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ERIOPHYID STUDIES XVII

H. H. KEIFER
California State Department of Agriculture

The last installment of this series XVI appeared April 16, 1946. Bul. Dept. Agr. Vol. 35, #1, 1946. The present installment is a continuation of the development of the taxonomy of this mite family, mainly as it applies to North American species. The contents of this article are: 1. Two new conifer mites from California; 2. A new budmite on both native California blackberry and boysenberry; 3. Three new species from California composites; 4. Two new genera and species submitted by the U. S. Bureau of Entomology and Plant Quarantine; 5. A new leaf vagrant mite on walnut; 6. A new Coccid-like mite on oak; 7. Three new genera in the Diptilomiopini; 8. Notes on mite mounting media.

The first species, *Nalepella ednae,* is dedicated to Edna Willis Gaskill, Librarian of the California Department of Agriculture, and editor of the Bulletin, in appreciation for the many hours she has spent helping me publish this series of Eriophyid Studies in the Bulletin.

SIERRAPHYTOPTINAE

Nalepella ednae Keifer, new species

Plate 204

Female 280-320 μ long, 90 μ thick, stocky, tapering strongly past middle, color light yellow. Rostrum 55 μ long, large, evenly downcurved. Shield 55 μ long, 85 μ wide, the anterior lobe short; design of longitudinal lines, the median line broken to rear, the admedian lines curved, the subdorsal lines forming a loose network in front of the dorsal setae; anterior setae ahead of the median line and overhanging the short lobe, 28 μ long. Dorsal tubercles 50 μ apart, laterally placed and somewhat ahead of rear margin; dorsal setae 63 μ long and directed forwards. Forelegs 58 μ long; tarsus with both lateral and dorsal setae present; claw 15 μ long, slender, tapering; featherclaw 9-rayed. Hindlegs 55 μ long, claw 15 μ long, patellar seta somewhat laterally placed. Coxae in ventral view with setae I situated ahead of connate section of forecoxae; the other two pair of setae present: anterior coxae spinulate both proximally and apically; with some small spinules on the suboral plate anterior to the forecoxae. Abdomen with tergites not strongly differentiated from the sternites, both being set with fine microtubercles ending in a fine spine; about 65 tergites and 95 sternites. No subdorsal setae present. Lateral seta 60 μ long, on about sternite 14; first ventral seta 52 μ long, on about sternite 32; second ventral 18 μ long, on about sternite 55; third ventral on sternite 7 from rear and 40 μ long; accessory seta present. Female gentialia 18 μ wide, 14 μ long, coverflap smooth; genital seta 17 μ long.

Male about 270 μ long, 80 μ thick.

Type locality: Twin Bridges, El Dorado County, California. **Collected** September 1, 1946, by the writer. **Host:** *Abies magnifica* Murr., red fir. **Relation to host:** The mites are needle vagrants, being more numerous in late summer and early fall. **Type slide** bearing the above data. **Paratype slides:** 15 in number, part bearing the above data, and part as follows: two slides from Buck's Lake, Plumas County, California, July 28, 1946; three slides from Fallen Leaf Lake, El Dorado County, California, September 11, 1947. All these collections are from red fir and are by the writer. Red fir is exceedingly similar to white fir (*Abies concolor*) in general appearance, but it does not share this mite with the latter tree. White fir is infested by a species of *Phyllocoptes.*

Nalepella tsugae Keifer, new species

Female 300-330 μ long, 100 μ thick, robust, tapering; color light yellow. Rostrum 65 μ long, large and evenly downcurved. Shield 64 μ long, short anterior lobe over the rostrum; design faint, the longitudinal lines indistinct; dorsal tubercles ahead of rear shield margin, 60 μ apart; dorsal setae projecting forward, 92 μ long; anterior seta directly over the anterior lobe and 80 μ long. Forelegs 66 μ long, the tibiae 18 μ long with central and laterally placed apical setae; claw 18 μ long, curved and tapering; featherclaw 9 or 10 rayed, large. Hindlegs 66 μ long, claw 17 μ long. Coxae with usual setae; forecoxae bearing spinules only near where the coxae are connate. Tergites a little broader than the sternites; both tergites and sternites set with fine microtubercles; about 60-70 tergites; 110-120 sternites. Lateral seta on about sternite 15, 60 μ long; first ventral seta 60 μ long, on sternite 37; second ventral 32 μ long, on sternite 62; third ventral 40 μ long, on sternite 8 from rear; accessory seta present. Female genitalia 33 μ wide, 24 μ long, coverflap smooth, genital seta 29 μ long.

Type locality: Lassen National Park, California, at about 7,500 feet elevation (Upper King's Creek Meadow). **Host:** *Tsuga mertensiana* (Bong.), mountain hemlock. **Relation to host:** The mites are needle vagrants. **Type slide:** bearing the above data, the mites collected August 22, 1949, by the writer. **Paratype slides:** nine in number, with the above data. This mite is not figured since it is very similar to the species described above as *ednae*. The principal points of difference are that *ednae* has spinules on both sides of the forecoxal setae, while *tsugae* has them only on the inner side; the microtubercles of *ednae* bear spinules; the shield design of *ednae* is distinct.

ERIOPHYINAE

Aceria orthomera Keifer, new species

Female 180-200 μ long, 35-40 μ thick; body wormlike and light cream color. Rostrum 20 μ long, small and evenly downcurved. Cephalothoracic shield subtriangular, 29 μ wide, 23 μ long, the design as follows: median line present, admedians diverging posteriorly, first lateral line directed toward and forking in front of the dorsal tubercles; the lines obscured further laterally by numerous short lines which are also interspersed with the center lines; a prominent lateral "ocellar" spot. Dorsal tubercles 17.5 μ apart, on rear margin; setae 20 μ long and projecting caudad. Forelegs 23 μ long; tibia without seta, 6 μ long; claw 6 μ long; featherclaw 4 rayed. Hindlegs 21 μ long, tibia 2.5 μ long, tarsus 5 μ long, claw 7.5 μ long. Coxae microtuberculate, the anterior coxae united toward the rear. Abdomen with 65-75 rings back of the shield; these rings evenly microtuberculate, the microtubercles small and rounded. Lateral seta 21 μ long, on about ring 10 behind the shield; first ventral seta 35 μ long, on about ring 22; second ventral 26 μ long, on about ring 41; third ventral 12 μ long, on about ring 5 from rear; accessory seta apparently absent. Female genitalia with anterior apodeme acuminate; the genitalia 18 μ wide, 10 μ long, coverflap with 9-11 irregular longitudinal furrows; seta 11 μ long.
Male 140 μ long, 35 μ thick.

Type locality: Sacramento, California. **Collected:** August 16, 1951, by the writer. **Host:** *Rubus vitifolius* C. & S., California blackberry. **Relation to host:** The mites occur in the buds and at the petiole bases. No apparent damage to the vines has been noted. **Type slide:** so designated, with the above data. **Paratype slides:** five in number as above. This mite is so nearly like *Aceria essigi* (Hassan), as characterized by myself in Eriophyid Studies XI (Bul. Cal. Dept. Agr. V. 30, p. 205, 1941) that no figure is provided here. The differences are: First *essigi*, which is the redberry mite, has crescentic scoring on the genital coverflap, whereas *orthomera* has longitudinal scoring; second the "ocellar" spot on the side of the shield is more prominent in *orthomera*. This mite was first called to my attention during the spring of 1951 by R. A. Break, Farm Adviser of Fresno County. The mite was attracting notice as an inhabitant of boysenberry buds. In my 1941 article I assumed that the mites found in red blackberries, that were failing to ripen, were Hassan's species, and drew up my description from Sacramento material. Berkeley is presumably Hassan's type locality, and investigation there revealed that Himalaya blackberries with redberry disease

had the same mite. Native blackberry, however, had the one described as *orthomera*. Subsequent collecting on native blackberry here at Sacramento revealed the same mite: *orthomera*. Himalaya blackberries (and others), both at Berkeley and Sacramento have the *essigi* type of mite; while the native berry has the form here described as new, in the Berkeley area and at Sacramento. The question arises, why is the mite from the native host on boysenberry? The answer probably lies in the relation that boysenberry bears to the native plant, since it is supposed to have originated in part, at least, from the native berry.

Aceria lepidosparti Keifer, new species

Plate 205 (L series)

Female 170-180 μ long, 45 μ thick; wormlike, pinkish. Rostrum 21 μ long, curved down. Shield 25 μ long, 35 μ wide; the design with the usual lines heavily interspersed with short lines; median line distinguishable to the rear; admedian lines diverging in front of the median line; first lateral line curving centrally toward the rear, the second lateral line broken but part meeting the first lateral near the dorsal bristles. Shield laterally granular. Dorsal tubercles on rear margin, 25 μ apart. Dorsal setae 21 μ long, projecting backwards. Forelegs 33 μ long; tibia with seta; claw 6 μ long; featherclaw 5 rayed. Hindlegs 30 μ long, claw 8 μ long. Coxae heavily granular; all setae present; forecoxae connate centrally. Abdomen with about 85 rings, completely microtuberculate, the microtubercles small and hardly pointed. Lateral seta 30 μ long, on ring 7 behind the genitalia; first ventral seta 60 μ long, on ring 23 behind the genitalia; second ventral 6 μ long, on ring 40; third ventral on ring 7 from rear and 18 μ long. Accessory seta present. Female genitalia with shortened apodeme, the genitalia 20 μ wide, 10 μ long, with about 14 radiating furrows; seta 8 μ long.

Type locality: Devore district (near San Bernardino), California. **Collected**: June 28, 1946, by J. B. Steinweden and the writer. **Host**: *Lepidospartum squamatum* Gray, a native desert Composite. **Relation to host**: The mites cause a bud deformation, producing clusters of these aborted buds. **Type slide**: so designated with the above data. **Paratype slides**: five in number. There is also the dry plant material from which the slides were made, and which constitutes "type material." The mite is distinct in the shield pattern.

Aceria wyethiae Keifer, new species

Plate 205 (W series)

Female 275 μ long, 60 μ thick. Yellow, rather robust. Rostrum 30 μ long, curved down. Shield 35 μ long, 50 μ wide; median and admedian lines as usual, the median with a posterior pair of converging dashes; first lateral line curving and broken, the fork in front of the dorsal tubercle recurving laterally; second lateral line straight and ending in lateral granulations; some granulations in the central field; dorsal tubercles 33 μ apart, on rear margin; dorsal setae 28 μ long, projecting backwards. Forelegs 40 μ long, tibia with seta, claw 12 μ long, featherclaw 6 rayed. Hindlegs 35 μ long, claw 13 μ long. Coxae faintly striate, the forecoxae connate in a rather long straight line. Abdomen with about 75 rings, the microtubercles on these rings each bearing a short spinule. Lateral seta 15 μ long, on about ring 11 behind shield and ring 4 behind genitalia; first ventral seta 30 μ long, on ring 20 behind genitalia; second ventral 12 μ long, on ring 38; third ventral 25 μ long, on ring 6 from rear; accessory seta present. Female genitalia large, the apodeme broad; width of genitalia 30 μ, 20 μ long, coverflap with 10-12 irregular and long longitudinal furrows; seta 17 μ long.

Type locality: Fallen Leaf Lake, El Dorado County, California. **Collected**: September 1, 1950, by the writer. **Host**: *Wyethia* sp., a Composite. **Relation to host**: The mites are undersurface vagrants among the leaf hairs. **Type slide**: so designated, with the above data. **Paratype slides**: five in number as above. In addition there is the dry plant material from which the slides were made. This is another mite in the series of Composite infestors which are characterized by a plainly designed shield, and spinulate mircotubercles. The next species also fits in this group.

Aceria beevori Keifer, new species

Plate 205 (B series)

Female 225-250 μ long, 50 μ thick; wormlike, yellow. Rostrum 30 μ long, curving down. Shield 35 μ long, 45 μ wide; median line slightly interrupted; admedian lines not diverging much toward rear; first and second lateral lines forking to rear, the forks crossing ahead of the dorsal tubercles; side of shield lightly granular; dorsal tubercles 25 μ apart; dorsal setae 22 μ long, directed to rear. Forelegs 40 μ long, claw 15 μ long; featherclaw 5-rayed. Hindlegs 33 μ long, claw 11 μ long. Forecoxae broadly connate; coxae with a moderate design of lines, especially the forecoxae. Abdomen with 60-70 rings, the microtubercles on these rings with short spinules respectively. Lateral seta 12 μ long, on about ring 4 behind the genitalia; first ventral 43 μ long; on ring 15 behind the genitalia; second ventral 11 μ long, on ring 31; third ventral 32 μ long, on ring 6 from rear; accessory seta present. Female genitalia with apodeme rather broad but a little shortened; width of genitalia 25 μ, 13 μ long; coverflap with 10-12 longitudinal furrows; seta 12 μ long.

Male more robust than the female; 200 μ long, 60 μ thick.

Type locality: Sierra City district, Sierra County, California. **Collected**: July 18, 1942, by G. A. Beevor, Entomologist with the State Department of Agriculture. **Host**: *Wyethia* sp. (*mollis?*). **Relation to host**: The mites form galls in the flower heads, sometimes completely aborting the flower. **Type slide**: so designated, with the above data. **Paratype slides**: five in number as above. In addition the type material consists of the original plant parts bearing numerous mummified mites from which the slide specimens were taken. I am naming this mite after its collector who is a notable collector of insects and other Arthropods. The figures illustrate the differences in shield pattern between *wyethiae* and *beevori*.

Nothopoda Keifer, new genus

Body short, wormlike. Rostrum small, projecting down. Shield subtriangular, not projecting over rostrum base; dorsal tubercles a little produced, longitudinal in greatest dimension, but directing seta caudolaterally. Seta I missing from forecoxa. Legs lacking tibia but with all other usual parts and setae; featherclaw undivided. Abdomen with microtuberculate rings, about even dorsoventrally; all usual setae present but no subdorsal setae; abdomen evenly rounded dorsally as seen in cross section. Female genital coverflap with crescentic scoring.

Genotype: *Nothopoda rapaneae*, n. sp.

Nothopoda rapaneae Keifer, new species

Plate No. 206

Female 125-135 μ long, 37 μ thick; short, wormlike. Rostrum 17 μ long, projecting down. Shield 29 μ long, 34 μ wide, declivitous, only the central longitudinal lines showing: median line short, on rear half of shield, the admedian lines close together anteriorly, abruptly separating at beginning of median line; shield laterally granulate; dorsal tubercules 23 μ apart, ahead of rear margin; dorsal setae 9 μ long. Forelegs 22.5 μ long, tarsus 8 μ long, claw 6 μ long; featherclaw 4-rayed. Hindlegs 20 μ long, tarsus 6 μ long, claw 7.5 μ long. Anterior coxae indistinct on inner side, the coxae and the suboral plate granular. Abdomen with 55-60 rings, evenly microtuberculate, the microtubercles not bearing any projections. Lateral seta 16 μ long, on about ring 6 behind shield; first ventral seta 29 μ long, on about ring 17; second ventral 8 μ long, on about ring 30; third ventral 18 μ long, on ring 6 from rear; accessory seta missing. Female genitalia 18 μ wide, 12 μ long, coverflap with 1 or 2 crescentic furrows; seta 8.7 μ long.

Type locality: Cocoanut Grove, Florida. **Collected**: February 22, 1949, and received by the writer under U. S. Bureau of Entomology and Plant Quarantine No. 49-2488. **Host**: *Rapanea guianensis*. **Relation to host**: The mites form papillose erineum patches on the underside of the Rapanea leaves. **Type slides** with the above data. **Seven paratype** slides bear this data and also Miami, Florida, April 14, 1949. This species is distinct in lacking the tibiae on the legs, and the anterior setae on the coxae. The name *Nothopoda* would mean "spurious legs."

Aberoptus Keifer, new genus

Body flattened dorsoventrally, spindleform. Rostrum short, downcurved. Shield broad and transversely truncate anteriorly, curved to the rear, not projecting over rostrum base; dorsal tubercles on rear margin, somewhat transversely elongate and directing the dorsal setae caudolaterally. Coxae with two ventral setae on the anterior pair and one on the rear coxa; anterior coxae somewhat elongate. Legs highly modified; forelegs inarticulate, tibia shortened and lacking seta, tarsus splayed out on inner side to form a clinging disc, claw and featherclaw pushed to outer side, the featherclaw reduced to a bristle. Abdomen flattened; tergites and sternites of equal number, microtuberculate; sternites in an area shortly behind genitalia broadened. Female genitalia appressed to coxae, very narrow, the coverflap with longitudinal scoring.

Aberoptus samoae Keifer, new species

Plate No. 207

Female 185-200 μ long, 70 μ wide, 30 μ thick, flattened. Rostrum short and downcurved, 22 μ long. Shield 26 μ long, 68 μ wide, nearly smooth centrally, but with a pattern of fine lines to the rear and laterally. Dorsal tubercles 39 μ apart; dorsal setae 10 μ long and projecting caudo-laterally. Forelegs stiff, 31 μ long; tibia without seta; tarsus expanded on inner side between setae, claw 6 μ long; featherclaw reduced to a bristle. Hindlegs ambulatory, 20 μ long, all segments shortened; claw 7.5 μ long; featherclaw a large compound structure with six rows of clinging papillae based on a 10-rayed pattern. Anterior coxae approximate, bearing two setae; setae III on rear coxae forming a transverse line with setae II. Abdomen with 50-60 rings, the microtubercles elongate; midventral rings in area bounded laterally by the first ventral setae somewhat widened. Lateral seta 10 μ long, on about ring 4; first ventral 30 μ long, on about ring 15; second ventral 12 μ long, on about ring 24; third ventral 10 μ long, on fifth ring from rear; caudal setae short; accessory setae missing. Female genitalia very narrow: 35 μ wide, 6 μ long, coverflap with 12-14 longitudinal furrows, seta 10 μ long.

Male not seen.

Type locality: Vailostai, Tutuila, Samoa. **Collected**: July 18, 1948, by L. B. Loring and sent to the writer under U. S. Bureau of Entomology No. 48-15992. **Host**: *Mangifera indica* L., mango. **Relation to host**: The mites inhabit the leaf surface. Their structure suggests they remain fixed for considerable periods of time. **Type slide** with the above data. **Two paratype** slides. This is one of the most "aberrent" mites yet seen by the writer, hence the genus name. But it still is just a modification of the standard type of Eriophyid. NOTE: A few mites on the slides are not of this species, but of one having featherclaws normally developed on all legs.

PHYLLOCOPTINAE

Phyllocoptini

Oxypleurites juglandis Keifer, new species

Plate 208

Female about 180 μ long, 55-60 μ thick; wedge-shaped, light yellow. Rostrum 24 μ long, projecting down. Shield 46 μ long, 58 μ wide anterior lobe prominent and with two small apical spines; design obscure, lateral lines and granulations. Dorsal tubercles 40 μ apart, projecting back from rear margin a short distance; the setae 6 μ long and projecting backward. Forelegs 35 μ long, claw 7 μ long, knobbed, featherclaw 4-rayed. Hindlegs 32 μ long, claw 8 μ long. Coxae with lines of granulations; setae I behind the anterior point at which the coxae are connate. Abdomen somewhat concave above, the dorsal plates moderately broad and giving way laterally to 5 or 6 sternites; lateral projections of tergites round and blunt; sternites finely microtuberculate; about 15 tergites; 60-65 sternites. Lateral seta 20 μ long, on about sternite 9; first ventral seta 40 μ long, on about sternite 24; second ventral 17 μ long, on about sternite 41; third ventral 18 μ long, on fifth sternite from rear; accessory seta present. Female genitalia 23 μ wide, 12 μ long, coverflap with 12-14 furrows; seta 20 μ long.

Male 155-160 μ long, 50 μ wide, 30 μ thick.

Deutogyne 170-180 μ long, 40-45 μ thick, spindleform. Tergites moderately broad, 26 in number. Sternites about 60, the microtuberculations obscure. Tergites not projecting laterally, the mite more elliptical in transverse outline than the protogyne.

Type locality: San Jose district, California. **Collected**: July 29, 1947, by W. H. Hart, at that time connected with the University of California. **Host**: *Juglans regia* L., English walnut. **Relation to host**: The mites are leaf vagrants. **Type slide** with the above data. **Five paratype** slides. This is the first leaf vagrant described from walnut.

Acarelliptus occidentalis Keifer, new species

Plate 209

Female 145 μ long, 70 μ wide, 35 μ thick; when at rest on the leaf with the cauda deflexed forming a elliptical figure 115 μ long; color yellow. Rostrum 17 μ long, projecting down. Shield 37 μ long, 60 μ wide, subtriangular, the design faint but with subdorsal ridges bearing the tubercles near the rear margin. Dorsal tubercles 22 μ apart, a little ahead of the rear margin, elongate and inclined laterally; dorsal setae 13 μ long, directed caudo-laterally. Forelegs 32 μ long, tibia with seta, claw 7 μ long; featherclaw 5 rayed. Hindlegs 30 μ long, claw 8 μ long. Coxae rather broad and smooth, the forecoxae connate or somewhat fused. Abdomen with 17-19 smooth tergites showing three longitudinal shallow grooves; the first 12 tergites remain exposed above, the last 5 or 6 are deflexed when at rest. Sternites about 48 in number behind the genitalia; microtuberculate, the microtubercles stronger midventrally and fainter laterally. Lateral seta 16 μ long, on sternite 4 behind gentalia; first ventral 26 μ long, on sternite 14 behind the genitalia; second ventral 10 μ long, on sternite 25; third ventral 24 μ long, on sternite 5 from rear; accessory seta present. Female genitalia 23 μ wide, 13 μ long, coverflap with 5-6 short longitudinal furrows; seta 12 μ long.

Type locality: Nine miles south of Grass Valley, California. **Collected**: September 1, 1942, by the writer. **Host**: *Quercus kelloggii* Newb., native black oak. **Relation to host**: The mites settle on the underside of the leaf, looking like small scale crawlers. **Type slide**: so designated, with the above data. **Paratype slides**: five in number. In addition there is the envelope with dry material from which the slides were made. This is the second species of *Acarelliptus* described. The former is *cocciformis* K. described from chestnut oak, Summerville, South Carolina (see Bul. Dept. Agr. V. 29, p. 166, 1940). The two forms are very much alike. The western one differs in having the dorsal setae directed caudolaterally, whereas *cocciformis* has them directed centrally. The little flap under the anterior lobe of the shield, and over the rostrum is a distinguishing feature of the genus and group.

PHYLLOCOPTINAE

Diptilomiopini

Trimeroptes Keifer, new genus

Body spindleform, somewhat flattened above. Rostrum large, set at right angles to head, the chelicerae after a short extension directly ahead, abruptly bent down at right angles. Shield with a broad lobe extending over the rostrum base and emarginate apically; two dorsal tubercles ahead of the rear margin and directing the setae ahead. Anterior coxae with a sternal ridge separating them, the coxae possessing three pair of setae. Legs lacking the femoral seta, but possessing the foretibial seta, and the hind patellar seta; featherclaws divided. Abdomen with no subdorsal setae, but with the lateral and three ventral pair of setae. Abdominal tergites with a subdorsal furrow on each side, forming a central ridge, the furrows joining behind the central ridge before the caudal quarter of the abdomen; the central ridge bifurcate anteriorly; the lateral ridges extending above the lateral setae and joining at the caudal quarter. Female genital coverflap striate basally, smooth apically.

Genotype: *Diptilomiopus aleyrodiformis* K.

Species list

Trimeroptes aleyrodiformis (K.), Bul. Cal. Dept. Agr. vol. 29, No. 3, 1940

Rhynacus Keifer, new genus

Body spindleform, robust. Rostrum and chelicerae large, and set at right angles to the cephalothorax. Shield wider than long, with no anterior lobe over the rostrum base; dorsal setae missing. Anterior coxae separated by a sternal ridge; setae I of forecoxae missing. Legs lacking the femoral setae, the forelegs having a patellar and usually a tibial seta, the hindlegs lacking the patellar seta; all leg segments present; featherclaw divided. Abdomen subcircular in cross section, with at most a slight subdorsal furrow; lateral seta missing; tergites not much less numerous than the sternites. Female genital coverflap smooth.

Genotype: *Diptilomiopus arctostaphyli* K.

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Rhynacus abronius (K.), Bul. Cal. Dept. Agr. vol. 28, No. 7, 8, 9, p. 492, 1939

Rhynacus arctostaphyli (K.), Bul. Cal. Dept. Agr. vol. 27, No. 3, p. 305, 1938

Rhynacus carolinensis (K.), Bul. Cal. Dept. Agr. vol. 29, No. 3, p. 168, 1940

Diptacus Keifer, new genus

Body elongate spindleform. Rostrum large, set at right angles to the cephalothorax, the large chelicerae abruptly bent down. Shield subtriangular with lobe over rostrum base. Dorsal tubercles present, set ahead of the rear margin, and directing the setae ahead. Coxae with three pair of setae, the forecoxae separated by a sternal ridge. Legs with all segments; femoral setae missing; forelegs with patellar and tibial setae; hindlegs with patellar seta. Featherclaw divided. Abdomen elliptical or round in cross section, at most with slight subdorsal furrows. Sternites more numerous than the tergites. All abdominal setae present. Female genitalia with smooth coverflap.

Genotype: *Diptilomiopus sacramentae* K.

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Diptacus calicoryli (K.), Bul. Cal. Dept. Agr. vol. 32, No. 3, p. 216, 1943

Diptacus prunorum (K.), Bul. Cal. Dept. Agr. vol. 28, No. 2, p. 149, 1939

Diptacus sacramentae (K.), Bul. Cal. Dept. Agr. vol. 28, No. 3, p. 232, 1939

The three genera here established, *Trimeroptes, Rhynacus,* and *Diptacus,* are for the purpose of recognizing the obvious differences between the species-groups they contain. This action also eliminates the name *Diptilomiopus* from North American Eriophyids. This latter genus, designed by Nalepa for the Javan species *javanicus,* differs from all those treated in the new genera by lacking the patella.

The species quoted above as *prunorum,* with the type locality of Sacramento, is not particularly harmonious with the other two species placed in *Diptacus.* In the Jr. Ec. Ent. V. 39, p. 570, 1946, I identified *prunorum* with *Epitrimerus gigantorhynchus* Nalepa, but the featherclaw of *prunorum* remains a problem. This structure on *prunorum* is partly divided, and there is a prominent sternal ridge. European Acarologists, past and present, when treating *gigantorhynchus,* never mention any such division in the featherclaw. The latest reference places *gigantorhynchus* in the genus *Rhyncaphytoptus,* a genus with species bearing simple featherclaws and lacking the sternal ridge.

KEY TO DIPTILOMIOPINE GENERA

1. Featherclaw simple; anterior coxae connate 2
1. Featherclaw divided; sternal ridge separating anterior coxae 5
2. Tergites more numerous than sternites ..... **Phyllocoptyches** Nalepa, 1921
2. Tergites equal to or less numerous than sternites 3
3. Tergites and sternites about the same number and undifferentiated **Rhinophytoptus** Liro, 1943
3. Tergites fewer and broader than sternites 4
4. Tergites forming a broad central longitudinal ridge, quite uneven in lateral view **Quadracus** Keifer, 1944
4. Tergites at most with slight subdorsal furrows and moderately even in lateral view **Rhyncaphytoptus** Keifer, 1939
5. Patella absent, legs five jointed; no leg setae except the tarsal setae **Diptilomiopus** Nalepa, 1916
5. Patella present; at least the forepatellar seta present 6
6. Tergites with two longitudinal subdorsal furrows meeting behind the central ridge; the central ridge bifurcate anteriorly ..... **Trimeroptes** Keifer, n. g.
6. Tergites with very shallow subdorsal furrows at most 7
7. Dorsal setae, rear patellar setae and lateral setae present; shield with a lobe over the rostrum base ..... **Diptacus** Keifer, n. g.
7. Dorsal setae, rear patellar setae and lateral setae missing; shield ending at rostrum base and lacking a frontal lobe ..... **Rhynacus** Keifer, n. g.

LIST OF ADDITIONAL GENERA IN THE KEY

Diptilomiopus Nalepa, Verh. zool-bot. Ges. Vienna, V. 67, p. 228, 1917
genotype—*D. javanicus* Nal. 1917

Phyllocoptyches Nalepa, Marcellia V. 18, p. 190, 1922 (1919)
genotype—*P. gallicolus* Nal. 1922

Quadracus Keifer, Bul. Cal. Dept. Agr. V. 33, p. 30, 1944
genotype—*urticae* K. 1944 which is a synonym of
urticarius C. & M. 1891
see Roivainen, Acta Ent. Fen. #7, p. 43, 1950

Rhinophytoptus Liro, Ann. Zool. Soc. Fen., Vanamo V. 9, p. 39, 1943
genotype—*R. concinnus* Liro, 1943

Rhyncaphytoptus Keifer, Bul. Cal. Dept. Agr. V. 28, p. 149, 1939
genotype—*R. ficifoliae* K., 1939

DISPOSITION OF SPECIMENS ON SLIDES

All of the type and paratype slides indicated in this article are in the collection of the State Department of Agriculture at Sacramento. All of the type material treated in preceding articles is likewise in the Sacramento office. Part of these slides are now worthless due to the dissolving of the specimens. It now appears that a more stable method of mounting these mites has been achieved which may make it possible to deposit specimens in other collections besides the collection at Sacramento.

NOTES ON CHLORAL HYDRATE MOUNTING MEDIA

Chloral hydrate mounting medium is very useful in preparing mites for study. This medium, which is dissolved in water, consists of two fundamental parts: 1. The amorphous base such as gum arabic, sugar, methocel, etc.; 2. The active ingredient which is chloral hydrate, and

which must be prevented from crystallizing. This is usually mixed in proportions of one part of base to 6 or 7 of chloral hydrate, and dissolved in glycerin and water. This medium dissolves the mites, at least Eriophyids, after a time.

It has been found that sugar slows this solvent action of chloral hydrate, and formaldehyde apparently cuts this solvent action down still more. Formaldehyde preparations have now lasted since 1942 with no apparent deterioration. But sugar and formaldehyde solutions of chloral hydrate do not prepare the mites properly, so they must be first treated in the active solution and then transferred to the formaldehyde mixture.

It is therefore suggested that two media may be useful. The first will consist of a one to five or six mixture of gum arabic and chloral hydrate, dissolved to the desired consistency with glycerin and water. The second will be a one to six or seven mixture of gum arabic-sugar and chloral hydrate, dissolved in a 37 percent solution of formaldehyde. Make the gum arabic-sugar portion about four parts gum arabic and six parts sugar. Do not put sugar or formaldehyde in the first solution, nor glycerin in the second.

To stain the mites properly a rather strong concentration of iodin is necessary. Experience will indicate the quantity. Iodin crystals can be deposited on the slide from ether solution before putting on a drop of the medium, but it is better to have the medium pretty black with iodin.

DESIGNATIONS ON THE PLATES

AP1—Internal female genitalia
D—Dorsal view of the mite
DA—Dorsal view of the anterior section of the mite or of the shield
ES—Detail of lateral skin structure
ES1—Lateral view of dorsal spinules
F—Featherclaw
GF1—Female genitalia and coxae in ventral view
L—Left legs
S—Side view of mite
SA—Side view of anterior part of mite

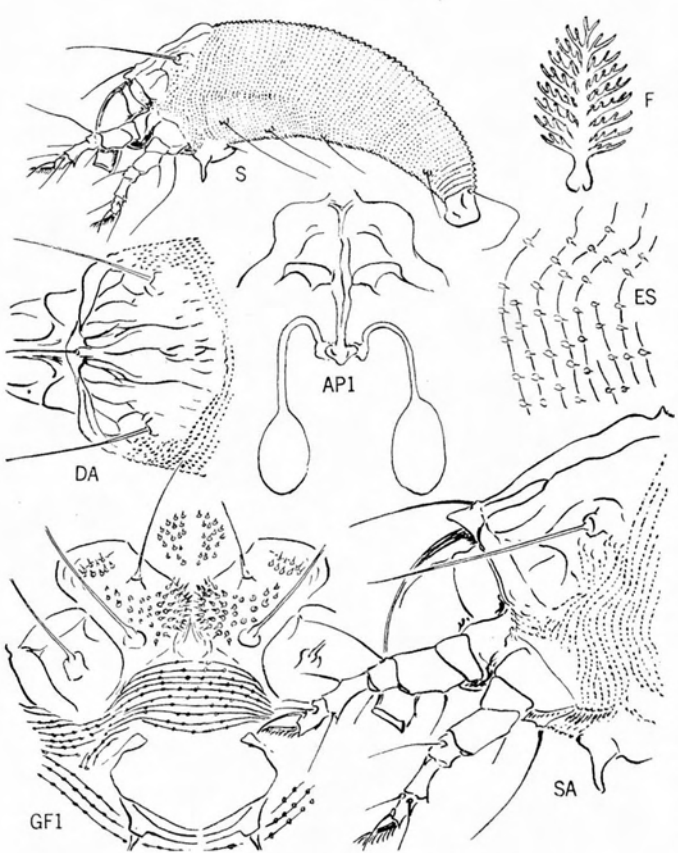

Plate 204—*Nalepella ednae* Keifer, new species

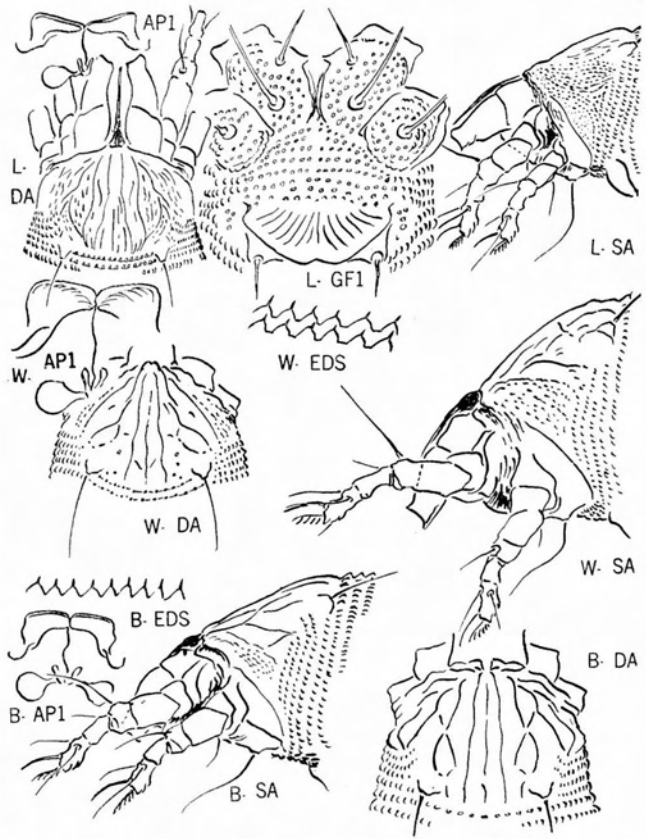

Plate 205—*Aceria lepidosparti* Keifer, new species
Aceria wyethiae Keifer, new species
Aceria beevori Keifer, new species

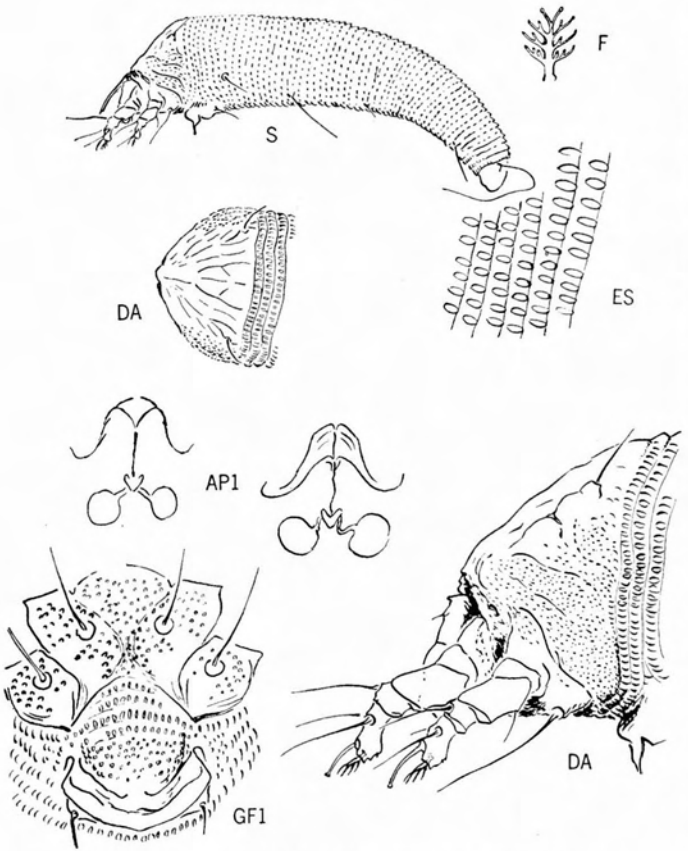

Plate 206—*Nothopoda rapaneae* Keifer, new species

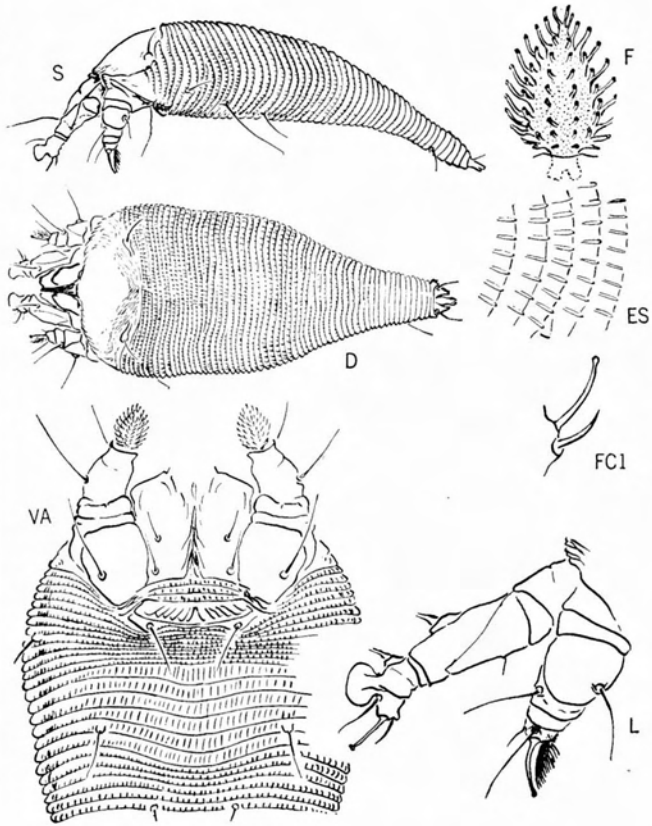

Plate 207—*Aberoptus samoae* Keifer, new species

50945 10-51 350

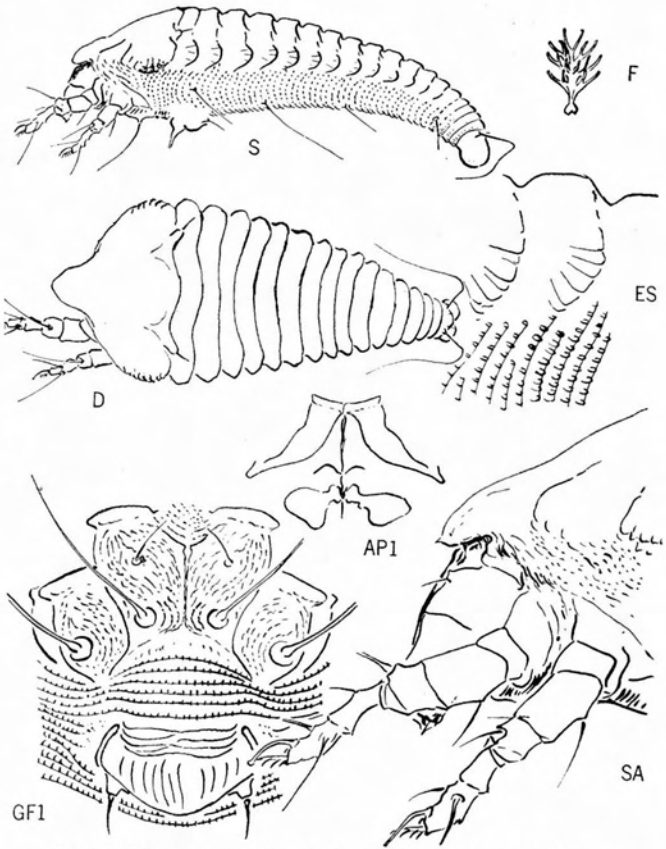

Plate 208—*Oxypleurites juglandis* Keifer, new species

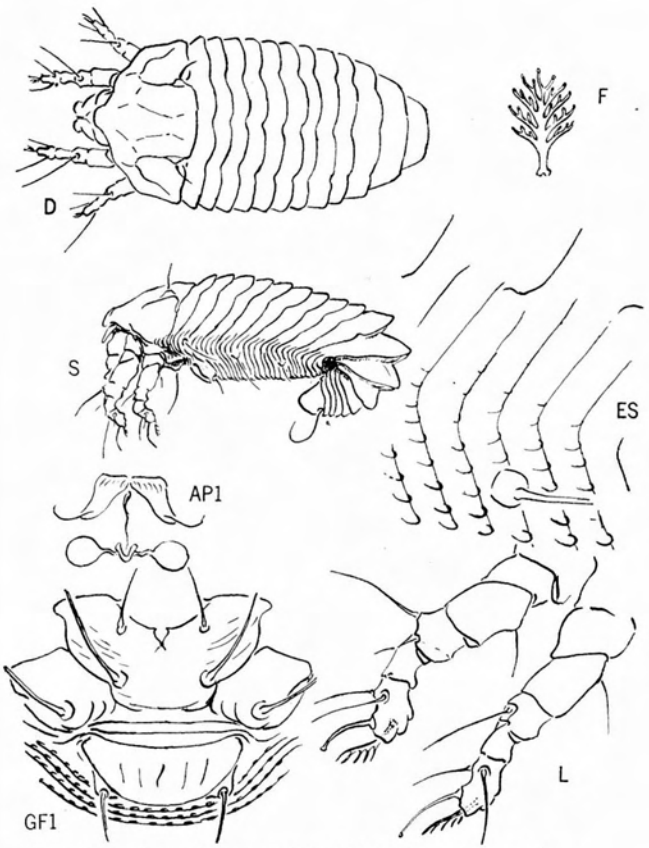

Plate 209—*Acarelliptus occidentalis* Keifer, new species