

Galls Found on *Fagus crenata* Blume,
with Description of a New Species.*
(Dipt., Cecidomyidae)

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We have been observed four types of Cecidomyid galls which were formed on the leaf of *Fagus* (beech). The present paper deals with descriptions of three galls and a new species obtained from one of these galls.

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Phegomyia tokunagai Sasakawa et Koyama, sp. nov.

Male.—Length 3-3.5 mm. Head black, with numerous setae on occiput and postorbites. Compound eyes black, large, each of them slightly separated. Antennae (Fig. 1) blackish brown, 2+16-segmented; first segment without neck part; first fifteen flagellar segments subcylindrical, each with a short neck, many basal verticils which are about half as long as segment, several or more apical verticils which are longer than basal and many small sensory organs; distal segment subconical, with a few short basal verticils; relative lengths of segments including neck as follows: 3:2:4.4:5.2:5.2:5.2:6:4.6:4.8:4.6:4.6:4.2:4.2:4:3.8:3.6:3:3.8; relative lengths of basal broad pubescent part and distal narrow neck of flagellar segments: 1:1/4 in 1st and 5th, 1:1/3-1/3.5 in 2nd to 4th, 6th, 7th and 15th, 1:1/2-1/2.5 in 8th to 14th. Palpi (Fig. 2) brown, 4-segmented; relative lengths of palpal segments as follows: 1.2:1.3:1.5:2.6; fourth segment about twice as long as second, with several sensory hairs and a few pores. Mesoscutum with three dark brown stripes, somewhat shiny, with setae brown and

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short; scutellum and pleura including wing base paler; postscutellum brown. Wings (Fig. 3) hyaline, rather densely pubescent; veins yellowish brown; costa with black fringe of hairs and scales; the latter with faint longitudinal striae; R₁ (the 3rd longitudinal vein by Schiner) almost straight, slightly curved at apex; M+Cu₁ (the 5th vein) forked but indistinct. Halteres pale yellow. Legs brownish yellow, with numerous brown setae and faintly striped scales; tarsi darker; claws black, simple, strongly curved; pulvilli slightly longer than claws. Abdomen bright red but in dry specimens brown, with marginal setae on posterior part of each segment longer. Genitalia (Fig. 4) with basal clasper large, forceps tapering and ending into highly chitinized apex, and with two lamellae deeply bilobate, supralamella large and broad, infralamella very slender.

Female.-Length 3.5-4 mm. Similar to male but compound eyes contiguous with each other; antennae shorter than in male, moniliform, 2+16-segmented, without neck; basal segments subcylindrical and distal segments changing globose gradually; relative lengths of palpal segments as follows: 1.2:1.6:1.7:2.7; ovipositor very long, with terminal lobes broad and round.

Egg.-Length 0.35-0.38 mm., width 0.12-0.15 mm., oval, milky-white. A female lays about 10 eggs.

Larva.-Length 3.5-4mm., width 1-1.2mm., milky-white; sternal spatula indistinct, short, shallowly bilobate anteriorly.

Pupa.-Length about 3.5 mm., brown.

Habitat: Honshu, Japan.

Type-specimens: Males and females; dry and alcoholic; galls collected by the junior author at the Experimental Forest of Kyoto University, Ashiu; adults emerged on April 28 to May 15, 1951, in the laboratory; deposited in the Entomological Laboratory of Saikyo University.

This species is very closely allied to *P. fagicola* Kieffer but may be distinguished by the following characters:

1. Mesoscutum with three stripes much darker.
2. Antennae (♂ ♀) 2+16-segmented, while in *fagicola* 2+18-segmented in male and 2+17-segmented in female.

The species is named in honor of. Dr. M. Tokunaga.

Some biological observations may be itemized as follows:

Host-plant.—*Fagus crenata* Blume; on leaf.

Gall.—Green, spindle-shaped, about 10 mm. height, monothalamous, somewhat thin-walled, a single larva in a single gall-chamber, built on the upper surface at the forking point between the main and lateral nerves. Usually a single gall on a leaf (Fig. 5). Leaf fallen on the ground in November together with its gall within which the larva hibernates.

Development.—One generation a year.

Other types of galls on *Fagus*-leaves

1. Galls apple green, 3 to 4 mm. in diameter, 5 to 6 mm. height, conical on the upper half and mammilate beneath; upper part much more prominent than the under part, monothalamous, thick-walled, solitary or clustered on a leaf (Fig. 6). Galls found Mt. Hira, Shiga Pref. and Lake Towada National Park, Aomori Pref.

2. Galls small, button-shaped, in full grown state 4 to 4.5 mm. in diameter, somewhat thickened on elevation central part veronese green, but top is gold brown, basal margin is venetian red, monothalamous, leaf tissue somewhat thickened under the gall, a leaf bearing many galls only on the upper surface (Fig. 7). Galls found Experimental Forest of Kyoto Univ., Ashiu, Kyoto Pref.

This gall resembles the oak button gall of Cynipid, *Neuroterus umbilicatus* Bass., on *Quercus platanoides* from America reported by Felt (1917).

3. Gall yellow-green with pale red part at tip, elliposidal, about 7 mm. long, about 6 mm. wide, a transverse slit dividing the gall into two parts, monothalamous, thick-walled, built on the margin of the leaf between the ends of the lateral nerves and marginal edge rolling downwards (Fig. 8). Galls found Exp. Forest of Kyoto Univ., Ashiu, Kyoto Pref.

Literature

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Explanation of Plate

- Fig. 1-5. *Phegomyia tokunagai*, n. sp.
Fig. 1. Male antennae, 4th to 5th flagellar segments.
Fig. 2. Male palpus.
Fig. 3. Male wing.
Fig. 4. Male genitalia.
Fig. 5. Gall.
Fig. 6. Conical gall, longitudinal section.
Fig. 7. Button gall, longitudinal section.
Fig. 8. Elliposidal gall, longitudinal section.
Fig. 9. Galls of various types.



