

# ERIOPHYID STUDIES B-11

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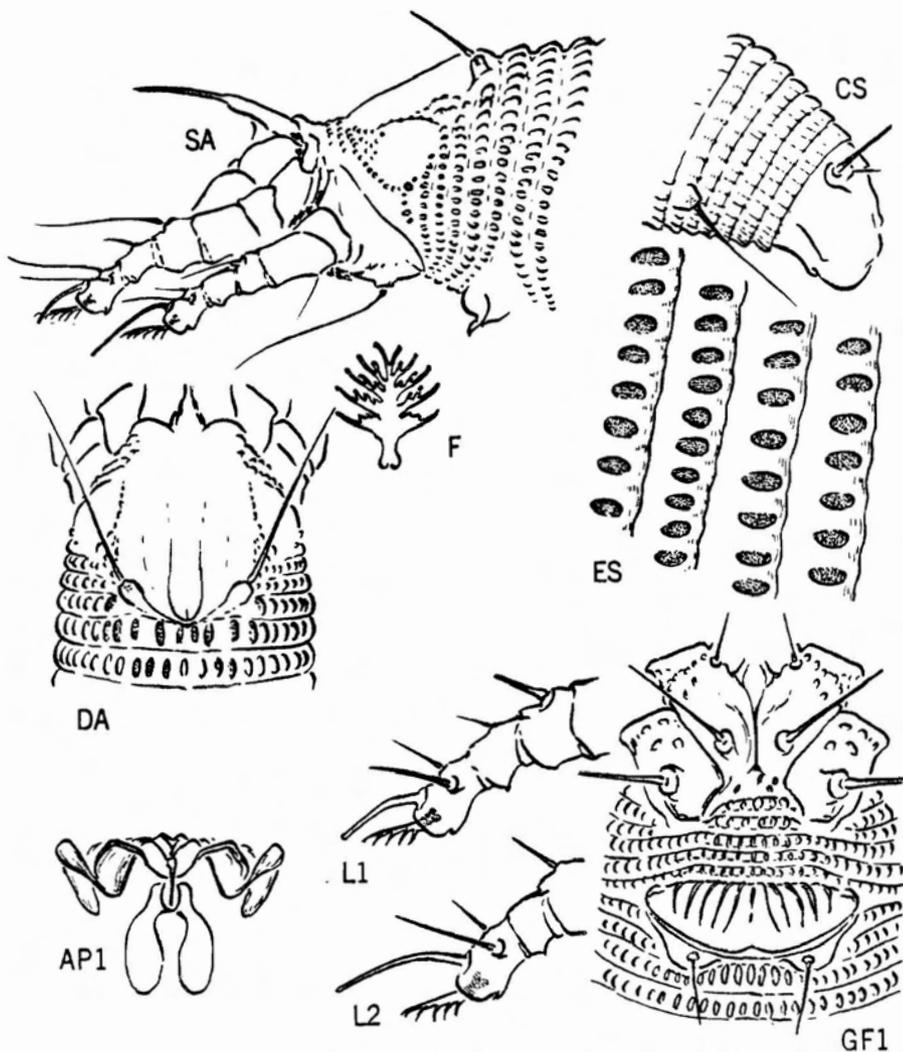


Plate 1 - *Brachendus pumilae*, new species

ISSUED - May 14, 1964

## Brachendus, new genus

The genotype of this new genus is externally about like many species I have referred to Eriophyes in past publications. It differs internally by the genital apodeme that is folded back so that the lateral extensions lie beside the bases of the spermathecae. In addition the female genitalia are not appressed to the coxae as is usual with types having the internal apodeme shortened. One other species I have studied, Aceria camelliae, has this folded type of apodeme with lateral lobes beside the bases of the spermathecae, but on camelliae the genitalia are appressed to the coxae like Cecidophyes. However, in Cecidophyes the shortened apodeme does not extend back from the transverse basal line. The genotype therefore has the combination of folded back apodeme, plus non-appressed genitalia, and forward directed dorsal setae.

Body wormlike with abdominal rings undifferentiated above and below, the rings completely microtuberculate. Rostrum with short oral stylet. Dorsal tubercles on rear margin of shield but directing dorsal setae forward and diverging. Coxae with usual three pairs of setae. Legs with all usual setae and segments. Abdomen completely microtuberculate, with lateral, first, second, and third abdominal setae present. Female genitalia broad laterally, but narrow longitudinally, situated normal distance behind coxae, not appressed. Internal genital apodeme folded back of transverse base line, the lateral lobes reaching back to line of bases of spermathecae.

Genotype: Brachendus pumilae, new species

Brachendus pumilae, new species

## Plate 1

The key to finding specimens of this species is to search in buds on shoots with bur clusters.

Female 175 $\mu$ -185 $\mu$  long, 30 $\mu$  thick; wormlike; light yellowish. Rostrum 21 $\mu$  long, curved down; antapical seta minute. Shield 19 $\mu$  long, 22 $\mu$  wide. Shield design almost obsolete, a slight indication of median line at rear margin, and the admedian lines present on rear half, curving together at rear margin to short line representing median. One or two lines of granules extending anteriorly from just outside of dorsal tubercles. Some granules laterally on shield. Dorsal tubercles on rear margin, 10.5 $\mu$  apart; dorsal setae 19 $\mu$ -21 $\mu$  long, projecting forward and diverging. Forelegs 21 $\mu$  long; tibia 4.5 $\mu$  long, with 2.5 $\mu$  seta at 1/2; tarsus 5.5 $\mu$  long; claw 6.5 $\mu$  long, curved down gently. Featherclaw 5-rayed. Hindleg 19 $\mu$  long, tibia 4 $\mu$  long, tarsus 5.5 $\mu$  long, claw 8.5 $\mu$  long, attenuate, curved. Coxae with some rather large apical granules; anterior coxae broadly connate centrally; first setiferous coxal tubercles farther apart than second, well ahead of second and ahead of anterior coxal approximation; third coxal tubercles well behind line across second tubercles. Abdomen with about 55 rings, completely microtuberculate, the microtubercles ahead of ring margins and somewhat oval or elliptical. Lateral seta 17 $\mu$  long, on about ring 6; first ventral seta 31 $\mu$  long, on ring 15; second ventral 18 $\mu$  long, on ring 28; third ventral 10 $\mu$  long, on ring 5 from rear. Accessory seta 4 $\mu$  long. Female genitalia 19 $\mu$  wide, 6.5 $\mu$  long; well behind coxae; coverflap with about 11 or 12 longitudinal ribs; seta 2.5 $\mu$  long.

Type locality: Springfield, Virginia

Collected: September 19, 1963, by J. F. Keifer

Host: Castanea pumila L. (Fagaceae) chinquapin

Relation to host: the mites are found in buds on fruiting twigs

Type material: a type slide

five paratype slides

mites with buds and twigs in liquid

## Aculus pycnanthemii, new species

## Plate 2

Most of the 4-rayed featherclaw species that I have assigned to this genus have well defined shield patterns and the pair of small spines projecting from the anterior shield lobe, as possessed by the genotype. In this case the shield has no clear design and the anterior lobe terminates in a small central spine. This species has no near relatives in the 4-rayed featherclaw group.

Female 170<sub>u</sub>-190<sub>u</sub> long, 53<sub>u</sub> wide, 45<sub>u</sub> thick; fusiform; color light yellowish. Rostrum 22<sub>u</sub> long, projecting down; antapical rostral seta 7<sub>u</sub> long. Shield 34<sub>u</sub> long, 50<sub>u</sub> wide; anterior lobe acutely produced over rostrum, ending in a small terminal spine. Shield design obsolete, faint indications of admedians on sides of anterior lobe and a shallow groove running forward from dorsal tubercles. Sides of shield with two well defined longitudinal lines, somewhat granular and with granules between these lines and above coxae. Forelegs 38<sub>u</sub> long; tibia 8<sub>u</sub> long, with 4<sub>u</sub> long seta from about 1/5; tarsus 7<sub>u</sub> long; claw 7<sub>u</sub> long, downcurved, apically knobbed. Hindlegs 36<sub>u</sub> long, tibia 7<sub>u</sub> long, tarsus 6<sub>u</sub> long, claw 7<sub>u</sub> long. Coxae somewhat flaring, the anterior coxae with curved lines, especially around second tubercles; anterior coxae broadly connate centrally; first setiferous coxal tubercles slightly farther apart than second and slightly ahead of anterior coxal approximation; second tubercles somewhat ahead of a transverse line across third setiferous coxal tubercles. Abdomen with about 37 tergites to ring bearing third ventral seta, each tergite covering about 2 sternites; 60 to 65 sternites; elongate microtubercles on tergites and bead-like microtubercles on rear margins of sternites. Weak microtuberculation on dorsum of rear rings. Lateral seta 21<sub>u</sub> long, on about sternite 9; first ventral seta 35<sub>u</sub> long, on about sternite 21; second ventral 12<sub>u</sub> long, on about sternite 37; third ventral 18<sub>u</sub> long, on ring 5 from rear. Accessory seta very small. Female genitalia 18<sub>u</sub> wide, 10<sub>u</sub> long; coverflap with about 14 longitudinal ribs; seta 12<sub>u</sub>-13<sub>u</sub> long.

Type locality: Springfield, Virginia

Collected: September 17, 1963, by J. P. Keifer and the writer

Host: Pycnanthemum virginianum (L.) (Labiatae) Virginia mountain-mint

Relation to host: the mites were on the leaves but principally in the flower heads

Type material: a type slide  
 five paratype slides  
 mites with plant parts in liquid

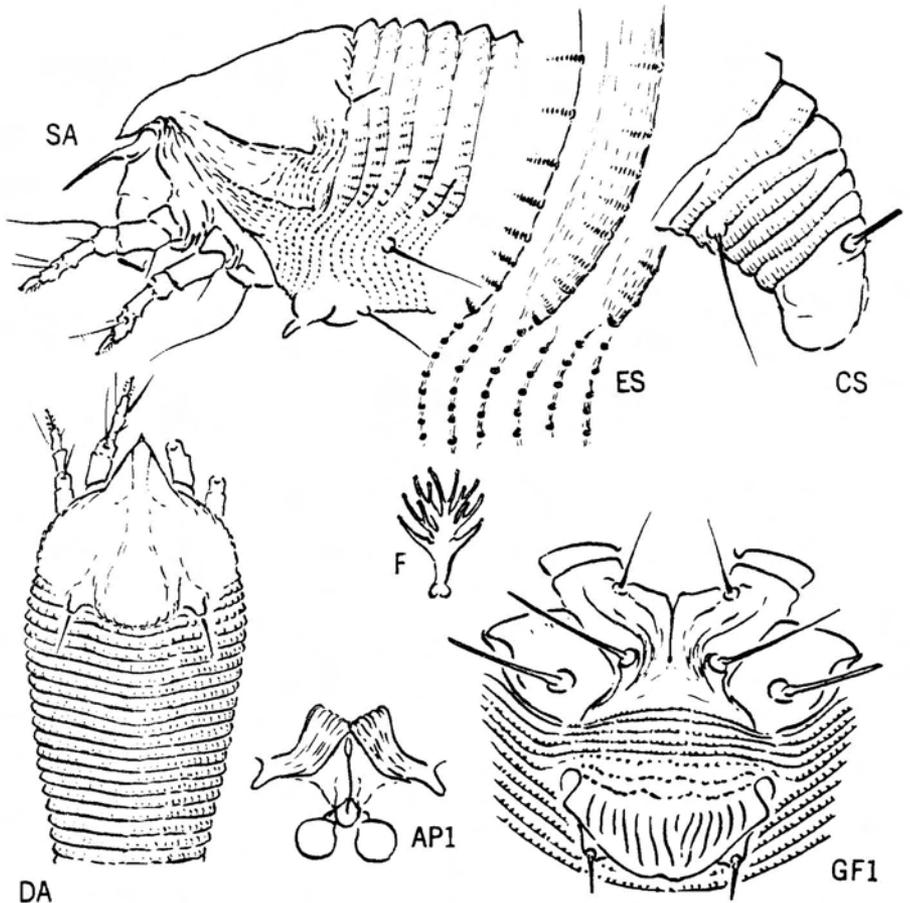


Plate 2 - *Aculus pycnanthemis*, new species

## Aculus parapycnanthemi, new species

## Plate 3

A second collection of mite infested Pycnanthemum flower heads in the Springfield area produced the surprising discovery of a second species of Aculus on this host. The spot where Aculus pycnanthemi occurred was about two miles west of the place where parapycnanthemi proved to be. This second species is not particularly close to the first. Parapycnanthemi differs by having a smaller anterior shield lobe lacking a terminal point, longer setae, particularly the dorsal seta, and rounder, larger microtubercles. No mixture of the two species has been found in the preparations.

Female 150<sub>u</sub>160<sub>u</sub> long, 52<sub>u</sub> thick; fusiform; color light yellowish. Rostrum 23<sub>u</sub> long, projecting down; antapical rostral seta 6<sub>u</sub> long. Shield 33<sub>u</sub> long, 43<sub>u</sub> wide, subtriangular; anterior lobe short, acuminate, rounded in front. Shield surface smooth, a longitudinal lateral line along lateral margin above coxae. Dorsal tubercles 26<sub>u</sub> apart; dorsal setae 22<sub>u</sub> long, diverging to rear. Forelegs 33<sub>u</sub> long; tibia 8.5<sub>u</sub> long, with 4.5<sub>u</sub> seta from near base; tarsus 7<sub>u</sub> long; claw 7<sub>u</sub> long, slender, terminating in a small knob; featherclaw 4-rayed. Hindlegs 31<sub>u</sub> long, tibia 11<sub>u</sub> long, tarsus 6.5<sub>u</sub> long, claw 7<sub>u</sub> long. Coxae ornamented with curved lines and some granules; anterior coxae broadly connate centrally; first setiferous coxal tubercles a little farther apart than second and opposite anterior coxal approximation; second tubercles a little ahead of line across third setiferous coxal tubercles. Abdomen with about 35 tergites to ring bearing third ventral seta; 55-60 sternites; microtubercles round or nearly so, of moderate size, touching rear margins of rings, larger and fainter dorsally. Lateral seta 20<sub>u</sub> long, on about sternite 10; first ventral seta 47<sub>u</sub> long, on about sternite 22; second ventral 18<sub>u</sub> long, on about sternite 37; third ventral 25<sub>u</sub> long, on ring 5 from rear. Accessory seta 4<sub>u</sub> long. Female genitalia 20<sub>u</sub> wide, 12<sub>u</sub> long; coverflap with 10-12 furrows; seta 14<sub>u</sub> long.

Type locality: Springfield, Virginia

Collected: September 19, 1963, by J. P. Keifer and the writer

Host: Pycnanthemum virginianum (L.) (Labiatae) Virginia mountain-mint

Relation to host: the mites occurred in the flower heads

Type material: a type slide  
 nine paratype slides  
 mites with plant parts in liquid

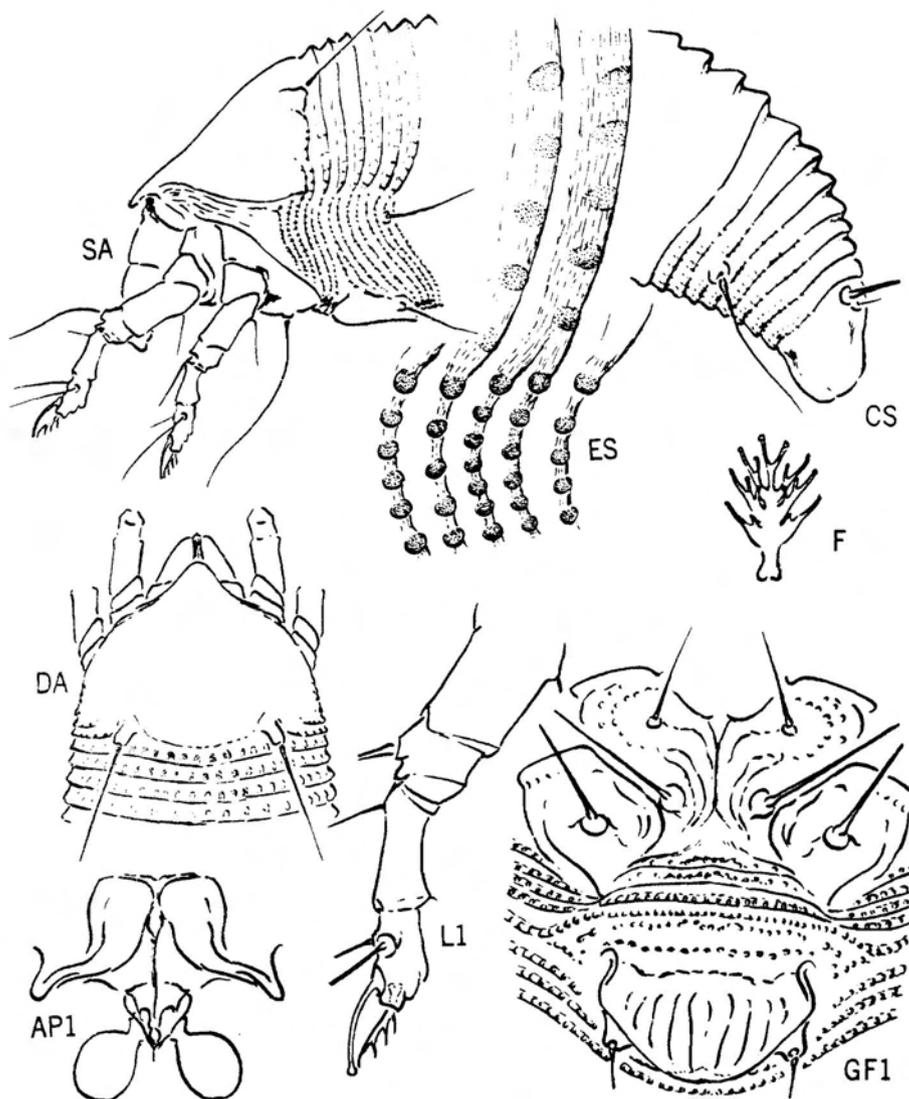


Plate 3 - *Aculus parapycnanthemi*, new species

## Aculus euphorbicolus, new species

## Plate 4

Euphorbicolus, in the 7-rayed featherclaw group, is grouped with symphoricarpi (K.), rhodensis (K.), and mckenziei (K.). The new species has solid shield lines which separate it from rhodensis, lacks the anterior pair of small shield spines that symphoricarpi has, and has coarser microtubercles than mckenziei. The latter species is a peculiar grass form.

Female 190<sub>u</sub>-215<sub>u</sub> long, 60<sub>u</sub> thick; fusiform; color light yellowish. Rostrum 20<sub>u</sub> long, projecting diagonally down; antapical rostral seta 4<sub>u</sub> long. Shield 36<sub>u</sub> long, 46<sub>u</sub> wide, triangular; anterior lobe acuminate, rather short over rostrum. Shield design of strong lines: median line present as a short longitudinal dash at rear 3/4, followed by a V-shaped mark just ahead of rear margin. Admedian lines complete, sinuate, from sides of anterior lobe and diverging along side of V-shaped mark at rear margin. Submedian lines diverging to rear from sides of anterior lobe, ending at about 1/3 against outwardly diagonal lines from admedians; a diagonal line on each side from against admedians at 2/3, curving outwardly in front of dorsal tubercles and meeting a partial ring laterally from tubercle, a short inwardly diagonal line forming angle in front of shield. Upper and lower lateral longitudinal lines on shield extending from front area and ending against partial rings below dorsal tubercles; a few granules above hind coxae. Dorsal tubercles 30<sub>u</sub> apart; dorsal setae 17<sub>u</sub> long, extending back, not diverging strongly. Forelegs 36<sub>u</sub> long; tibia 10<sub>u</sub> long, with seta 6.5<sub>u</sub> long at 1/3; tarsus 7.5<sub>u</sub> long; claw 8<sub>u</sub> long, curved down, tapering; featherclaw 7-rayed. Hindlegs 33<sub>u</sub> long, tibia 10<sub>u</sub> long, tarsus 7<sub>u</sub> long, claw 8<sub>u</sub> long. Coxae with numerous lines of granules; anterior coxae with slight lobes on inner side of second tubercles, the sternal line between coxae not strong; first setiferous coxal tubercles ahead of second and slightly ahead of anterior coxal approximation; second setiferous coxal tubercles well ahead of transverse line through third tubercle. Abdomen with tergites and sternites not strongly differentiated; about 53 tergites and 60 sternites; microtubercles on rear margins, slightly produced, and a little acuminate dorsally, not unusually close. Lateral seta 20<sub>u</sub> long, on about sternite 8; first ventral seta 54<sub>u</sub> long, on about sternite 21; second ventral 16<sub>u</sub> long, on about sternite 36; third ventral 21<sub>u</sub> long, on sternite 6 from rear. Accessory seta 6.5<sub>u</sub> long. Female genitalia 25<sub>u</sub> wide, 20<sub>u</sub> long; overlap with two basal transverse rows of granules and 8 to 10 irregular longitudinal ribs, converging posteriorly; seta 16<sub>u</sub> long.

Male 156<sub>u</sub> long, 50<sub>u</sub> thick.

Type locality: Springfield, Virginia

Collected: June 23, 1963 by

Host: Euphorbia corollata L. (Euphorbiaceae) flowering surge

Relation to host: the mites produce deformed flower clusters or galls

Type material: a type slide

four paratype slides

mites in an envelope on dry plant parts

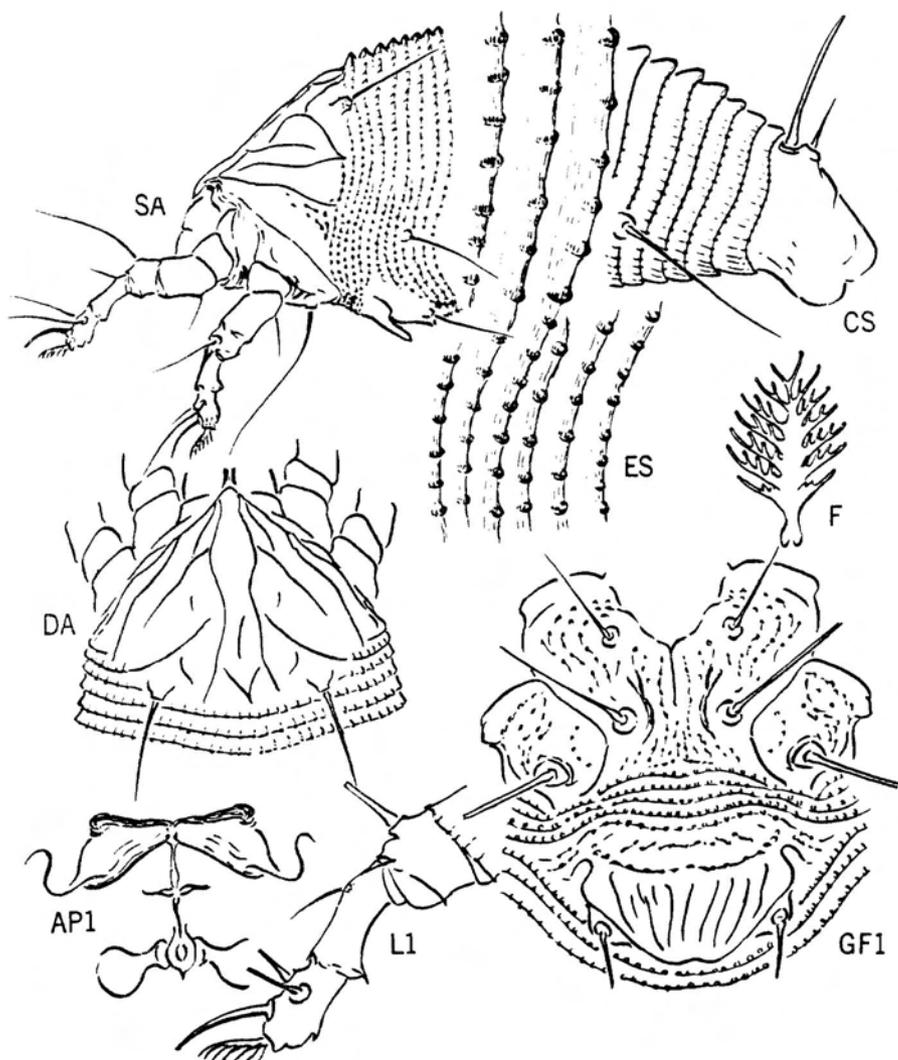


Plate 4 - *Aculus euphorbicolus*, new species

## Oxypleurites celineae, new species

## Plate 6

At the time of collection of this mite the primary females had begun to disappear, leaving deutogynes and males as the principal elements in the population. This mite belongs to the species in this genus with dorsal setae arising from tubercles on the rear shield margin, but directed diagonally inward. The tergites are rough, but do not have prominent lateral projections as are typical of most members referred to Oxypleurites. From the western Oxypleurites acerivagrans K. the new species is separated by having one more ray in the featherclaw and by having less well defined lateral lobes. The name, celineae, is a contraction of caelum plus linea, referring to the Skyline Drive in Virginia.

Protogyne 190<sub>u</sub>-200<sub>u</sub> long, 60<sub>u</sub> wide, 40<sub>u</sub> thick; elongate-fusiform; color light yellowish. Rostrum 23<sub>u</sub> long; projecting down; antapical seta 5<sub>u</sub> long. Shield 43<sub>u</sub> long, 60<sub>u</sub> wide (widest part of body); anterior lobe broadly rounded above, bulbous in side view with crenulations. Shield design obsolete but with weak grooves running anteriorly from dorsal tubercles. Lateral shield lobes prominent and somewhat rough. Dorsal tubercles 18<sub>u</sub> apart, on rear margin, short-conical, the axes converging anteriorly; dorsal setae 5<sub>u</sub> long, strongly converging to rear. Forelegs 32<sub>u</sub> long; tibia 7<sub>u</sub> long, the seta 4.5<sub>u</sub> long, from 1/4; tarsus 6.5<sub>u</sub> long; claw 7<sub>u</sub> long, curved, apically knobbed; featherclaw 4-rayed. Hindlegs 29<sub>u</sub> long, tibia 6.5<sub>u</sub> long, tarsus 6.5<sub>u</sub> long, claw 7<sub>u</sub> long. Coxae with obscure granulations and slight lines; anterior coxae connate centrally; first setiferous coxal tubercles slightly farther apart than second and opposite anterior approximation of coxae; second coxal tubercles slightly ahead of transverse line drawn through third coxal tubercles. Abdomen with middorsal rough ridge running back, fading on eleventh or twelfth tergite; lateral lobes rough but not appreciably projecting; about 17 tergites to ring with 3rd ventral seta. About 65 to 70 sternites, those immediately below tergites with coarse irregular microtubercles, the lower part with fine microtubercles mostly ahead of rear margin. Lateral seta 13<sub>u</sub> long, on about sternite 6; first ventral seta 37<sub>u</sub> long, on about sternite 22; second ventral 8.5<sub>u</sub> long, on sternite 44; third ventral seta 10.5<sub>u</sub> long, arising from prominent tubercle on ring 5 from rear. Accessory seta minute. Female genitalia 21<sub>u</sub> wide, 16<sub>u</sub> long; coverflap with fine basal granulations and 7 or 8 weak longitudinal ridges; seta 8.5<sub>u</sub> long.

Deutogyne 180<sub>u</sub> long, 55<sub>u</sub>-60<sub>u</sub> thick; shield with anterior lobe more acute and curving down over rostrum base; lateral shield lobes less prominent. Dorsal setae 8.5<sub>u</sub> long. About 21 tergites to ring bearing third ventral seta, the abdomen with suppressed microtubercles. Accessory seta 2<sub>u</sub> long. Featherclaws palmate.

Male similar to protogyne, widest at shield, 160<sub>u</sub> long, 50<sub>u</sub> wide.

Type locality: Pinnacles Camp Ground, Skyline Drive, Virginia

Collected: September 12, 1963, by J. P. Keifer and the writer

Host: Acer pennsylvanicum L. (Aceraceae) moosewood

Relation to host: the mites are undersurface leaf vagrants

Type material: a type slide

five paratype slides

mites with leaves in liquid

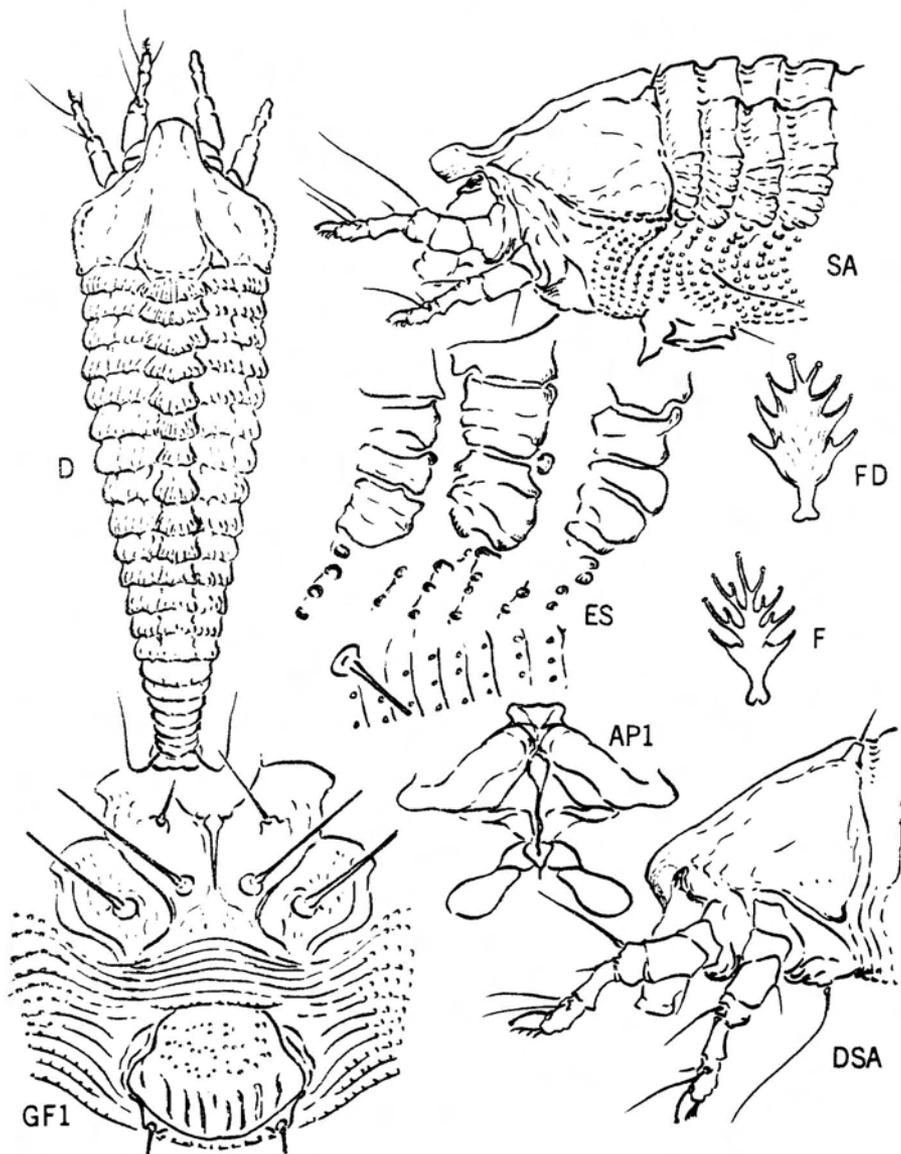


Plate 6 - *Oxypleurites celinae*, new species

## Abacarus kalmiae, new species

## Plate 7

This is the fifth species that I am referring to this genus. Two of these, hystrix Nal. and oryzae K. are fairly close. The others are diverse and about all they have in common is the abbreviated middorsal ridge. The species are: acalyptus (K.), genotype, featherclaw 6-rayed, on Ceanothus; ater K., featherclaw 5-rayed, on African coffee; hystrix (Nal.), featherclaw 8-rayed, on various grasses; oryzae K., 9-rayed featherclaw, on Asiatic rice; the new species, 4-rayed featherclaw, on Kalmia. The new species is further distinguished by small spines on anterior shield lobe.

Female 170<sub>u</sub>-200<sub>u</sub> long, 60<sub>u</sub> wide, 50<sub>u</sub> thick; fusiform; on life with longitudinal wax stripes. Rostrum 33<sub>u</sub> long, projecting down anteriorly; ant-apical seta 8<sub>u</sub> long. Shield 50<sub>u</sub> long, 55<sub>u</sub> wide; anterior lobe fairly broad, with a pair of anterior spines from underside; design on shield strong; median line present on posterior half; admedians subparallel, curving out at 1/4 and meeting extension of lateral line, from there curving in and out again at 1/2, meeting cross line at this point which extends in to median; admedians convex outwardly to posterior 3/4 and meeting cross line to median, curving out and back again to rear margin. Submedian line subparallel to admedian, running back along side of anterior lobe to cross line at 1/4, then to cross line at about 1/2, curving out to form angle in front of dorsal tubercle and extending as a sinuate line back to rear end of admedian at rear margin. Upper lateral line running back from base of anterior lobe, the lower mainly over hind coxae. Dorsal tubercles 35<sub>u</sub> apart, somewhat produced; dorsal setae 14<sub>u</sub> long, diverging to rear. Fore legs 36<sub>u</sub> long; tibia 10<sub>u</sub> long, seta 4.5<sub>u</sub> long from 1/5; tarsus 7<sub>u</sub> long; claw 6.5<sub>u</sub> long, curved, apically knobbed; featherclaw 4-rayed. Hindlegs 31<sub>u</sub> long, tibia 8.5<sub>u</sub> long, tarsus 6.5<sub>u</sub> long, claw 6.5<sub>u</sub> long. Anterior coxae somewhat granular and broadly connate centrally; anterior setiferous coxal tubercles a little farther apart than second and opposite anterior coxal approximation; second coxal tubercles a little ahead of transverse line drawn through third coxal tubercles. Abdomen with middorsal wax bearing ridge running back to about tergite 22; upper lateral wax bearing ridge curving back from just above dorsal tubercles and fading posteriorly; tergites just above junction with sternites with an uneven longitudinal ridge. About 31 tergites to ring with third ventral seta; about 55-60 sternites, the microtubercles fine, elongate, projecting anteriorly from sternite rear margins. Lateral seta 16<sub>u</sub> long, on about sternite 6; first ventral seta 50<sub>u</sub> long, on about sternite 19; second ventral seta 14<sub>u</sub> long, on about sternite 35; third ventral seta 16<sub>u</sub> long, on ring 5 from rear. Accessory seta 4.5<sub>u</sub> long. Female genitalia 29<sub>u</sub> wide, 15<sub>u</sub> long; coverflap basally with curved transverse lines and about 16 longitudinal ridges; seta 19<sub>u</sub> long.

Type locality: Pinnacles Camp Ground, Skyline Drive, Virginia

Collected: September 12, 1963, by J. P. Keifer and the writer

Host: Kalmia latifolia L. (Ericaceae) Kalmia

Relation to host: the mites are undersurface leaf vagrants

Type material: a type slide  
four paratype slides  
mites with leaves in liquid

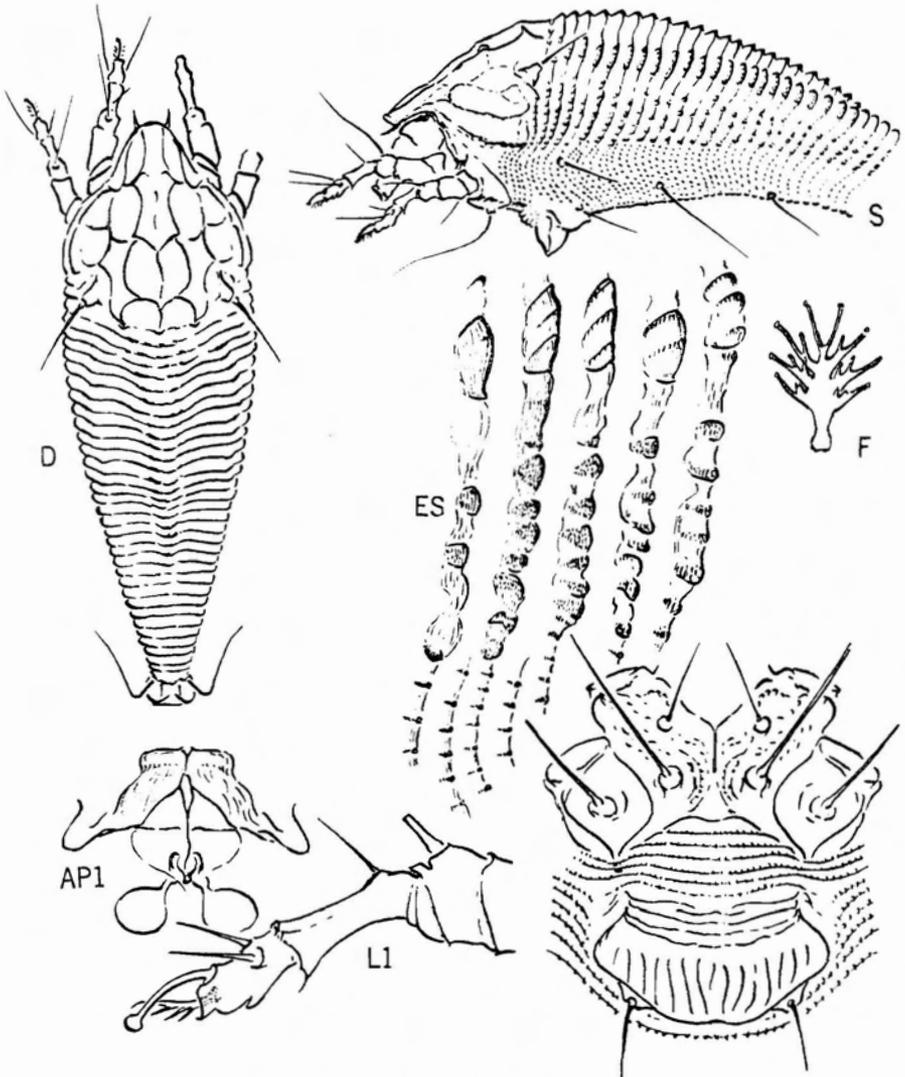


Plate 7 - *Abacarus kalmiae*, new species

## Acaricals: rhodaspris, new species

## Plate 5

Of the species referred to this genus the new species is closest to *paralobus* K. *Paralobus* was described in this series, 3-4, page 4, and lives on *Alnus rugosa* in Maine. The two species are quite similar, the principal difference being in the more granular coxae on the new species, and the pattern of granules on the basal part of its genital coverflap.

Female 170<sub>u</sub>-205<sub>u</sub> long, 60<sub>u</sub>-70<sub>u</sub> thick; fusiform; color light yellowish. Rostrum 22<sub>u</sub> long, projecting down; antapical seta 3.5<sub>u</sub> long. Shield 50<sub>u</sub> long, 60<sub>u</sub> wide; anterior lobe moderately broad, in lateral view with crenulations on front edge. Median line of shield design weak, but present on rear 2/3; admedian line complete, fairly close to median, sinuate, meeting cross lines at about 1/4 and 1/2, the latter crossing median; between dorsal tubercles forking to rear margin of shield, the inner arm of fork meeting median line at rear margin. Submedian line uneven, ending at dorsal tubercle. Fainter lines outside dorsal tubercle, lateral shield lobes somewhat granular. Dorsal tubercles 20<sub>u</sub> apart, ahead of rear margin, their axes longitudinal and parallel; dorsal setae 3.5<sub>u</sub> long, projecting up and inward anteriorly. Forelegs 32<sub>u</sub> long; tibia 8.5<sub>u</sub> long, seta 6<sub>u</sub> long from 1/5; tarsus 6.5<sub>u</sub> long, claw 6.5<sub>u</sub> long, strong, curved, knobbed apically. Featherclaw divided, apparently 4-rayed on a side. Hindlegs 32<sub>u</sub> long, tibia 6.5<sub>u</sub> long, tarsus 6.5<sub>u</sub> long, claw 6.5<sub>u</sub> long. Coxae with faint lines of granules; anterior coxae moderately connate centrally; first setiferous coxal tubercles farther apart than second and somewhat ahead of anterior coxal approximation; second tubercles ahead of transverse line through third setiferous coxal tubercles. Abdomen with about 41 tergites to ring bearing third ventral seta; mid abdominal ridge extending back to about 35th tergite; upper lateral ridge running down and back from behind dorsal tubercles and fading posteriorly, the central abdominal trough not very pronounced. A less prominent lateral ridge extends back from lateral shield lobes. Microtubercles on tergites mainly on ridges, tending to be coarse, especially laterally; the sternal microtubercles round and on rear margins of half-rings. Lateral seta 15<sub>u</sub> long, on about sternite 8; first ventral seta 28<sub>u</sub> long, on about sternite 23; second ventral 12<sub>u</sub> long, on about sternite 40; third ventral 16<sub>u</sub> long, on 6th ring from rear. Accessory seta absent. Anal abdominal lobes with dorsal projection. Female genitalia 15<sub>u</sub> wide, 11<sub>u</sub> long; coverflap with pattern of curved lines of granules and about 14 longitudinal ridges; seta 10<sub>u</sub>-12<sub>u</sub> long.

Male 145<sub>u</sub>-160<sub>u</sub> long, 50<sub>u</sub> thick.

Type locality: Pinnacles Camp Ground, Skyline Drive, Virginia

Collected: September 12, 1963, by J. P. Keifer and the writer

Host: *Quercus rubra* L. (Fagaceae) red oak

Relation to host: the mites are upper surface leaf vagrants

Type material: a type slide  
six paratype slides  
mites with leaves in liquid

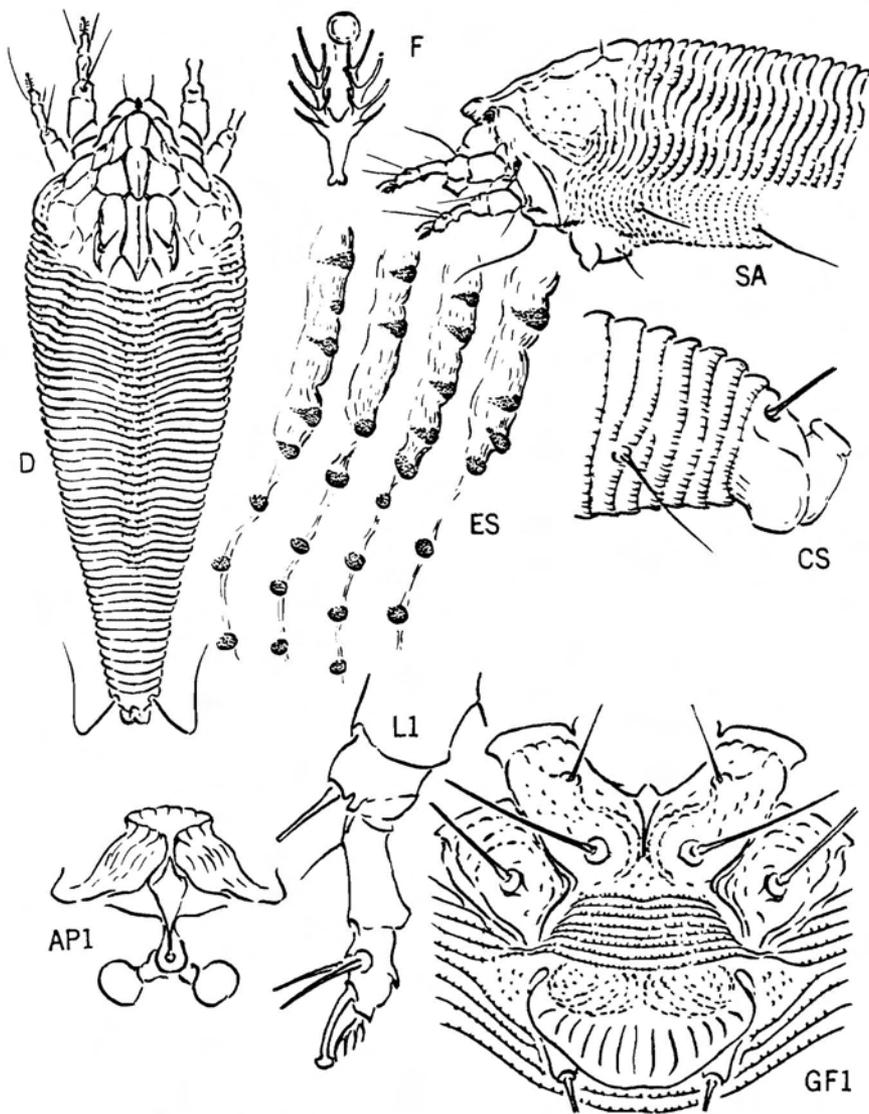


Plate 5 - *Acaricalus rhodaspris*, new species

*Cecidophyes caryovagrans*, new species

## Plate 8

As well as having a 6-rayed featherclaw, this mite has well defined shield lines in the design. These are solid, not composed of lines of granules or of granular lines. Two species so far listed have these well defined solid lines: *arbuti* and *buxtoni*, but both have a 5-rayed featherclaw. Furthermore the genitalia of the new species are pushed forward more than usual, being directly between the hind coxae.

Female 185<sub>u</sub>-215<sub>u</sub> long, 55<sub>u</sub>-65<sub>u</sub> thick; robust-fusiform; color very light yellowish. Rostrum 28<sub>u</sub> long, curved down; antapical seta 6<sub>u</sub> long. Shield 40<sub>u</sub> long, 42<sub>u</sub> wide, anterior lobe short and broad. Shield design of strong lines: median line well defined on rear 3/4; admedians curving back from sides of anterior lobe, meeting a cross line at 1/4, connected to median by a V-shaped line at about 1/2, meeting a V-shaped line to median ahead of rear margin abd diverging to rear margin. Submedian line from side of anterior lobe base, running back to cross line at 1/4, continuing back subparallel to admedian, meeting curved lines at about 1/2 and ending on convex cross line ahead of rear margin. Lateral shield lines present ahead of and above side granulations; side lobes somewhat prominent. Dorsal setae and tubercles absent. Forelegs 36<sub>u</sub> long; tibia 7<sub>u</sub> long, with 7.5<sub>u</sub> seta at 1/4; tarsus 10<sub>u</sub> long; claw 10<sub>u</sub> long, curved, caperina; featherclaw 6-rayed. Hindlegs 34<sub>u</sub> long, tibia 6.5<sub>u</sub> long, tarsus 7.5<sub>u</sub> long, claw 10<sub>u</sub> long. Coxae with outlined raised areas around tubercles, widely separated by genitalia; anterior coxae narrowly connate centrally; second setiferous coxal tubercles just inside a line through first and third tubercles, this line converging anteriorly with opposite line. Abdomen with nearly 50 tergites and 55-60 sternites, with somewhat elongate microtubercles extending anteriorly from rear margins, tending to be produced dorsally; some variation in microtubercle development (due to deuteroecy?) Lateral seta 26<sub>u</sub> long, on about sternite 5; first ventral seta 65<sub>u</sub> long, on about sternite 17; second ventral 17<sub>u</sub> long, on about sternite 29; third ventral 26<sub>u</sub> long, on ring 5 from rear. Accessory seta absent. Female genitalia situated between hind coxae, a line through third coxal tubercles running across genitalia which are 22<sub>u</sub> wide, 13<sub>u</sub> long; coverflap with about 12 longitudinal ridges which are curved and unevenly in two ranks; seta 20<sub>u</sub> long.

Male 144<sub>u</sub> long, 50<sub>u</sub> thick.

Type locality: Vandalia, Dayton district, Ohio

Collected: October 23, 1960, by J. P. Keifer and the writer

Host: Carya cordiformis (Wang.) (Juglandaceae) bitternut hickory

Relation to host: the mites are undersurface leaf vagrants

Type material: a type slide  
eight paratype slides  
mites with leaves in liquid

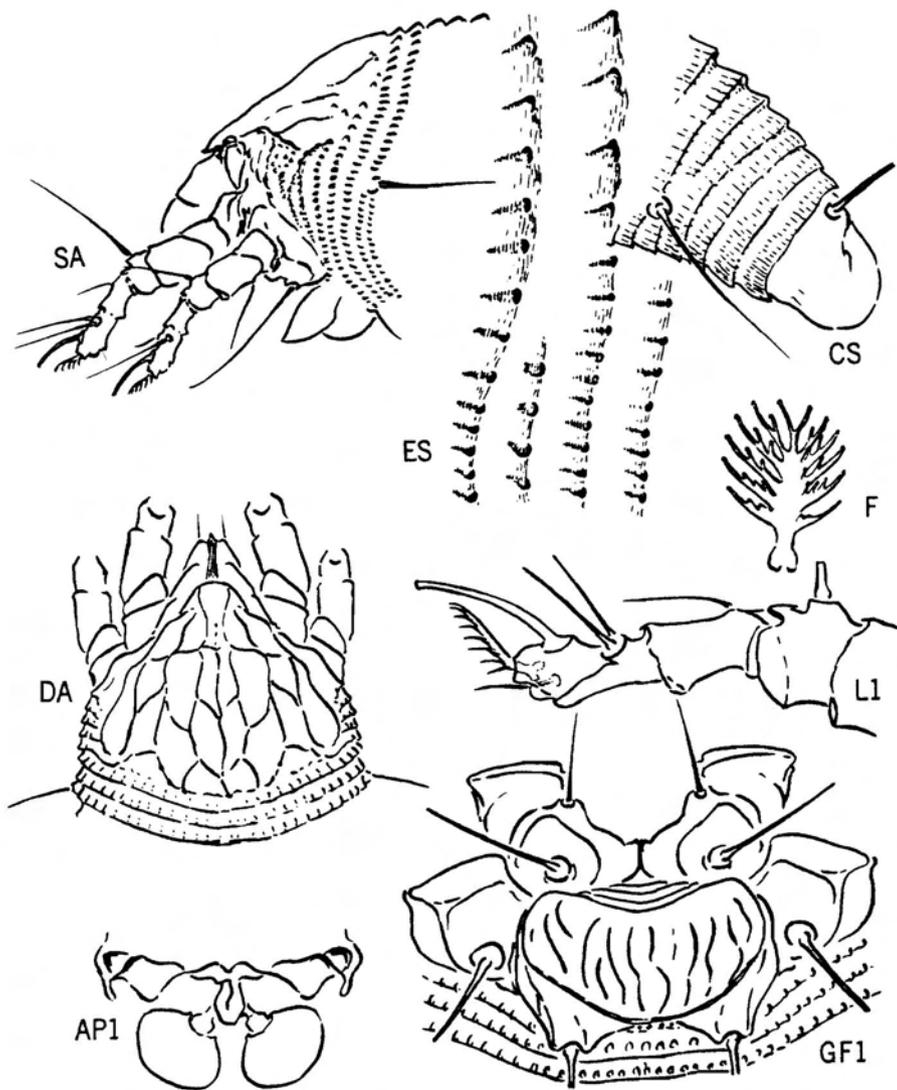


Plate 8 - *Cecidophyes caryvagrans*, new species

## Trimeroptes ilicifolia, new species

## Plate 9

The genotype of *Trimeroptes* is *aleyrodiformis*, described in the Bul. Cal. Dept. Agr. 29(3);168, 1940, from North Carolina and Georgia, on *Liquidambar styraciflua* L., sweet gum. The new species differs by having more projecting dorsal tubercles, longer dorsal setae, and less granulations on the coxae. Both kinds have the white wax plates covering the back and have the appearance of small aleyrodid nymphs.

Female 180<sub>u</sub>-210<sub>u</sub> long, about 60<sub>u</sub> thick, fusiform; in life with a pattern of white wax plates projecting up from the central longitudinal ridge, and laterally from the lateral ridge. Rostrum about 50<sub>u</sub> long, projecting down; antapical seta 14<sub>u</sub> long. Shield 50<sub>u</sub> long, 50<sub>u</sub> wide, deeply emarginate at rostrum base anteriorly; design nearly obsolete, on some examples with suggestions of a partial median line and admedians. Dorsal tubercles 28<sub>u</sub> apart, elongate, projecting forward or slightly diverging forward; dorsal setae 18<sub>u</sub>-22<sub>u</sub> long, projecting forward, or diverging. Fore legs 49<sub>u</sub> long; tibia 14<sub>u</sub> long, seta 12<sub>u</sub> long, at apical 1/4; tarsus 9<sub>u</sub> long; claw 9<sub>u</sub> long, curved, with large knob; featherclaw divided and with apparently 6 rays on a side. Hindlegs 45<sub>u</sub> long, tibia 12<sub>u</sub> long, tarsus 9<sub>u</sub> long, claw 9<sub>u</sub> long. Coxae with little apparent granulation; anterior coxae with approximate lobes and a small ridge between first setiferous coxal tubercles farther apart than second and about even with anterior coxal approximation; third setiferous coxal tubercles well posterior to second. Abdomen with a pair of short wax generating ridges just posterior to dorsal tubercles and a little closer together, with a small trough between; central longitudinal wax generating ridge from about sixth tergite running back to about 27th; broad lateral wax generating ridge on each side just above sternites, starting from a line just below dorsal tubercles and fading posteriorly. About 37 tergites to ring bearing third ventral seta; 60-65 sternites, microtuberculate. Lateral seta 33<sub>u</sub> long, on about sternite 8; first ventral seta 76<sub>u</sub> long, on about sternite 23; second ventral seta 22<sub>u</sub> long, on about sternite 36; third ventral seta 41<sub>u</sub> long, on ring 8 from rear. No accessory seta. Female genitalia 28<sub>u</sub> wide, 17<sub>u</sub> long; coverflap with obscure basal lines; seta 9<sub>u</sub> long.

Male 175<sub>u</sub>-185<sub>u</sub> long, 50<sub>u</sub> thick.

Type locality: Springfield, Virginia

Collected: September 17, 1963, by J. P. Keifer and the writer

Host: *Ilex laevigata* (Pursh.) (Aquifoliaceae), smooth winterberry holly

Relation to host: the mites are undersurface leaf vagrants

Type material: a type slide

five paratype slides

mites with leaves in liquid and also on dry leaves

*Trimeroptes aleyrodiformis* (K.) was present in heavy infestation on sweet gum along the highway near Crystal Springs Lake, Hot Springs district, Arkansas, September 22, 1963,

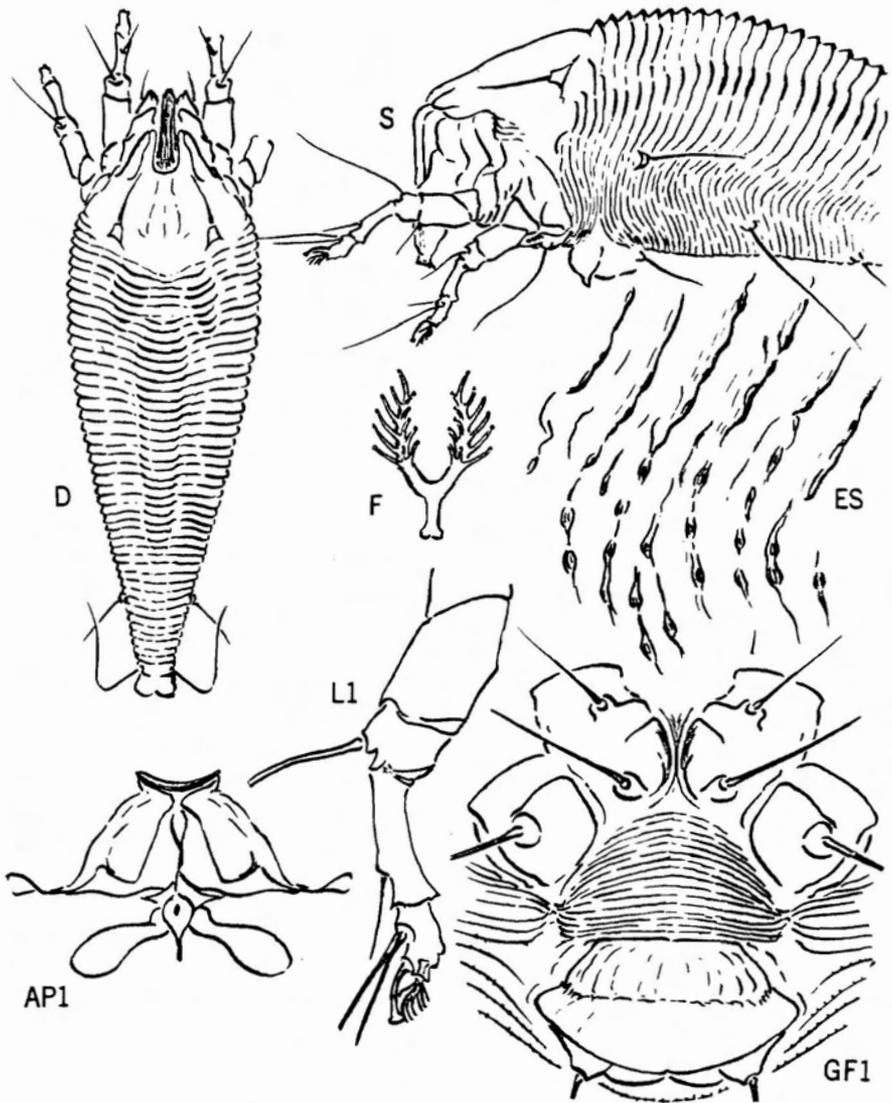


Plate 9 - *Trimeroptes ilicifolia*, new species

The four-legged mites heretofore referred simply to the "Eriophyidae" fall into three distinct structural groups, the distinguishing structures of which show no intermediate forms. I propose to treat these as three separate families. Two of the three names used here for these families are from Nalepa's Das Tierreich of 1898. This is evidently the publication where he first used the term "Eriophyidae" for the group as he visualized it. The following arrangement changes this to "Eriophyoidea".

#### Phytoptidae Murray 1877

Three or four setae on cephalothoracic shield, the rear pair pointing straight or diagonally forward; a pair of subdorsal abdominal setae a short distance behind shield, present or absent. Rostrum usually large and evenly downcurved, with apical recurved portion of oral stylet shorter than base plus pharyngeal pump. Legs with all segments and with anterolateral spur on tibia present or absent. Female genital coverflap never ribbed; anterior internal apodeme always moderately long; spermathecae short or long-stalked, but with stalks or tubes projecting forward first and then recurved. Habit: gall formers, budmites, rust mites or leaf vagrants.

##### Examples of genera:

- a. Body worm-like, four shield setae, spermathecae short-stalked the genitalia moderately close to coxae; Phytoptus Duj., Anchiphytoptus K. b. Body more or less flattened, fusiform, four shield setae, spermathecae short-stalked: Sterraphytoptus K., Jackiella K. c. Body stout or worm-like, three shield setae, spermathecae long-stalked: Setoptus K., Nalepella K., Trisetacus K. d. Body worm-like, elongate, four shield setae, genitalia an unusual distance behind coxae with short-stalked spermathecae; Novophytoptus Roiv.

#### Eriophyidae Nalepa 1898 (as here restricted)

Body either worm-like or fusiform, often flattened. Two or no setae on cephalothoracic shield; setae when present on shield located from central area to rear margin, pointing in various directions according to type. No subdorsal abdominal setae. Rostrum large or small, either downcurved or projecting straight down; apical portion of oral stylet shorter than base plus pharyngeal pump. Legs usually with all setae and segments, less often with tibia fused to tarsus, never with lateral tibial spur. Female genital coverflap usually with a pattern of ribs; anterior internal apodeme either projecting ahead from base line or short and transverse; spermathecae short-stalked the stalks or tubes either projecting laterally or posteriorly from origin. Habit: gall formers, bud mites, leaf or green stem vagrants, rust mites.

##### Examples of genera:

- Eriophyes Fgst., Aceria K., Paraphytoptus Nal., Phyllocoptes Nal., Epitrimerus Nal., Oxypleurites Nal., Aculus K., Nothopoda K. Cecidophyes Nal.

#### Rhyncaphytoptidae Keifer 1961

Body stout or elongate, fusiform and tapering, not flattened. Cephalothoracic shield with two or no setae, when present the setae located near rear shield margin and pointing forward in some degree. No subdorsal abdominal setae. Rostrum always large, usually abruptly bent down from near base, and tapering; apical portion of oral stylet longer than base plus pharyngeal pump. Legs usually with all six segments, or tibia or patella absent; femoral seta and others frequently absent; never with lateral tibial spur. Ribbing on female genital coverflap usually but not always absent; internal apodeme extending forward, broad or acuminate; spermathecae short-stalked, the stalks extending laterally or to rear. Habit: rust mites or leaf vagrants

##### Examples of genera:

- Diptilomiopus Nal., Rhyncaphytoptus K., Diptacus K., Rhynacus K., Trimeroptes K., Catarninus K.

Designations on plates -

- AP1 - Internal female genital structures
- CS - Caudal section of mite, side view
- D - Dorsal view of mite
- DA - Dorsal view of anterior section of mite
- DSA - Side view of anterior section of deutogyne
- ES - Side skin structures
- F - Featherclaw of primary female
- FD - Featherclaw of deutogyne
- GF1 - Female genitalia and coxae, from below
- L1 - First left leg
- L2 - Second left leg
- S - Side view of mite
- SA - Side view of anterior section of mite

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