

The sample analyzed gave the results of column 1 of Table 1, while in column 2 is given the calculated composition agreeing with the formula of boulangerite,  $5\text{PbS} \cdot 2\text{Sb}_2\text{S}_3$ , and in column 3 the theoretical composition of jamesonite according to Schaller's formula,  $4\text{PbS} \cdot \text{FeS} \cdot 3\text{Sb}_2\text{S}_3$ .

TABLE 1.—ANALYSIS OF BOULANGERITE

	I	II	III
Insoluble.....	0.40		
Lead.....	55.34	55.41	40.32
Iron.....	0.52		2.72
Antimony.....	25.30	25.72	35.10
Sulphur.....	18.08	18.87	21.86
Total.....	99.64	100.00	100.00

I. Boulangerite from Cleveland mine

II. Theoretical composition of Boulangerite

III. Theoretical composition of Jamesonite

Teher would appear to remain no doubt, from the foregoing comparison, of the agreement of the Cleveland mine mineral with the boulangerite formula and its distinct difference from jamesonite, to which mineral there is a strong tendency to refer all such lead sulph-antimonites. The locality is of interest by reason of the excellence of its specimens of this mineral and it is to be hoped that they may be widely distributed in collections before the mine is exhausted.

ENTOMOLOGY.—*A new Rugitermes from Panama.* THOS. E. SNYDER, Bureau of Entomology, U. S. Department of Agriculture.

During the summer of 1924, Nathan Banks, of the Museum of Comparative Zoology, Cambridge, Massachusetts, visited the Canal Zone and localities in nearby Panama. Some time was spent collecting on Barro Colorado Island, Canal Zone, the site of the station of the Institute for Research in Tropical America.

In addition to many other insects, Mr. Banks collected an interesting series of termites, including one new species of the subgenus *Rugitermes* Holmgren. Banks also collected the odd termite *Armitermes* (*Rhynco-termes*) *major* Snyder, of Costa Rica and Honduras, on Barro Colorado Island. Panama is a new locality for this interesting species. He has courteously allowed me to examine this collection of termites.

Mr. Banks' collection brings the termite fauna of the Canal Zone and nearby Panama, up to 38 species, representing 23 genera or subgenera, 22 of which, representing 16 genera or subgenera, occur on Barro Colorado Island.

The new species is named "*isthmi*," in reference to the Isthmus of Panama, and is described as follows:

**Kalotermes** Hagen, subgenus *Rugitermes* Holmgren

*Winged adult*.—Often markedly bicolored, head and abdomen dark-colored, pronotum light-colored; in wings the median vein unites almost directly with the radial sector; antennae with 16-19 segments.

*Soldier*.—Similar to soldiers of *Kalotermes* and *Neotermes*; antennae with 13-18 segments.

The six described species of *Rugitermes* are all from South America; they are: *nodulosus* Hagen, *rugusus* Hagen, *occidentalis* Silvestri, *bicolor* Emerson, *flavinctus* Emerson, and *magninotus* Emerson. *Kalotermes (Rugitermes) isthmi* Snyder is the first record of species in this subgenus occurring in Central America.

**Kalotermes (Rugitermes) isthmi**, new species

*Winged adult*.—Head very dark castaneous (almost blackish with reddish tinge), smooth, shining, longer than broad, sides almost parallel, rounded posteriorly, with scattered, long hairs. Postclypeus and labrum yellow, with long hairs; former, short but broad, latter broader than long and broadly rounded anteriorly. Eye black, not round, fairly large and projecting, separated from lower margin of head by a distance less than the diameter of the eye. Ocellus hyaline, projecting, suboval and at an oblique angle to the eye, almost touching eye.

Antennae dark castaneous, finely punctate, with 17 segments, segments become longer and broader (somewhat wedge-shaped) towards apex; third segment longer than second or fourth segments, subclavate; fourth and fifth segments subequal; last segment shorter, narrower and suboval.

Pronotum yellow or light yellowish brown, not twice as broad as long, broadest at middle, roundly emarginate both anteriorly and posteriorly; sides roundly slope (narrowed) posteriorly, with scattered long hairs.

Wings smoky dark brown, coarsely punctate. In forewing median vein unites almost directly with the radial sector; radial sector close to, parallel, and with six branches to costal vein, first three long and oblique, others short; cubitus runs parallel to radial sector above middle of wing to apex of wing, with 12-13 branches or sub-branches to lower margin of wing; subcostal vein unites with costa before the middle of the wing; seven irregular, transverse and crescentic branches between cubitus and radial sector (Fig. 3). In hind wing, median vein entirely absent; radial sector with two long and three short branches to costal vein; cubitus runs to apex of wing, with 10-11 branches or sub-branches to lower margin of wing; subcostal vein unites with costa before middle of wing; seven irregular, transverse branches between cubitus and radial sector.

Wing scale (of fore wing) as long as pronotum.

Legs yellow-brown to dark brown, elongate, slender, with long hairs; 3 long spines at apex tibiae, pulvillus present.

Abdomen with tergites dark brown to blackish, a row of long hairs near the base of each tergite; cerci fairly elongate.

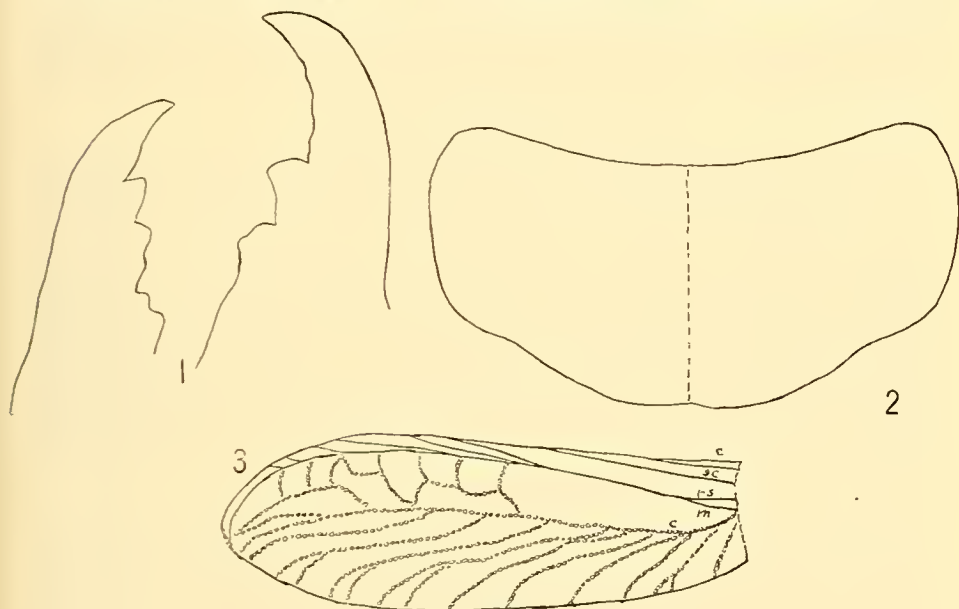
*Measurements*: Entire winged adult 8.5 mm. long; entire dealated adult 5.75 mm. long; head (to tip labrum) 1.55 mm. long; pronotum 0.9 mm. long; fore wing 6 mm. long; posterior wing 5.75 mm. long; hind tibia: 0.9 mm.

long; eye (long diameter) 0.305 mm.; head (at eyes) 1.4 mm. wide; pronotum 1.4 mm. wide; of fore wing, 1.70 mm. wide; posterior wing: 2.00 mm. wide.

*Kalotermes (R.) isthmi* Snyder is a strikingly bicolored species; *K. (R.) rugosus* Hagen is not bicolored, is larger, lighter colored, with a larger wing, and wing much less coarsely punctate.

*Soldier*.—Head light castaneous-brown, or yellow-brown with a reddish tinge, especially anteriorly, cylindrical, with sides nearly parallel, but broadest posteriorly, narrowed slightly anteriorly, with scattered long hairs, very dense on oblique frontal slope. Small, narrow, hyaline, slit like eye spot at right angles to sides of head.

Mandibles black, base reddish-brown, broad at base, tips slender, pointed and incurved. Left mandible with one sharp pointed marginal tooth on



KALOTERMES (RUGITERMES) ISTHMI SNYDER

Fig. 1.—Mandibles, with marginal teeth (soldier); Fig. 2.—Pronotum (soldier); Fig. 3.—Venation of fore wing. (All drawings by camera lucida; figs. 1 and 2 high power, fig. 3 low power.)

apical third, two molar teeth in middle. Right mandible with two large marginal teeth at about the middle, the first sharp pointed, the other more blunt; edge of mandible roughened between apex and first tooth (Fig. 1).

Antennae yellow, with 13 segments, slender, elongate, with long hairs; third segment light castaneous-brown, elongate, slender, subclavate, longer than second or fourth segments, nearly as long as fourth and fifth segments together; fifth slightly longer than fourth segment; segments become longer towards apex; last segment shorter, narrower and suboval.

Pronotum dirty white, tinged with yellow, margins darker, not twice as broad as long, broadest at middle, broadly, roundly emarginate anteriorly, generally convex posteriorly, sides rounded, slope (narrowed) posteriorly, with scattered long hairs (Fig. 2).

Legs tinged with yellow, femora somewhat swollen, three long spines at apex of tibia.

Abdomen dirty white, tinged with yellow, a row of long hairs near the base of each tergite, cerci elongate.

*Measurements:* Entire soldier 6.5–7 mm. long; head with mandibles 3.6 mm. long; head without mandibles (to anterior) 2.4 mm. long; left mandible 1.2 mm. long; pronotum 0.95 mm. long; hind tibia 1 mm. long; head (anteriorly) 1.4 mm. wide; (posteriorly) 1.6 mm. wide; pronotum 1.65 mm. wide.

*Type locality.*—Barro Colorado Island, C. Z., Panama.

Described from three winged adults, collected with one soldier and nymphs at the type locality "24, VII," N. Banks, collector. Other winged adults, soldiers and nymphs collected at Frijoles, C. Z., "10, VII," N. Banks, collector.

*Type.*—Winged adult, Cat. no. 15105, Museum Comparative Zoology, Cambridge, Mass.; morphotype, soldier; paratype in U. S. National Museum, Washington, D. C.

ENTOMOLOGY.—*Some new species of North American treehoppers (Membracidae, Hemiptera).* E. D. BALL, U. S. Department of Agriculture.

The writer is working on a revision of the tribe Telamonini which includes the major portion of the large treehoppers of the temperate regions of the United States. In studying the various collections a number of new species have been discovered. As it will probably be some time before the revision is completed, it has been thought best to describe the new species in advance so that the material may be distributed.

#### *Glossonotus nimbatulus* new species

Resembling *turriculatus* but smaller, darker, with a tall, variable, foliaceous crest resembling *acuminatus*. Length 7 mm., width 4.5 mm., height 5 mm. Horn anterior and nearly vertical, broad and high, constricted near middle, nearly evenly foliaceous at apex, as seen from front broadly inflated from just above the very short and weak lateral angles, tapering evenly to just before the apex. Lateral angles obtuse, about half the width of the eye. Pronotum moderately acute in both planes.

*Color.*—Uniform chestnut or darker, varying to almost black, with pale points on the sides of the horn. In the lighter specimens there is a narrow light median stripe from the apex of horn to apex of pronotum, becoming narrower in the darker specimens and occasionally wanting.

Type female, Long Island, N. Y. (Davis); allotype, male, White Mountains, N. H. (Ball); paratypes: Lakehurst, N. J. (Barber and Am. Mus. N. H.); Roselle Park, N. J.—Matausch (Am. Mus. N. H.); Framingham, Mass. (Dickerson Coll., Am. Mus. N. H.); Karner, N. Y. (N. Y. St. Coll.); and Pennsylvania (Baker Coll., U. S. N. M.).

Type and allotype in author's collection; paratypes in Davis, Barber, Am. Mus. N. H. and U. S. N. M. collections.

#### *Heliria gibberata* new species

Slightly smaller and darker than *cristata*, with the crest nearly uniform in height and only slightly overhanging. Female: length 10 mm., width 7 mm., height 5 mm.; males: length 8 mm.