

CONTRIBUTION TO THE KNOWLEDGE OF THE
GENUS *SENIORWHITEA* ROHDENDORF, 1937
(Diptera, Sarcophagidae) *

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(With 28 figures)

The present paper is based on material belonging to the collections of the Instituto Oswaldo Cruz and Berenice P. Bishop Museum. Very valuable specimens from Formosa were collected and reared by the late Lt. Stephen H. Kirner. In this lot I was able to determine the species described by Boettcher.

Seniorwhitea Rohdendorf, 1937

Seniorwhitea Rohdendorf, 1937: 297.

Medium sized species with 4 or 5 postsutural dorsocentral bristles, only the two hindmost ones well developed; only presutural dorsocentral and acrostichal bristles differentiated; prescutellar bristle present; *forcipes superiores* with a preapical tuft of hairs; penis with distinct *theca*, *phallasoma* much enlarged, apical plate of *paraphallus* extensively membranous or with a membranous cylindrical apical process, always with conspicuous projections; lateral plates of *paraphallus* chitinous and well pigmented; *ventralia* small, chitinous; styli of glans directed anteriorly. Female with tergite VI+VII entire, large; a large pigmented plate between genital and anal tergite; sternite IX very small.

Type species: *Sarcophaga orientaloides* Senior-White, 1924 = *Sarcophaga krameri* Boettcher, 1912.

Rohdendorf proposed the genus *Seniorwhitea* based on *Sarcophaga orientaloides* Senior-White, from India, which I consider as a synonymy of *Sarcophaga krameri* Boettcher, described from Formosa. I have examined topotypes specimens from India and Formosa and they prove

* Recebido para publicação a 8 de agosto de 1963.
Trabalho do Instituto Oswaldo Cruz (Divisão de Zoologia).

to belong to the same species. The drawing published by Boettcher is very poor but I believe there are no other species in Formosa to be identical to *krameri*, except *orientaloides*. Rohdendorf includes in the original paper, under *Seniorwhitea*, *Sarcophaga orientalis* Parker, from the Philippine Is. I have identified *Sarcophaga phoenicoptera* Boettcher from Formosa and have considered provisionally this species as belonging to *Seniorwhitea*. The penis of *Seniorwhitea phoenicoptera* (Boettcher) is somewhat different from the congeneric species; the features of the glans will indicate a different genus but the apical cylindrical lobe at apex of penis shows a great similarity with *S. krameri* (Boettcher). Female specimens of *phoenicoptera* are necessary to decide its definitive inclusion in the genus *Seniorwhitea*.

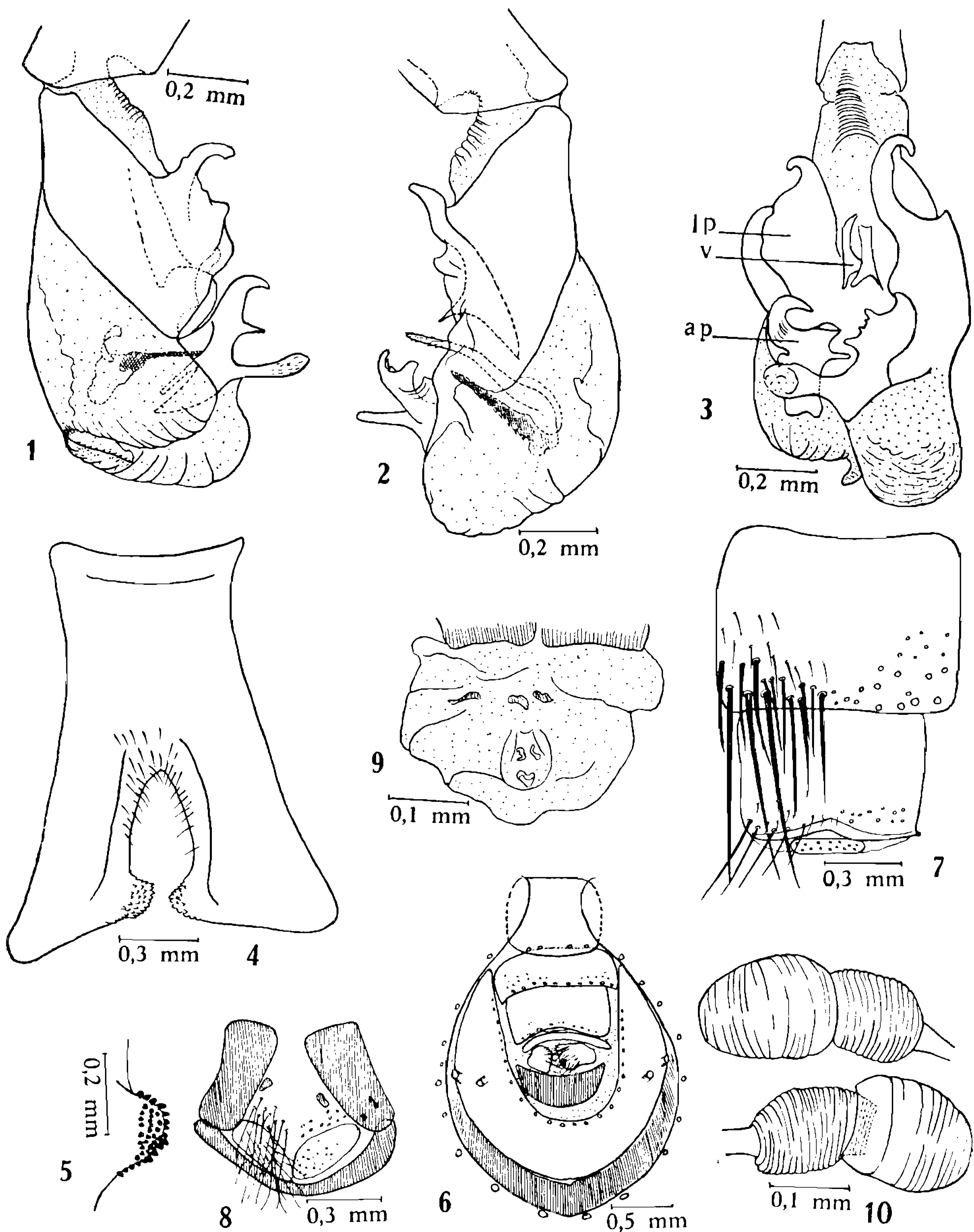
***Seniorwhitea krameri* (Boettcher, 1912)**

(Figs. 1 to 10)

- Sarcophaga krameri* Boettcher, 1912: 166, fig. 1 (Formosa).
Sarcophaga krameri Boettcher, 1913: 378 (Singapore, Ceylon, male, female).
Sarcophaga krameri Senior-White, 1924: 241, pl. 16, fig. 35 (Malacca).
Sarcophaga orientaloides Senior-White, 1924, pl. 15, fig. 31 (India, Ceylon, Siam).
Sarcophaga orientaloides SeniorWhite, 1930: 73 (India).
Sarcophaga orientaloides Malloch, 1930: 484 (Malay).
Sarcophaga sinica Rohdendorf, 1930: 315, fig. 1 (China).
Sarcophaga orientaloides Ho, 1934: 33 (China).
Sarcophaga orientaloides Ho, 1936: 213 (Hainan).
Seniorwhitea orientaloides Rohdendorf, 1937: 297, 299, 407, figs. 418, 419 (India, Ceylon, Assam, Burma, China).
Sarcophaga orientaloides Senior-White, Aubertin & Smart, 1940: 251, fig. 129 (India, Ceylon, Burma).
Sarcophaga krameri Senior-White, Aubertin & Smart, 1940: 247, fig. 124 (Formosa, Singapore, Malacca, Ceylon).
Sarcophaga krameri Hennig, 1941: 185 (Formosa).
Sarcophaga orientaloides Lopes, 1941: 56 (Hawaii).
Sarcophaga orientaloides Hardy, 1952: 478 (Hawaii).
Sarcophaga orientaloides Hsieh, 1958: 79 (Amoy).
Seniorwhitea orientaloides Lopes, 1961: 420, 421 (Hawaii).

Male: length 8,5 to 18 mm. Head silvery pollinose, front, face and posterior orbits slightly yellowish; sometimes all head is silvery. Front about 0,24 of width of head. Ocellar bristles small, outer vertical bristle not differentiated. *Parafacialia* with a series of hairs near the eyes. *Parafrontalia* with sparse hairs. There are 9 to 12 frontal bristles reaching the middle of the second antennal joint, and diverging a little below base of antennae. First and second antennal joints blackish, the latter sometimes reddish at apex, third segment gray. Second antennal joint about 0,38 as long as third, the latter reaching 0,9 of distance to vibrissae which are just above oral margin. *Parafacialia* with 0,5 of the distance between the vibrissae. *Facialia* with hairs near vibrissae, having sometimes sparse hairs on lower third. Arista plumose on basal two-thirds. Back of head silvery with two rows of black bristles remaining hairs white. Genae with black sparse hairs.

Thorax gray. Three supraalar postsutural bristles and two presuturals; two intraalar postsutural bristles and one presutural; four to five postsutural dorsocentral bristles (only two posterior ones well



Seniorwhitea krameri (Boettcher, 1912) — Fig. 1: Penis, right side; fig. 2: penis, left side; fig. 3: penis, ventral view; fig. 4: fifth sternite of male; fig. 5: fifth sternite, internal angle; fig. 6: male genitalia; fig. 7: female genital sternite; fig. 8: anal segment of female; fig. 9: signum; fig. 10: spermatheca.

developed), and four or five small presuturals; presutural acrostichals poorly differentiated; prescutellar well developed. Scutellum with two pairs of strong marginal bristles, one pair of strong apicals; preapicals small. Three strong sternopleural bristles at the same level. Hypopleural bristles nine to eleven. Propleura bare. Prosternum with a few white hairs.

Abdomen gray; a pair of median bristles on fourth tergite. Sternites I to IV with black dense hairs, more numerous on apical half of sternites II to IV. Sternite V with a few hairs and a patch of small spines on the apex of the internal margin. Genital segments black, slightly reddish, the first with gray pollen and irregular hairs; the second shining with long hairs. *Forcipes superiores* black, curved with a conspicuous tuft on long hairs near the apex; *forcipes inferiores* all most triangular, elongated, reddish *forcipes interiores* elongated, with three or four strong bristles; *palpi genitalium* a little curved at apex. Penis with *theca* well individualized, membranous region between *theca* and *paraphallus* small. *Paraphallus* well chitinized with a curved anterior proximal apophysis; apical plate strongly developed, membranous, bearing two rounded lateral lobes and a small median elongated lobe; lateral plates of *paraphallus* strongly chitinized bearing ventral apophysis. *Ventralia* small greatly chitinized inserted between proximal apophysis of *paraphallus*. Glans formed by rounded membranous lateral lobes, a long median process and a pair of *styli* long and well chitinized.

Legs black, femora and tibiae of median and hind legs with long villosity. Middle femur with 5 median bristles on anterior side; ventral side with a complete series of bristles on anterior margin and a series of bristles on apical half of posterior margin; posterior side with 2 or 3 strong preapical bristles. Hind femur with anterior side bearing two superior series of bristles the uppermost stronger and more numerous; ventral side with a series of slender bristles on the anterior margin and long hairs near apex of posterior margin. Middle tibia with two median bristles on anterior side; posterior side with some small bristles on basal half and two long bristles at same level on apical half; no bristles on ventral side. Hind tibia with a series of bristles on anterior side and two long bristles on posterior side.

Wings hyaline, R 4+5 with hairs on two-thirds the distance to cross-vein. Segments of costal vein as follows: II: 29; III: 18; IV: 38; V: 12; VI: 4.

Female: Length 9,5 to 12 mm. Front about 0,28 of width of head. Apical scutellar bristles absent. Mid-femoral organ elongated occupying lower half of apical two-thirds of femora. Sternites I to V with small hairs and strong marginal bristles. Tergite VI+VII conspicuous, entire; a trapezoidal pigmented plate between it and the anal segment; sternite VI+VII large, bearing strong bristles on hind margin; sternite VIII narrower than the preceding one, with sinuous posterior margin, without lateral projections; sternite IX elliptical, elongated. Spermathecae with proximal part shortened. *Signum* almost entirely mem-

branous with a few chitinized points Wings: segments of costal vein as follows: II: 40; III: 21; IV: 49; V: 17; VI: 5.

Specimens examined: Formosa: 2 males and one female, 20 km S. of Taipei, Taojuan, S. Kirner, 19-VI-1958, 14-VIII-1958 (nr. 11.317, 11.322). South India: 4 males and 2 females, Singora, Nilgiri Hills, 3.400 fts, V-1948, P. S. Nathan (nr. 11.318); one male, Mango Range, Nilgiri Hills, 3.800 fts, V-1948, P. S. Nathan, IV-1949; one male, Gudaluar, Nilgiri Hills, 3.500 fts., P. S. Nathan, IV-1949; one male, South Malabar, P. S. Nathan, X-1947; 2 females, Coinoatore, P. S. Nathan, VI-1949, VII-1949. Malaya: 2 males, Perak, Maxwell Hill, 1.350 fts., T. C. Maa, 17/20-III-1958. Hawaii: Oahu: 2 males and 2 females, Honolulu, O. Bryant; one male Waiahole, E. H. Bryan; one male and one female Honolulu, D. E. Hardy, VIII-1950 (sugar cane).

Seniorwhitea orientalis (Parker, 1917)

(Figs. 11 to 22)

Sarcophaga orientalis Parker, 1917: 94, fig. 3 (Philippine Is.).

Sacorphaga orientalis Senior-White, 1924: 243, fig. 34 (Bali, E. of Java).

Sarcophaga orientalis Engel, 1925: 315 (Sumatra).

Seniorwhitea orientalis Rohdendorf, 1937: 297.

Sarcophaga orientalis Ho, 1938: 120, figs. 5, 6 (Java).

Sarcophaga orientalis Senior-White, Aubertin & Smart, 1940: 251, fig. 128 (Java, Philippine Is., Bali).

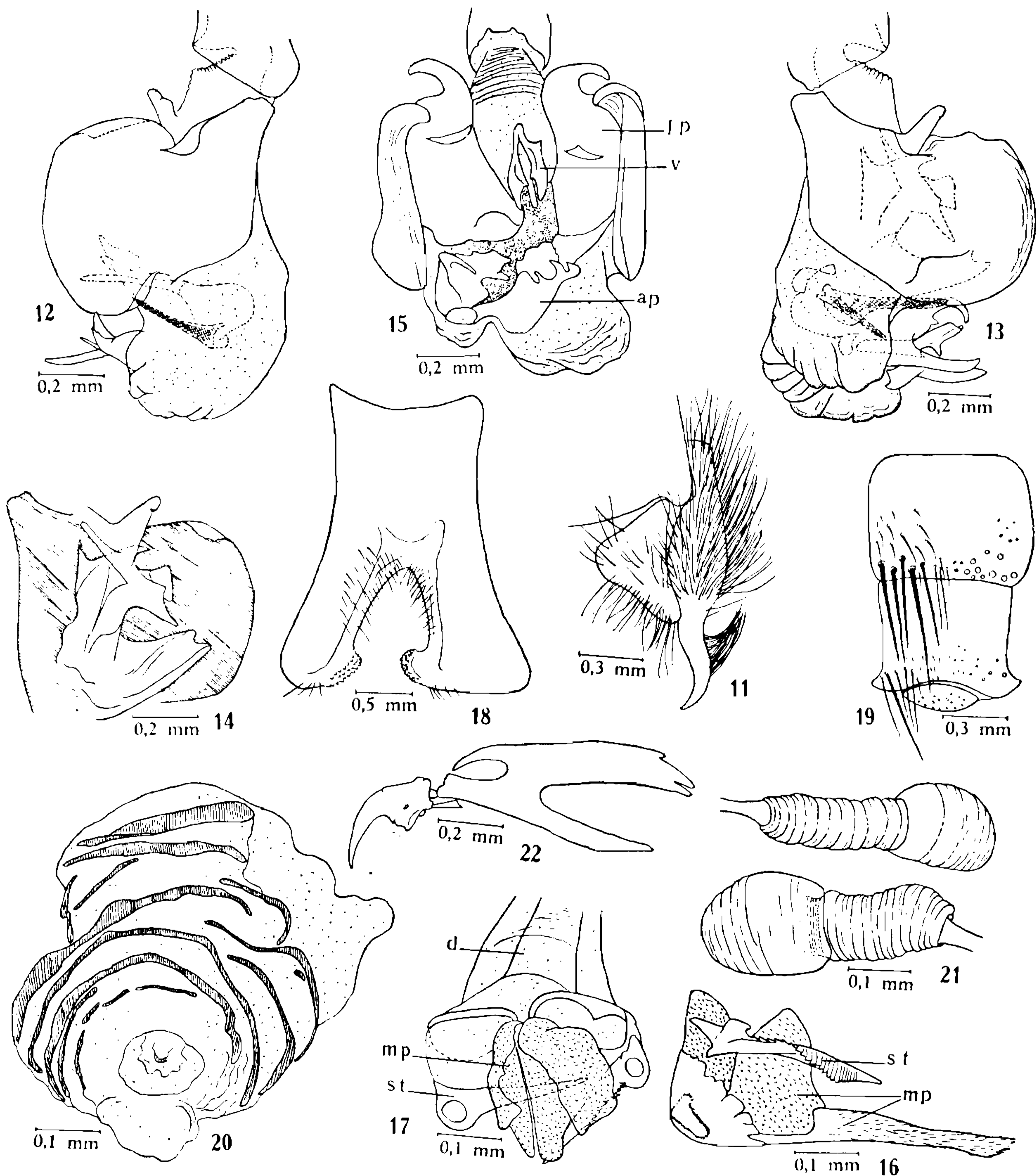
Male: length 8 to 15 mm. Differs from *S. krameri* (Boettcher) as follows: Outer vertical bristle about half the length of inner one. There are 8 to 10 frontal bristles. Front about 0,22 of width of head. Second antennal joint about 0,4 as long as third, the later reaching 0,86 of distance to vibrissae. *Parafacialia* 0,4 of the distance between vibrissae. *Paraphallus* remarkably developed laterally, having some heavy internal chitinous apophysis. Median lobe of apical plate vestigial. Segments of costal vein as follows: II: 29; III: 18; IV: 38; V: 12; VI: 4.

Female: length: 8 to 13 mm. Front about 0,28 of width of head. Mid-femoral organ occupying the lower half of apical three-fourths of femora. Eighth sternite with lateral projections on posterior margin; sternite IX small with curved convergent margins. Spermathecae with distal, finely striated distal part and cylindrical, largely striated, proximal part. *Signum* membranous having concentric chitinous plates. Segments of costal vein as follows: II: 37; III: 19; IV: 49; V: 18; VI: 4,5.

First stage larva: mouth hooks well curved, dentate sclerite fused with bases of hooks, hypostomal sclerite fused with clypeal *phragma*.

Specimens examined: Philippine Is.: Mindanao: Agusan: 2 males and 2 females, Los Arcos, L. W. Quate, 19-XI-1959 (nrs. 11.314, 11.323); one female, S. Francisco, L. W. Quate, 14-XI-1959; Lanao: one male Lake Lanac, Tagaya, 470-720 m, H. E. Miliront; Zamboanga

del Norte: one female, 11 km. E. of Sindang, H. E. Miliront, 20-VII-1958. Luzon: one female Los Banos, L. W. Quate, 11 20-IX-1959; one female, same locality, F. Muir. Leyte: one male, Utap, 17-XI-1959; one male and one female, Palo, 3-XI-1959; Mt. Makiling; one female, T. C. Maa, 7-III-1960. Borneo: Saravak: 4 males and 2 females, Kampong Push, Lundu District, 690-1500 m, T. C. Maa, 6 12-VI-1958. British North Borneo: one male Tenopock, 1460 m., Jesselton, T. C.



Seniorwhitea orientalis (Parker, 1919) — Fig. 11: External forcipis; fig. 12: penis, left side; fig. 13: penis, right side; fig. 14: ventralla and lateral plate of paraphallus; fig. 15: penis, ventral view; fig. 16: glans, lateral view; fig. 17: glans, ventral view; fig. 18: fifth sternite of male; fig. 19: female genital sternites; fig. 20: signum; fig. 21: spermathecae; fig. 22: first stage larva.

Maa, 2 4-II-1959; one male Ranau, 500 m., L. W. Quate, 5/8-XI-1958; one male Tawan Residency, Kalabakan River, T. C. Maa, 9/18-XI-1958; one male Tawan Residency, L. W. Quate, 19-XI-1958; one female Penanpang, SE of Jesselton, L. W. Quate, 17-IX-1958.

Seniorwhitea phoenicoptera (Boettcher, 1913)

(Figs. 23 to 28)

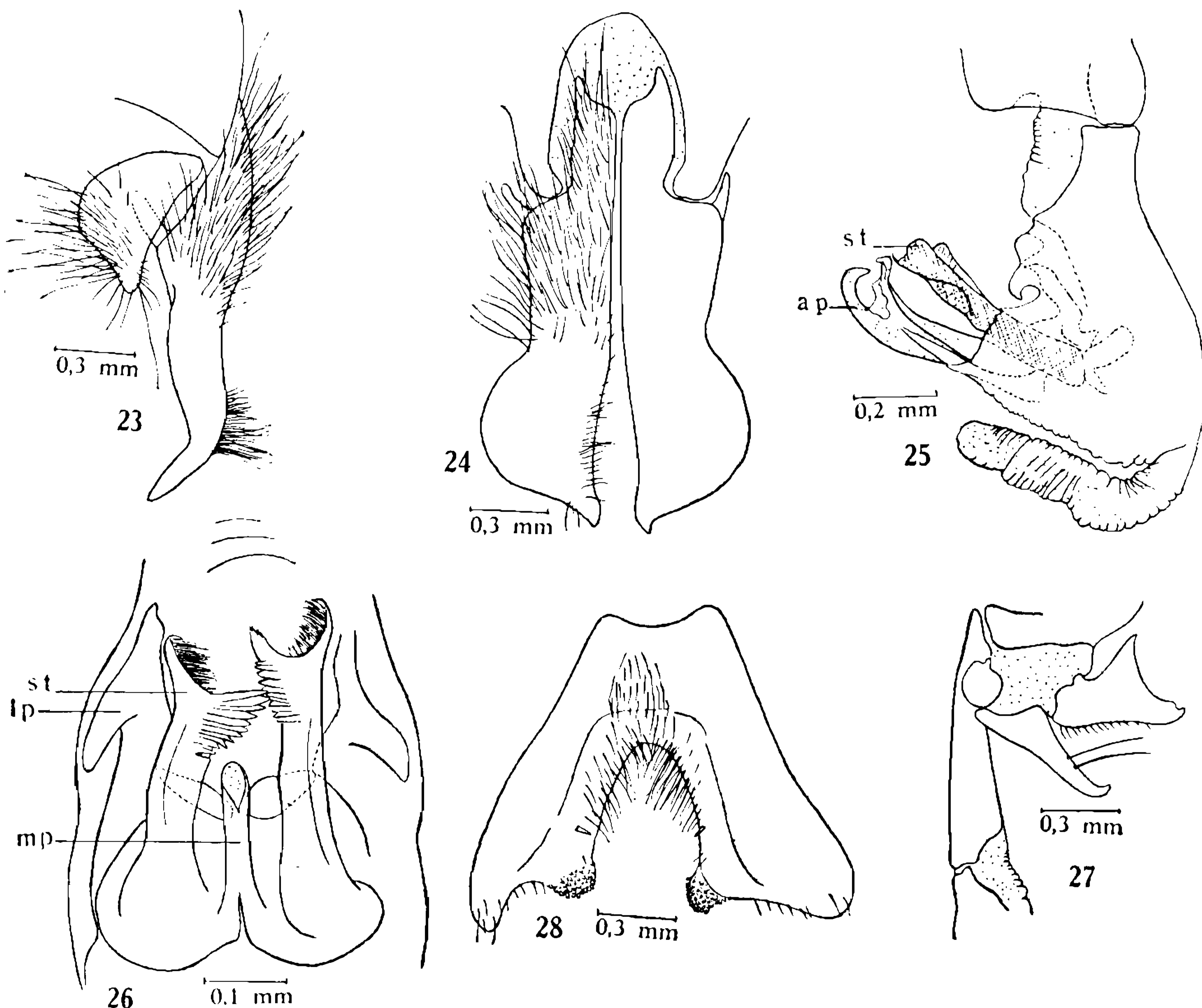
Sarcophaga phoenicopterus Boettcher, 1913: 376, fig. 2 (Formosa).

Sarcophaga phoenicopterus Senior-White, 1924: 238, figs. 39, 39a, (Formosa).

Sarcophaga phoenicopterus Senior-White, Aubertin & Smart, 1940: 245, fig. 222 (Formosa).

Sarcophaga phoenicopterus Hennig, 1941: 186.

Male: length 14 mm. Differs from *krameri* (Boettcher) as follows: Front about 0,24 of width of head. Outer vertical bristles about half the length of inner one. Second antennal joint about 0,4 as long as third, the latter reaching 0,9 of distance to vibrissae. There are 12 to 13 frontal bristles. *Parafacialia* 0,5 of the distance between vibrissae.



Seniorwhitea phoenicoptera (Boettcher, 1913) — Fig. 23: External forcipes; fig. 24: forcipes superiores, view from behind; fig. 25: penis, fig. 26: middle of penis, ventral view; fig. 27: internal forcipes; fig. 28: fifth sternite of male.

Forcipes superiores black, remarkable widened on apical half, the apex curved, bearing a tuft or hairs; *forcipes inferiores* almost triangular; *forcipes interiores* slender, elongated bearing two bristles on apical half; *palpi genitalium* very flattened widened with a dorsal series of hairs. Penis with a large and well chitinized *paraphallus*, apical plated constituted by a large membranous cylindrical process. Lateral plate of *paraphallus* elongated, very heavy and pigmented, bearing terminal apophysis. Glans represented by a pair of very robust and chitinous stylets directed inwards. Segments of costal vein as follows: II: 38; III: 22; IV: 51; V: 14; VI: 3,5. R 4+5 with hairs less than basal two-thirds.

Specimens examined: one male 19 km E. of Kauy, Formosa, S. Kirner, 12-VIII-1958.

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EXPLICAÇÃO DAS LETRAS DAS FIGURAS

ap — Apical plate of *paraphallus*; d — ductus ejaculatorius; lp — lateral plate of *paraphallus*; mp — median process of glans; st — styli (lateral process of glans); v — ventralia.