Populus fremontii* Wats. (Salicaceae), Cottonwood. **Relation to host:** The mites are vagrants on both leaf surfaces. Their activities perhaps result in some silvering which injury may be more pronounced in drier areas. The deutogynes hibernate in twig crevices.

Type material: A type slide and five paratype slides bear the above data. This mite evidently has a wide range on its host in California. Of the known California species of *Vasates*, the forms which have two small anterior shield spines seem closest to *populivagans*. However, this cottonwood mite has but one small spine at the apex of the anterior shield lobe. *Vasates reticulatus* (Nal.) is an European popular mite which is figured as having a distinct net-like shield design. *Vasates aegthrus* (Nal.), another European popular mite, has the dorsal seta as long as the shield, whereas this seta is shorter on *populivagans*.

Floracarus Keifer, new genus

Body frustiform, blunt anteriorly, tapering caudally, approximately circular in cross section or slightly flattened. Rostrum small, chelicerae straight. Shield semicircular in dorsal view, curving down abruptly in side view; anterior lobe over rostrum short; dorsal tubercles on rear shield margin; dorsal seta projecting backward. Legs with tibiae missing; claws on anterior legs shortened and projecting diagonally central from the inner side of the tarsi; all usual leg setae present on the existing segments. Anterior coxae broadly fused together; setae 1 missing. Abdomen evenly curved transversely, dorsally; tergites and sternite completely microtuberculate, rather narrow, about the same number. Microtubercles elongate and enlarged posteriorly. Female genitalia a moderate distance behind the coxae; overlap with concentric half-rings; anterior internal apodeme of normal length.

Genotype: *Floracarus calonyctionis*, new species

This genus, which belongs to the Phyllocoptinae, seems remotely connected to *Vasates* on the basis of the dorsal tubercles and setae. The principal character distinguishing this genus is the absence of tibiae on the legs. Other characters are the lack of the first coxal setae, the fusing of the anterior coxae, and the displacement of the anterior claws to the inner side of the tarsi. The species *Notropoda vancouverae* K. from the same general area has the lack of tibiae and the missing first setae on the coxae in common with *Floracarus*. *Notropoda*, has no projection over the rostrum and therefore belongs to the Eriophyinae. But these resemblances are striking. The genus name is compounded from the first part of Florida, plus acarus.

Floracarus calonyctionis Keifer, new species

Plate 227

Female 135-175 μ long, 45 μ thick; frustiform; color white. Rostrum 20 μ long, projecting down. Shield 28 μ long, 15 μ wide; design a network, the median line present and connected to the admedian by three pair of cross lines; submedian present, fading into the lateral network; shield generally and finely granular, these granules extending laterally to the coxae; anterior lobe short, rough in side view. Dorsal tubercles 22 μ apart, on rear margin; dorsal setae 11 μ long, projecting backward. Forelegs 28 μ long; tibiae missing; claws 3 μ long; claw 3 μ long, not visible in side view; featherclaw 4-rayed. Hindlegs 22 μ long, granulations similar to forelegs, tibia missing; tarsus 8 μ long, claw 5 μ long, slightly curved and knobbed. Legs setae strong. Coxae with anterior pair granular and fused. Abdomen with about 55-60 rings, these rings missing from the area behind the rear coxae leaving microtubercles placed at random. Lateral seta 25 μ long, on about sternite 5; first ventral seta 38 μ long, on about sternite 17; second ventral 9 μ long, on about sternite 32; third ventral 18 μ long, on sternite 8 from rear. Accessory seta absent. Female genitalia 20 μ wide, 12 μ long, the overlap with concentric half-rings and with granules and lines basally; seta 8 μ long.

Type locality: Belle Glade, Lake Okeehobee, Florida. **Collected:** April 8, 1953, by O. D. Link. **Host:** *Calonyction aculeatum* House, (Convolvulaceae), Moonflower. **Relation to host:** The mites blacken the leaves after the manner of rust mites. This injury is severe at times and causes

unsightly discoloration of the leaves, as well as drying. The mites live on the undersurface. **Type material:** A type slide and five paratype slides bear the above data. This mite was originally submitted to the writer from the office of C. F. W. Muesebeck of the U. S. Bureau of Entomology. The locality in this latter case was Miami, Florida, collected February 20, 1953, by O. D. Link, and the specimens were submitted to the U. S. Bureau of Entomology by G. B. Merrill of the Florida State Plant Board. For the description of *Nothopoda rapanae* K. see this Bulletin, V. 40, p. 96, 1951.

Phyllocoptes arceuthi Keifer, new species

Plate 228

Female 150μ long, 35μ thick, wormlike, color somewhat reddish. Rostrum 27μ long, projecting ahead and curved down a little. Shield 40μ long, 38μ wide; design of lines of granules: median line obscure, admedian lines undulating and angular; first submedian line apparently forked before dorsal tubercle; anterior shield lobe acute, projecting well over rostrum; sides of shield declivitous below lateral lobes, and granular. Dorsal tubercles 18μ apart, a little ahead of rear margin; dorsal setae 15μ long, projecting up and forward. Foreleg 25μ long, tibia 5μ long, with strong seta; tarsus 6μ long, claw 7μ long, curved, tapering; featherclaw 6-rayed. Hindlegs 24μ long, tibia 4μ long, tarsus 5.5μ long, claw 7.5μ long. Coxae granular, the anterior coxae broadly connate. Abdomen with between 70 and 80 rings, completely microtuberculate, the microtubercles rounded. Lateral seta 25μ long, on about sternite 10; first ventral 30μ long, on about sternite 25; second ventral seta 25μ long, on about sternite 44; third ventral seta 20μ long, on about sternite 5 from rear. Accessory seta present. Female genitalia 23μ wide, 15μ long, cover-flap with 8-11 diagonal longitudinal ridges; seta 17μ long.

Male similar to female but a little smaller.

Type locality: Midway between Camp Sacramento and Twin Bridges, El Dorado County, California. **Collected:** August 12, 1952, by the writer. **Host:** *Juniperus occidentalis* Hook. (Cupressaceae). Sierra juniper. **Relation to host:** The mites lurk in the crevices under the scale-like leaves on the twig tips. They are especially numerous on growing twigs. They often remain concealed except for the cephalothorax. No damage to the host is apparent. **Type material:** A type slide and five paratype slides bear the above data. As well as the above locality this mite also occurs in Shasta County on Hat Creek at Sandy Camp, collected August 23, 1952. The juniper in this latter location, while supposedly the same species, is growing on lava flats, not on granite rock, and is a more vigorous and evenly-shaped tree. If it were not for the prominent shield lobe this species would as readily go into *Eriophyes*. The only other California species of *Phyllocoptes* having a 6-rayed featherclaw is *adalius* K., which differs from *arceuthi* in having shield lines of solid construction, rather than of rows of tubercles.

Platyphytoptus monophyllae Keifer, new species

Plate 229

Female $190-210\mu$ long, 55μ wide, 50μ thick; fusiform; body not particularly flattened; color orange. Rostrum 38μ long, projecting down in a curve. Shield 42μ long, 40μ wide, the anterior lobe quite small; shield design of clear lines set with microtubercles; median line absent, admedians curving inwardly between the dorsal tubercles; a submedian line on each side also curving inward between the dorsal tubercles and the admedian line. Dorsal tubercles 32μ apart, well ahead of the rear margin, but with lateral body rings stopping just below each tubercle; dorsal setae 11μ long, projecting up and centrally. Foreleg 37μ long, tibia 8μ long, with seta; tarsus 8μ long, claw 7μ long, tapering; featherclaw 5-rayed. Hindleg 35μ long, tibia 6μ long, tarsus 7μ long, claw 9μ long. Anterior coxae barely contiguous, with some roughening. Abdomen somewhat rounded out but with the characteristic sublateral furrow; tergites and sternites (rings) strongly microtuberculate, with the microtubercles tending to project as points. About 55-60 tergites; 75-80 sternites. Lateral seta 24μ long, on about sternite 10; first ventral seta 55μ long,

on about sternite 24; second ventral 40 μ long, on sternite 45; third ventral 22 μ long, microtubercles: 33 μ wide, 25 μ long, coverlap with about 12 longitudinal furrows; genital seta 12 μ long. Male not studied.

Type locality: Three to five miles south of Markleeville, Alpine County, California. **Collected:** August 12, 1952, by the writer. **Host:** *Pinus monophylla* Voss. One-leaf pinion pine. **Relation to host:** The mites are needle vagrants as observed in this case. (As noted below they also inhabit the needle sheaths on occasion.) **Type material:** A type slide and five paratype slides bear the above data. For additional paratypes see below. Prof. G. F. Knowlton, of the Utah State Agricultural College has collected this mite on the two-leaf variety of this pine in southern Utah. The localities are: Three miles west of Mt. Carmel Junction, Kane County, Utah, March 25, 1953; three miles west of Iron Mountain, Iron County, Utah, March 26, 1953. The mites in this case were in the two needles which the Markleeville mites cannot do. **Four paratypes**, two each, are designated from this Utah material. *Platyliphthys monophyllae* is characterized by the shield pattern which is stronger than in the other species referable to the genus. The prominent microtuberculation and the five-rayed featherclaw also distinguish the species. The featherclaw allies it to *subimaneae*, which species does not have the distinct shield pattern. The type locality is on the east side of the Sierra Nevada mountains on the western edge of the Great Basin, where the tall pine forest gives way to the shorter, sparser scrub pinions.

Ephritimerus zauschneriae Kiefer, new species

Plate 230

Femate 150-170 μ long, 40-45 μ thick; elongate-fusiform, color yellowish. Rostrum 26 μ long, projecting down. Shield 43 μ long, 40 μ wide, triangular, the anterior lobe acutely pointed; gesion of tubercles, with the median line present, admedian somewhat curved and connected to the median by 2 V-shaped lines; submedian running toward the dorsal tubercles. Dorsal tubercles 23 μ apart, ahead of the rear margin; dorsal setae 10 μ long, projecting up and central. Forelegs 33 μ long, tibia 6 μ long, with seta; tarsus 7 μ long, claw 11 μ long, slender, slightly recurved; featherclaw 4-rayed. Hindleg 30 μ long, tibia 5 μ long, tarsus 7 μ long, claw 10 μ long, Coxae somewhat rounded, abdomen entirely microtuberculate, the microtubercles forming a low ridge along the middorsal line, especially toward the rear; 50-55 legs; 60-65 sternites. Lateral seta 22 μ long, on about sternite 6; first ventral seta 25 μ long; on about sternite 21; second ventral 26 μ long, on about sternite 33; third ventral 20 μ long, on sternite 5 from rear; accessory seta present, small. Female genitalia 20 μ wide, 13 μ long, coverlap with about 10 longitudinal furrows; seta 21 μ long. Male not studied.

Type locality: Recreation Beach, Putah Canyon, Napa County, California. **Collected:** August 14, 1952, by the writer. **Host:** *Zauschneria californica* Presl. (Onagraceae), Mexican balsam, or California Fuchsia. **Relation to host:** The mites live on the lower leaves and cause considerable browning of the leaf surfaces. Their activity causes the lower leaves to die prematurely, giving the plants a striped appearance. **Type material:** A type slide, and five paratype slides bear the above data. Part of the collected specimens, not included in the type series, but from the same place bear the date, June 5, 1952. The locality is about 10 miles west of Winters, and the plants in this particular place were in existence because roadside burning could not be practiced close to an inhabited area. This mite is in *Ephritimerus* because of the distinct ridge along the back. The sharply pointed anterior shield lobe differen-

tiates this mite from all others in California that are referable to *Epi-trimerus*.

Calepitrimerus occithujae Keifer, new species

Plate 231

Female 150-160 μ long, 50 μ wide, 40 μ thick; fusiform, robust. Light orange color. Rostrum 30 μ long, projecting down. Shield 50 μ long, 50 μ wide, with a broad anterior lobe over the rostrum, and prominent side lobes; admedian lines present, with a cross-link about middle; a submedian line present on which sets the dorsal tubercle. Dorsal tubercles 24 μ apart, set well ahead of rear margin; dorsal seta projecting up and ahead, 9 μ long. Forelegs 31 μ long, tibia 9 μ long, with seta subapically placed; tarsus 6 μ long, claw 7 μ long, tapering, curved, slightly knobbed; featherclaw 7-rayed. Hindlegs 28 μ long, tibia 6 μ long, tarsus 6 μ long, claw 7 μ long. Coxae narrowly touching in center, slightly roughened. Abdomen with central ridge ending on about ring 12-14 from rear; the rings obscurely microtuberculate in general, there being fine microtubercles on the sternites and more prominent ones on the middorsal ridge; about 55 tergites, 65-70 sternites. Lateral seta 33 μ long, on about sternite 9; first ventral seta 28 μ long, on about sternite 21; second ventral 20 μ long, on about sternite 40; third ventral seta 22 μ long, on about sternite 7 from rear; accessory seta absent. Female genitalia 19 μ wide, 16 μ long, coverflap with about 4 diagonal furrows on a side, converging toward center of rear margin; seta 20 μ long.

Males smaller than females but with same characters.

Type locality: William Land Park, Sacramento, California. **Collected:** August 27, 1952, by J. P. Keifer and the writer. **Host:** *Thuja occidentalis* L. (Cupressaceae), American arborvitae. **Relation to host:** The mites are vagrants on the foliage, apparently causing no harm. **Type material:** A type slide and five paratype slides bear the above data. This mite differs from other known forms of *Calepitrimerus* in California by having prominent lateral shield lobes. In the twelfth Report of the State Entomologist of Illinois, 1883, p. 138, H. Garman named *Phytoptus thujae* from *Thuja occidentalis*. This mite has also gone under the name of *Eriophyes thujae* (Garman). Until Garman's species is properly studied and characterized in the type area the relation that *Calepitrimerus occithujae* bears to *thujae* of Garman will remain unknown.

Calepitrimerus gilsoni Keifer, new species

Plate 232

Female 135-145 μ long, 45 μ wide, 40 μ thick; fusiform; color light pinkish, with slight wax stripes along the dorsal ridges when alive. Rostrum 27 μ long, projecting down. Shield 50 μ long, 45 μ wide, anterior lobe broad and blunt; a central ridge present, extending back and ending just beyond the dorsal tubercle setting; dorsal tubercles 25 μ apart, set ahead of the rear margin, and projecting up and ahead a little; dorsal setae 22 μ long, projecting up and ahead. Forelegs 28-30 μ long, tibia 8 μ long, with seta; tarsus 6 μ long; claw 5 μ long, knobbed; featherclaw 3-rayed. Hindlegs 25 μ long, tibia 6 μ long, tarsus 5 μ long, claw 6 μ long. Coxae with anterior pair contiguous, somewhat lined. Abdomen with central ridge ending about sternite 16 from rear; set with fine microtubercles which are less conspicuous or absent on the tergites; 43-48 tergites; about 55 sternites. Lateral seta 14 μ long, on about sternite 7; first ventral 22 μ long, on about sternite 19; second ventral 12 μ long, on about sternite 32; third ventral 18 μ long, on sternite 5 from rear; accessory seta absent. Female genitalia 20 μ wide; 18 μ long, with 8 or 9 longitudinal furrows; seta 12 μ long.

Male not seen.

Type locality: Camp Meeker, Sonoma County, California. **Collected:** August 10, 1952, by the writer. **Host:** *Vaccinium ovatum* Pursh. (Ericaceae), California huckleberry. **Relation to host:** The mites are innocuous inhabitants of the fresh succulent twigs, living around the lateral buds. In no case was a heavy infestation found. Infested shoots were usually on the lower, more shaded parts of the plant. **Type material:** A type slide, and five paratype slides bear the above data. The writer is naming this mite for D. F. Gilson, through whose courtesy it was possible to find and collect this rather scarce and retiring Eriophyid. Of the species of

- API—Internal female genitalia
 D—Dorsal view of mite
 DA—Dorsal view of anterior section of mite
 ES—Detail of side skin structure
 F—Featherclaw
 FI—Anterior featherclaw and claw
 GFI—Female genitalia and coxae from below
 L—Left legs
 LI—Anterior left leg
 S—Side view of mite
 SA—Side view of anterior section of mite

DESIGNATIONS ON THE PLATES

Grind the crystals together in a mortar, place in a screw-cap vial in which is the fluid part of the medium, the fluids being measured by previously calibrating the vial. Screw the cap on tight and warm in an oven at 45-50° C. for several days. After that the medium should be ready for use and should not recrystallize. Further heating at even higher temperatures will help prevent this recrystallization.

When transferring the mites from the preparatory medium it is advisable to use some of the permanent medium to remove the highly acid first solution.

- | | | | | |
|---|---------------------------------|-------|---------------|-----------------|
| 1 | Gram arabic | ----- | 1 | cc. |
| 2 | Table sugar | ----- | 1 | gram |
| 3 | Chloral hydrate | ----- | 10 | grams (or more) |
| 4 | Potassium iodide crystals | ----- | $\frac{1}{2}$ | gram |
| 5 | Iodine crystals | ----- | $\frac{1}{2}$ | gram (or less) |
| 6 | Glycerin | ----- | $\frac{2}{2}$ | cc. |
| 7 | Formaldehyde, one-half strength | ----- | 1 | to 3 |

Heat the mites in a portion of this solution until the desired clarity is attained. Allow to cool and add some standard formaldehyde solution. Allow to stand for at least $\frac{1}{2}$ hour. The formaldehyde sets the specimens, and they will not lose shape when transferred to the permanent medium, which is:

- | | | | | |
|---|-----------------------------------|-------|---------------|----------------|
| 1 | Methyl phenol | ----- | 4 | cc. |
| 2 | Lactic acid solution | ----- | 12 | cc. |
| 3 | Resorcinol | ----- | $\frac{1}{2}$ | gram (or less) |
| 4 | Potassium iodide | ----- | $\frac{1}{2}$ | gram |
| 5 | Hydrochloric acid solution, conc. | ----- | 16 | drops |

The preparatory medium—
 In Eriophyid Studies XIX, Bul. Cal. Dept. Agr., 41: 69, 1952, the writer presented recipes for using resorcinol and formaldehyde in water. The following formulae are more suitable for certain larger mites, particularly Tetranychidae and Acaridae (Troglyphidae).

MITE MOUNTING MEDIA

Calepitrimerus previously known in California, this mite comes closest to *umbelluriae* K. The ridge in the center of the shield and the form of the dorsal tubercles allies them, but *gilsomii* does not have the dorsal tubercles produced as much as does *umbelluriae*. The number of rays in the featherclaws of the two species is one of the differentiating characters, *umbelluriae* having 5, while *gilsomii* has 3 on a side.

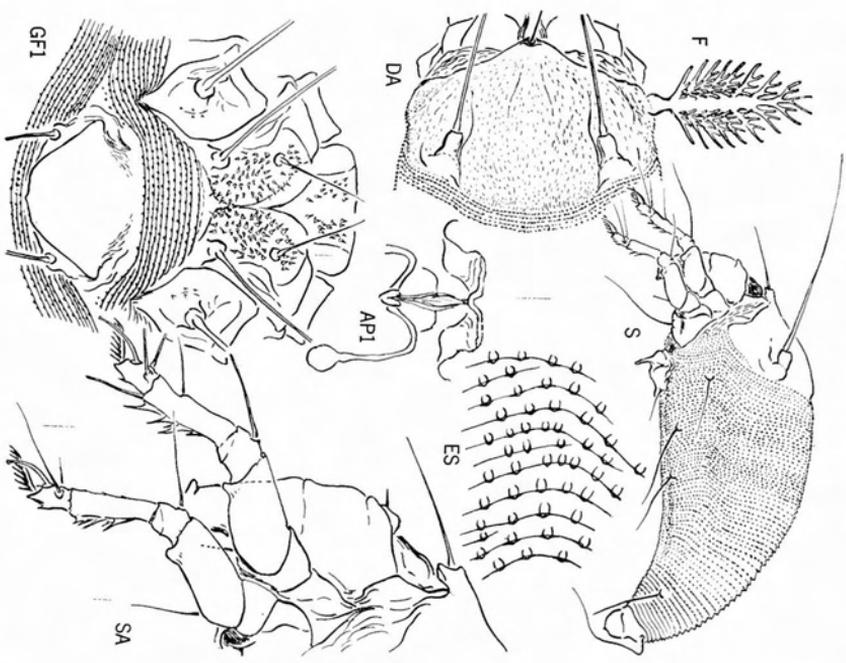


Plate 221.—*Nalepella tsugiflorae* n. sp.

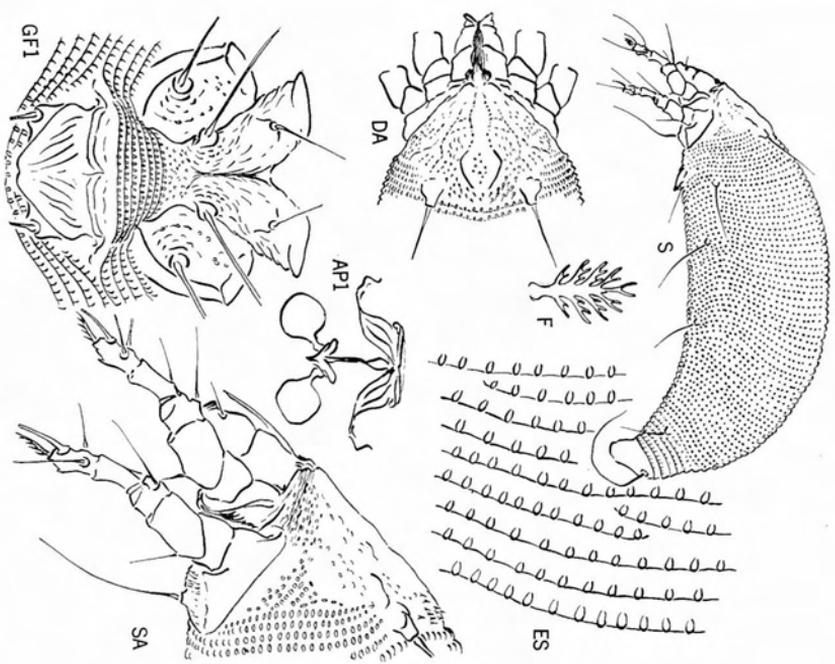


Plate 222.—*Aceria acnishi* n. sp.

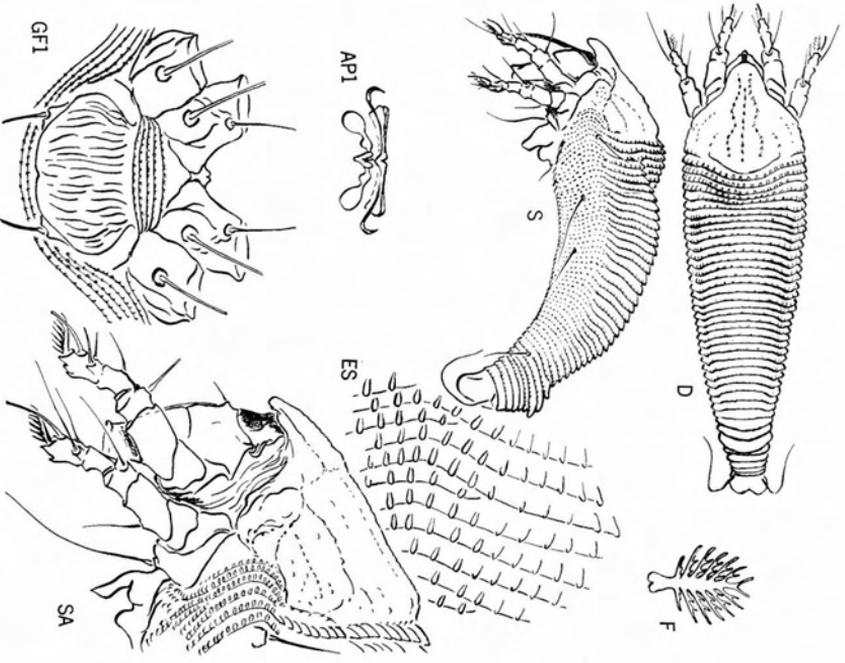
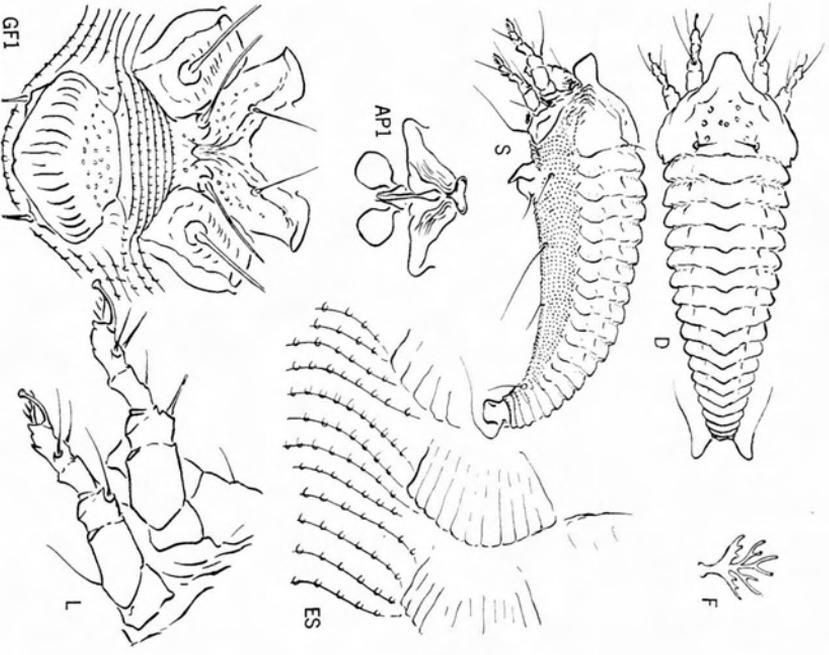
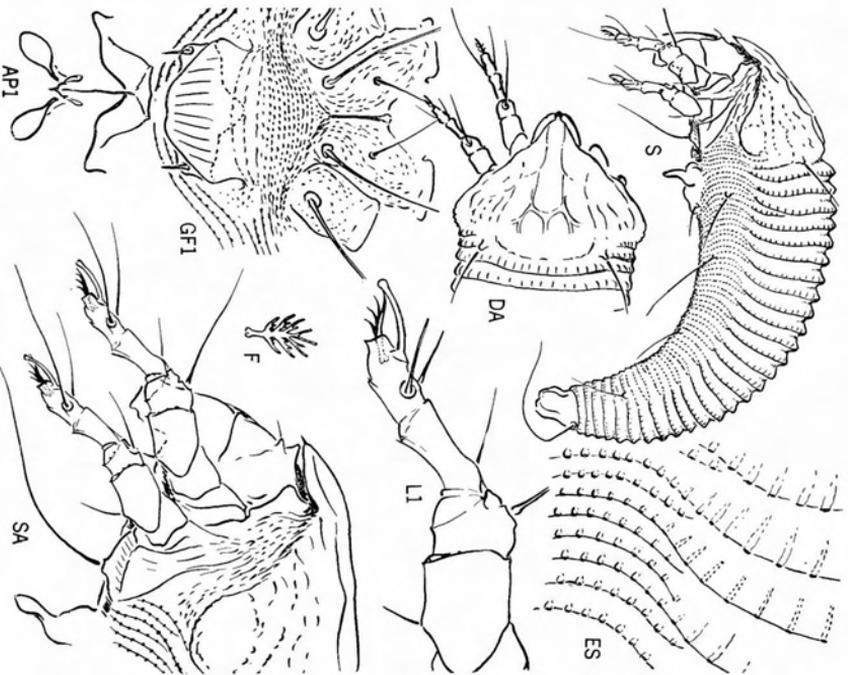
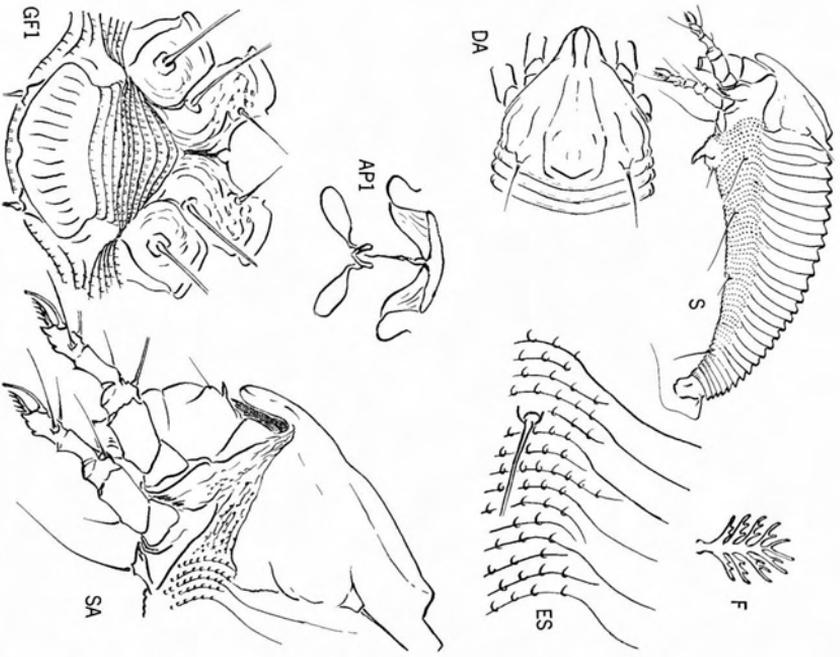


Plate 223—*Oxypleurites acrivitigyrans* n. sp.

Plate 224—*Glyptacus lithocarpus* n. sp.



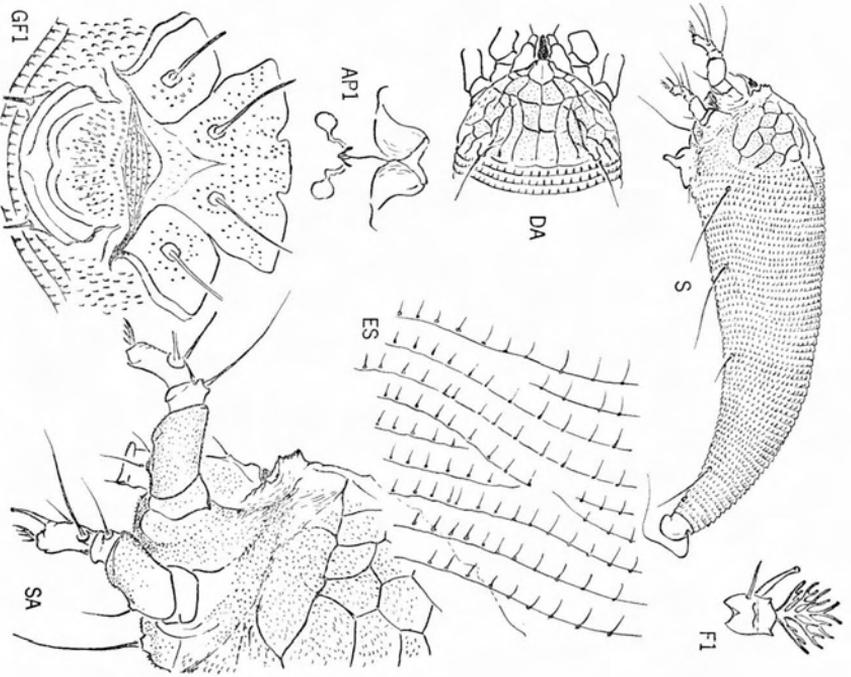


Plate 227—*Floracarus calongactonis* n. sp.

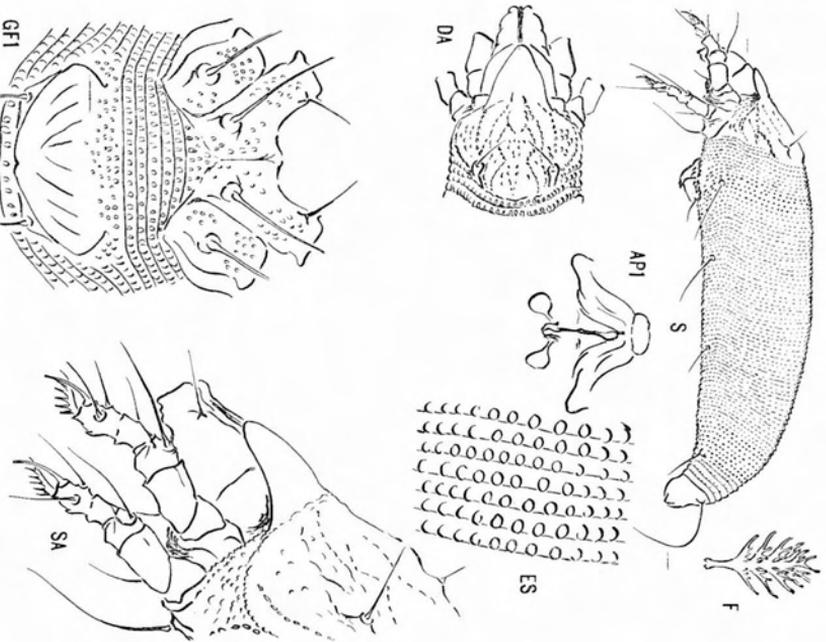


Plate 228—*Phyllocoptes areuthi* n. sp.

Plate 229—*Platyphtophus monophyllae* n. sp.

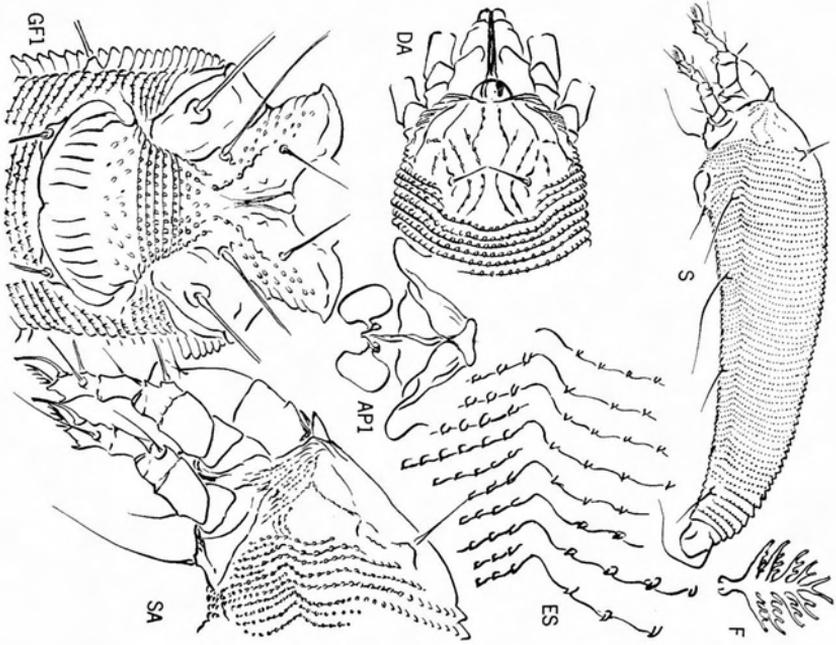
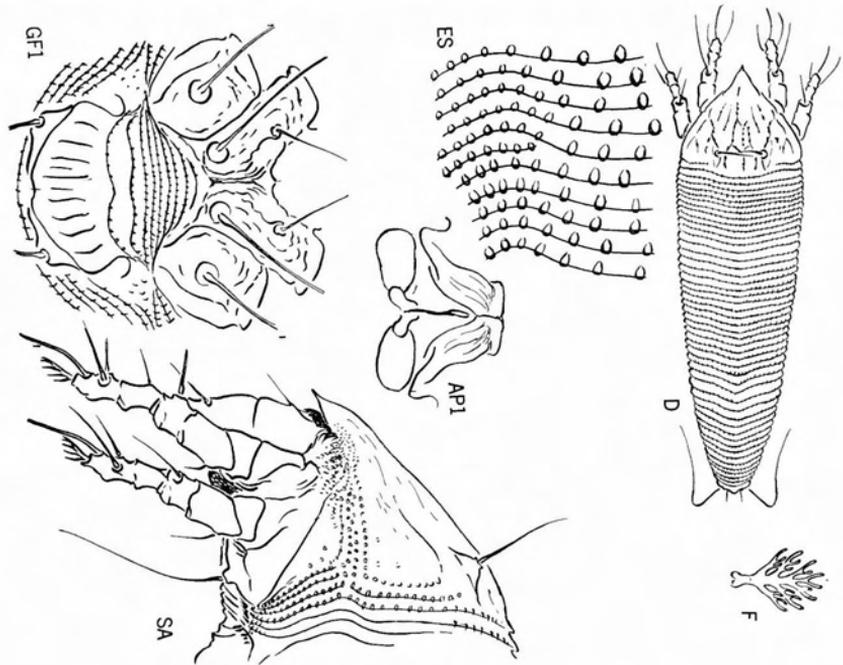


Plate 230—*Epirrhynchus zauscheriae* n. sp.



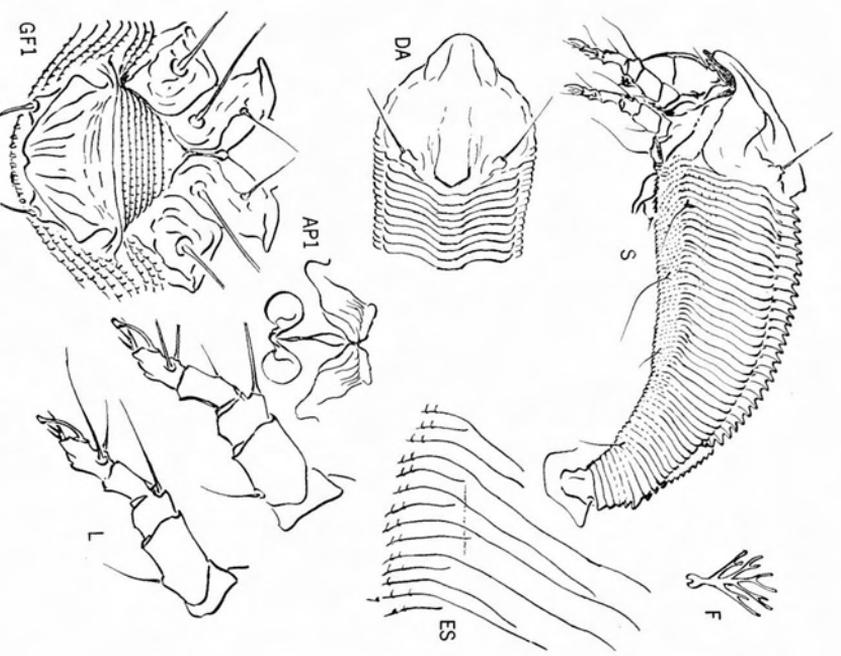


Plate 232—*Calcephirus gibsoni* n. sp.

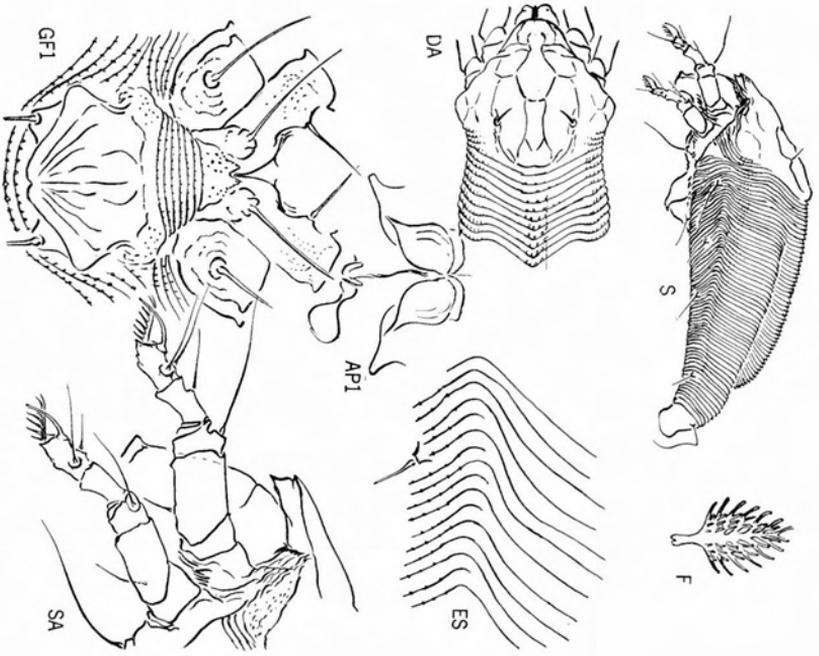


Plate 231—*Calcephirus oerthhaugae* n. sp.

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