Reprinted from the
ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA
Volume 65, Number 3, pp. 521–532, May 1972

A Generic Review of the Cockroaches of the Subfamily Panchlorinae (Dictyoptera, Blattaria, Blaberidae)[1]

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ABSTRACT

Five genera of Panchlorinae are reviewed. The most important character distinguishing the subfamily is the reduction in the phallomeres of the male genitalia. There are 45 species of *Panchlora,* 4 of which are African. Other members of the subfamily are American, and, except for *Panchlora nivea* (L.), which includes Texas in its range, all are Neotropical. The species of the other genera are *Achroblatta luteola* (Blanchard) (Mexico to Brazil); *Anchoblatta signifera* (Scudder) (Peru); *Biolleya alaris* Saussure (Costa Rica); *Pelloblatta lata* Rehn (Costa Rica) and *P. reyesi,* n. sp. (Veracruz, Mexico). Until now, the identification and subfamily placement of the 3 last-named genera were confused.

This review is concerned with *Panchlora, Achroblatta, Anchoblatta, Biolleya,* and *Pelloblatta* which we assign to the subfamily Panchlorinae; the genitalia were discussed by Roth (1972). *Panchlora* is the only genus with numerous species, which unfortunately still require revision; we have summarized information on all the few species of the other 4 genera. Previously, the last 3 genera listed hereinbefore were very poorly known, largely because specimens have not been available in most collections of Orthoptera (broad sense). We are fortunate to have access to excellent samples of all genera, and so we take this opportunity to supplement text explanation with photographs. Specimens recorded here are in the U.S. National Museum, Smithsonian Institution, except as noted.

An historical resumé of how *Panchlora* and related genera have been classified by previous entomologists may be helpful. Roth (1972) already has pointed out the inconsistencies of several recent taxonomic treatments. Brunner (1865, 1893) placed *Panchlora, Nauphoeta,* and several other genera in Panchloridae, which he recognized as a tribe though with a name ending (-idae) now treated as familial. Kirby (1904), in a world catalogue, regarded the complex as a subfamily, the Panchlorinae, and Shelford (1907), who in Genera Insectorum and elsewhere made a laudable contribution toward clarifying the complex taxonomy of cockroaches, did likewise. Shelford's system was the basic classification used by most students of the Blattaria during the next 40 years, though they called the group Blattidae; however, some workers, exemplified by Handlirsch (1925) and Brues and Melander (1932), tended to raise previously lower taxa to order and family.

Bey-Bienko (1950) placed *Panchlora* in Panchlorinae as a subfamily of Blattidae but otherwise departed from the traditional classification by recognizing several groups of family rank within an order, Blattodea. Rehn (1951), recognized a tribe Panchlorini for *Panchlora, Pycnoscelus,* and probably other genera, and he placed it within the Epilamprinae, family Blattidae. In his major reclassification, Princis (1960) separated *Panchlora* and *Pycnoscelus* in distinct families. His family Panchloridae did not include the genera, other than *Panchlora,* which we place in Panchlorinae, probably because the fundamental importance of the concealed genital complex was not widely recognized; also, scanty information was available on *Anchoblatta, Biolleya,* and *Pelloblatta.*

Our classification is basically that of McKittrick (1964), with higher groups as used by Cohen and Roth (1970); however, contrary to McKittrick, we place *Capucina* in Zetoborinae rather than Panchlorinae because of the much more developed male genitalia and because of the general habitus (see photographs in Roth 1970).

The subfamily Panchlorinae can be recognized by a combination of characters, the most important of which is a reduced complement of male genitalia. The phallomeres are lightly pigmented and in nearly all species the terminal sclerite (L2d) of the median phallomere is absent. Of some 10 species of *Panchlora* examined, Roth (1972) reported finding an L2d in only the African *Panchlora vosseleri* Shelford; 3 other African species of *Panchlora* are known, but the phallomeres are known for only 1 of them, *P. stanleyi* Rehn, and it has no L2d, nor

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do the American species which have been studied for this character. The hook (R_2) of the right phallomere is absent from some species of *Panchlora* and from the other 4 genera. The left phallomere (L1) and the elongate sclerite of the median phallomere (L2vm) are lightly sclerotized in Panchlorinae, and for some species they have not been found in dissections. The general reduction in phallomeres is in marked contrast with their strong development in other subfamilies of Blaberidae, Zetoborinae for instance (see Roth 1970). One departure from the interpretation of male genitalia presented by McKittrick (1964, p. 65) should be noted; she recognized 3 basic phallomeres, of which the ventral one occurs in only Blattidae and Polyphagidae, and what we regard as a median phallomere is in her interpretation part of the left phallomere (L2vm and L2d); Mackerras (1968) also referred to this phallomere as the median rod.

The following external characters are helpful in recognizing the subfamily Panchlorinae, especially when used in combination with the genitalia, though the external characters alone do not define the group. 1, Middle and hind femora with few, if any, spines on ventral margins, not conspicuously nor similarly spined on both ventroanterior and ventroposterior margins; 2, front femur without genicular spine, ventroposterior margin with moderate number of strong well-spaced setae, ventroanterior margin with several fairly long setae near base, distal two-thirds of margin with comblike row of closely spaced very sharp setae, a tiny apical spine sometimes present; 3, a distinct arolium nearly always between claws; 4, anal area of hindwing folded fanwise in repose, rarely poorly developed; 5, cubital veins, formerly called rami of ulnar vein by Hebard (1917 and later works), usually numerous, with many veins going to the plical fold (see Fig. 2, 15, 16, 22–24, 26, 32), though less numerous in *Biolleya* and *Pelloblatta;* 6, clypeus not thickened as in Polyphagidae; 7, cerci usually short, broad, not projecting much posterior to supra-anal plate; 8, supra-anal plate of both sexes usually more-or-less produced, its posterior margin broadly bilobate, or transverse and emarginate in middle, but quite variable within *Panchlora;* 9, subgenital plate of females not valvular, usually unspecialized, sometimes emarginate apically; of male usually rather transverse, asymmetry varying from a slight degree to decidedly more, and with left half of posterior margin moderately produced more often than right side; 10, male styli variable in shape and position, usually of rather similar shape (unspecialized, cylindrical) and borne in nearly similar positions at lateral extremities of subgenital plate.

The Panchlorinae are ovoviviparous, to judge from the evidence of known biology and group affinities, but life history data are scarcely available except for some species of *Panchlora.* Except for 4 African species of *Panchlora* occurring south of the Sahara Desert, the subfamily is entirely American. *P. nivea* (L.) (= *P. cubensis* Saussure) is established in the United States in southern Texas; otherwise, the American Panchlorinae are Neotropical.

Key to the genera of Panchlorinae

1. General form robust, tegmen (front wing) with length:width ratio less than 2.5 2
   Less robust, length:width ratio of tegmen more than 2.5 3
2. Surface of tegmina very pubescent (Fig. 3); pronotum with anterior margin much more protruding than posterior margin; widest posterior to middle (Fig. 37); tegmina of female covering about half of abdomen .....*Biolleya*
   Tegmina not pubescent; anterior margin of pronotum no more protruding than posterior margin (Fig. 38, 39), widest at about middle, i.e., an imaginary line between extremes of lateral margins nearly equidistant between anterior and posterior margins; both sexes fully winged .....*Pelloblatta*
3. Pronotum widest in front of middle (Fig. 36); tegmen hyaline to pale brown, with costal margin bearing a short cream-colored section at extreme base, an elongate section basad from middle, and a shorter section apicad from middle (Fig. 33); male supra-anal plate (Fig. 34) deeply lobate, the emargination deep and very broadly rounded .....*Achroblatta*
   Pronotum widest at about middle or behind; tegmen not colored as in *Achroblatta;* male supra-anal plate without such a deep and broadly rounded emargination 4
4. Pronotum of both sexes broadly rounded anteriorly, not tuberculate on disk; eyes most often attingent or nearly so, sometimes widely separated, in which case pronotum often has submarginal dark lines (Fig. 35) .....*Panchlora*
   Pronotum of male truncate or very broadly rounded anteriorly, with low tubercles on disk (Fig. 29, 31); female pronotum broadly rounded anteriorly, tubercles barely suggested by irregularities (Fig. 25, 27); eyes very widely separated .....*Anchoblatta*

Panchlora Burmeister

Panchlora Burmeister 1838: 506. Type-species: *P. pulchella* Burmeister, designated by Rehn 1903: 284.

Important generic characters of *Panchlora* are: 1, pronotum smooth, shape much as in Fig. 35, greatest width about equidistant from anterior and posterior margins; 2, tegmen smooth, elongate, usually well surpassing abdomen and ca. 3 times as long as wide, or more; 3, wings well developed, usually 12–18 or more cubital branches; 4, interocular area of variable width, with attingent or narrowly separated eyes frequent in green species, widely separated eyes frequent in blackish or gray cream-colored species; 5, femoral spines variable, perhaps half of species with a definite small spine near middle of ventroposterior margin of hindfemur; 6, phallomeres of male genitalia usually showing much reduction, but variable in parts present (see Roth 1972).

The best known species are green, often with a few dark markings on the tegmina, but numerous species are some shade of gray or cream, the tegmina sometimes blackish or with dark mottling, often with dark markings on the pronotum. The immature stages of most species of *Panchlora* are unknown, but for some the nymphs are brown, much like the nymph

of *Pelloblatta* in Fig. 11. Hebard (1919) mistook nymphs of *P. nivea* for a mature, wingless species and described it as *Pycnosceloides aporus*, later (1921: 144) realizing the error. Although Hebard (1919) figured the terminal terga of this nymph as roughened, they are much smoother than those of *Pycnoscelus* nymphs and are readily distinguished from the latter.

Princis (1964) listed 45 species, 4 of which are African, the others American. Except for the occurrence of *P. nivea* in southern Texas, the American species are all Neotropical; they occur from

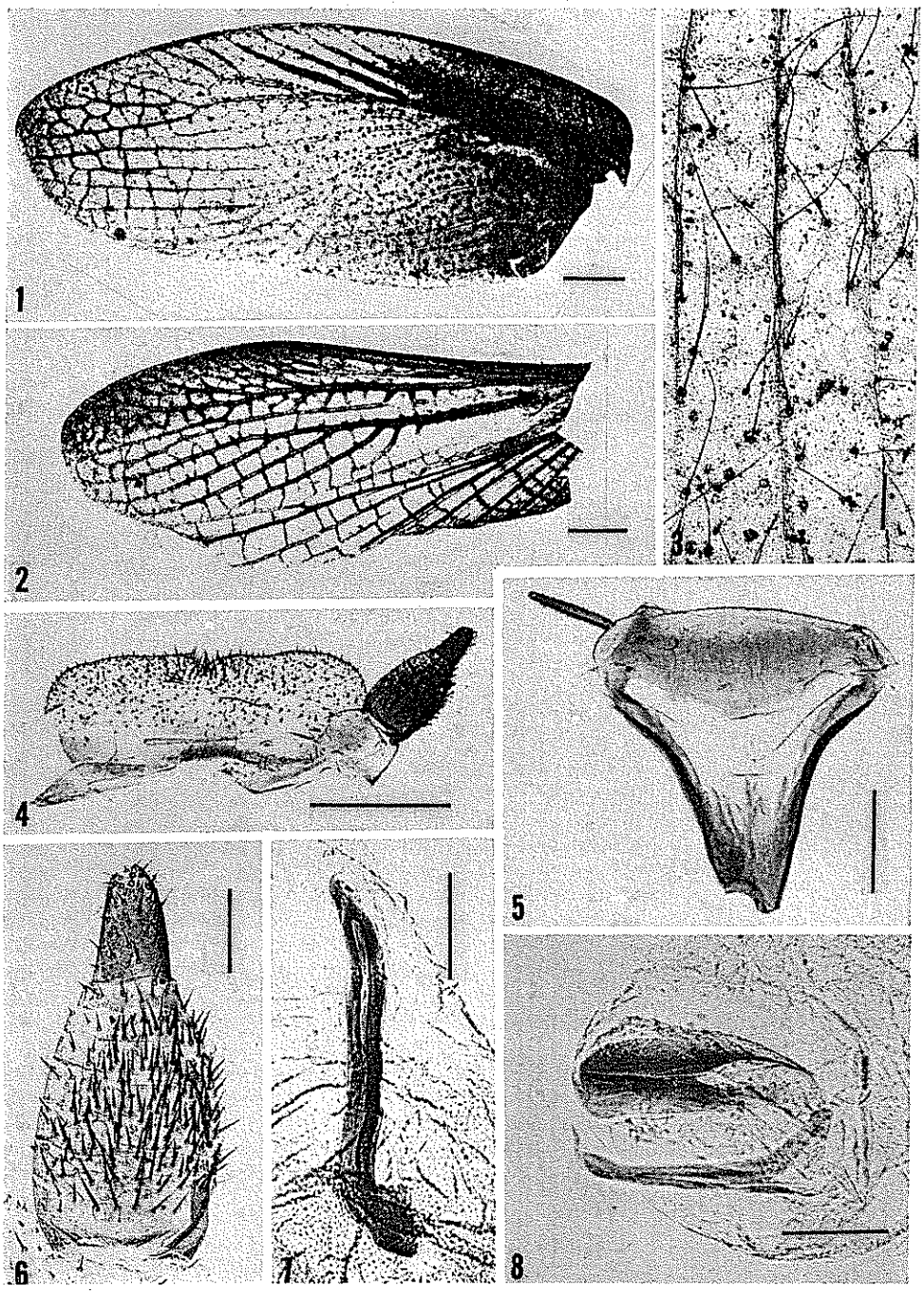

FIG. 1–8.—*B. alaris*, ♂ paratype, Costa Rica. 1, Left tegmen; 2, left wing; 3, fine hairs on tegmen (central part of cubital field); 4, supra-anal plate and cercus; 5, subgenital plate (similar right stylus broken off); 6, cercus; 7, genital phallomere L2vm; 8, genital phallomere L1. (Fig. 1, 2, 4, 5: line = 1 mm; 3, 6–8: line = 0.2 mm.)

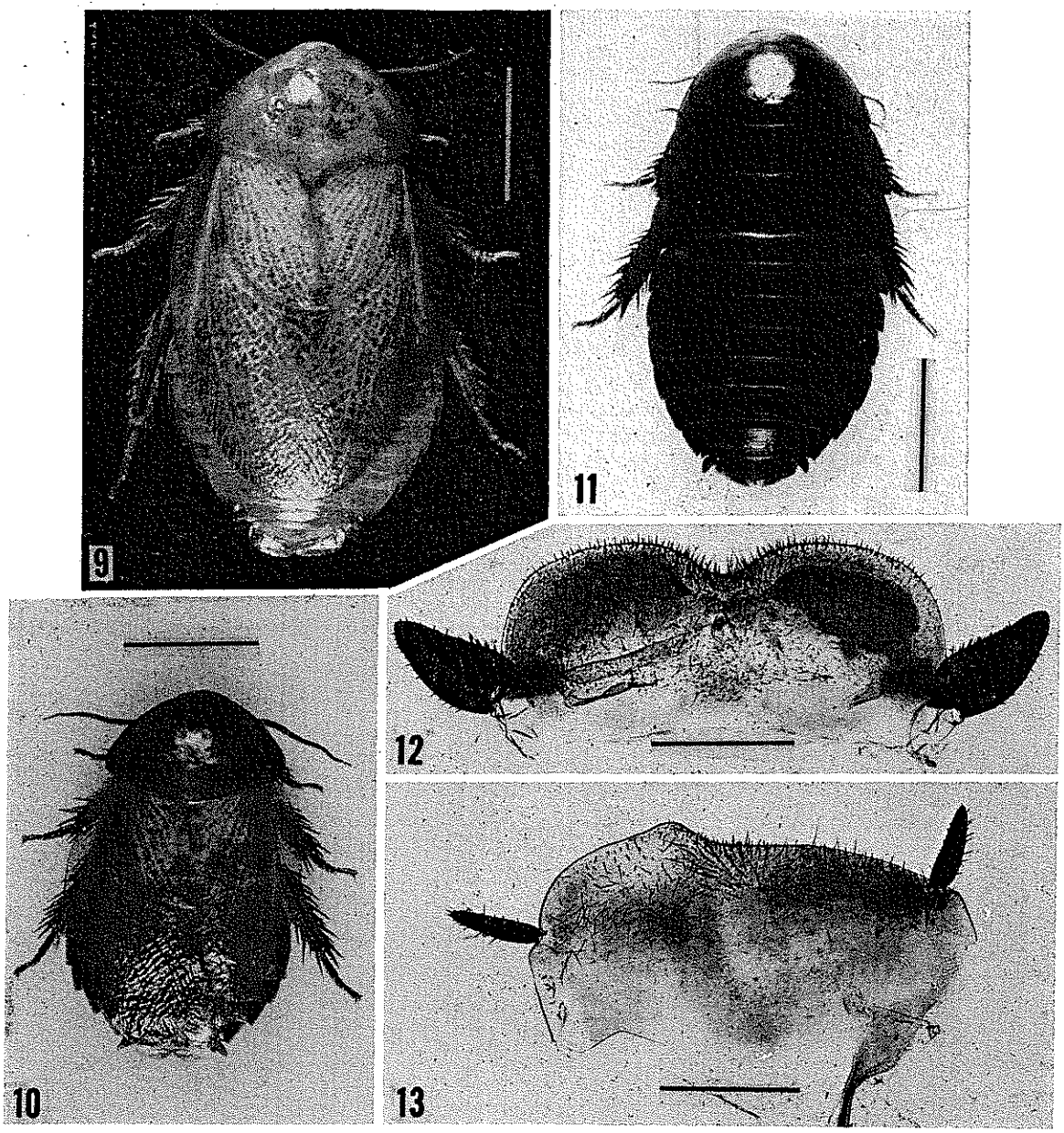

FIG. 9–13.—*P. reyesi,* Mexico. 9, Adult ♀ (allotype); 10, adult ♂ (holotype); 11, nymph; 12, ♂ supra-anal plate; 13, ♂ subgenital plate. (Fig. 9–11: line = 5 mm; 12, 13: line = 1 mm.)

northern Mexico through Central America and the West Indies to Argentina. Hebard (1916) suggested a preliminary arrangement of species, based chiefly on color markings, and also pointed out the considerable specific differences in external male genitalia, especially supra-anal and subgenital plates. Roth (1972) studied the phallomeres of representative species and suggested several natural groups on that basis, but there is a decided need for a revision of the species.

The best known species is *P. nivea,* the biology of which was reported by Roth and Willis (1958). A great deal of early literature on *nivea* appeared under the name *P. cubensis,* including illustrations by Hebard (1917, pl. 8, Fig. 2–5), and Gurney (1955) discussed the synonymy. This species and several others often are transported widely in commerce, especially with tropical fruit, with the result that many references to *nivea* in the United States involve adventive specimens rather than established breeding populations. Hebard (1943) gave records of presumed examples of wild-caught specimens from the Brownsville area of Texas, and we have seen several recently collected specimens of *nivea* from southern

Texas which likewise apparently are from established outdoor colonies.

Achroblatta Saussure

Achroblatta Saussure 1893: 67. Type-species: *A. luteola* (Blanchard), by monotypy.

Important generic characters of *Achroblatta* are: 1, pronotum glossy, usually with many tiny transverse surface ridges, not as uniformly smooth as usual in *Panchlora*, shape about as in Fig. 36, in female often more transverse, but still with maximum width anterior to middle; 2, tegmina and wings surpassing abdomen, secondary longitudinal venation in cubital and medial fields of tegmen highly developed (Fig. 32, 33); 3, front femur without major spines; middle femur with genicular spine only; hindfemur with genicular spine and spine basad from middle of ventroposterior margin; 4, male styli nearly similar, short, cylindrical; supra-anal plate and cerci as in Fig. 34; subgenital plate with left third of posterior margin lobelike, positioned just ventrad from left lobe of supra-anal plate (McKittrick 1964: Fig. 130, C); 5, eyes not attingent, ocular interspace about as wide as width of basal antennal segment (male), about two-thirds as wide as width of a single eye (female); interspace with transverse wrinkles; 6, phallomeres much reduced, hook R2 of right phallomere absent (Roth 1972, Fig. 24, 25).

A single species is known.

Achroblatta luteola (Blanchard)

(Fig. 32–34, 36)

Blatta luteola Blanchard 1843: 215, pl. 26, Fig. 3

This species was originally described from the Province of Santa Cruz, Bolivia. It is known from southern Mexico (as the synonym *Panchlora tripartita* Walker, from Orizaba) to Bolivia and Brazil. Full synonymy and references are given by Princis (1963: 159). Saussure and Zehntner (1893, pl. 6, Fig. 12) gave a colored habitus figure. Variation in color markings was discussed by Hebard (1926: 212). The dorsal surface is a yellowish cream color, marked with pale brown as in Fig. 32 and 33. The ventral surface is yellowish straw color; the front tibia and apical parts of middle and hind ones are blackish; the main part of the face usually is dark. The antenna is dark, with ca. 5 segments at base of flagellum and ca. 7 segments located a little distad from middle, cream colored.

The following measurements (in millimeters) of 2 typical specimens indicate size: overall length, ♂, 18.5, ♀, 24.5; body, ♂, 13.5, ♀, 19.0; tegmen, ♂, 14.5, ♀, 19.0.

Specimens Examined (4 ♂, 8 ♀).—GUATEMALA. Intercepted at Baltimore, Md., in plant quarantine, September 1933, 1 ♀. COSTA RICA. Turrialba, Apr. 18, 1957 (M. J. Stelzer, R. D. Shenefelt), 2 ♂; same, no date (Schild and Burgdorf), 1 ♀; intercepted at San Francisco, Calif., in plant quarantine, August 1929, 1 ♀; Carillo (Schild and Burgdorf), 1 ♀. PANAMA. Barro Colorado Island, January–March 1944 (J. Zetek), 1 ♀; same, Apr. 29, 1937 (S. W. Frost), 1 ♂, 1 ♀; same, May 7, 1937 (S. W. Frost), 1 ♂, 1 ♀. ECUADOR. Guayaquil, intercepted at San Diego, Calif., with bananas, Mar. 30, 1953, 1 ♀.

Anchoblatta Shelford

Anchoblatta Shelford 1909: 620. Type-species, *A. peruana* Shelford (synonym of *A. signifera* (Scudder)) by monotypy.

The most distinctive generic characters are: 1, pronotum dimorphic, bearing low tubercles and with anterior margin very broadly rounded to strongly truncate in male, nearly smooth and anterior margin broadly rounded in female; 2, usually a small major spine basad from middle on ventroposterior margin of hindfemur; 3, interocular space in male considerably narrower than a single eye, but more than one-half as wide (eye width measured between imaginary vertical line touching inner margin at vertex and one touching lateral margin); in female about as wide to slightly wider than an eye; 4, phallomeres much reduced, L2vm and L1 lightly pigmented, R_2 absent.

There is a single species in eastern Peru; a 2nd species name is available, but we consider it a synonym. The 2 names were placed in separate subfamilies by Princis (1963: 120, 159), but neither taxon had ever been illustrated, and available information was meager.

Anchoblatta signifera (Scudder)

Panchlora signifera Scudder 1875: 280.

Anchoblatta peruana Shelford 1909: 620. (NEW SYNONYMY.)

The type-locality of *signifera* is "Eastern slope of the Peruvian Andes." Introductory data in Scudder's paper explain the area as "between Yurimaguas . . . to Chachapoyas, via Balsa Puerto and Moyobamba" in northern Peru. The type-locality of *peruana* is "Marcapata, Peru," ca. 166 km east of Cuzco, in southeastern Peru. The unique female type of *signifera* at the Museum of Comparative Zoology, Cambridge, Mass., and 2 type-specimens of *peruana*, 1 of each sex, have been examined. The male type of *peruana* is here designated lectotype (Hope Department of Entomology, Oxford Museum).

When Shelford described *A. peruana*, he suggested a near relationship to Scudder's earlier *P. signifera* but cited differences between the mid- and hindfemoral spines of his specimens and the spines said by Scudder to occur in *signifera*. Shelford said of *peruana* "Hindfemora with 1 spine on the posterior margin and 1 genicular spine," "femora without apical spines." In contrast, Scudder reported *signifera* with "the middle and hindfemora with a pair of slight spines." We have found femoral spines as follows in *Anchoblatta*. Front femur: small apical spine on ventroposterior margin; middle femur: genicular spine occurs, sometimes absent but socket present; apical spine usually on ventroposterior margin, sometimes absent; a few strong setae sometimes on ventroposterior margin; hindfemur: genicular spine usually present, sometimes only socket remains;

ventroposterior margin without an apical spine, but usually a small major spine basad from middle, sometimes a tiny distinct spine at base also. Scudder's type has several strong setae on the middle femur which he evidently regarded as "slight spines"; other inconsistencies between the 2 authors probably resulted from variation present in specimens.

The following descriptive notes will supplement the photographs of *Anchoblatta:* cerci broad, tapering toward the apex, reaching nearly to tip of supra-anal plate (female) or slightly beyond (most males); supra-anal plate broadly truncate, narrowly emarginate medially; male subgenital plate symmetrical, broadly rounded, moderately produced, styli, very slender, cylindrical, slightly curved; female subgenital plate broadly concave near each cercus, unspecialized, the apical margin slightly and broadly concave.

General color pale testaceus, some individuals darkened to light brown on tegmina, usually a blackish preapical spot on tegmen; pronotum with variable amount of dark reddish-brown on disk (Fig. 22, 26, 27); face with some dark blotched areas on pale background; interocular space with 2 or 3 mostly longitudinal dark blotches; antenna with basal segment and 10 or more segments at apex yellowish orange, remainder dark brown; ca. 12 basal segments glossy, others dull; ventral surfaces pale, tibial spines and apical segment of maxillary palpi darkened.

The types and other specimens examined show that considerable variation occurs in the pronotal shape and pronotal tubercles of males, and in the width of interocular space, general size, and femoral spines of both sexes. Fig. 29 and 31 show extremes in pronotal tubercles of males. Although 3 specimens from Marcapata have more prominent tubercles than 2 from much farther north (Hera and Pucallpa), there is variation within each series. Similarly, Fig. 28 and 30 show the pronounced difference in pronotal shape exhibited in dorsal view by males of the same species. The truncate anterior margin of the figured Marcapata male (Fig. 28) represents a maximum development, and the other 4 ♂ examined are intermediate in shape. The male from Hera (Fig. 30, 31) is particularly weak in the 2 foregoing characters, but we suspect that a larger series would show a complete and gradual range of variability.

The interocular space is proportionally narrower in both sexes from the southern part of Peru than in specimens from the north, and the measurement and the ratio of maximum head width across both compound eyes to interocular space width are given in Table 1 for 10 measured specimens. Although the data are inconclusive, they appear to represent a progressive increase in the ratio from north to south. Variation in general body size is demonstrated by the measurements of overall length and length of a single tegmen, but there seems to be no geographic correlation. Wing and tegminal lengths are rather uniform, correlated with size of nonalar parts of the body. The extent to which folded wings surpass the abdomen varies from 4 to 5.5 mm in 4 measured males; from 3.2 to 5 mm in 4 ♀.

Specimens Examined (5 ♂, 6 ♀).—PERU. Between Yurimaguas and Chachapoyas, 1873 (James Orton), 1 ♀ (Type of *signifera*) (Museum of comparative zoology); Hera, Dept. San Martin, VI–VIII-1947 (F. L. Woytowski), 1 ♂, 2 ♀; Fundo Sinchono, ca. 66 km SW Pucallpa, Rio Ucuyali, 1300 m Aug. 14, 1947 (J. M. Schunke), 1 ♀; same, Sept. 8, 1947, 1 ♂, 1 ♀; Marcapata (Staudinger) (presented 1908 by Staudinger and Bang-Haas), 2 ♂ (Vienna Museum), 1 ♂, 1 ♀ (Oxford Univ. Museum, Lectohologtype and lectoallotype of *peruana*).

Two additional females from Marcapata, probably from the series just referred to, are recorded in the Stockholm Museum by Sjöstedt (1933: 9); we have not seen them and do not know if they were identified by Shelford.

Biolleya Saussure

Biolleya Saussure 1897: 137. Type-species, *B. alaris* Saussure, by monotypy.

The following are noteworthy generic characters: 1, tegmina very hairy (Fig. 3); female with short tegmina (Fig. 40), male tegmina fully developed; 2, cubital branches of hindwing reduced to ca. 5 in male, fewer in female; anal field reduced in size (Fig. 2); 3, pronotum with anterior portion extending far forward (Fig. 37); 4, middle and hindfemur each with genicular spine, without apical spines on ventral margins, and without a spine near middle of ventroposterior margin; 5, narrowest interocular space of male slightly wider than width of 1 compound eye, of female considerably wider (as 34:25); 6, phallomeres L2vm and L1 much reduced, R2 absent (Roth 1972).

A single species occurs in Costa Rica.

Biolleya alaris Saussure

(Fig. 1–8, 37, 40)

Biolleya alaris Saussure 1897: 137.

Paratypes at the Academy of Natural Sciences, Philadelphia, have been examined. The holotype is

Table 1.—Measurements (mm) and head ratios of specimens of *A. signifera* from localities in Peru.

Locality and sex of specimen	Interocular width (A)	Max head width (B)	Ratio B:A	Overall length, including tegmina	Length of tegmen
Type of *signifera* ♀	1.3	4.3	3.3	32.0	27.0
Hera ♀	1.4	4.1	2.9	31.0	23.4
Hera ♀	1.3	4.2	3.2	29.5	24.0
Pucallpa ♀	1.4	4.6	3.3	32.5	26.5
Pucallpa ♀	1.2	4.0	3.3	28.0	22.0
Allotype of *peruana* ♀	1.1	3.8	3.5	29.0	23.0
Hera ♂	1.3	4.4	3.4	28.5	22.5
Pucallpa ♂	1.4	4.9	3.5	32?	24.0
Marcapata ♂	1.0	3.9	3.8	28.0	22.5
Marcapata ♂	1.2	4.9	4.0	36.0	28.5
Type of *peruana* ♂				27.5	23.0

presumed to be at the Museum d'Histoire Naturelle, Geneva, Switzerland. The type locality is La Palma, Costa Rica, at an altitude of 1600 m, some 20 km northeast of San José, on the northeast slope of the cordillerra betwéen the volcanos of Irazu and Barba (see Rehn 1924: 28; 1928: 27; 1935: 195). The original material studied by Saussure was collected in February and March 1896 by P. Biolley and F. Tristan. Biolley (1900: 48–49) recounted collecting various specimens of both sexes at La Palma, also a single female on the slopes of the volcano Barba. Because of failure to find the species elsewhere, he speculated that it might be confined to the northern part of the central plateau in the watershed of the volcanic range.

Fig. 40 is an outline of a female; tegmina are widely separated, and the wings are much reduced. Fig. 1 of Biolley (1900) shows the female tegmina distinctly separated, but Saussure's original description indicated that they overlap slightly in his specimens. A small apical spine occurs on the ventroanterior margin of the front femur in the female and 2 of the males we have examined, but is not visible in the 3rd male.

Coloration of both sexes is as follows: pronotum light orange, a little paler than that of *Pelloblatta lata* Rehn; tegmen grayish orange, a short cream streak on humeral trunk near base; ventral surfaces pale yellow, leg spines darkened; eyes black.

Measurements, in millimeters, of the 4 specimens examined are as follows:

	Length, overall	Length, tegmen	Length, pronotum	Width, tegmen	Width, pronotum
♂ paratype	13.0	9.7	4.1	4.2	5.5
♂ paratype	11.8	7.6	3.8	3.7	5.0
1906 ♂	11.2	8.4	3.7	3.5	5.1
1906 ♀	12.8	6.5	4.8	4.0	7.0

Specimens Examined (3 ♂, 1 ♀).—COSTA RICA. La Palma, 1600 m, II–III-1896 (Biolley y Tristan) 1 ♂ (paratype); same (no date) P. Biolley), 1 ♂ (paratype); same, V-1906 (J. T. Tristan), 1 ♂, 1 ♀ (all Acad. Natur. Sci. Phila.).

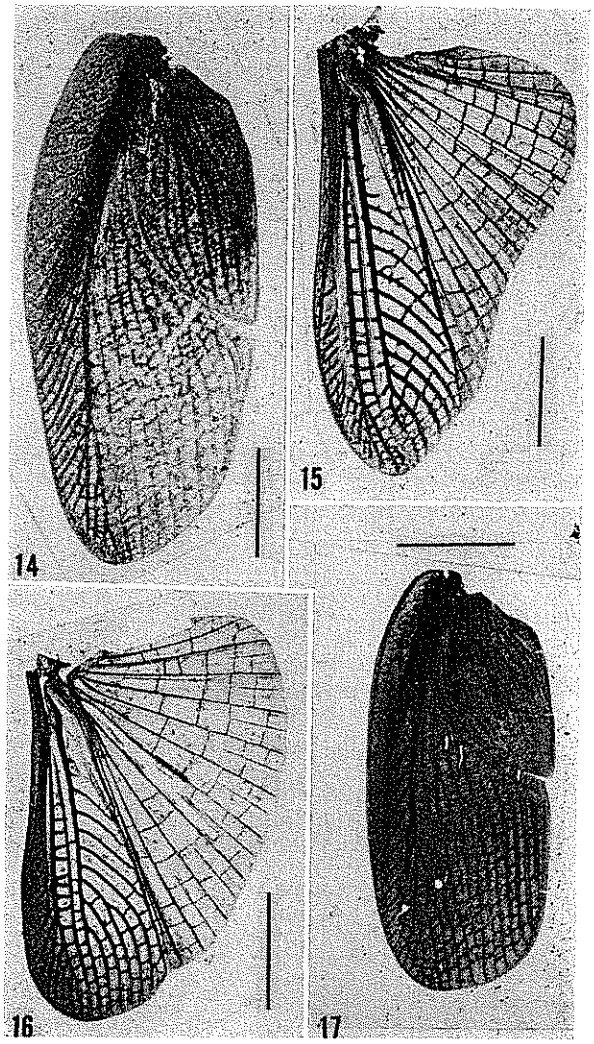

FIG. 14, 15.—*P. reyesi*, ♀, Mexico. 14, Left tegmen; 15, left wing.
FIG. 16, 17.—*P. lata*, ♀ holotype, Costa Rica. 16, Left wing; 17, left tegmen. (Fig. 14–17: line = 3 mm.)

Pelloblatta Rehn

Pelloblatta Rehn 1903: 283. Type-species, *P. lata* Rehn, by monotypy.

The chief generic characters are: 1, pronotum transversely oval (Fig. 38, 39), smooth, glossy; 2, interocular space clearly wider than a single eye (♀), a little narrower than width of an eye (♂); 3, tegmina fully developed, glossy (Fig. 14, 17); 4, wing with well-developed anal field, ca. 8–10 cubital branches (Fig. 15, 16); 5, front femur with small apical spine on ventroposterior margin, a tiny one on ventroanterior margin of *lata*, hardly distinct in *reyesi*, n. sp.; 6, middle femur with genicular spine, an apical spine on both ventroposterior and ventroanterior margins, rarely with a spine near middle of ventroposterior margin; 7, arolia small to medium sized; 8, supra-anal plate strongly emarginate posteriorly; 9, cerci short, scarcely reaching apex of supra-anal plate; concealed genitalia unknown.

Two species of *Pelloblatta* are known.

Key to species of *Pelloblatta*

Size smaller, width of female pronotum 5.6 mm; vertex smooth, unspecialized between compound eyes; tegmen with costal margin nearly straight in distal three-fourths (Fig. 17); wing with anal margin broadly rounded (Fig. 16); pronotum light orange; tegmen dark brown. (Costa Rica) ..... *lata*

Size larger, width of female pronotum 7–7.8 mm; vertex specialized with low transverse carina between eyes (Fig. 21); tegmen with costal margin more rounded than in *lata* (Fig. 14); wing with anal margin concave (Fig. 15); pronotum dirty gray to reddish brown; tegmina greenish hyaline. (State of Veracruz, Mexico) ..... *reyesi*

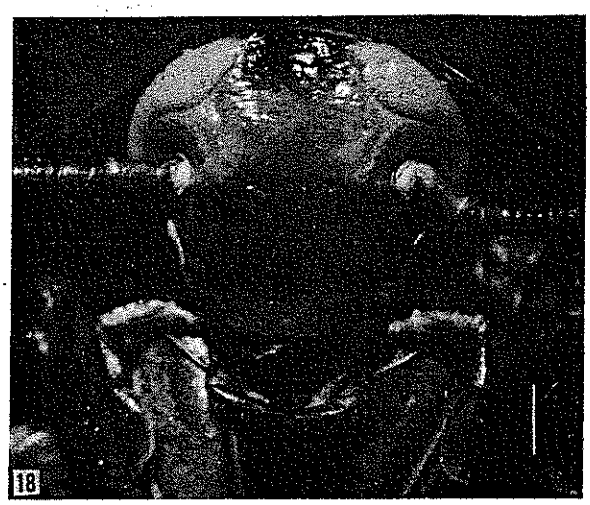

FIG. 18.—*P. reyesi,* ♂ holotype, Mexico. Frontal view of head. (Line = 0.5 mm.)

Pelloblatta lata Rehn

(Fig. 16, 17, 38)

Pelloblatta lata Rehn 1903: 283.

This species was described from a single female from San Carlos, Costa Rica (U.S. National Museum, Type no. 6941). San Carlos apparently is in the northeastern part of Costa Rica, near the boundary of Nicaragua.

Descriptive Notes.—Eyes widely separated, ratio of interocular space to greatest head width and to interocellar space as 11:24:10; pronotum and tegmina glossy; moderate-sized arolium between claws; female subgenital plate broad, posterior margin shallowly and broadly emarginate. Coloration: legs and ventral surface yellowish orange; eyes reddish brown; pronotum light orange; tegmina dark brown, humeral area and costal margin tinged with orange. Measurements (mm): overall length, 13; pronotum length, 4.1; pronotum width, 5.6; tegmen length, 9.5; tegmen width, 4.5.

Specimens Examined.—1 ♀ (holotype).

Only the unique female is known. Rehn (1906: 839) included *lata* in a list of Costa Rican Orthoptera, but without additional comment. It was placed by Princis (1965: 305) in the Oxyhaloidae, a family he recognized for otherwise originally entirely Old World cockroaches; he placed *Nauphoeta* and *Leucophaea* in the same group, and probably he was influenced in grouping *Pelloblatta* there by Rehn's comparison of *Pelloblatta* with *Leucophaea.*

Pelloblatta reyesi, n. sp.

(Fig. 9–15, 18–21, 39)

This species is of the same general habitus as *P. lata,* but is much larger (pronotal length of female 5.3 mm vs. 4.1 in female of *lata*), the color is different (see key), and the vertex has a carinalike transverse ridge as opposed to the smooth broadly rounded vertex of *lata.*

MALE (holotype).—General form as in Fig. 10. Body glossy, especially dorsal surfaces. Head as in Fig. 18, ratio of interocular space to greatest head width as 7:24. Pronotum as in Fig. 39 when anterior and posterior margins are on same plane, entire margin narrowly marginate, disk smooth, unspecialized. Tegmen and wing essentially as in female (Fig. 14, 15). Legs somewhat more robust than in *Panchlora nivea* and of same general form; front tibia with 12 spurs; tarsi with terminal pulvilli on segments 1–4. Abdomen unspecialized dorsally; supraanal and subgenital plates with associated cerci and styli as in Fig. 12 and 13; phallomeres lost, but were poorly developed and lightly sclerotized.

Coloration (dried specimens, from alcohol).—Pronotum mainly reddish orange, paler posteriorly in median area; tegmina whitish cream (probably greenish hyaline in life); legs light brown; face pale, darker ventrad from line connecting antennal sockets; interocular space darkened at and near vertex, specialized area blackish brown.

Measurements (mm).—Overall length, including folded tegmina, 13.0; body, 12.0; pronotum length, 4.2; pronotum width, 6.0; tegmen length, 10.0; tegmen width, 6.0; hindtibia, 3.6.

FEMALE (allotype).—General habitus as in male

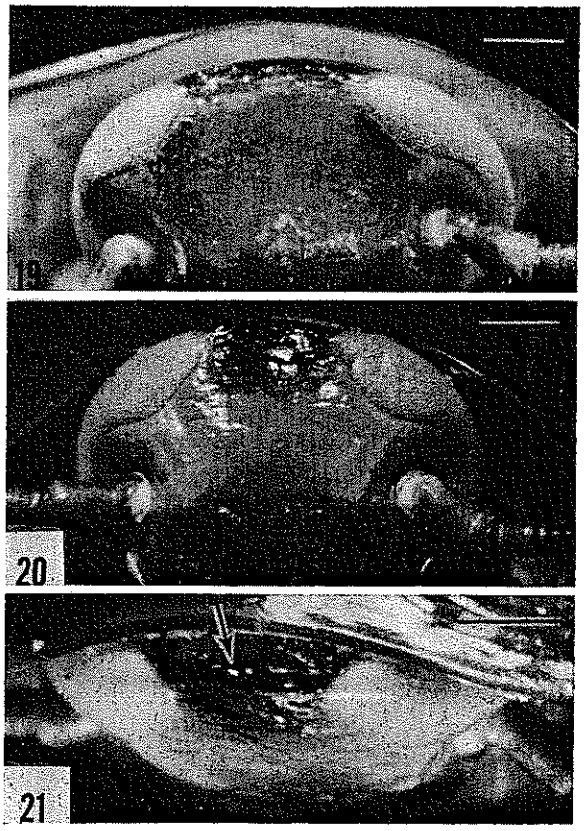

FIG. 19–21.—*P. reyesi,* Mexico. 19, ♀, frontal view of upper part of head; 20, ♂ (holotype), same view; 21, ♂ dorsoanterior view of interocular area showing transverse carina (arrow). Fig. 19–21: line = 0.5 mm.)

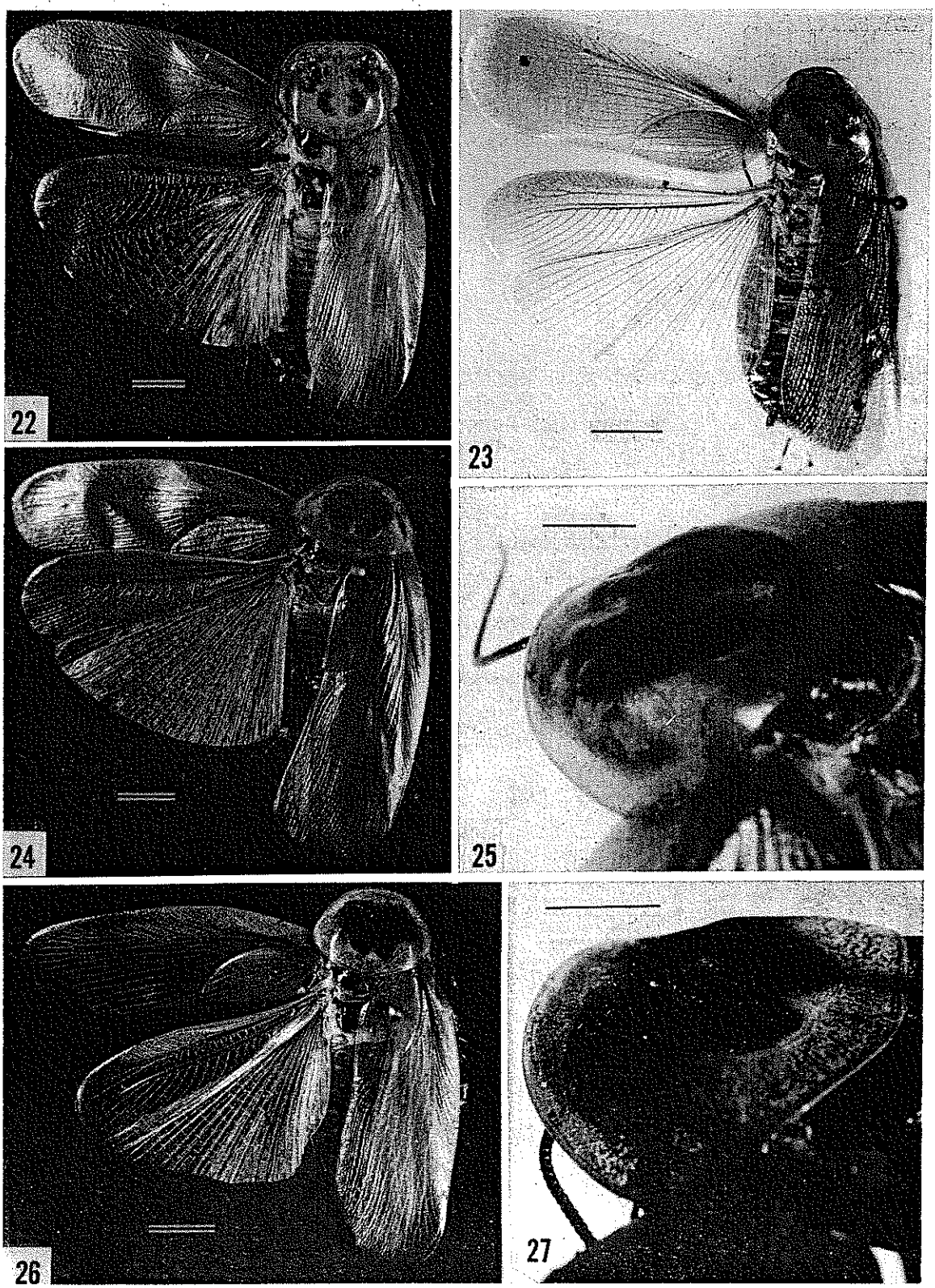

FIG. 22–27.—*A. signifera,* Peru. 22, ♂ (Marcapata); 23, ♀ (Hera); 24, ♀ (holotype of *signifera*); 25, same as Fig. 24, oblique view of pronotum; 26, ♀ (allotype of synonym *peruana*); 27, same as Fig. 26, oblique view of pronotum. (Fig. 22–24, 26: line = 5 mm; Fig. 25, 27: line = 2 mm.)

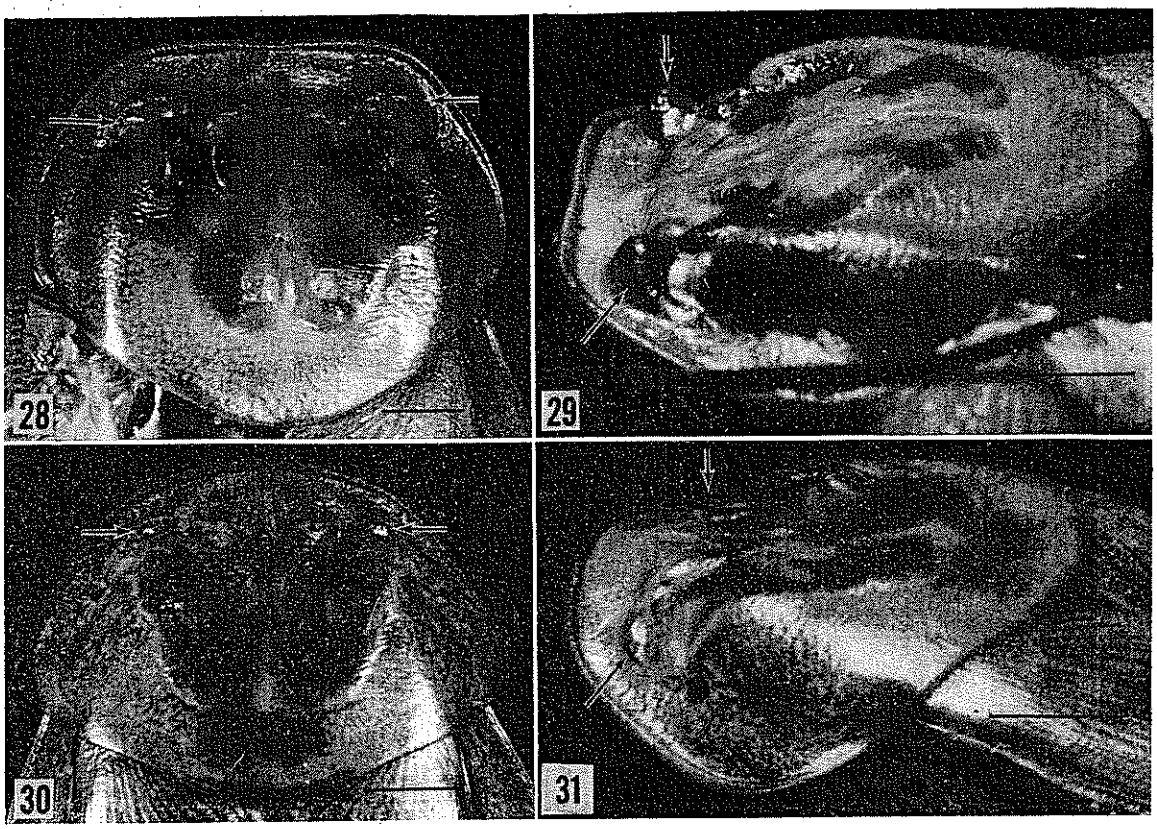

FIG. 28–31.—*A. signifera,* Peru, dorsal and oblique views of pronotum. 28, ♂ (Marcapata); 29, same specimen as Fig. 28; 30, ♂ (Hera); 31, same specimen as Fig. 30. (Arrows indicate pronotal tubercles; Fig. 28–31: line = 2 mm.)

except for larger size and wider interocular space; ratio of interocular space at vertex to maximum head width as 10:28, tegmina extending halfway across supra-anal plate; tegmen and wing as in Fig. 14 and 15 of paratype. Supra-anal plate about as in male, but more narrowly emarginate; subgenital plate broadly rounded.

Coloration.—Pronotum dirty gray with yellowish blotches on disk.

Measurements (mm).—Length of body , 17.0; pronotum length, 5.1; pronotum width, 7.4; tegmen length, 14.0; tegmen width, 6.4; hindtibia, 4.5.

Variation.—The 6 ♀ paratypes (all dried from alcohol) show a range of pronotal color from distinctly blotched with reddish orange to uniform whitish cream. Their size varies from comparable to the allotype to somewhat larger than the holotype; the pronotum of 2 paratypes is 4.6 mm long.

There are 5 nymphs, ranging in body length from 6.5 to 15.5 mm. Fig. 11 shows the largest one prior to drying and pinning. It closely resembles nymphs of *P. nivea,* but the pronotum is wider, less semicircular in shape, the lateral extremities less broadly rounded. Also, the face is more flattened and the vertex more narrowly rounded than in *nivea.* Abdominal terga of *reyesi* nymphs bear ca. 5 transverse rows of minute raised prominences, some with minute setae. The more posterior terga are not roughened at all as in *Pycnoscelus* nymphs.

Specimens Examined (1 ♂, 7 ♀, 5 nymphs).—MEXICO. Estado de Veracruz, Dos Amates (Catemaco), from chamber of waste (1.5 m depth) of ant nest (*Atta* sp.) May 5, 1968 (Pedro Reyes-Castillo and M. Cabrera, collectors). Holotype: ♂, U.S. National Museum, no. 71,442). Dos Amates is ca. 10 km northeast of Catemaco, ca. 10 km from the coast, and ca. 140 km southeast of the city of Veracruz. The area, at an elevation of ca. 300 m, was covered by tropical rain forest until a few years ago. It was discussed by Goldman (1951: 269).

The general habitus of *P. reyesi* suggests *Pycnoscelus* (Blaberidae, Pycnoscelinae), though the pronotum of the latter is less transverse and tegmina usually are more elongate. Fundamental distinguishing characters of *Pycnoscelus* are: 1, a single large modified stylus borne by the subgenital plate, concealed by the unspecialized, terminal, externally visible sternum (see McKittrick 1964: pl. 48, Fig. 130, H); 2, a conspicuous apical spine on ventroposterior margin of front femur; 3, an apical spine on ventroposterior margin of hindfemur; 4, basal segment of hindtarsus has pulvillus reaching nearly to its base; 5, in nymph, the dorsal surface of abdomen conspicuously roughened posterior to tergum 3.

ACKNOWLEDGMENT

We are grateful to the following curators for the loan of specimens: Drs. Max Beier, Naturhistorisches Museum, Vienna; Howard E. Evans, Museum of Comparative Zoology, Cambridge; David C. Rentz, Academy of Natural Sciences, Philadelphia; and George C. Varley, Hope Department of Entomology, Oxford University, Oxford. We also thank Dr. P. Reyes-Castillo, Escuela Nacional de Ciencias Biológicas, I. P. N., Mexico City, for obtaining fresh

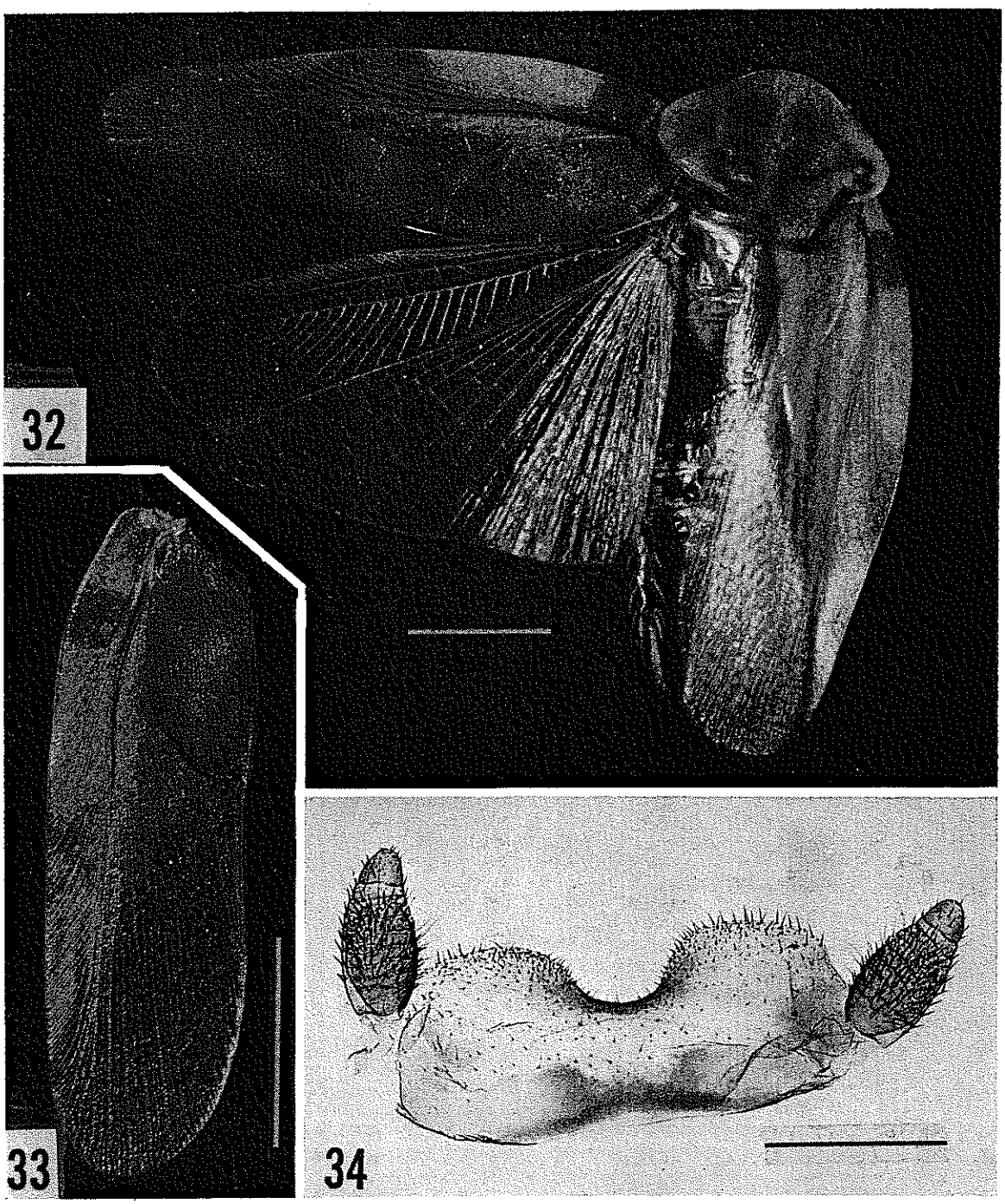

FIG. 32–34.—*A. luteola*. 32, ♀, Barro Colorado Island, Panama (Pronotum slightly atypical because of twisting); 33, ♂, left tegmen, Turrialba, Costa Rica; 34, ♂, supra-anal plate and cerci, Turrialba. (Fig. 32, 33: line = 5 mm; Fig. 34: line = 1 mm.)

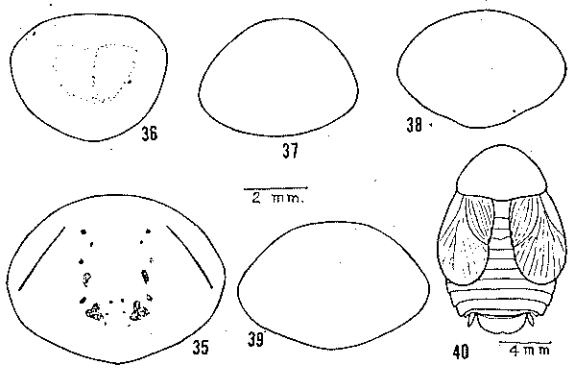

FIG. 35–39. — Outline of pronotum, genera of Panchlorinae. 35, *Panchlora nigriventris* Shelford, ♀, Sta. Mario de Dota, Costa Rica; 36, *A. luteola,* ♂, Barro Colorado Is., Panama; 37, *B. alaris,* ♂ paratype, Costa Rica; 38, *P. lata,* ♀ holotype, Costa Rica; 39, *P. reyesi,* ♂ holotype, Mexico; (Fig. 35–39: line = 2 mm.)

FIG. 40.—*B. alaris,* ♀, La Palma, Costa Rica, general outline. (Line = 4 mm.) (Drawings by A.B.G.)

field material of the new species of *Pelloblatta* (which is named after him), and Mr. Samuel Cohen, U.S. Army Natick Laboratories, for taking the photographs.

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