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Andrzej BOHDANOWICZ, Stefania HĘCIAK

Redescription of two species of *Salticidae* (*Aranei*) from China

[With 19 Text-figures]

The increasing knowledge of Central and East Asian fauna of spiders requires returning to types of species described earlier, when the taxonomic problems of that fauna seemed much simpler than they are today. The discovery of a number of new *Synagelides* STRAND in BÖSENBERG and STRAND, 1906 and *Bianor* PECKHAM, 1886 species directed interest towards two species described by SCHENKEL (1963) (but examined by him in 1940-ties), studied in details in this paper.

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SCHENKEL has described the genus *Tagoria* basing on 1 ♂ and 1 ♀ of a single species *Tagoria cavaleriei* SCHENKEL, 1963, which is characterised by an exceptional structure of male copulatory organ and conspicuous structure of female epigyne, both unknown in other *Salticidae*. The comparative study has shown a similarity of ♀ *Tagoria* to the genus *Synagelides* STRAND in BÖSENBERG et STRAND, 1906, described earlier from Japan on a few ♀♀ with no ♂♂ available. The studies of PRÓSZYŃSKI (1979) have shown that ♂♂ *Synagelides* have palpus very similar to that of *Tagoria*. That gave a reason for a supposition that both *Tagoria* and *Synagelides* are really the closely related species of the same genus. The relationship is further supported by general shape, pigmentation and spines arrangement on legs I. However, external appearance of epigyne of *Tagoria cavaleriei* and *Synagelides* are much different, although the homology is noticeable. This homology between females becomes more evident

for interpretation after some newly discovered specimens of other species of *Synagelides* (BOHDANOWICZ 1978) have been examined. All of those species are characterized by general similarity of ♂♂ in palpus structure with some differences in details and in external appearance. For that reason, after carrying the detailed research, we decided to synonymise the names *Synagelides* STRAND in BÖSENBERG et STRAND, 1906 and *Tagoria* SCHENKEL, 1963.

At present 7 species in the genus *Synagelides* are known. Unfortunately only a few of them are known of both sexes, for majority of these species only males or females are described.

The geographical range of the genus *Synagelides* is Oriental-East Palaearctic. Two species are known from the Eastern USSR (the Primore) *S. zhilcovae* PRÓSZYŃSKI, 1979 and *S. agoriformis* STRAND in BÖSENBERG et STRAND, 1906 (the second species appears also in Korea and Japan). There are two newly described species from Bhutan (BOHDANOWICZ 1978) as well as two further from Japan and Nepal (BOHDANOWICZ, 1979) and a few, undescribed yet, in Nepal.

Knowing only single specimens possessing strikingly specific features, SCHENKEL could not forecast problems of separation further species and characters relevant for that purpose. That is why the redescription is necessary.

Synagelides cavaleriei (SCHENKEL, 1963) **comb. n.**

Material: 1 ♀ lectotype (new), 1 ♂ paralectotype (new) — *Tagoria cavaleriei* SCHENKEL, 1963 [attention: there is the name *Agorius* written on the original label, apparently changed into *Tagoria* latter on in the SCHENKEL's text], [South China], "Anschun fu, 1912". Coll. MNHN — Paris.

General note: the specimens are in a rather bad condition now — with coloration partly faded, soft tissues partly shrunken and both pedipalps of the male missing.

Redescription of female (lectotype new)

Dorsal aspect. Cephalothorax yellow-fawn, eyes surrounding intense black. Eye field surface pitted and slightly glossy, covered with short indistinct setae. Thorax bald, with dark indistinct patches. A row of scarce hairs above eyes I.

Length of carapace 1.62, length of eye field 0.95, width of eye field I 0.97, width of eye field III 1.07.

Legs I pale yellow, with dark streak on ventral surface of patella and distinct dark spot on ventral surface of femur distally. Two strong, longitudinally arranged spines on prolateral surface of metatarsus I, reaching almost the distal end of tarsus, on its retrolateral surface one similar spine. On tibia I similarly arranged two rows (4+4) of strong spines in four pairs. The proximal spine set at one third length of segment from its proximal end, all spines reaching the end of the segment (as in ♂, Fig. 8).

Similar spines occur on leg I of other known species of *Synagelides* but usually in different number and position (*S. wuermlii* BOHDANOWICZ, 1978, and *S. annae* BOHDANOWICZ, 1979: metatarsus 2+2, tibia 4+4; *S. wangdicus* BOHDANOWICZ, 1978: 2+2 and 5+5; *S. agoriformis* STRAND in BÖS. et STR., 1906: 2+2 and 6+5).

Legs III are missing, legs II and IV pale yellow, legs IV with dark longitudinal streaks. On retrolateral surfaces of metatarsus, tibia, patella and femur, size of streaks on leg II successively decreases (long and distinct streak only on metatarsus).

Length of segments of legs: I 0.32+0.37+0.90+0.47+1.02; II 0.27+0.47+0.55+0.40+0.72; III — missing; IV tarsus damaged, 0.85+0.90+0.47+1.00.

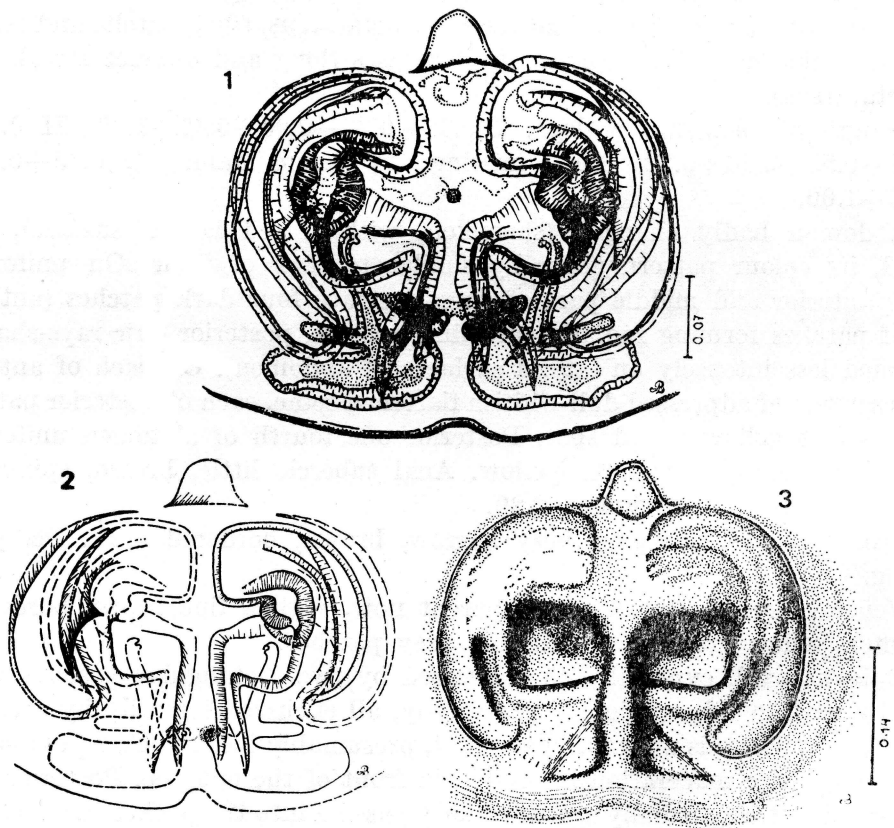
Abdomen badly changed (shrunken, with teared lateral surface), egg-shaped, its colour pattern generally similar to that of male. On uniformly yellow anterior and middle part of dorsal surface four dark patches (anterior pair of patches forming radially spreading sectors, posterior pair rays-shaped, continued less intensely on lateral surfaces of abdomen). On each of anterior patches a tuft of adpressed dull-whitish flattened setae, each of posterior patches with distinct yellow round spot. Posterior one fourth of abdomen uniformly dark brown. Lateral surfaces yellow. Anal tubercle little, brown, spinnerets pale-grey. Length of abdomen 2.20.

Frontal aspect. Clypeus very narrow, brown, bordered dark. Pedipalps missing.

Ventral aspect. Sternum transparent now, with a fine brown bordering. Abdomen yellow grey with indistinct grey patches.

Epigyne oval, externally characterized by two rectangular grooves separated by median ridge widening posteriorly, all encircled laterally by arcuated rims (Fig. 3). There is a medially situated, presumably blind pocket (its opening visible only after maceration in KOH), in front of the epigyne. Posterior ends of lateral rims turn medially and anteriorly passing into the pocket-like openings on both sides, forming there a two-edge gutter (seen only after maceration, Fig. 1). Those presumable copulatory openings lead to semierescent-like broad canals twisted medially and rectangular at their bottom, which then turn suddenly laterally into narrow, spherical and sclerotized, thick-walled bags situated near copulatory openings. Those parts of canals could be seen through semitransparent plate of epigyne. They open somewhere about the bottom of each of the grooves and their further way to spermathecae is not clear from that point. This discontinuity of canals is difficult to explain, and is complicated by the fact that there are 2 ways leading into each of spermathecae. First way, being presumably the proper distal part of copulatory canals is distinctly seen on each side, from its proximal opening somewhere about the bottom of each groove (twisted slightly medially at its anterior end) to its opening into each spermatheca, where it forms additional bag-like branch. Besides described

canals and chimney-like openings of spermathecae to the fertilization duct, each one of the long, boot-shaped oval spermathecae open very widely into an another canal entering the grooves, or, what is not clear, this "canal" is composed of two separate internal ridges on the plate. The author's interpretation of canals course is shown on the diagram (Fig. 2).



Figs. 1-3. *Synagelides cavaleriei* (SCHENKEL, 1963) comb. n. Lectotype of *Tagoria cavaleriei* SCHENKEL, 1963, ♀ (original drawings by A. BOHDANOWICZ): 1 - epigyne after maceration, 2 - diagram explaining presumable continuity of external (left side of the diagram) and internal structures of epigyne, 3 - epigynum.

The comparison with similar diagrams made for other *Synagelides* proves their relationship. The common features: in proximal part of copulatory canal first section is broad and transparent, second section is strongly sclerotised, the middle part is difficult to interpret (it might be a thin-walled bladder into which enters proximal part and from which goes out the distal part), distal part of canal, connected with spermatheca and having lateral branch, is very similar and characteristic in all species. Internal structure of epigyne shows close relationships with *S. cavaleriei*, *S. wuermlii* and *S. wangdicus*, in *S. annae* the proximal canal course is considerably modified but the division into both

sections remains distinguishable. *S. agoriformis* differs in external structure of epigyne, in position of copulatory openings, "third" canal being unperceivable, but can be presumably homologized with these.

Redescription of male (paralectotype new)

Dorsal aspect. Cephalothorax yellow-fawn, eyes surrounding intense black (Fig. 4). Eye field pitted and dull, covered with short indistinct setae. Thorax bald with dark, inconspicuous patches. A distinct row of long and fine, gold-gleaming hairs above eyes I.

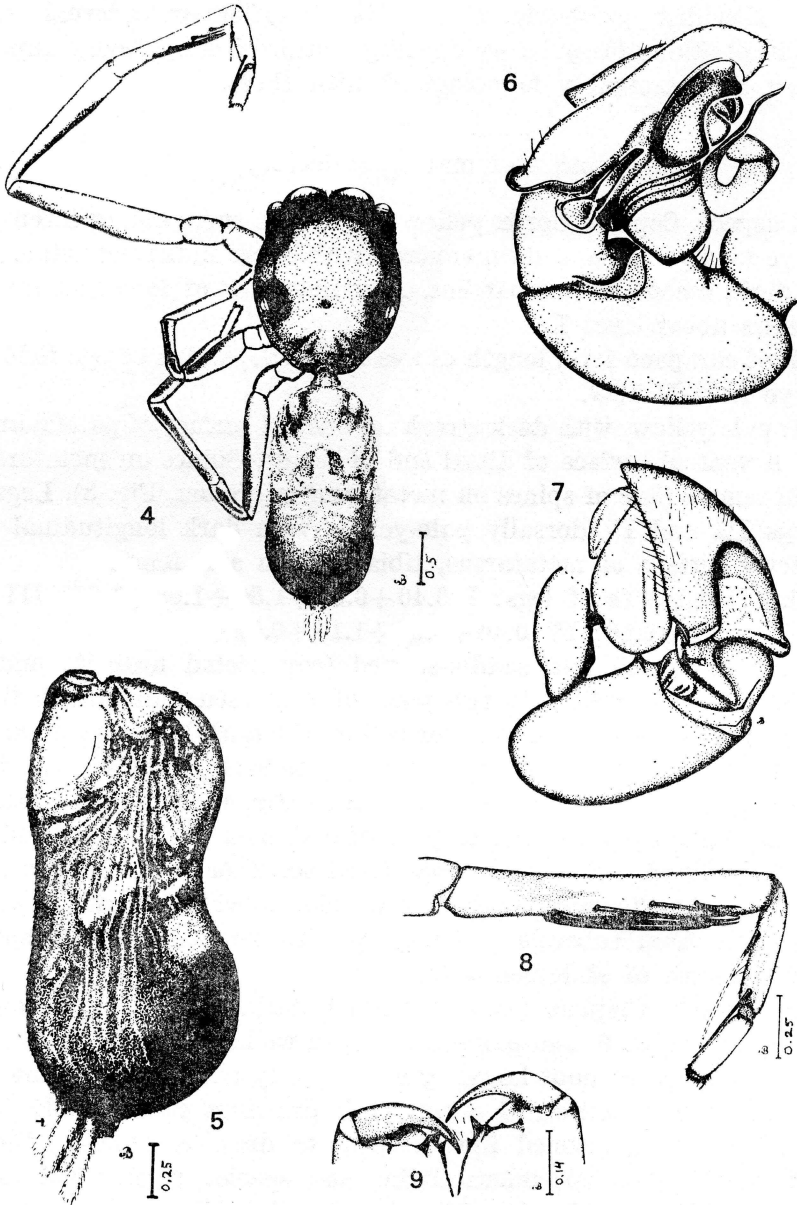
Length of carapace 1.70, length of eye field 0.97, width of eye field I 1.15, width of eye field II 1.32.

Legs I: pale yellow, with dark streak on ventral surface of patella and little dark spot on ventral surface of distal end of femur. Spines on metatarsus and tibia I as in female (one of spines on metatarsus is broken, Fig. 8). Legs II are missing, legs III and IV dorsally pale-yellow with dark longitudinal streaks on retrolateral surface of metatarsus, tibia, patella and femur.

Length of segments of legs: I $0.40 + 0.57 + 1.30 + 1.63 + 1.75$; III $0.32 + 0.70 + 0.65 + 0.40 + 0.80$; IV $0.40 + 0.97 + 1.15 + 0.62 + 1.15$.

Abdomen elongated and saddle-shaped (constricted near its midlength) (Fig. 5), dorsally bald with only two pairs of adpressed dull-whitish flattened setae: one pair on both sides of anterior end on the dark-brown ground. Second pair of whitish patches behind the first pair on the background of dark diagonal belts. Yellow-grey outline on abdomen shown on Fig. 4, reminds a herring-bone pattern in its central part. Posterior part of abdomen dark-brown and glossy. Lateral surfaces lined with dark stripes fused together backwards into a uniform dark area. At the mid-length of each side a whitish stripe lengthening the dorsal spot. Anal tubercle yellow-grey with two dark spots, spinnerets pale yellow. Length of abdomen 2.65.

Frontal aspect. Clypeus fawn, bordered dark. Chelicerae yellow, their dentition shown on Fig. 9. Pedipalps missing, so we have to rely on the original SCHENKEL's drawings without knowing how exactly they do represent the real structures. The interpretation of SCHENKEL's drawings calls usually for some prudence. Although mentioned figures seem to draw confidence, they need to be verified with other specimens of the same species, if they will be caught in future. To facilitate further identification, I enclose diagrams of SCHENKEL's (1963) original Figs. 227a and b (Figs. 6 and 7), which resemble structures known from other related species. They are characterized by much enlarged and swollen patella, connected at the right angle near its half-length with much smaller femur. On prolateral side of femur a distinct tooth. Two tibial apophyses: the proximal, shorter and stronger, articulating with a groove and a prominent process on patella, the distal apophysis chisel-shaped and hidden in the retrolateral alveolus of cymbium. Bulbus with two coils of canal



Figs. 4-9. *Synagelides cavaleriei* (SCHENKEL, 1963) comb. n. Paralectotype of *Tagoria cavaleriei* SCHENKEL, 1963, ♂: 4 - dorsal view of the spider, 5 - lateral view of abdomen, 6 - retrolateral view of palpus, 7 - prolateral view of palpus, 8 - retrolateral view of left leg I, 9 - posterior view of chelicerae (4-5, 8-9 - original drawings by A. BOHDANOWICZ, 6-7 - diagrams based on SCHENKEL's drawings No 227 a, b).

and apical husky apophysis on its retrolateral side. Embolus much broadened at its base, its apical half flattened and slightly corrugate. Dorsal side of cymbium with fork-like deep proximal incision and depression near to the retrolateral side. Its prolateral margin form a narrow gutter.

We can conclude from SCHENKEL's figures that male copulatory organ is closely homologous with the same structure in other species of *Synagelides*. General character of palpus, especially: proportions of patella and femur, the tooth on the latter, as well as the proximal tibial apophysis, two coiles of bulbus canal and its apical apophysis are common for all males (Figs. 6, 7). Shape of basal part of embolus is closest to that of *Synagelides nishikawai* BOHDANOWICZ, 1900, but chisel-shaped distal tibial apophysis occurs also only in *S. annae*.

Ventral aspect. Sternum transparent now with a fine brown bordering and some gray pigment backwards. Abdomen: epigastrium yellow with dark patches, the rest of abdomen greyish-brown, with four longitudinal rows of yellow spots.

Bianor hotingchiehi SCHENKEL, 1963

Material: 1 ♂ "*Bianor hotingchiehi* SCHENKEL, [holo-] type, [China, Province Hupei] Wuchang, [leg. HO TING CHIEH, 1937], SCHENKEL det. 1946". Coll. E. SCHENKEL, MNHN — Paris.

Redescription of male

Dorsal aspect. Cephalothorax yellow-brownish to brown, surroundings of eyes darker with a violet gleam. Eye field yellowish.

There are sparse brown setae and long white scales, the latter forming also broad white spots beneath eyes III and another pair near fovea (Fig. 10).

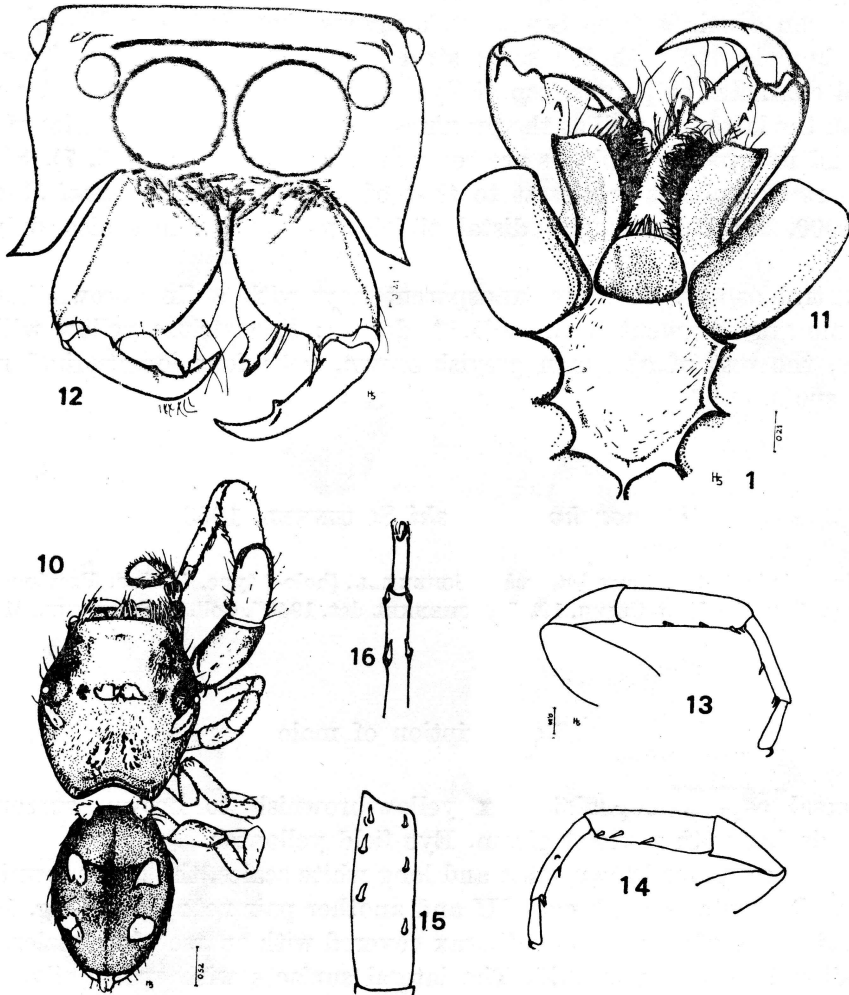
Posterior surface of cephalothorax covered with sparse white scales, except its median line, which is bald. The lateral surfaces with sparse silver scales.

Length of cephalothorax 2.12, length of eye field 1.28, width of eye field I 1.48, width of eye field III 2.05.

Abdomen dark brown, covered with 3 pairs of white spots consisting of white scales, there is also another pair of small white spots just near spinnerets, located more laterally. Length of abdomen 2.09.

Legs. I pair robust and longer than other pairs, covered with setae and scales forming a characteristic pattern. Femur I brown with dark longitudinal streak on prolateral surface, other segments brown, getting gradually lighter towards tarsus. Covered with brown and white setae and some sparse white scales. The details of setae, scales and spines are shown on Figs. 13–16.

Legs II-IV smaller, their coloration is changed owing to bad preservation, with sparse white scales. There are streaks of white scales on dorsal and retrolateral surfaces of femora II-IV.



Figs. 10-16. *Bianor hotingchiehi* SCHENKEL, 1963. 10 - whole specimen, dorsal view, 11 - chelicerae and sternum, 12 - cephalothorax, frontal view, 13 - leg I - prolateral surface, 14 - leg I - retrolateral surface, 15 - left tibia, ventral view, 16 - tarsus and metatarsus I, ventral view, (drawn by S. HĘCIAK).

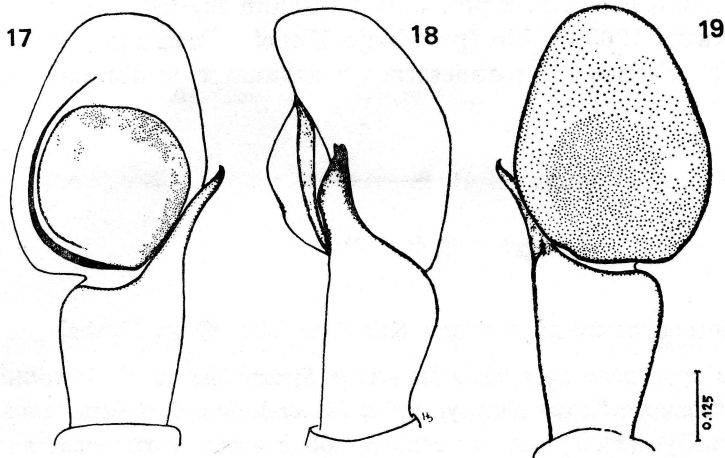
Length of segments of legs: I $0.66 + 1.31 + 1.69 + 1.31 + 1.92$; II $0.41 + 0.66 + 0.72 + 0.77 + 1.23$; III $0.41 + 0.77 + 0.66 + 0.82 + 1.41$; IV $0.43 + 0.82 + 0.79 + 0.72 + 1.33$.

Frontal aspect. Eyes I surrounded with silver scales, distinctly longer around median eyes. Clypeus very narrow covered with dense white scales

and setae overhanging upper parts of chelicerae, some white scales also on chelicerae. The appearance of chelicerae is shown on Fig. 12. Pedipalps yellow with femur semicrescently bent. There are tufts of long white scales apically on dorsal surfaces of femur and patella (Fig. 10).

Palpal organ. Figs. 17-19.

Ventral aspect. Chelicerae brownish-yellow with large tooth. Maxillary plates and labium pale brown, paler apically, their shape is shown on Fig. 13. Sternum brown, with black margins, covered with long white scales. Coxae brownish-yellow to yellow.



Figs. 17-19. *Bianor hotingchiehi* SCHENKEL, 1963. Palpal organ, ventral, lateral and dorsal views (drawn by S. HĘCIAK).

Ventral surface of abdomen brown with lateral margins darker, covered with long white scales arranged into transversal rows.

Zakład Zoologii IBS,
WSRP, Prusa 12, Siedlce

REFERENCES

- BOHDANOWICZ A. 1978. *Araneae*; Fam. *Salticidae* Genus *Synagelides*. Ergebnisse der Bhutan-Expedition 1972 des Naturhistorischen Museums in Basel. Ent. bas., Basel, 3, 8 pp., 11 ff.
- BOHDANOWICZ A. Genus *Synagelides*, BÖSENBERG et STRAND, 1906 in Nepal (*Salticidae*, *Aranei*). Senckenbergiana, Frankfurt a M. (in print).
- BOHDANOWICZ A. 1979. Descriptions of Spiders of the genus *Synagelides* (*Araneae: Salticidae*) from Japan and Nepal. Acta Arachnol., 25 (2), 10 pp., 25 tt.

- PRÓSZYŃSKI J. 1979 Systematic studies on East Palaearctic *Salticidae*. III. Remarks on *Salticidae* of the USSR. Ann. Zool., Warszawa, **34**: 299–369, 324 ff.
- SCHENKEL E. 1963. Östasiatische Spinnen aus dem Muséum d'Histoire Naturelle de Paris. Mém. Mus. Hist. nat. A, Paris, **25**: 289–481, 263 ff.

STRESZCZENIE

[Tytuł: Redeskrpcja dwóch gatunków *Salticidae* (*Aranei*) z Chin]

W opracowaniu podano redeskrypcję gatunków *Synagelides cavaleriei* (SCHENKEL, 1963) comb. n. z pn. Chin (Anschun fu, 1912) oraz *Bianor hotingchiehi* SCHENKEL, 1963 z Chin (prowincja Hupei, Wuchang, 1937), jak również uwagi o pokrewieństwie i rozmieszczeniu gatunków w obrębie rodzaju *Synagelides*.

РЕЗЮМЕ

[Заглавие: Переописание двух видов *Salticidae* (*Aranei*) из Китая]

В работе приведено переописание видов *Synagelides cavaleriei* (SCHENKEL, 1963), comb. n. из северного Китая (Аньчун фу) и *Bianor hotingchiehi* SCHENKEL, 1963 из провинции Хупей (Вучанг), а также замечания о родственных взаимосвязях видов в пределах рода *Synagelides*.

Redaktor pracy — mgr W. Czechowski

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