ERIOPHYID STUDIES C - 10

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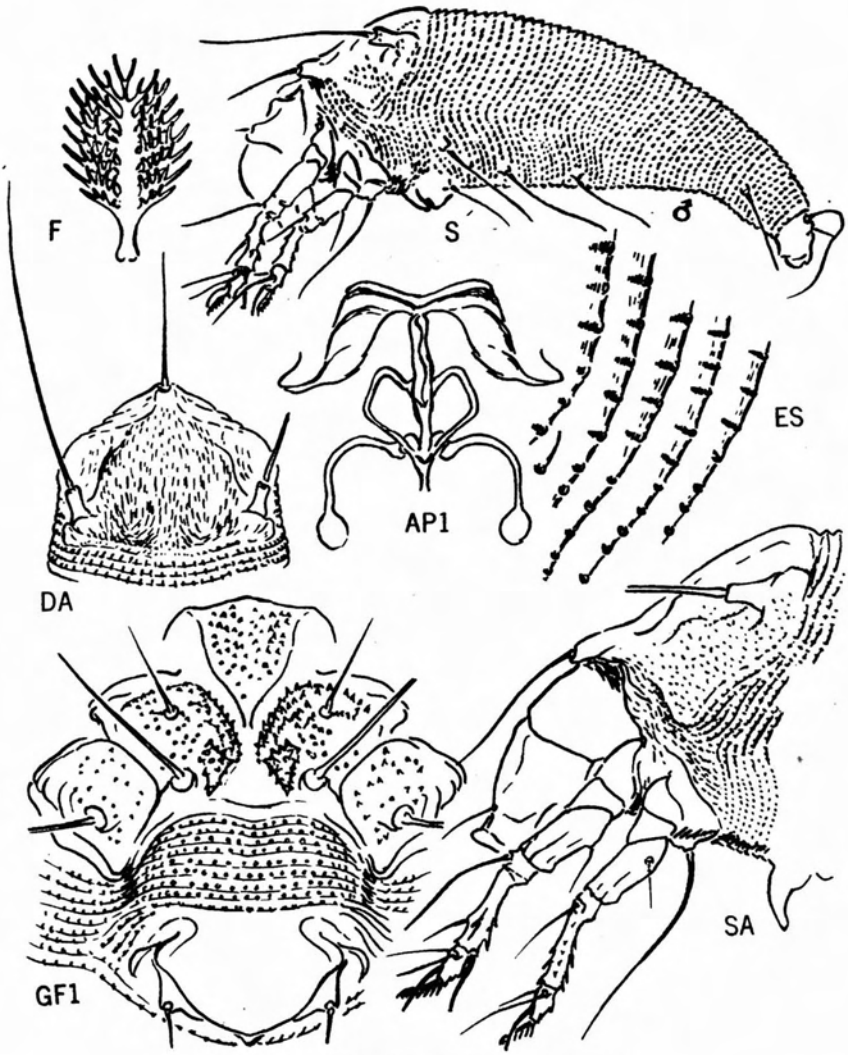

Plate 1 - Nalepella newkirki, new species

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Issued: February 20, 1975

Nalepella newkirki, new species

Plate 1

Newkirki is very similar to Nalepella tsugifoliae K. (Eriophyid Studies XXI, Bul.Cal.Dept.Agr. XLII(2):65, June 30, 1953). This latter species lives on Tsuga canadensis Carr. in eastern areas of North America. The present new species differs in having fewer thanosomal rings. Tsugifoliae has about 60 dorsal rings and about 90 ventral rings as compared to 45 and 65 respectively for newkirki. In addition newkirki lives on a conifer not closely related to the hemlock host of tsugifoliae. The host of newkirki is Torreya, a conifer belonging to the Taxoideae of the Taxaceae, the yews and relatives. Tsuga, or hemlock, is a member of the typical Pinaceae. I am pleased to name this mite after Richard A. Newkirk who has contributed very much to an understanding of the literature on eriophyoids.

Female 210μ-220μ long, about 92μ thick, a fusiform species with stocky body; color in life light yellowish. Rostrum 62μ long, projecting down; apical rostral seta 16μ long. Shield 70μ long, 84μ wide, subtriangular in dorsal view. Center of shield heavily set with short longitudinal dashes, giving way laterally to more granular ornamentation. Anterior seta on short frontal lobe 43μ long; dorsal tubercles 56μ apart, arising from near rear margin and produced; dorsal setae projecting forward 115μ-120μ long. Foreleg 62μ long from triangular base; tibia 24μ long, with 16μ seta at 3/4, and lateral spur 16μ long; tarsus 9μ long; claw 14μ long, tapering; featherclaw about 9 rayed. Hindleg 58μ long, tibia with spines on outer side and on rear, 19μ long, tarsus 8μ long, claw 12μ long. Forecoxae separate centrally and heavily set with small pointed spinules especially on inner side of second tubercles. Spinules on suboral plate. First setiferous coxal tubercles well within forecoxae and further apart than second; second tubercles ahead of level of third tubercles. Abdominal thanosome with lateral reduction in ring number toward dorsum: about 42-45 rings over dorsum; 60-65 rings ventrally. Thanosomal microtubercles dorsally extended forward from ring margins, more bead-like on margins ventrally. Lateral seta 28μ long, on ring 6 behind shield; first ventral seta 45μ long, on ring 17; second ventral 33μ long, on ring 31. Telosome with about 8 rings, completely microtuberculate; seta 36μ long. Accessory seta 8μ long. Female genitalia 26μ long, 21μ wide, no ribs on coverflap; seta 38μ long.

Male about 200μ long, 85μ thick.

Type locality: about 5 miles west of Mineral, eastern Tehama Co., Cal.

Host: Torreya californica Torr. (Taxaceae-Taxoideae) California nutmeg
An unusually interesting small tree found on shady sides of canyons.

Collected: September 13, 1974 by the writer

Relation to host: the mites are needle vagrants or rust mites usually common on fresh growth.

Type material: five slides with type and paratypes designated

Note: this species is also common on its host in the hills west of Kelseyville, Lake County.

Copies of the 'C' Series are obtainable from -

Bureau of Entomology
California Department of Agriculture
1220 N St.
Sacramento, Cal. 95814

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1112 Swanston Drive
Sacramento, Cal.
95818

Retracrus elaeis, new species

Plate 2

This new species differs from the genotype, johnstoni (Eriophyid Studies B-16:7, Cal.Dept.Agr. Aug. 27, 1965) by having slight indications of central shield lines and by the transverse band of short longitudinal lines at the base of the female coverflap. The featherclaw on the new species, unlike johnstoni, appears under phase illumination to be divided, but there are at least two central basal rays in the division. This mite belongs to the Mackellinae as it lacks subdorsal abdominal setae. Members of this subfamily so far as known feed on palms. The precise attachment of the spermathecal tubes in the two species of Retracrus is ahead of the place that members of the eriophyid and rhyncaphytoptid groups have this junction, but in Retracrus the tubes do not recurve as in other nalepellids. This new species makes small but widely spread black blotches on the palm fronds. Later the fronds tend to become yellow or orange in color. The activities of this mite apparently reduce palm productivity.

Females, from frontal shield lobe to rear anal lobes, 154μ-166μ long, about 62μ at widest dimension, and about 40μ thick. White bodies with wax. Rostrum 32μ long, projecting down; antapical seta 18μ long. Shield 62μ wide, 73μ long. Anterior lobe bluntly acuminate from above, downcurved in side view, with notch just under top. Shield design of faint longitudinal lines, shield somewhat raised at rear. Lateral anterior setae set on produced tubercles; seta with bulbous base, seta beyond base 15μ long, stiff, with slight terminal bulb. Dorsal tubercles 30μ apart; seta 15μ long, with bulbous base, stiff, slight terminal bulb. Shield laterally with 4 pointed lobes. Foreleg from trochanter base 33μ long; tibia 7.5μ long, with 15μ seta from just beyond 1/2; lateral tibial spur 8μ long, with terminal bulb; tarsus 5μ long; claw 5.5μ long, with terminal knob; featherclaw divided and with about 7 rays. Hindleg 32μ long, tibia 5.5μ long, tarsus 6μ long, claw 5μ long, straight. Coxae unornamented; anterior coxae hardly touching centrally. First coxal setiferous tubercles opposite anterior coxal approximation and slightly farther apart than second. Second coxal setiferous tubercles nearly back to a line across third tubercles. Thanosome with about 13 tergites and approximately 41 sternites; subdorsal seta pair lacking. Tergites lacking indication of microtubercles but somewhat lobed laterally; first tergite with point on lateral lobe. Sternites broader anteriorly but narrowing toward rear; anteriorly the sternites do not reach up to tergites but are complete toward rear. Microtubercles on sternites elongate amd touching rear ring margins, stronger toward telosome; these microtubercles confined to central ventral area anteriorly but reaching tergites toward rear. Thanosome strongly tapering to rear. Lateral thanosomal seta 25μ long, on about sternite 3 behind shield; first ventral seta missing; second ventral thanosomal seta 13μ long, on sternite 28. Telosomal rings fused dorsally except for first ring; a total of 5 rings below; ventral microtubercles elongate, especially on last ventral ring; seta 19μ long, stiff, laterally placed. Female genitalia 22μ wide, 15μ long; deep bowl-shaped; coverflap with transverse row of short basal longitudinal lines, otherwise with no ornamentation; seta 19μ long.

Male about 144μ long.

Type locality: San Alberto, Colombia

Collected: June 1974 by Phillippe Genty

Host: Elaeis guineensis Jacq. (Palmae-Principes) An oil palm

Relation to host: the mites extensively speckle the fronds with small balck spots and the fronds tend to turn yellow or orange.

Type material: mites in liquid with the above data
five slides with type and paratypes indicated.

Designations on Plates -

AP1- Internal female genital structures
CS - Lateral view of caudal section
D - Dorsal diagram of mite
DA - Dorsal view of anterior section
ES - Lateral epidermal structures
F - Empodium or featherclaw
GF1- Female genitalia and coxae
L1 - Left anterior leg
L2 - Left second leg
S - Side diagram of mite
SA - Anterior side view of mite

Telosome- caudal abdominal section beginning with third ventral seta
Thanosome- abdomen from rear shield margin to telosome

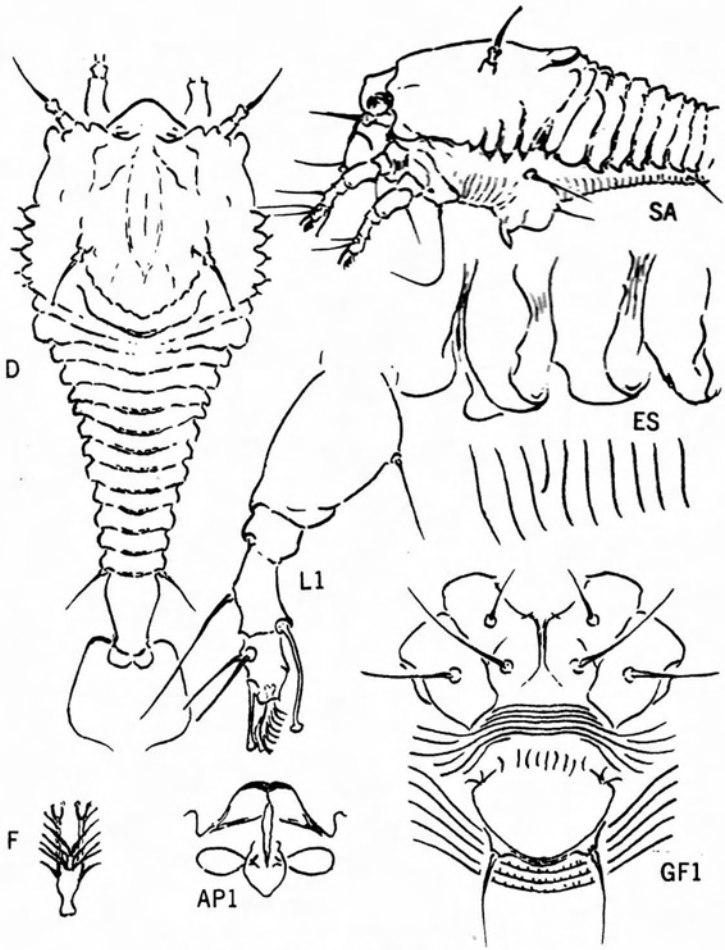

Plate 2 - Retracrus elaeis, new species

Acerimina siparunae, new species

Plate 3

Acerimina is the genus indicated for this erineum making eriophyid as the species combines the primary Acerimina feature, which is the absence of the first forecoxal seta with the presence of the forefemoral seta.

Female, from anterior end of shield to terminal lobes 145μ-195μ long; about 33μ thick; wormlike in general shape and probably light yellowish white in life. Rostrum 15μ long, curved down; antapical seta 3μ long. Shield 28μ long by 28μ wide. Shield design of lines and lateral network. Median shield line complete, simple or double anteriorly, meeting two irregular cross lines just ahead of rear shield margin. Admedian lines arching gently from sides of shield anterior end, recurving back to 2/3, and rearching out and back to rear margin First submedian line short and just lateral to anterior end of admedian; second submedian arching back to 2/3 on shield and from thence, angling back to just inside dorsal tubercle. Lines lateral to submedians forming a network ahead of dorsal tubercle but fading into granulations just in front of tubercle. Laterally the shield with extensive granulations and 2 or 3 partial rings. Dorsal tubercles about 13μ apart, slightly ahead of rear shield margin; dorsal setae 14μ long, projecting divergently to rear. Foreleg from trochanter base 25μ long; forefemoral seta present; tibia 3μ long and lacking seta; tarsus 7.5μ long; claw but slightly curved, 6μ long; featherclaw 4-rayed. Hindleg 22μ long, tibia 2μ long, tarsus 5μ long, claw 5.5μ long, but slightly curved down. Coxae generally covered with coarse granules; forecoxae fused across central area and first setiferous coxal tubercles absent. Second coxal tubercle far ahead of level of third. Thanosome with 55-60 rings. Rings showing some reduction ventrad. Abdominal microtubercles somewhat elongate and tending to be linear above anteriorly; these microtubercles extending forward from positions on rear ring margins or slightly ahead. Lateral seta 15μ long, about 7 rings behind shield; first ventral seta 33μ long, on ring 20; second ventral seta 6μ long, on ring 37. Telosome with 6 to 7 rings, completely microtuberculate, the microtubercles fine and linear, longer ventrally to rear; telosomal seta 8μ long. Accessory seta absent of represented by slight point. Female genitalia 10μ long, 19μ wide; coverflap with basal half or 2/3 covered with coarse granulations which extend back from coxae, coverflap with two transverse curved lines within rear margin; genital seta 11μ long; anterior genital apodeme extending moderate distance forward and transversely truncated.

Male not seen.

Type locality: Rancho Grande, Maracay, Venezuela

Collected: November 29, 1974 by Lorin R. Gillogly

Host: Siparuna pittieri Stey. (Monimiaceae-Ranales)

Relation to host: the mites make moderate-sized brown erineum patches on the undersides of the leaves

Type material: dry leaves with erineum
one slide (the mites proved to be scarce)

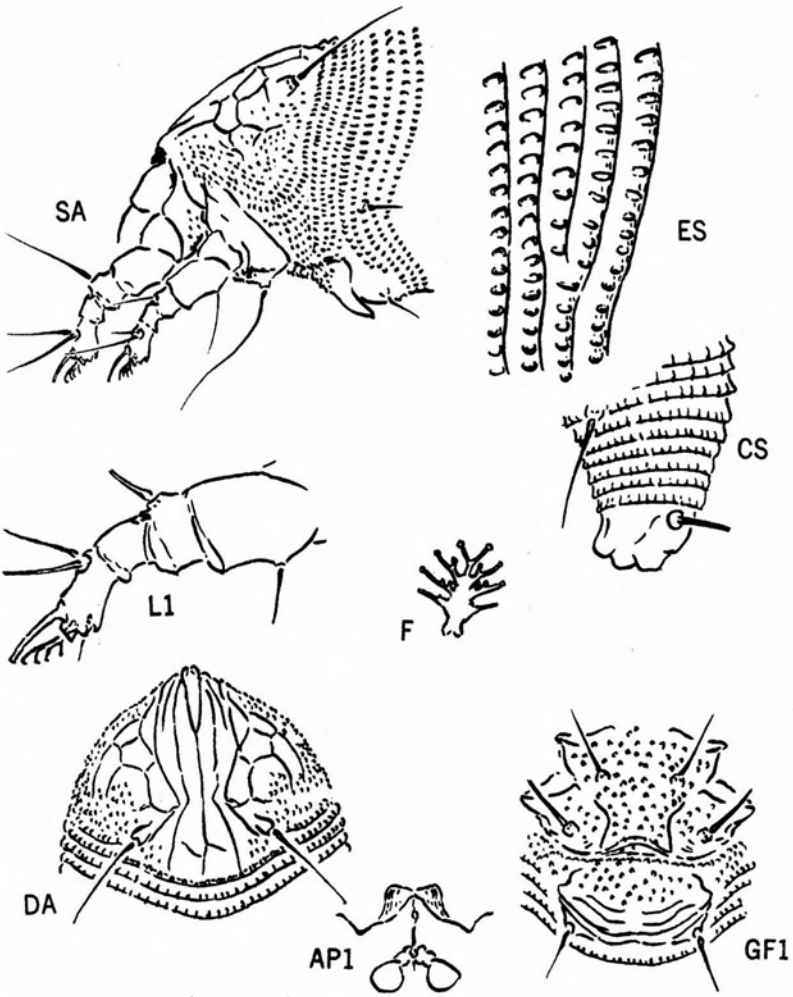

Plate 3 - Acerimina siparunae, new species

Acalitus heliopsis, new species

Plate 4

Another mite, Acalitus adornatus K., that occurs on a Eupatorium in the general northern South American area is very similar in structure and shield ornamentation to the new species. (adoratus: Eriophyid Studies C-4:4-5, Oct.30. 1970, USDA) The new species makes numerous erineum patches on the underside of Heliopsis leaves that appear on the upper surface as slightly raised injuries which are darker than normal leaf parts. The species adoratus makes small erineum tufts on its host unless there is a heavy infestation. About the only real difference detectable between these two mite populations is the host difference.

Female 180μ-195μ long, about 35μ thick; wormlike in shape and probably light yellowish-white in color in life. Rostrum 15μ-18μ long; antapical seta not dectable. Shield 20μ long, 37μ wide, somewhat acuminate anteriorly. Shield design a heavy ornamentation of short longitudinal lines obscuring usual shield lines almost entirely; lateral granulations and about 4 partial rings below the seta. Dorsal tubercles 17μ apart; dorsal setae 15μ-18μ long, somewhat divergent to rear. Foreleg from trochanter base 23μ long; tibia 3μ long, tarsus 6μ long, claw 4.5μ long; featherclaw 4-rayed. Hindleg 20μ long, tibia 2.5μ long, tarsus 5μ long, claw 7μ long. Coxae moderately heavily covered with granules; these granules extend forward onto suboral plate and to the rear onto genital coverflap. Second forecoxal tubercle slightly inward from a line between first and third tubercles. Thanosome with approximately 66 rings, some reduction ventrad. Thanosomal microtubercles tending to be linear, extending forward from positions on or just ahead of ring margins. Lateral seta 7μ long, on ring 9 behind shield; first ventral seta 35μ long, on ring 25; second ventral 4μ long, on ring 44. Telosome with 5 rings; microtubercles thin and elongate, especially ventrally; telosomal seta 7μ long, stiff. No accessory seta. Female genitalia 12μ long, 19μ wide; coverflap basally with granules, and with diagonal line from side ahead of rear margin; seta 5μ long.

Type locality: Ebejico, Antioqua State, Colombia, 1150 meters elev.

Collected: July 4, 1974, by Eduardo J. Urueta S.

Host: Heliopsis buphtalmoides (Jacq.) Dun.
(Heliantheae, Compositae, Campanulatae)

Relation to host: the mites make moderate-sized underside erineum patches that protrude slightly on the upper surface.

Type material: vials with mites and plant parts, in liquid, and five slides with mites from vials; type and paratypes so indicated on the slides.

Reduced stereoscan photograph of Tegonotus uranomus (K.), courtesy of W. E. Styer of the Ohio Agricultural Research and Development Center, Wooster, Ohio.

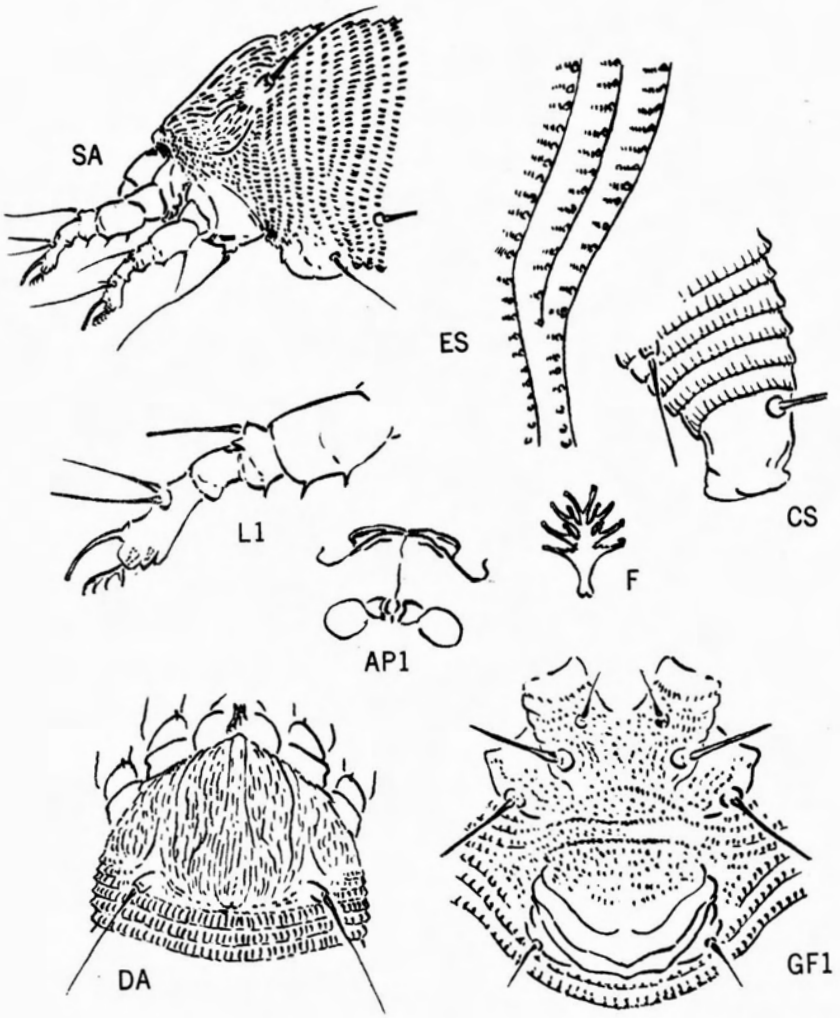

Plate 4 - Acalitus heliopsis, new species

Phyllocoptes indicae, new species

Plate 5

A comparison of this eriophyid with 22 other species referable to Phyllocoptes has failed to disclose any close relatives. The present species has 4-rayed featherclaws, downturned anterior shield lobe, and a median shield line that forms a prominent cross with a transverse line between dorsal tubercles. One eriophyid has previously been named from Flacourtia indica. It is Eriophyes flacourtiae Nal., which causes leaf rolling onto the upper side. (Nalepa: Marcellia 25:131, 1929.

Female, measuring from the center of the anterior shield lobe to the caudal lobes: 155μ-144μ long, 42μ wide, 38μ thick; fusiform body; color in life probably dull reddish. Rostrum 22μ long, projecting down; antapical seta 4.5μ long. Shield subtriangular with sides somewhat outcurved. Anterior shield lobe rather broad and strongly bent down over rostrum; the lobe with narrow notched central projection. Median shield line present on rear 1/2, indistinctly connected with admedians at 1/2 and forming prominent cross with transverse line between dorsal tubercles. Admedian lines complete, curving outward and back from small central shield lobe, forking at about 1/4, the inner fork moderately curving centrad to 1/2, meeting obscure diagonal lines to median line at 1/2, and thence arching outward to run just inside dorsal tubercles and to rear margin. Outer fork of median at 1/4 continuing laterally to form upper lateral line that ends well below dorsal tubercle; a second lateral line below the upper one, and about 3 partial rings on rear lateral shield angle. Dorsal tubercles with prominent longitudinal axes and 19μ apart; dorsal setae projecting up and 4μ-5μ long. Foreleg from trochanter base 29μ long; tibia 8μ long with 3μ seta from 1/3-1/4; tarsus 5.5μ long; claw 7μ long; featherclaw 4-rayed. Hindleg 26μ long, tibia 5μ long, tarsus 6μ long, claw 7.5μ long. Fairly strong sternal line between forecoxae, ending between second coxal tubercles. First setiferous coxal tubercle somewhat ahead of anterior coxal approximation and further apart than second tubercles. Second coxal tubercles a little ahead of level of third tubercles. Abdominal thanosome with about 25 tergites and 44 sternites. Thanosomal microtubercles on rear ring margins and extending variable distances ahead, shorter ventrally, the tergites with more obscure microtubercles that are extended as lines ahead. Lateral thanosomal seta about 11μ long, on sternite 5 behind shield; first ventral seta 31μ long, on sternite 17; second ventral 9μ long, on sternite 29. Telosome with 5-6 rings, set with fine microtubercles extended as lines anteriorly; telosomal seta 15μ-18μ long. Accessory seta about 2μ long. Female genitalia 12μ-14μ long, 20μ wide; coverflap with about 15 or 16 longitudinal ribs, preceeded by three transverse lines; genital seta 21μ long.

Male about 100μ long.

Type locality: Bangkhen, Thailand

Collected: Nov. 20, 1974 by L. C. Knorr, and sent under #T-151a.

Host: Flacourtia indica Merr. (Flacourtiaceae-Parietales)

Relation to host: the mites are undersurface leaf vagrants

Type material: dry leaves with mite mummies on undersurfaces. five slides from these leaves with type and paratype slides indicated.

In all cases where paratypes are indicated one paratype will go to the Agricultural Research Center (West), Beltsville, Maryland

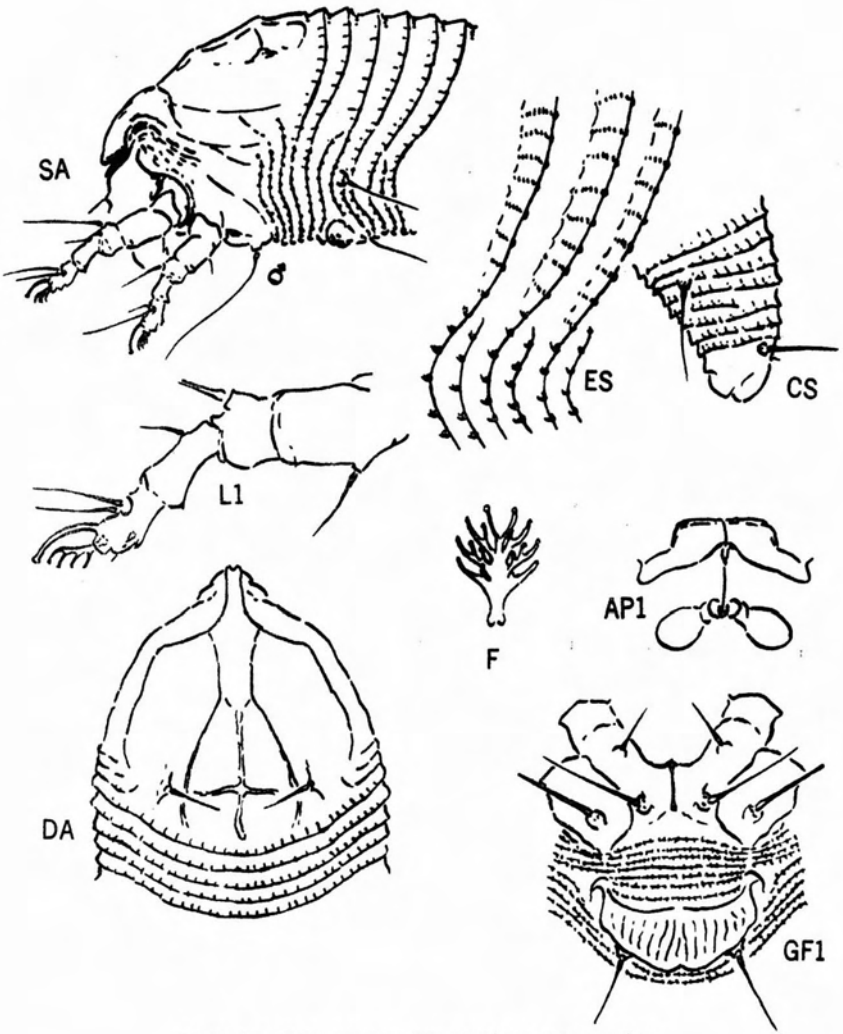

Plate 5 - Phyllocoptes flacourtiae, new species

*Plate 5- **Phyllocoptes indicae n. sp.***

flacourtiae in error

Knorella, new genus

Divided featherclaws, absence of dorsal shield setae, a central longitudinal ridge on the tergites of the thanosome, absence of first and second ventral thanosomal setae, and genitalia moved slightly farther back from the coxae than usual, are the principal features distinguishing this genus. I am pleased to name this genus after Dr. L. C. Knorr, Project Manager of the United Nations Plant Protection Project in Thailand, who collected these mites on a lumber bamboo.

Rostrum short, with short form oral stylet. Shield broad, roughly pentagonal, with two front sides obliquely acuminate; dorsal setiferous tubercles absent. Legs with deeply divided featherclaws; forefemoral seta absent; hindlegs lacking femoral and patellar setae. Abdominal thoansome laterally divided into broader tergites and narrower sternites. Tergites with low central longitudinal ridge, fading to rear. Lateral somewhat acuminate projections on tergites 1, 3, 6, 12, and 15. Lateral thanosomal seta present, but first and second ventral setae absent. Genitalia placed a little further behind coxae than usual.

Knorella gigantochloae, new species

Plate 6

Female 115μ-120μ long, 42μ-45μ wide (shield), about 35μ thick; body elongate-fusiform in dorsal view; color in life probably light whitish. Rostrum 20μ long, projecting down; antapical seta not found. Shield with subparallel sides except for anterior projecting lobe which is rather acuminate; Anterior shield lobe with some thickness in lateral view. Shield design more or less obscure: no evidence of median line; admedian lines sinuate, closest just behind anterior lobe and ending just ahead of rear shield margin; submedian line also sinuate, roughly subparallel to admedian, but forming frame for central rear area. Foreleg about 27μ long; tibia 3.5μ long, with 14μ seta from 1/2; tarsus 5μ long; claw 5μ long; featherclaw deeply divided, with about five rays on a side. Hindleg 22μ long, tibia 3μ long, tarsus 6μ long, claw 5μ long. Short sternal line between forecoxae; coxae ornamented with some granulations subapically. First setiferous coxal tubercles set far ahead of usual position, near anterior end of forecoxae and farther apart than second; second coxal tubercles ahead of line across third tubercles. Abdominal thanosome with about 19 tergites and 38-40 sternites. Thanosomal ridge and lateral projections as described above. Tergites lacking microtubercles, or with some obscure ones. Sternite with fine microtubercles, becoming more numerous toward the midventer. Lateral seta 19μ long, on about 4th sternite behind shield and below first tergal lateral projection. First and second ventral setae absent. Abdominal telosome with 6 rings, the microtubercles faint or absent above, fine and elongate below, especially elongate on venter of last ring; telosomal seta 10μ long. Accessory seta absent. Female genitalia 13μ long by 17μ wide, base set with coarse granules; seta 11μ long. Male about 112μ-120μ long.

Type locality: Bangkapi, Bangkok area, Thailand

Collected: August 4 and October 23-24, 1974, by L. C. Knorr

Host: Gigantochloa ligulata Gamble (Graminae-Glumiflorae) a lumber bamboo, also grown as an ornamental

Relation to host: these tiny mites are innocuous leaf vagrants.

Type material: leaves with sparse mummified mites
a type slide and two paratype slides with the above data are so indicated.

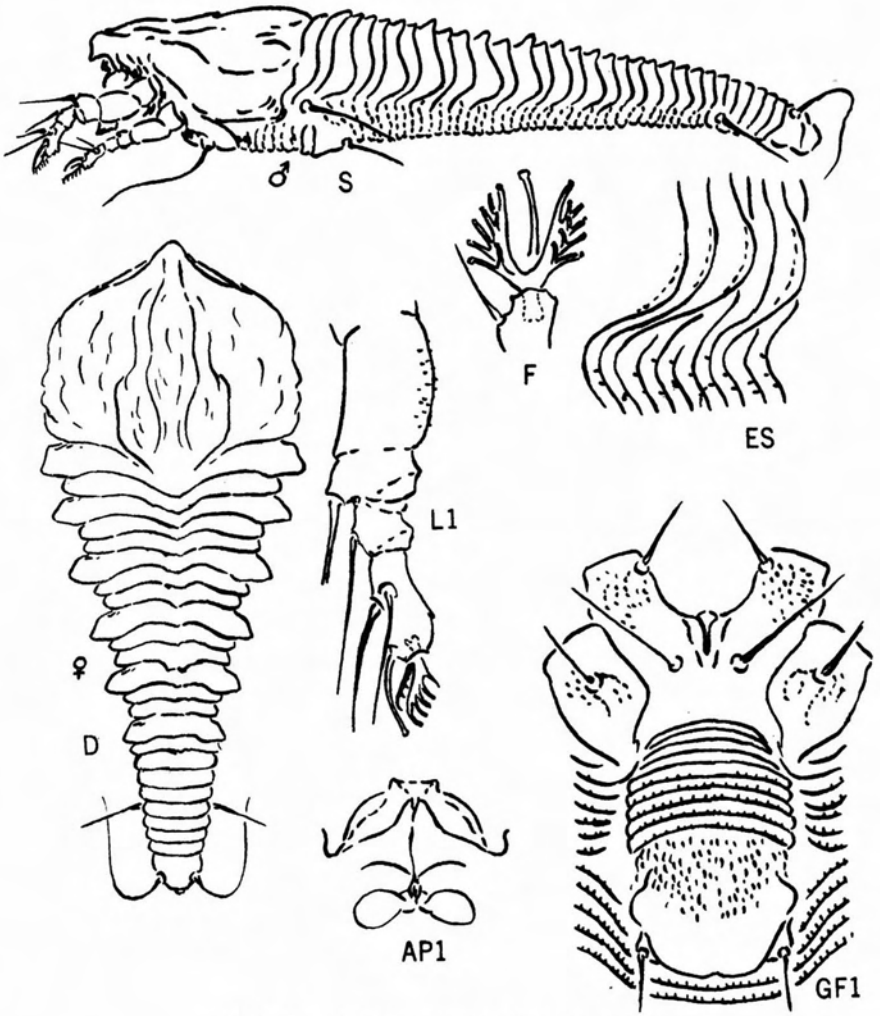

Plate 6 - Knorella gigantochloae, new species

Notallus, new genus

Notallus is the compliment of Heterotergum (Eriophyid Studies XXIII, Bul.Cal.Dept.Agr. XLIV(3):126, Oct. 17, 1955) in the group of Phyllocoptine mites with dorsal tubercles and setae projecting back over the rear shield margin, plus a middorsal longitudinal ridge. Heterotergum has no middorsal ridge on the thanosome. The genus name is: Not for Notum; allus for alloios meaning different, alluding to the narrow anterior rings across the dorsum just behind shield, followed by the broader tergites.

A fusiform mite with short form oral stylet in rostrum. Prominent anterior shield lobe over rostrum, somewhat acuminate. Dorsal tubercles projecting to rear over rear shield margin and directing setae slightly divergently to rear. Legs and coxae as usual for the subfamily. Abdominal thanosome laterally divided into tergites and sternites except the anterior three rings which cross dorsum as narrow extensions to the venter. Following these narrow rings the tergites have a middorsal longitudinal ridge that fades to rear; a lateral subdorsal ridge flanks subdorsal trough on the side of middorsal ridge. Female genitalia typical for the subfamily.

Notallus nerii, new species

Plate 7

Female from front of anterior shield lobe to terminal lobes 155µ-170µ long, 50µ wide, 45µ thick; a fusiform mite probably light yellowish-white in life. Rostrum 30µ long, curved down; antapical seta 5µ long. Shield 41µ long, 46µ wide, with acuminate anterior lobe over rostrum that comes to a sharp edge in lateral view. Shield design almost obsolete: suggestion of admedian lines stronger as they converge at rear shield center; lateral lines converging from dorsal tubercles. Dorsal tubercles somewhat produced and 17µ apart; dorsal setae 22µ long, apex tuuncate with slight knob. Foreleg from trochanter base 30µ long; strong forefemoral seta; tibia 7µ long, with 8µ seta from 1/3; tarsus 7µ long; claw 7.5µ long, slender; featherclaw 4-rayed. Hindleg 27µ long, tibia 6µ long, tarsus 7µ long, claw 8µ long. Strong sternal line between forecoxae extending back to second tubercles; almost no coxal ornamentation. First setiferous coxal tubercles slightly behind anterior forecoxal approximation and slightly further apart than second tubercles; second tubercles a little ahead of line across third tubercles. Abdominal thanosome with about 23 tergites after the 3 narrow anterior rings; about 49 sternites. Microtubercles elongate from rear margins on lateral ridge, fainter further dorsally but elongate. Sternal microtubercles short but rear end resting on margins. Lateral seta 11µ long, on sternite 5 behind shield; first ventral seta 40µ long, on sternite 17; second ventral seta 12µ long, on sternite 31. Telosome with 5-6 rings, completely microtuberculate, the microtubercles slender and somewhat elongate. Accessory seta 4µ long. Female genitalia 15µ long, 18µ wide; with about 6 weak lingitudinal ribs; seta 15µ long.

Type locality: Haad Yai, south Thailand

Collected: July 10, 1974, by Dr. L. C. Knorr and submitted under #T115a

Host: Nerium oleander L. (Apocynaceae-Contortae) oleander

Relation to host: the mites are undersurface leaf vagrants.

Type material: dry leaves with mite mummies
four slides with type and paratypes designated.

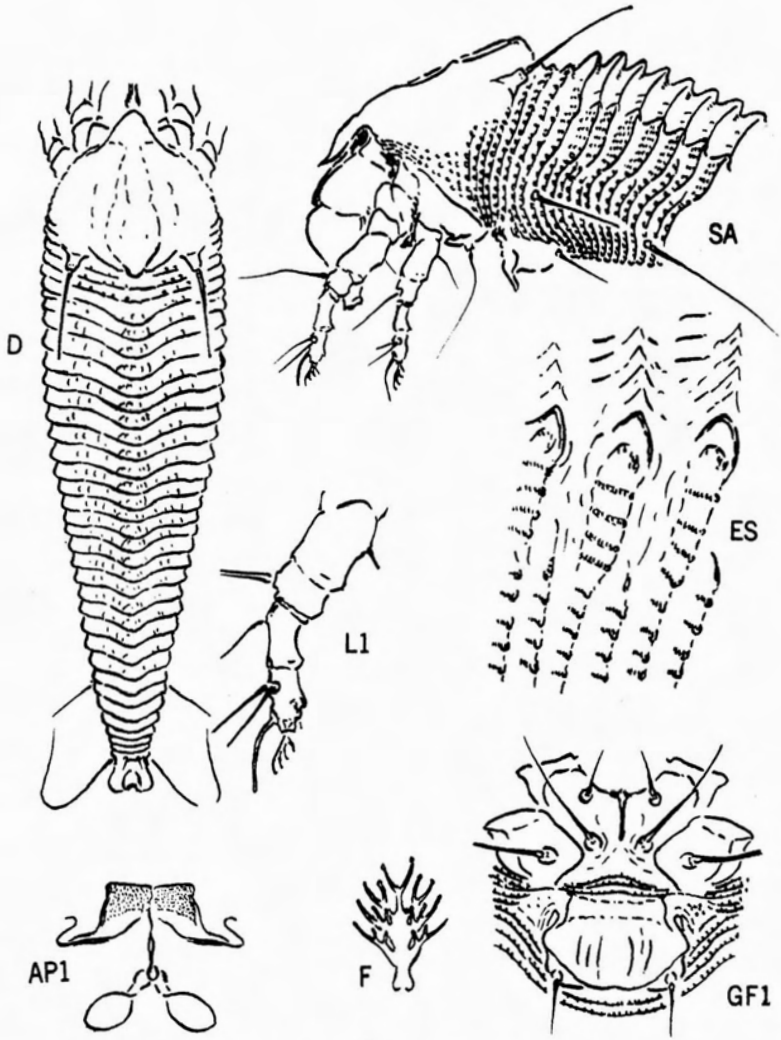

Plate 7 - Notallus nerii, new species

Acaricalus styeri, new species

Plate 2

Styeri is quite close to A. rhodaspris K. (Eriophyid Studies, Cal. Dept.of Agriculture, B-11:13-14, May 14, 1974). The new species dif. fers from rhodaspris by having less prominently organized lines on the shield lateral to the dorsal tubercles. Rhodaspris infests eastern red oak, whereas styeri lives on native chestnut, which is gradually becoming more and more rare.I am pleased to name the new species after William E. Styer who collected it in Ohio and who is a student of eriophyoid mites.

Female from front edge of anterior shield lobe to termen 155μ-180μ long, 68μ wide, 55μ thick; a rather stocky fusiform mite colored reddish in life. Rostrum 25μ long, projecting down;antapical seta 6μ long. Shield 50μ long, 63μ wide, subtriangular in dorsal view with sides bulging to some extent. Shield design of moderately strong and coarse central lines, giving way to less distinct lines laterally; general surface, especially laterally, with short dashes and granules. Median shield line indistinct, obscured by short marks. Admedian shield lines strong, extending back from central shield bulge and curving out at about 1/5. gently curving back to near 1/2 and meeting indistinct cross line at that point,continuing back to the fork between dorsal tubercles, the outer arm curving back to rear margin, the inner arm meeting the opposite arm in center just before rear margin.Submedian lines on anterior lobe side projecting laterally back, meeting line from admedian at 1/5, and continuing onto more or less indistinct lateral lines, interspersed with granules. Shield generally granular laterally,the partial rings below dorsal tubercle forming start of lateral ridge that extends onto abdomen. Dorsal tubercles with elongate axes, nearly meeting rear shield margin;dorsal setae somewhat ahead of rear margin and projecting up 4μ. Foreleg from trochanter base 31μ long; tibia 9μ long, with 3.5μ seta at 1/4; tarsus 7μ long; claw downcurved, strongly knobbed, 5.5μ long;featherclaw with about 4 rays on each side of division. Hindleg 28μ long, tibia 7.5μ long, tarsus 6μ long, claw 6μ long.Short sternal line between forecoxae and sparse short lines or granules ornamenting coxal surfaces.First setiferous coxal tubercles farther apart than second and slightly ahead of anterior coxal approximation; second coxal tubercles a little ahead of level of third tubercles. Abdominal thanosome with about 39 tergites and 58 sternites, the central ridge ending about on tergite 32. Thanosomal microtubercles extending short distance ahead from bases on rear margins, the microtubercles on upper and latteral ridges tending to be coarse and irregular;strong microtubercles in subdorsal trough just behind shield, fading to rear in this area; sternal microtubercles rather small, on sternal margins. Lateral seta on sternite 5 behind shield, 12μ long;first ventral seta 26μ long, on sternite 19; second ventral seta 13μ long, on sternite 38. Telosome with about 6 rings, completely microtuberculate.the microtubercles extending forward as thin lines from rear ring margins, longer on last 2 or 3 rings ventrally;telosomal seta 18μ-20μ long. Accessory seta represented as small points just inside long terminal setae.Female genitalia 14μ long, 23μ wide, basally the coverflap with curved line enclosing basal area,on each side of which aera bearing coarse granules apically the coverflap with about 10 rather short longitudinal ribs; genital seta 22μ long.

Male about the same size as female.

Type locality: Dundee Wildlife Area, Tuscarawas County, Ohio

Collected: July 12, 1974 bytWilliam E. Styer of the Ohio Research and Development Center, Wooster

Host: Castanea dentata L. (Fagaceae-Fagales) American chestnut

Relation to host: the mites are upper surface leaf vagrants.

Type material: mites in liquid from the type locality
five slides with type and paratypes designated.

Note: Two distinct species are present on the slides. The most numerous are Rhyncaphytoptus castanifoliae K. (Eriophyid Studies X, Cal.Dept.Agr. Vol.XXIX(3):167, Oct. 23, 1940). The new species differs by the much smaller rostrum and by the thanosomal ridges. Acaricalus styeri is also found in Virginia where chestnut grows.

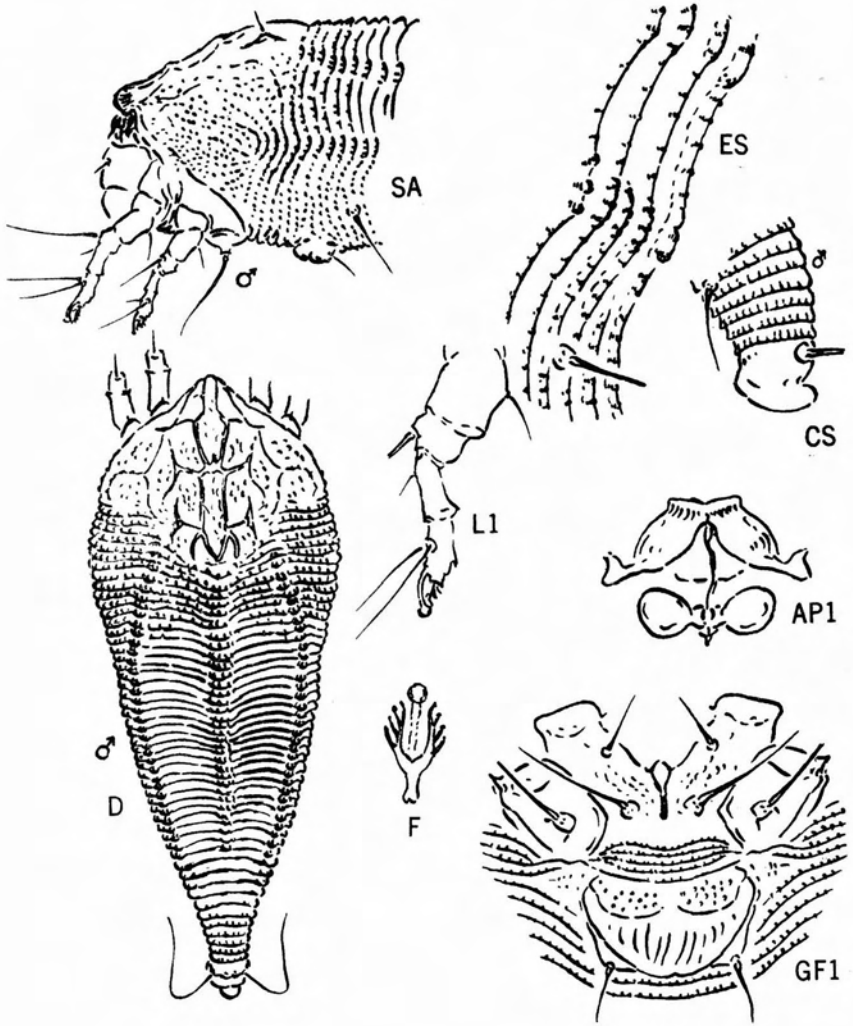

Plate 8 - Acarelliptus styeri, new species

Tetra tuttlei, new species

Plate 9

Species referable to Tetra have a broad longitudinal depression on the dorsum of the thanosome, plus dorsal setae that project to the rear. This new species is closest to Tetra robiniae K. (Eriophyid Studies XXVIII, Occ. Papers No. 2:7, Cal. Bur. Ent. Dec. 30, 1959). Both species have 8-rayed featherclaws, but the new species differs from robiniae by having dorsal thanosomal microtubercles that are pointed, whereas robiniae has these structures rounded off.

Length of female about 200μ, width 42μ, thickness 40μ; body elongate-fusiform; color in life probably light yellowish-white. Rostrum 19μ long, projecting down; antapical seta 5.5μ long. Shield subtriangular in dorsal view, acuminate anteriorly with narrow anterior lobe; anterior lobe strongly downcurved over rostrum, with pointed apex. Median shield line present only on rear 2/5 in area enclosed by admedians. Admedian shield lines complete, convex outwardly from sides of anterior lobe, recurved at lobe base and meeting transverse line, gently curved to cross line at rear 3/5, which line crosses front end of median; admedians then curving convexly outwardly, giving off lateral line at about 3/4 and ending half way between end of median line and dorsal tubercles on rear shield margin. Submedian line extending back from lateral line just behind anterior lobe base, curving inward to cross line at 3/4, then recurved and ending in front of dorsal tubercle; three or four lines between admedian and submedian ahead of rear shield margin. Strong lateral line well above coxae, extending to rear from lower side of anterior lobe, joining cross line at about 2/5, giving off submedian line at just before 1/2, then curving down and back, ending at rear margin. Lower lateral shield line gently curving up and back well above coxae, closest to upper lateral line at about 1/2. Band of granules above coxae. Dorsal tubercles 27μ apart, on rear margin and directing setae divergently to rear; dorsal setae 15μ long. Foreleg 31μ long; tibia 8μ long, with 6μ seta at 1/3; tarsus 7μ long; claw 7.5μ long; featherclaw 8-rayed. Hindleg 29μ long, tibia 6μ long, tarsus 6.5μ long, claw 7μ long. Coxae ornamented with curved lines of granules; sternal line simple, extending back almost to level of third tubercles, unforked. First setiferous coxal tubercles farther apart than second and slightly behind level of anterior coxal approximation; second tubercles not far ahead of level of third tubercles. Abdominal thanosome with about 44 tergites and 66 sternites; broad dorsal longitudinal trough beginning about four tergites behind shield and extending almost to telosome. Tergal microtubercles beadlike on rear ring margins, acuminate, larger than on sternites and acuminate; becoming more pointed to rear and not extending an appreciable distance toward front. Sternal microtubercles smaller, acuminate, not appreciably elongate anteriorly, but becoming quite elongate ahead of margins toward telosome. Lateral seta 21μ long, on sternite 11 behind shield; first ventral seta 26μ long, on sternite 25; second ventral 23μ long, on sternite 44. Telosome with 6 rings and extending to end of terminal lobes. Telosomal microtubercles fine, pointed over margins, strongly extended ahead ventrally, less so dorsally; seta 26μ long. Accessory seta 5.5μ long. Female genitalia 12μ long, 20μ wide; coverflap moderately bowl-shaped and with 14-17 longitudinal ribs and two broken cross lines basally; seta 27μ long.

Male not seen.

Type locality: Mazatlan, Mexico

Collected: July 28, 1970 by Dr. D. M. Tuttle and sent under #231. I am pleased to name this mite after Dr. Tuttle of the University of Arizona who has collected many eriophyids.

Host: Solidago sparsifolia (Compositae - Campanulatae)

Relation to host: the mites are presumably leaf vagrants

Type material: a vial with a few specimens in liquid and bearing this data
a type slide so indicated
one paratype slide.

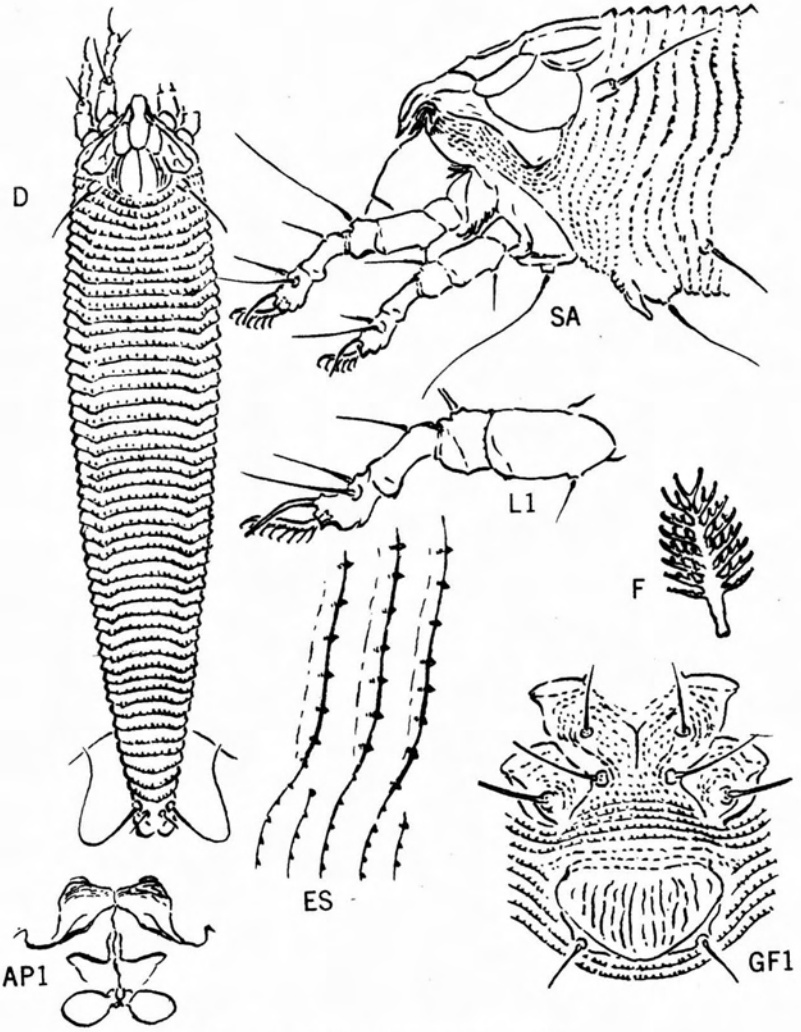

Plate 9 - Tetra tuttlei, new species

Paracolomerus, new genus

This genus is allied to the Cecidophyinae both by the shortened internal female apodeme, and also by the enclosing line which encircles most of the ventral part of the forecoxa. I differs from Cosetacus principally by possessing a foretibial seta and the forecoxal line. It differs from Colomerus mainly by the backward directed dorsal setae.

Shield without anterior projection over rostrum. Dorsal tubercles on rear shield margin, directing setae caudad. Foreleg with both forefemoral seta and foretibial seta. Abdominal rings approximately equal dorsoventrally. Forecoxae with encircling line extending back from first setiferous coxal tubercle, curving around second tubercle, and curving centrad to rear end of prominent sternal line. Female genitalia somewhat appressed to coxae and protruded; interior female anterior apodeme shortened in ventral view.

Paracolomerus casimiroae, new species

Plate 10

Female from anterior middle of shield to termen 180μ-200μ long, 35μ thick; a wormlike mite possibly light yellowish-white in life. Rostrum 20μ long; antapical seta about 4μ long. Shield 23μ long, 29μ wide, somewhat subtriangular in dorsal view. Shield design a network: median line faint except for short section just ahead of rear margin, appended to obtuse V-shaped mark. Admedian lines complete, subparallel on each side of median area but diverging toward rear. Submedian shield lines forming network in general area anterior to dorsal tubercle; first, second and third submedians present, branching, the third forming upper lateral line. Lateral shield lines above coxae and 3 partial rings below dorsal tubercles. Dorsal tubercles 16μ apart; dorsal setae 27μ-30μ long, projecting to rear. Foreleg from trochanter base 30μ-32μ long; tibia 4.5μ long, with 4.5μ seta from 1/3; tarsus 7μ long; claw 7μ long, curved down; featherclaw 5-rayed. Hindleg 26μ-28μ long, tibia 4.5μ long, tarsus 7μ long, claw 8.5μ long. Sternal line strong between forecoxae; forecoxae with line extending back from first coxal setiferous tubercle, circling around second tubercle and curving back and centrad to rear end of sternal line. First setiferous coxal tubercle well ahead of anterior coxal approximation and on inner edge of forecoxa; second tubercle but slightly inside hypothetical line between first and third tubercles. Thanosome with about 65-70 rings, the microtubercles on dorsum somewhat elongate and humped and extending back to rear ring margins; ventrally the microtubercles more bead-like and ahead of margins. Thanosomal dorsum just ahead of telosome with microtubercles fainter or absent. Telosome with 6 rings; microtubercles elongate from rear ring margins but weaker or absent dorsally; telosomal seta 16μ long. Accessory seta 3μ long. Female genitalia transverse and shortened longitudinally; 9μ long, 12μ wide. Genital seta 7μ long. Internal female apodeme shortened in ventral view. Coverflap lacking ribs.

Male about 16- long.

Type locality: San Cristobal, Tachira State, Venezuela

Collected: October 3, 1973, by Ernesto Boreste S. of the Cagua Extension Experimental Station

Host: Casimiroa edulis LaLlave (Rutaceae-Geraniales) white sapote

Relation to host: the mites cause severe leaf crumpling and galling

Type material: dry leaves with galls and numerous mites
8 slides with type and paratypes indicated

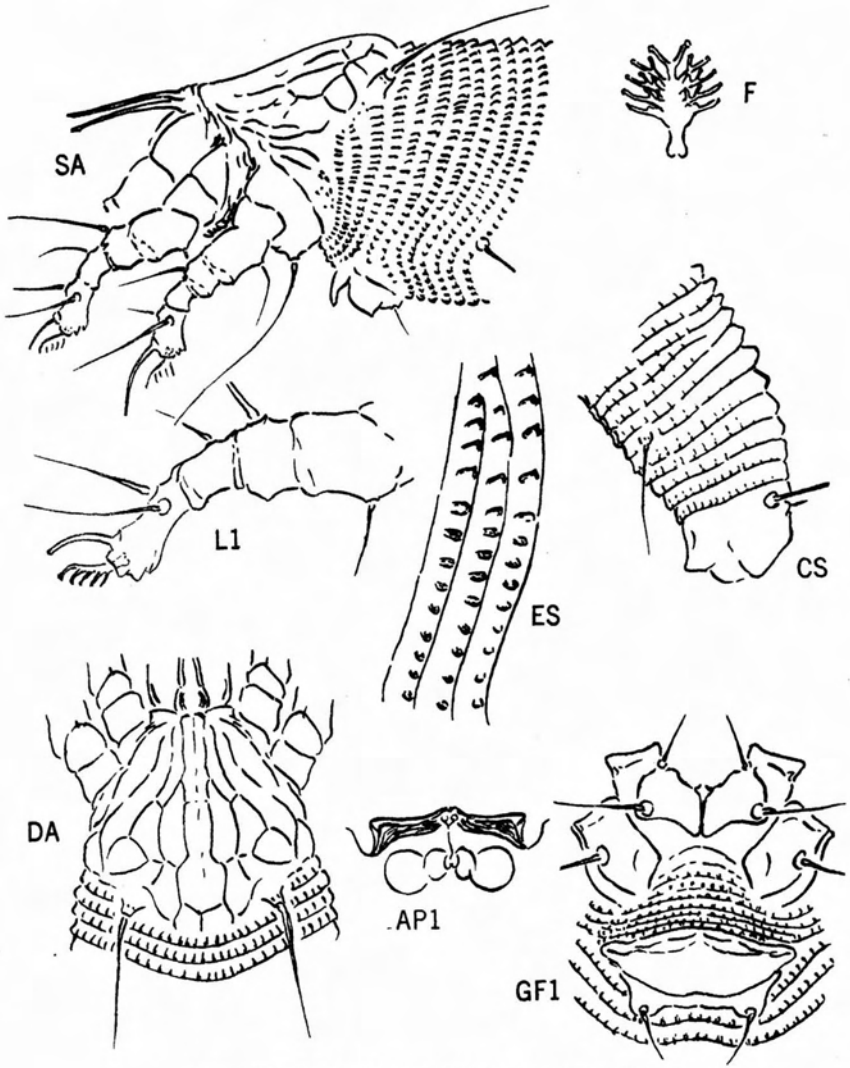

Plate 10 - Paracolomerus casimiroae, new species

Cecidophyes thailandica, new species

Plate 11

In company with Cecidophyes lyrata K. (An.Ent.Soc.Am. 52(6):650, Nov. 1959) this species from Thailand fig has 4-rayed featherclaws. It differs from lyrata by the less granular shield, smaller and more linear microtubercles, and in lacking strong 2-ranked longitudinal female genital coverflap ribs.

Female 145μ-155μ long, 55μ wide, 48μ thick; robust-spindleform; color in life probably dull brownish. Rostrum 30μ long; antapical seta 3μ long. Shield 45μ long and 52μ wide. Shield design an open network: median line almost complete, faint or absent from dorsum of broad anterior lobe; admedian line curving outward from near anterior lobe edge, meeting cross line at about 1/4, recurving to cross line at about 1/2, continuing slightly outward to curved cross line at 4/5 and arching outward and back to rear shield margin. Submedian shield lines from within anterior lobe front edge, curving back to the 1/4th cross line, forming part of network on middle and rear lateral areas, weak after 1/2. Laterally the shield with an upper line and granulations above it and below, 3 or 4 partial rings at rear shield angle. Anterior shield lobe somewhat thick in lateral view. Foreleg from trochanter base 28μ long; tibia 5μ long, with 15μ seta from about 3/4; tarsus 12.5μ long; claw 5μ long; featherclaw 4-rayed. Hindleg 27μ long, tibia 5μ long, tarsus 8μ long, claw 8μ long. Coxae ornamented with some short lines; second forecoxal tubercle surrounded on front and inner side by curved line framing the tubercle; first forecoxal tubercles slightly ahead of anterior coxal approximation and further apart than second tubercles; second tubercles ahead of level of third tubercles. Thanosome with 32 to 35 tergites, and 38 to 42 sternites. Microtubercles slender and linear, extending ahead of rear ring margins. Lateral seta 18μ long, about 5 or 6 sternites behind rear shield margin; first ventral seta 44μ long, on sternite 8; second ventral seta 9μ long, on sternite 18. Telosome with 8 rings, completely microtuberculate, the microtubercles linear and longer ventrally to rear; telosomal seta 27μ long. Female genitalia 18μ long by 25μ wide; coverflap basally with lines of short dashes, converging toward center to rear; genital seta 8μ long.

Male 140μ-150μ long.

Type locality: Bangkhen, Thailand

Collected: Nov. 18, 1974 by Dr. L. C. Knorr and sent under his number T-143a.

Host: Ficus microcarpa L.f. (Moraceae-Urticales) a fig

Relation to host: the mites are undersurface leaf vagrants.

Type material: In addition to the dry leaves from which the slides were made there is a type slide and two paratype slides.

Cyclohexanol in Water Soluble Mite Mounting Media

The addition of cyclohexanol in relatively small quantities to mite mounting media upgrades not only its preparatory action, but also its preservation qualities as regards mite shape. Cyclohexanol is hydrogenated phenol. It melts as a lower point than phenol and is not hygroscopic. It is less water soluble than phenol and tends to separate under the coverslip if there is too much. For that reason those interested in trying it should experiment. It seems fairly compatible with gum arabic when in small quantities. Media lacking gum are satisfactory.

A suggested formula for a medium could be: sorbitol 2 grams; chloral hydrate 5 gr.; potassium iodide 0.2 gr.; enough iodine crystals to produce a dark color; water 4 cc; glycerin 7 drops; cyclohexanol 7 drops; formaldehyde solution 8 drops. For the preparatory medium leave out the formaldehyde. The formaldehyde medium allows easy turning of the mites after they are under the coverslip.

In the course of the cook in the preparatory medium add drops of lactic acid and HCl as necessary to achieve desired clearing. Wash the cleared mites in the final medium and then transfer to the slide and cover. Allow the mount to set at room temperature.

The preparatory medium, minus additions, may possibly be suitable for the one-step method in a low heat oven. Formaldehyde would presumably not allow for proper clearing in such an oven.

The formula proportions given above are basic. If more is desired multiply by whatever the chosen factor is.

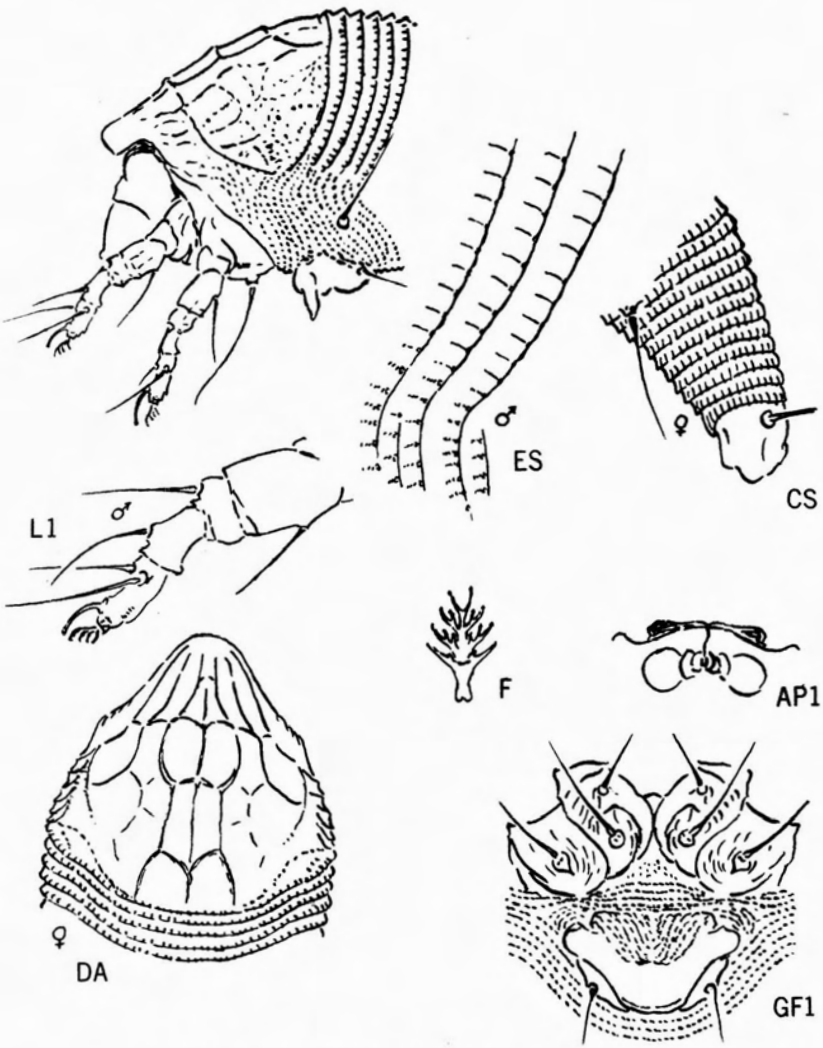

Plate 11 - Cecidophyes thailandica, new species

Diptiloplatus, new genus

This is a flattened rhyncaphytoptid mite with divided featherclaws. The rostrum is tapering and attenuate, slightly recurved anteriorly at tip. The principal feature of this mite is its flattened and somewhat broadened general shape, with the tergites having a shallow broad trough extending most of the length of the abdomen. The generic name is taken from the first three syllables of Nalepa's generic name Diptilomiopus with platus added to indicate the flat body. Actually this mite, which lives on giant bamboo in southern Asia is not close to Diptilomiopus as species in this latter genus have well rounded bodies and have no free patella on the legs, nor do they have dorsal setae.

A broad flattened mite with elongate and attenuate rostrum which contains the long form oral stylet. The rostrum is slightly recurved toward apex. Shield with anterior subsemicircular outline in dorsal view, but with projecting anterior lobe over rostrum. Dorsal tubercles present well ahead of rear shield margin which bear very short dorsal setae. Legs with all regular segments, including patellae, present. Foreleg with femur lacking the seta; hindleg lacking the patellar seta. Featherclaw deeply divided but with short central rays present. Forecoxae elongate, deeply separated from eachother; sternal line not in evidence. Abdominal thanosome divided laterally into broader tergites and narrower sternites; tergites above forming broad, shallow longitudinal trough extending most of thanosome length.

Diptiloplatus megagrastis, new species

Plate 12

Female 160μ-175μ long, 60μ-65μ wide, about 40μ thick; a reddish mite in life. Rostrum 40μ long; antapical seta 8μ long. Shield 48μ-55μ long, 55μ-60μ wide. Shield design obscure, with slight suggestion of admedian lines. Surface generally set with short lines and granules, especially laterally. Anterior shield lobe with fine lines across front. Dorsal tubercles about 10μ ahead of rear margin, 19μ apart; dorsal setae 2μ long, projecting up. Foreleg from trochanter base 37μ long; forefemoral seta absent; tibia 8μ long, with 7μ seta from apical inner surface; tarsus 6μ long; claw 7.5μ long, knobbed; featherclaw divided with about 6 rays on a side, and with short central stem with about 2 rays. Hindleg 30μ long, tibia 6μ long, tarsus 6μ long, claw 6.5μ long. Coxae with some ornamentation of granules and short lines. Forecoxae deeply divided, the division extending back past second setiferous tubercles. Forecoxae narrow and somewhat attentuate. First coxal tubercles situat- somewhat forward, about as far apart as second; second setiferous coxal tubercles nearly back to a line across third tubercles. Abdominal thanosome with about 15 tergites and 52-57 sternites; laterally the lower ends of the tergites broken and heavily granular, giving way below to narrower sternites; no prominent microtubercles dorsally on tergites. Sternal microtubercles faint and elliptical. Lateral seta 10μ long, on about sternite 9 behind shield; first ventral seta about 40μ long, on sternite 21; second ventral seta 9μ long, on sternite 41. Telosome with 6 rings below and 4 above; microtubercles faint above but thin and elongate below. Telosomal seta 23μ long. No accessory seta. Female genitalia 15μ long, 26μ wide; coverflap without ribs except for row of short ribs across base. Genital seta 9μ long.

Male about 150μ long.

Type locality: Bangkapi, Bangkok area, Thailand

Collected: October 23 and 24, 1974 by Dr. L. C. Knorr and sent under nos. T123a and T123c

Host: Gigantochloa liculata Gamble (Gramineae-Glumiflorae) a lumber bamboo.

Relation to host: the mites are leaf vagrants.

Type material: dry bamboo leaves with sparse number of mites as mummies a type slide and 3 paratypes so designated

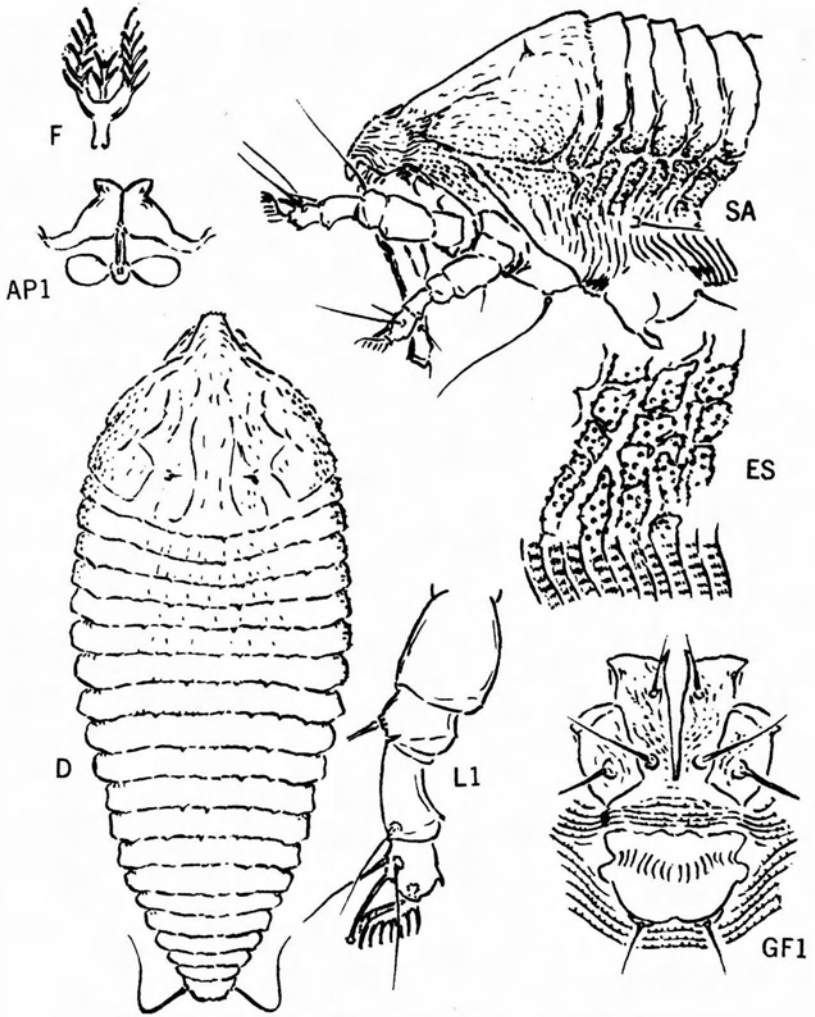

Plate 12 - Diptiloplatus megacrastis, new species