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Chineese Dragonflies (Odonata) in the Hungarian Museum of Natural History

By

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The major part of the dragonfly-collection, originating from extra-Hungarian territories, in the Hungarian Museum of Natural History has not been worked up so far, hence its identification as well as the publishing of the resulting data seem wholly justified.

First, I determined the Chineese-material of the collection, a part of which had been collected about the beginning of the present century (leg.: Plason, Sauter, Schonen, Siu, Széchenyi and Xanthus). However, some fresh material had also been added to the collection, since, in 1959 Dr. V. Székessy, and in 1960 Dr. H. Steimann, spent some time in the above mentioned regions, and — in addition to various other activities — they collected dragonflies as well.

A part of the determined specimens come from Sauter's collectings in Taiwan (Formosa); this was, as is known, originally worked up by Ris (1912, 1916), but his data prove that he did not see the specimens in possession of the Hungarian Museum, and therefore I publish these data, too.

The provenance-data I have adopted as shown on the original labels, since in many cases the identification of the localities given on them would — in view of my ignorance of the regions concerned and the lack of suitably detailed maps — have been beyond my possibilities.

Subordo: ZYGOPTERA

Superfamilia: **Agrionoidea**** (= **Coenagrioidea**)

Familia: Lestidae

Sympecma paedisca Brauer

Mountains Lushan (Prov. Kiansi), 2–6. IX. 1959, leg. Székessy and Yang, 1 ♀.

Lestes umbrina Selys (?)

Formosa, Kosempo, I. 1908, leg. Sauter, 1 ♂.

An incomplete specimen, hence it was impossible to determine it accurately. In order therefore to facilitate the control of my identification the superior anal appendage is shown on fig. 1.

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** See Benedek (1965).

Familia: Platycnemididae

Platycnemis foliacea foliacea Selys

Hanchow, 15–20. VIII. 1960, leg. Steinmann, 6 ♂, 1 ♀; Shanghai, 14. VIII. 1960, leg. Steinmann, 1 ♀.

The anal appendages of the female are not entirely black, and the superior ones of the male are not entirely yellow; in addition, the mid-dorsal carina is not white on all specimens. Even so, the exemplars are indubitably referable to this species.

Copera marginipes Ramb

Formosa, Takao, 1–15. XII. 1907, leg. Sauter, 1 ♂, 1 ♀; 15–31. XII. 1907, leg. Sauter, 2 ♂; Ins. Lambek, I. 1908, leg. Sauter, 2 ♂.

Coeliccia didyma didyma Selys

Hangchow, 15–20. VIII. 1960, leg. Steinmann, 1 ♀; Mountains Tjianmu, 21. VIII. 1960, leg. Steinmann, 2 ♂.

Familia: Agrionidae (= Coenagriidae)

Agriocnemis femina Brauer

Hangchow, 15–20. VIII. 1960, leg. Steinmann, 1 ♂, 1 orange ♀; Mountains Tjian-mu, 21. VIII. 1960, leg. Steinmann, 4 ♂, 2 ♀, 1 orange ♀.

The males of this species are pruinose-white when alive. They were collected near Hangchow, along a lotuscovered, bamboo-girdled, slowly flowing brook passing through the plains. Swarms were observed in the Tjianmu mountains, above the shallow (50 cm) standing waterdrains of rice-fields (oral communication, Dr. H. Steinmann).

Ischnura senegalensis Ramb.

Hangchow, 15–20. VIII. 1960, leg. Steinmann, 1 ♀, 1 orange ♀; Mountains Tjian-mu, 21. VIII. 1960, leg. Steinmann, 1 ♂, 5 orange ♀.

Ischnura asiatica Brauer

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. Székessy and Yang, 3 orange ♀.

Ischnura elegans Lind.

Peking, 8–10. VIII. 1960, leg. Steinmann, 1 ♂.

When compared with European specimens, the following differences may be found: the male from China is somewhat smaller (abdomen 22 mm, hind wing 14 mm) than Central European ones (abdomen 27 mm, hind wing 18 mm). The inferior anal appendages of the Chineese specimen is somewhat

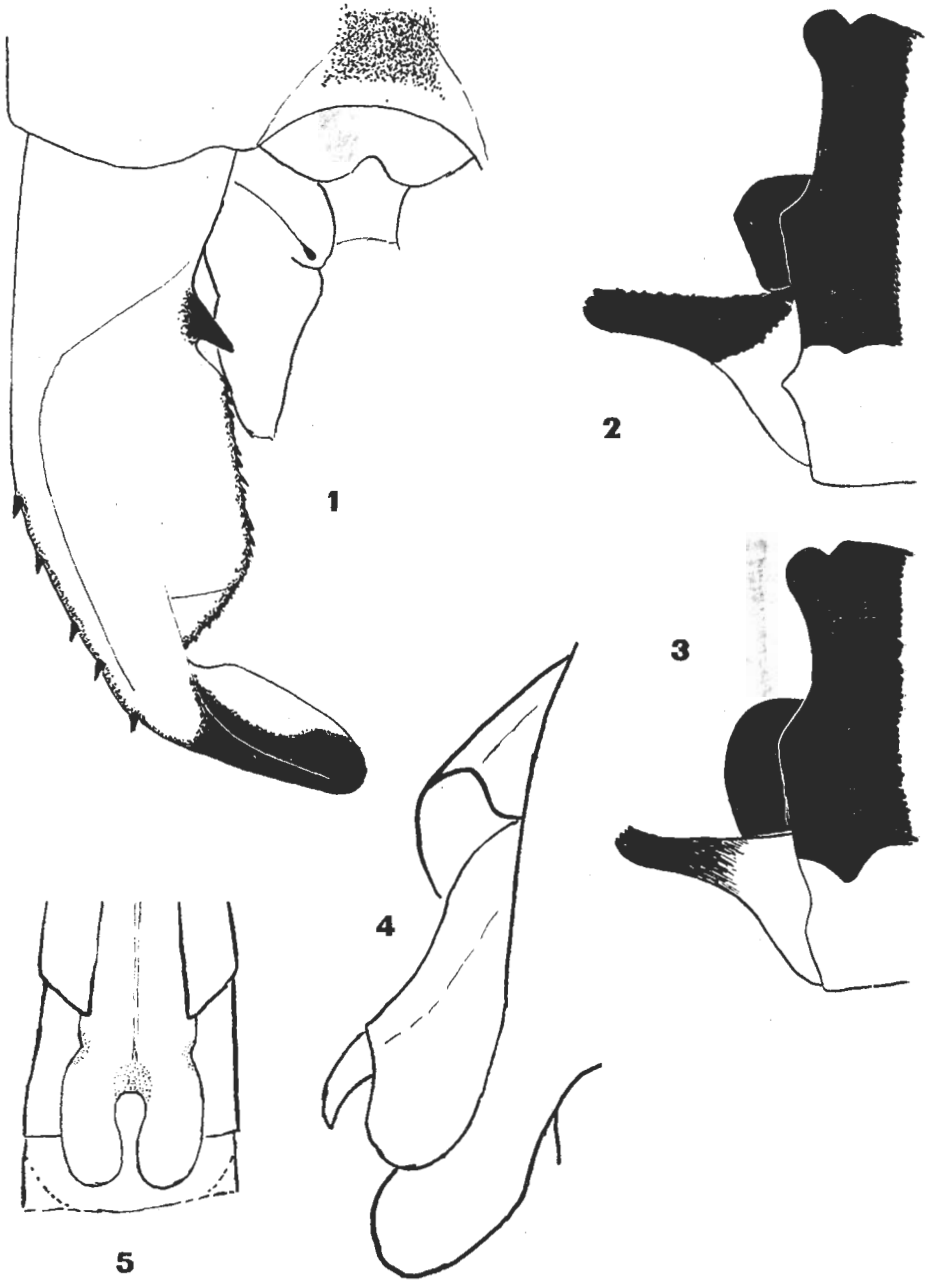

Fig. 1–5. 1: *Lestes umbrina* SELYS (?), ♂ superior anal appendage, dorsal view. — 2: End of abdomen of *Ischnura elegans* LIND. ♂ from Hungary, lateral view. — 3: End of abdomen of *Ischnura elegans* LIND. ♂ from China, lateral view. — 4: Secondary genitalia of *Sympetrum eroticum eroticum* SELYS ♂, lateral view. — 5: Same ♀, ovipositor, ventral view

shorter, the superior wider, and, from a lateral view, they do not protrude at the end, but are rounded off (Figs. 2–3). The prolongation on the hind margin of the pronotum is narrower and somewhat longer, its end more clearly defined than on European specimens. The black stripe on the humeral and medial sutures of the synthorax is narrower, and there is somewhat less black on the legs. The black colouring of the abdominal segments covers the lateral region to a lesser extent (especially on segment 7). Likewise, there is less black on the inferior anal appendages, while the superior ones are rather browner and not black.

Pseudagrion microcephalum RAMB.

Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 1 ♂.

Ceriagrion erubescens SELYS

Formosa, Takao, VI. 1909, leg. SAUTER, 2 ♂; Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 2 ♂, 2 ♀; Shanghai, 14. VIII. 1960, leg. STEINMANN, 6 ♂, 1 ♀.

There is a great variation in the size of above specimens: abdomen 26–33 mm, hind wing 17–21 mm.

Agrion barbatum NEED. (= *Coenagrion barbatum*)

Peking, 8–10. VIII. 1960, leg. STEINMANN, 1 ♂.

Slightly smaller than the specimen described by NEEDHAM (1930*a*): abdomen 25.5 mm (instead of 27 mm), hind wing 20 mm (instead of 21 mm).

Superfamilia: **Calopterygoidea (= Agrioidea)**

Familia: Chlorocyphidae

Rhinocypha perforata PERCH.

Formosa, Polisha, VIII. 1908, leg. SAUTER, 3 ♂.

Familia: Epallagidae

Pseudophaea formosa SELYS

Formosa, Kanshirei, 9–17. V. 1908, leg. SAUTER, 2 ♂; Polisha, VIII. 1908, leg. SAUTER, 4 ♂.

Pseudophaea decorata SELYS

Kweitschou, leg. PLASON, 1 ♂.

Familia: Calopterygidae (= Agriidae)

Vestalis smaragdina velata Ris

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. Székessy and Yang, 1 ♂; Mountains Tjian-mu, 21. VIII. 1960, leg. Steinmann, 1 ♂.

Matrona basilaris japonica Foerst.

China, leg. Xanthus, 2 ♂, 4 ♀; Formosa, Kosempo, V. 1908, leg. Sauter, 2 ♂; Lake Candidus, 15–31. X. 1907, leg. Sauter, 2 ♂, 1 ♀; Taihanroku, 2–14. VI. 1908, leg. Sauter, 1 ♂; Polisha, XI. 1907, leg. Sauter, 1 ♀; Hangchow, 15–20. VIII. 1960, leg. Steinmann, 2 ♀; Mountains Tjian-mu, 21. VIII. 1960, leg. Steinmann, 3 ♂, 3 ♀; Siny-fon-in, leg. Schonen, 3 ♂; Tsingtau, 1 ♂, 1 ♀.

The depth of the alar colour as well as the uniformity of the coating show great variation. From a deep dark brown to a transparent medium brown all hues occur. On the typical specimens, the colouring of the wing is uniformly covered; this feature, however, is not always constant on the basal portion and on the top of the wing, nor on the postero-external regions, to wit: these portions may be light-coloured, especially about the apex of the wing occur quite light-coloured cells among the uniform brown veins. The costal edge, as well as the area reaching as far as the middle of the wing between the level of the nodus and that of the pterostigma (the level of R_3 and its sectors), always remain black. The colouring is the deepest always in this area when the parts described above are lighter in colour. The pterostigma of one of the females is especially small.

In Hangchow, they were swarming in masses over a 3–4 m wide brook (passing through a thick forest) with a deep, muddy bottom and both its under- and above-water zones were overgrown by thick vegetation. The specimens were sitting on the plants and on tree-leaves overhanging the water (oral communication, Dr. H. Steinmann).

Psodolesmus dorothea Williams

Formosa, Kosempo, I. 1908, leg. Sauter, 1 ♂; II. 1908, leg. Sauter, 1 ♂; Polisha, VIII. 1908, leg. Sauter, 1 ♂.

Subordo: ANISOPTERA

Superfamilia: **Aeschnoidea**

Familia: Gomphidae

Ictinus rapax Ramb.

Formosa, Koronton, 1–15. IX. 1907, leg. Sauter, 1 ♂.

Ictinus clavatus Fabr.

China, leg. Széchenyi, 1 ♀.

Familia: Aeschnidae

Anax goliathus FRAS.

Peking–Badeling, 7. VIII. 1960, leg. STEINMANN, 1 ♂.

Superfamilia: **Libelluloidea**

Familia: Corduliidae

Azuma elegans BRAUER

China, leg. Siu, 5 ♂, 5 ♀; Hangchow, 15–20. VIII. 1960, 800–1000 m, leg. STEINMANN, 1 ♀.

Familia: Libellulidae

Orthetrum albistylum speciosum UHLER

Hangchow, 15–20. VIII. 1960, leg. STEINMANN, 1 ♀; Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 1 ♂; Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 1200–1500 m, 1♂.

Orthetrum lineostigma SELYS

Peking, 8–10. VIII. 1960, leg. STEINMANN, 3 ♂, 1 ♀.

Orthetrum sabinum DRURY

Formosa, Koronton, 1–15. IX. 1907, leg. SAUTER, 1 ♂.

Orthetrum triangulare melania SELYS

Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 2 ♂.

Orthetrum chrysis SELYS (= *testaceum* BURM.)

Formosa, Koronton, 1–15. IX. 1907, leg. SAUTER, 1 ♂.

Crocothemis servilia DRURY

Formosa, Kagi, 25. VIII. — 10. IX. 1907, leg. SAUTER, 3 ♂; Taihanroku, 16–27. VII. 1908, leg. SAUTER, 2 ♂, 2 ♀; Takao, 9. IX. 1907, leg. SAUTER, 1 ♂.

According to BARTENEF (1919), the normal number of antenodals in this species is $9^1/_2$ to $10^1/_2$, while in my specimens they are $12–13^1/_2$.

Brachythemis contaminata FABR.

Formosa, Kagi, 25. VII. — 10. IX. 1907, leg. SAUTER, 2 ♂; Hangchow, 15–20. VIII. 1960, leg. STEINMANN, 3 ♂, 3 ♀; Peking, 8–10. VIII. 1960, leg. STEINMANN, 1 ♂.

According to BARTENEF (1919), the triangle of the fore wing is generally three-celled, this being true for the majority of the specimens. However, a unit

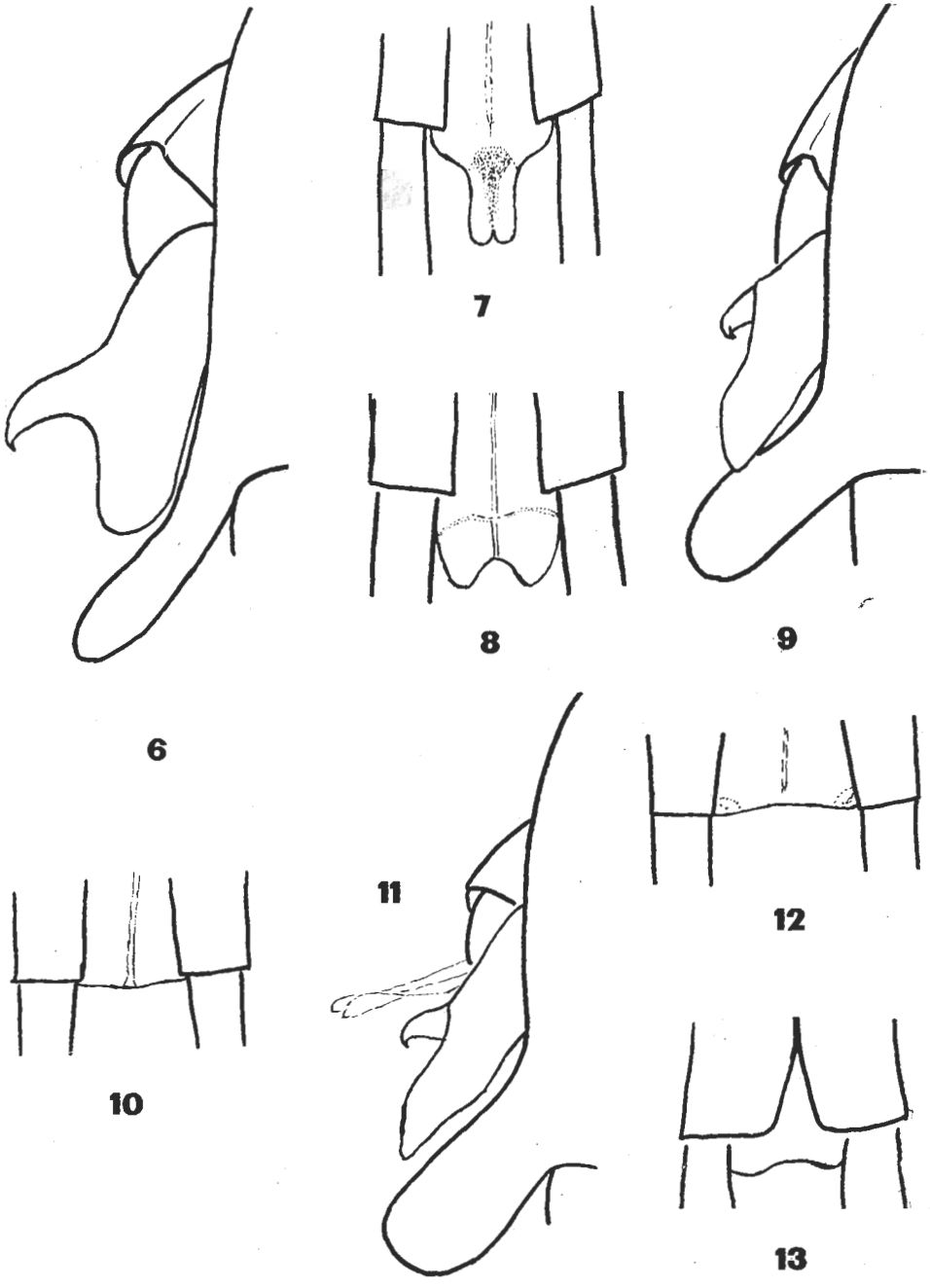

Fig. 6–13. 6: Secondary genitalia of *Sympetrum kunkeli* SELYS ♂, lateral view. — 7: Same ♀, ovipositor, ventral view. — 8: Ovipositor of *Sympetrum baccha* SELYS ♀, ventral view. — 9: Secondary genitalia of *Sympetrum darwinianum* SELYS ♂, lateral view, — 10: Same ♀, ovipositor, ventral view. — 11: Secondary genitalia of *Sympetrum infuscatum* SELYS ♂, lateral view. — 12: Same ♀, ovipositor, ventral view. — 13: Ovipositor of *Sympetrum uniforme* SELYS ♀, ventral view

— in the triangle of which there exist but one vein, thus same containing only two cells — may occur. The wing of the females — excepting the basal portion — is completely hyaline and only the costal field is faintly tinged.

It is only on the males that the golden-yellow wing mark — typical of the species — occurs, and in all probability it varies with age, since on the single young male in the collection any colouring is present (though more forcibly than on the females) only about the basis of the wing and around the nodus.

Sympetrum eroticum eroticum SELYS (Figs. 4–5)

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 3 ♂, 2 ♀; Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 5 ♂, 4 ♀; Peking-Badeling, 7. VIII. 1960, leg. STEINMANN, 2 ♂; Shanghai, 14. VIII. 1960, leg. STEINMANN, 1 ♂, 1 ♀.

Sympetrum eroticum eroticum var. *fastigiata* SELYS

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 1 ♀.

Sympetrum kunkeli SELYS (Figs. 6–7)

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 1 ♂, 1 ♀.

Sympetrum baccha SELYS (Fig. 8)

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 1 ♀.

Sympetrum darwinianum SELYS (Figs. 9–10.)

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 4 ♂, 3 ♀; Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 1 ♂.

Sympetrum infuscatum SELYS (Figs. 11–12)

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 4 ♂, 1 ♀.

Sympetrum uniforme SELYS (Fig. 13)

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 1 ♀.

Acisoma panorpoides panorpoides RAMB.

Formosa, Takao, 1908, leg. SAUTER, 1 ♂.

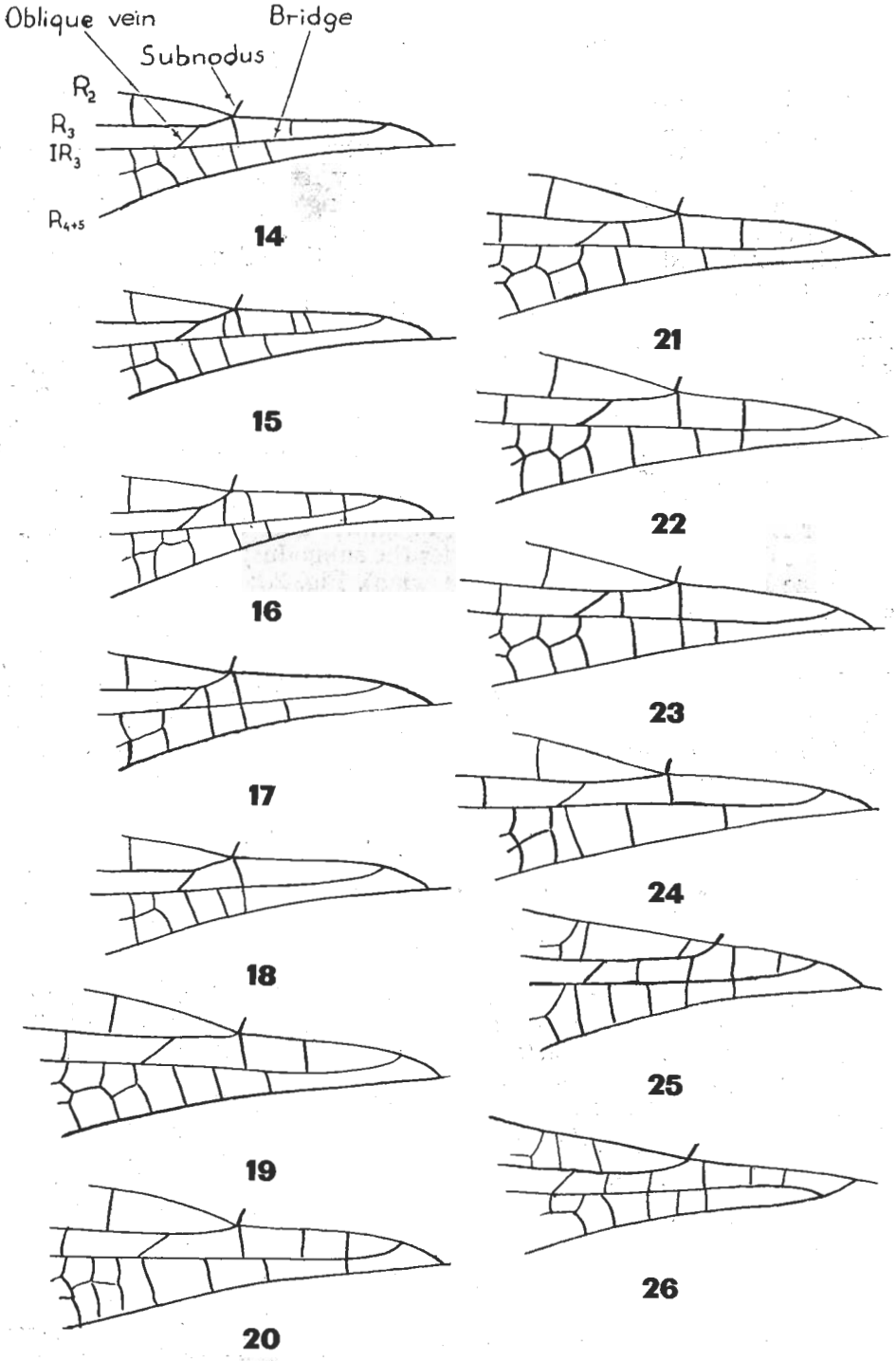

Fig. 14–26. Abnormities of the veins in the bridge region of *Pseudothemis zonata* Brauer

Pseudothemis zonata BRAUER

Hangchow, 15–20. VIII. 1960, leg. STEINMANN, 2 ♂, 1 ♀; Kiochao, 1 ♀; Sin-y-fon-in, leg. SCHONEN 1 ♂.

It is typical of the genus that there are extra bridge-cross-veins present; this, however, though a generic feature, is by far not as constant as may be expected, since their numbers may be varying on different specimens, or even on the different wings of the same specimen.

On the examined 10 fore and 10 hind wings, the following formations, or rather, abnormities have occured:

F o r e w i n g: Fig. 14: normal (6 wings). Fig. 15: bridge cross-veins normal in number and location under the bridge, above same + 2 (on 1 wing). Fig 16: under the bridge + 1, over same + 2 cross-veins (on 1 wing). Fig. 17: over the bridge: the cross-vein apicad from the subnodus is absent; basad from the subnodus there appears an abnormal cross-vein under the bridge the number of cross-veins is normal (on 1 wing). Fig. 18: the extra bridge cross-veins absent (on 1 wing).

H i n d w i n g: Fig. 19: normal (on 3 wings). Fig. 20: over the bridge + 1, under it + 1 cross-vein (on 1 wing). Fig. 21: over the bridge + 1 cross-vein (apically from the cross-vein under the subnodus) (on 1 wing). Fig. 22: under the bridge +1 cross-vein (on 1 wing). Fig. 23: over the bridge: the cross-vein apicad from the subnodus is absent; basad from the subnodus there appears an abnormal cross-vein. Under the bridge + 1 cross-vein (on 1 wing). Fig. 24: the extra bridge cross-vein absent (on 1 wing). Fig. 25: the origin of R_3 shifted basad by one cell (on 1 wing). Fig. 26: the downward course of veins R_2 and R_{4+5} altered, i. e.: the former became straight, while the latter became curved. IR_3 does not descend from R_3 but from R_{4+5}, and the origin of R_3 is shifted basad by one cell (on 1 wing).

Rhyothemis variegata L. and JOH.

Formosa, Polisha, VIII. 1908, leg. SAUTER, 1 ♂, 1 ♀.

Pantala flavescens FABR.

Mountains Lushan (Prov. Kiangsi), 2–6. IX. 1959, leg. SZÉKESSY and YANG, 1 ♀; Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 3 ♀; Peking-Badeling, 7. VIII. 1960, leg. STEINMANN, 4 ♂, 2 ♀; Shanghai, 14. VIII. 1960, leg. STEINMANN, 1 ♀.

Dr. H. STEINMANN, has observed a gradation in the Tjian-mu mountains. The insects were swarming in big masses and in a formation of a hovering ball, and though a lot of animals were present, they were difficult to capture. The path was leading through a close forest, with a brook passing by. He bas observed this species in numbers also elsewhere, but not in such masses.

Tramea chinensis DE GEER

Formosa, Polisha, VIII. 1908, leg. SAUTER, 1 ♂; Mountains Tjian-mu, 21. VIII. 1960, leg. STEINMANN, 1 ♂. Collected in a bomboo-forest situated at an altitude of 1000–1200 m.

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