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Notes on systematics of *Salticidae* (*Arachnida*, *Aranei*). I-VI

[With 51 figures in the text]

I. Suggestion on more natural subdivision of the *Salticidae* family

It is apparent that the present subdivision of the family *Salticidae* into subfamilies is highly artificial and unsatisfactory. It was invented by SIMON (1897) and subsequently modified by PETRUNKEVITCH (1928, 1939) as a practical method of segregation of taxa in want of any better system. The disadvantages of the system were well understood by both SIMON and PETRUNKEVITCH as well as by any arachnologist concerned with the family *Salticidae*. But invention of any better classification system depends on revision of about 4000 species grouped into 400 genera and 23 subfamilies and such a revision exceeds possibilities of any single arachnologist. It is a tedious task of finding out resemblances and common features of groups of species and genera, finding out differences between such "natural" groups.

While we cannot accomplish a satisfactory new system of *Salticidae* yet, we can start at least a search for relationships and resemblances among genera and to prepare gradually the basis for further revision of the family.

There is a general consent among arachnologists that the cheliceral dentition is a poor taxonomic criterion in *Salticidae*. It is an arbitrary superficial character and quite variable to that (PRÓSZYŃSKI, 1968a, b), so it should be better given up entirely or its usage should at least be restricted. Unfortunately we do not know yet a character which can replace cheliceral dentition in classification of all 400 genera. There is, however, a case of some 48 genera containing at present about 300 species which could be quite easily excluded from the "cheliceral dentition" system.

The common feature of the 48 genera is their ant-like appearance and traditionally they have been called ant-like *Salticidae* or *Salticidae formiciformes*, as M. E. GALIANO used to call them. Following the cheliceral dentition criterion they are distributed at present among three major groups of subfamilies (PETRUNKEVITCH, 1928, 1939; BONNET, 1959) and form 4 subfamilies or 10 groups of genera, and that in spite of some remarks of SIMON (op. cit.) and PETRUNKEVITCH (op. cit.) stressing striking resemblances between these subfamilies.

As I met across several cases of unreliability of cheliceral dentition, I am ready to ask the question whether the structure of small teeth is more important than the whole set of characters drawn from the general structure of the whole body of a spider. Assuming a hypothesis that the cheliceral dentition is less important in that case, we may further assume that all ant-like *Salticidae* do form a natural group — a uniform subfamily, which according to nomenclatory rules should be called *Synemosyninae* BANKS, 1892 — sensu novo. The type genus of the subfamily is *Synemosyna* HENTZ, 1846 and the type species of the genus — *Synemosyna formica* HENTZ, 1846.

The words “ant-like” characterize the subfamily quite well. The main character is the visibility from above of the pedicel and the posterior margin of the cephalothorax, which in these spiders are not hidden beneath the anterior part of abdomen. This is due to the shape of the abdomen and may be linked with internal structure as well. There is also some kind of constriction on the cephalothorax and abdomen, more or less pronounced. Chelicerae in males are usually elongated but I am not certain if it is true in all cases, in any way that character is not an exclusive property of the subfamily. The structure of genital organs is not sufficiently known and do not allow any generalisation yet.

To find out whether are there any features common for the whole subfamily in the proportions of the cephalothorax and the eye field, I have compared the below listed ratios calculated from the measurements scattered in the literature as well as from some measurements I made for the purpose. All together I have got these ratios for about one third of the total number of the ant-like *Salticidae* species — a number certainly insufficient for drawing the final conclusions, especially that number of specimens was rather very small, but allowing at least certain insight in the problem. The following ratios were calculated.

1. Ratio *a* — length of eye field in length of cephalothorax — the increasing value of the ratio shows proportional lengthening of the eye field.

2. Ratio *b* — width of eye field [on level of eyes] I in width of eye field [on level of eyes] III. Value 1.00 of the ratio indicates that eye field forms a regular rectangle, other values indicate the trapezium-shaped eye field narrowing either anteriorly (values smaller than 1.00) or posteriorly (values bigger than 1.00).

3. Ratio *c* — length of eye field in width of eye field [on level of eyes] I. Value 1.00 of the ratio indicates that eye field forms a regular square, other



values indicate that the eye field is elongated either longitudinally (values bigger than 1.00) or transversally (values smaller than 1.00) in relation to the main body axis.

4. Ratio h — height of the cephalothorax (measured up to the uppermost point of the eye III) in length of cephalothorax — increasing value of this ratio indicates increasing height of the cephalothorax.

Apart from my own measurements I benefited from the data given in a set of excellent papers of M. E. GALIANO (1963, 1964a, b, c, 1965, 1966a, b, 1967, 1969)¹ and I have also inferred some proportions from drawings in ROEWER (1965). The latter are gross approximations, but may be accepted for general comparison on assumption that the drawings were drawn with a help of some kind of an optical device (camera lucida, Abbe's apparatus) and reflect therefore the real proportions of the specimens drawn by ROEWER. Such an assumption permits to increase considerably the number of compared species and specimens.

The results of the comparison of 136 specimens of ant-like *Salticidae* classified into 102 species and 20 genera are shown on enclosed diagrams (fig.1). It appears that there is no common character in proportions of the cephalothorax permitting to separate ant-like *Salticidae* from the rest of the family. The variation range for each ratio in all compared specimens is almost equal to the approximate range of the same ratio within the whole family (I estimate that range on the basis of a series of preliminary measurements in various *Salticidae* — unpublished data).

The comparison indicates, however, that there are certain possibilities of separating the genera or groups of genera with help of these proportions. I speak about the possibilities and not about the actual separation because of shortage of the data which does not permit drawing of any firm conclusions. The number of specimens of each species is grossly insufficient and the number of species does not represent the whole genera. Therefore the real variation ranges may be different from those shown. Some ranges appear excessively wide (for instance ratio b in *Synemosyna*, *Martella* and *Myrmarachne*) and this may be either due to some measurement errors or to lumping together two or more different genera. To show how the properly studied variation range looks like I enclose, in the column 18 of the fig. 1, an example of the variation range in a statistically representative sample of one sex single species set of 53 specimens of a not ant-like Salticid — ♀♀ of *Sitticus rupicola* (C. L. KOCH). The variation range in such a sample is in several instances wider than similar range in whole genera as shown on fig. 1. That means that the range for these genera is very insufficiently known. It is therefore apparent that the drawing of final conclusions

¹ There is a certain difference in M. E. GALIANO's and mine methods of taking the measurements of the length of eye field and height of cephalothorax explained in GALIANO (1963) and PRÓSZYŃSKI (1968c). The resulting differences in values of ratios calculated from these measurements are so small that do not influence the general conclusions drawn from the comparison.

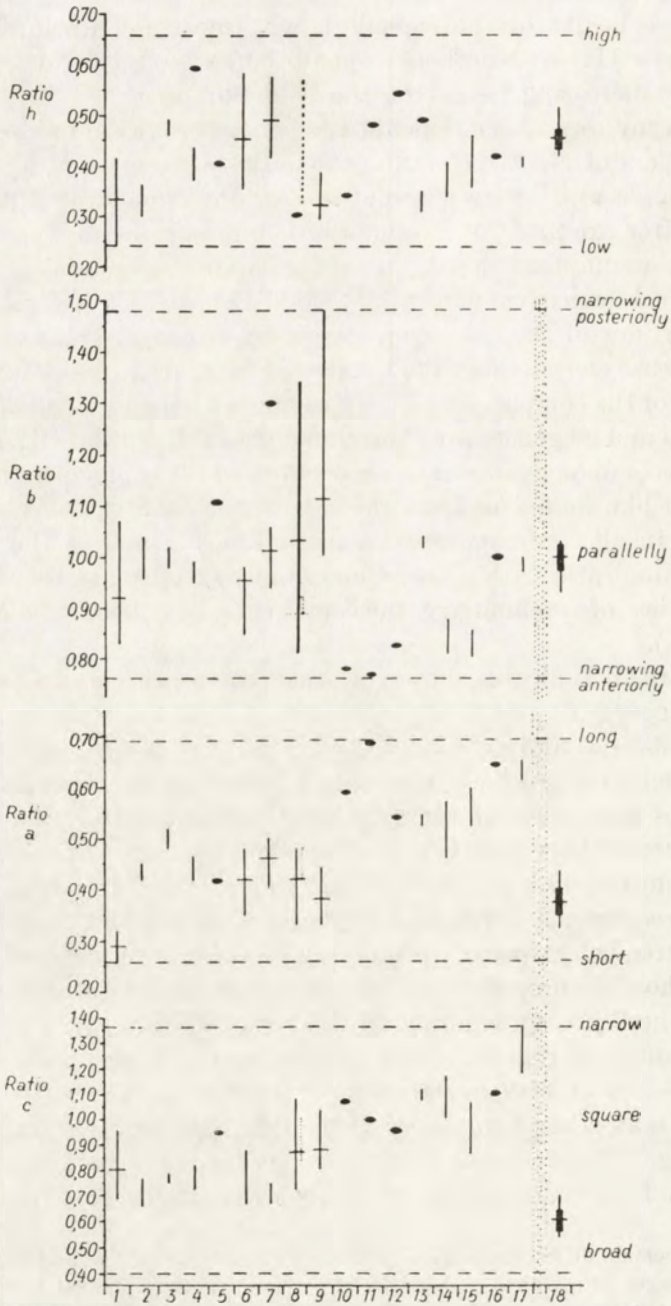


Fig. 1. Intra- and inter-specific variation in the proportions of the cephalothorax and eye field in 136 specimens of the ant-like *Salticidae*, classified into 102 species and 20 genera: 1 — *Synemosyna* (25 specimens, 16 species — from GALIANO); 2 — *Semorina* and *Semora* (3 specimens, 3 species — from GALIANO); 3 — *Fluda* (2 specimens, 2 species — from GALIANO); 4 — *Atomosphyrus* (4 specimens, 2 species — from GALIANO); 5 — *Bizonella* (1 specimen — from ROEWER); 6 — *Sarinda* (25 specimens, 16 species — from GALIANO); 7 — *Martella* (7 specimens, 6 species — from GALIANO); 8 — *Myrmarachne* (dotted lines — 6 specimens of *Myrmarachne formicaria* — own measurements, continuous lines — 41 male specimens, 41 species of African *Myrmarachne* — from ROEWER); 9 — *Zuniga* (10 specimens, 2 species — from GALIANO); 10 — *Emertonius* (1 specimen — from ROEWER); 11 — *Sebastira* (1 specimen — from GALIANO); 12 — *Osericta* (1 specimen — from GALIANO); 13 — *Synageles* (5 specimens, 1 species — own measurements); 14 — *Leptorchestes* (4 specimens, 2 species — own measurements and from GALIANO); 15 — *Consignis* and *Chirothecia* (4 specimens, 4 species — from GALIANO); 16 — *Agorius* (1 specimen — own measurement); 17 — *Peckhamia* (2 specimens, 1 species — own measurements); 18 — a comparison of individual variation in a sample of 53 specimens of females of a single species of a not-ant-like Salticid spider — *Sitticus rupicola* (C. L. KOCH). Explanation of signs: oval spots — value of the ratio in a single specimen or in an aberrant specimen, vertical line — range of variation in studied specimens, crossbar — mean of variation, thick line — one standard deviation on each side of the mean, indicating the variation in a representative 68.26 % of the studied specimens, broken lines — variation range in the whole family of *Salticidae* (based on preliminary data).

must be deferred until there shall be sufficient number of measurements for each species and genus. Measuring and calculating of these is a very tedious task, and it is not yet certain whether the result will not be disappointing. There is, however, the possibility that this method of comparison may yield finally a good result and it should be, therefore, further investigated. It is a pity that the data available in the literature do not contain measurements of all segments of legs, because some of these seems to be particularly promising. If I may suggest that, I would advocate taking the full set of measurements from each specimen studied as a standard procedure. Only when such measurements shall be published, together with the satisfactory drawings of genitals of both sexes, the exact comparison will become possible.

Lumping together the present 4 subfamilies: *Synagelinae* F. P. -CAMBRIDGE, 1900, *Agoriinae* SIMON, 1901, *Peckhamiinae* SIMON, 1901 and *Myrmarachninae* SIMON, 1901 into the single subfamily *Synemosyninae* BANKS, 1892 sensu novo is of course a hypothesis and will have to be proved by further research. It seems, however, that it will improve the system and, apart from that, will stimulate further improvements in the systematics of *Salticidae*.

The *Synemosyninae* BANKS, 1892 sensu novo will contain, therefore, the following genera: *Agorius* THORELL, 1877, *Apatita* MELLO-LEITÃO, 1933, *Arachnotermes* MELLO-LEITÃO, 1928, *Araegeus* SIMON, 1901, *Atomosphyrus* SIMON, 1902, *Augustaea* SZOMBATHY, 1922, *Belippo* SIMON, 1910, *Bellota* PECKHAM, 1892, *Bizonella* STRAND, 1929, *Bocus* PECKHAM, 1892, *Chirothecia* TACZANOWSKI, 1878, *Cineas* SIMON, 1901, *Colaxes* SIMON, 1901, *Consignis* SIMON, 1900, *Damoetas* PECKHAM, 1885, *Descanso* PECKHAM, 1892, *Emertonius* PECKHAM, 1892, *Enoplomischus* GILTAY, 1931, *Erica* PECKHAM, 1892, *Fluda* PECKHAM, 1892, *Haterius* SIMON, 1900, *Keyserlingella* PECKHAM, 1892, *Kima* PECKHAM, 1902, *Leptorchestes* THORELL, 1870, *Ligonipes* KARSCH, 1878, *Marengo* PECKHAM, 1892, *Martella* PECKHAM, 1892, *Mexcala* PECKHAM, 1902, *Myrmarachne* MAC LEAY, 1839, *Osericta* SIMON, 1901, *Panachraesta* SIMON, 1900, *Paradescanso* VELLARD, 1924, *Peckhamia* SIMON, 1901, *Philates* SIMON, 1900, *Pseudofluda* MELLO-LEITÃO, 1928, *Quekettia* PECKHAM, 1902, *Sarinda* PECKHAM, 1885, *Sarindoides* MELLO-LEITÃO, 1923, *Sebastira* SIMON, 1901, *Semora* PECKHAM, 1892, *Semorina* SIMON, 1901, *Simprulla* SIMON, 1901, *Simprulloides* MELLO-LEITÃO, 1933, *Sobasina* SIMON, 1897, *Synageles* SIMON, 1876, *Synagelides* SIMON, 1876, *Synemosyna* HENTZ, 1846, *Taupoa* PECKHAM, 1907, *Zuniga* PECKHAM, 1892.

Among the above genera only three have more than 10 species (*Myrmarachne* — 139, *Sarinda* — 15, *Synemosyna* — 19), all remaining 45 genera have together 112 species, which makes an average of 2.4 species per genus (calculated from data given by BONNET, 1945–1961, amended after GALIANO, 1963, 1964a, b, c, 1965, 1966a, b, 1967, 1969). These figures alone show that the state of knowledge of these spiders is unsatisfactory, in fact the majority of species and genera has been never revised. The exception is a number of

genera revised recently by GALIANO (op. cit.) and ROEWER (1965), but the remaining genera are very poorly known. The problem of further subdivision of the subfamily must be therefore deferred.

Separation of the ant-like *Salticidae* into *Synemosyninae* subfamily leaves remaining 352 genera without any change. There is no possibility yet to find any satisfactory way of subdividing that part of the family into more or less natural units. I am positive that the present subdivision into a number of subfamilies obscures only the relationships, the classification of genera being arbitrary and often misleading. But the sheer number of genera and species make that task really a formidable one.

To retain the principle of the dichotomous division, I propose for a time being to call all not-ant-like *Salticidae* the "*Salticinae*" subfamily or better group of subfamilies. The taxonomic procedure with these spiders will retain check of the cheliceral dentition as a first step and then analyse of other characters given in existing keys as long as some new ideas will appear. I am positive that revision of that part of the family is a very urgent task.

II. On *Aelurillus* species in Poland

There were some confusions with Central European *Aelurillus* species due to a considerable intraspecific variation of *Ae. v-insignitus* (CLERCK, 1758) and certain mistakes in the SIMON'S (1937) key. There are two apparently good species in Central Europe: *Ae. festivus* (C. L. KOCH, 1834) and *Ae. v-insignitus* (CLERCK, 1758). The examination of syntypes of *Ae. gilvus* (SIMON, 1868) shows that they are conspecific with *Ae. festivus* while CHYZER and KULCZYŃSKI (1891) remarks on *Ae. gilvus* concern presumably aberrant specimens of *Ae. v-insignitus*. As epigynum of *Ae. festivus* SIMON has published drawing of epigynum of either atypical female of *Ae. v-insignitus* or even of other related species (SIMON, 1937, fig. 1978) and this caused misidentification of some specimens (PRÓSZYŃSKI, 1961). These misunderstandings are straightened out, I hope, below.

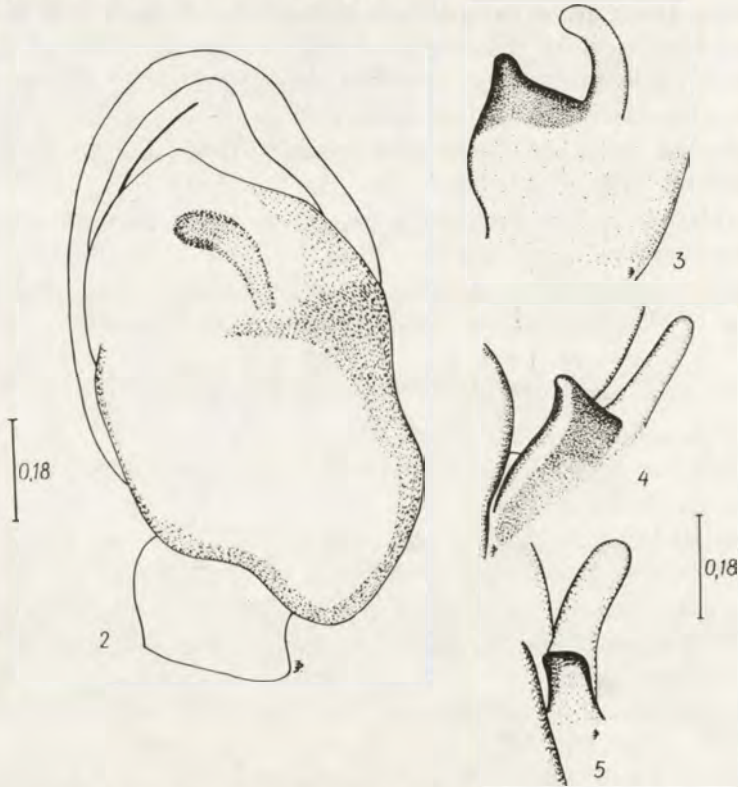
Aelurillus festivus (C. L. KOCH, 1834)

Synonym: *Aelurillus gilvus* SIMON, 1868.

Material: a) "*Aelurillus gilvus* E. S. Polonia b. 2382, 799" — juv. ♀, ♂ — apparently syntypes — coll. SIMON MNHN-Paris; b) 25 samples of *Ae. festivus* in the collection of IZ PAN-Warszawa.

Remark. The syntypes came from "Kiew, Russie" according to original description, but it seems that they are the same as the above mentioned SIMON'S specimens from "Polonia". It was in line with SIMON'S habits to write more general labels (for instance "Galia") when exact locality was mentioned in the description. The substituting of "Polonia" for "Kiew, Russie" was quite an understandable mistake to be made by a Frenchman SIMON — he has received specimens from TACZANOWSKI, who had got them from KARPIŃSKI — both Polish naturalists, who could possibly consider "Kiew" (Kiev) as a part of the former Polish Kingdom to which Kiev belonged in the XIV–XVII century and which had certain percen-

tage of Polish population in the SIMON's time. In the time when the $\frac{1}{3}$ of Poland was labelled on official political maps as "Russian Empire" the name usually boycoted by Poles, such a mistake was quite easy. At any rate there are no other specimens of *Ae. gilvus* in the SIMON's collection and there is no indication of any other specimens in SIMON's further publications (1901-1903, 1937). I assume, therefore, that SIMON saw only two specimens of *Ae. gilvus*, that label "Polonia" is substituted for "Kiew, Russie" and that the two above mentioned specimens are in fact the syntypes.



Figs. 2-5. *Aelurillus festivus* (C. L. KOCH, 1834). Male copulatory organ of the syntype specimen of *Ae. gilvus* (SIM.): 2 - ventral view; 3-5 - three different views on tibial apophysis.

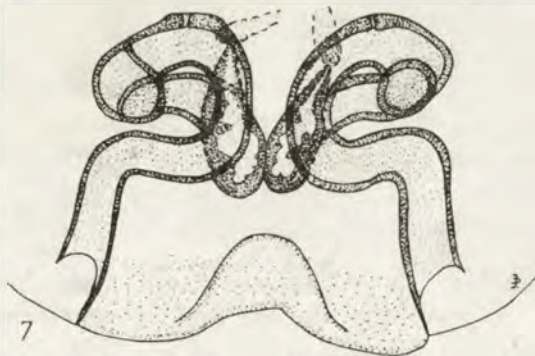
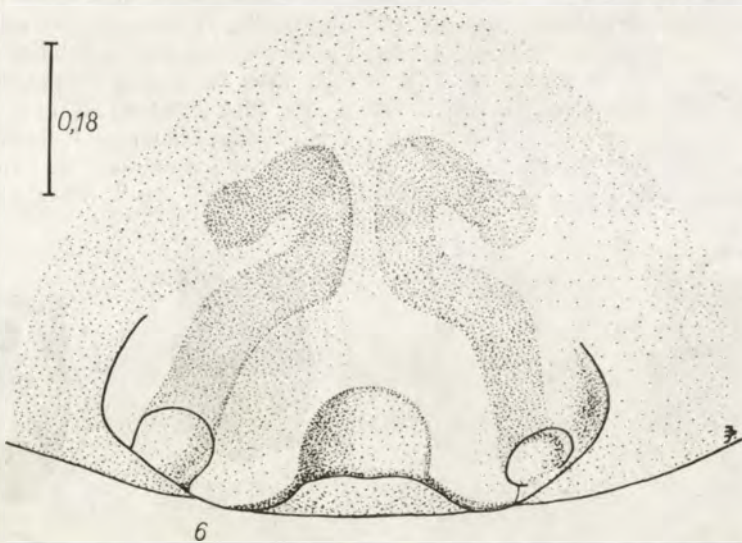
More important characters of a male

As the genital organs are quite characteristic there is no need to indulge into full description of the external appearance. The males differ from other species of the genus in lacking the ventral black protuberance at the apical end of the pedipalpal femur. The ventral view of the copulatory organ (fig. 2) does not differ much from other species, but the tibial apophysis (fig. 3), biramous with broad sclerotized ventral protuberance and crescent-shaped pale dorsal branch, is quite special. Figs. 4 and 5 show various appearance of that apophysis depending from its position in relation to the optical axis of a ste-

reomicroscope during examination. A comparison of these figures with figures 8 and 9 in my paper on East Siberian *Salticidae* (PRÓSZYŃSKI, in print) reveals that there is a good deal of individual variation in these structures, a geographic variation perhaps, but general outlines are characteristic. The figures 2-5 are drawn from the presumed syntype specimen of *Ae. gilvus* and prove its identity with copulatory organ of what is generally accepted as male of an *Ae. festivus*.

More important characters of a female

The structure of epigynum allows an easy and quick identification of females of this species. The external appearance of epigynum is given on fig. 6 and its internal structure on fig. 7. It should be remembered that the figure 1978 of an epigynum given by SIMON (1937), is wrong and represent epigynum of either



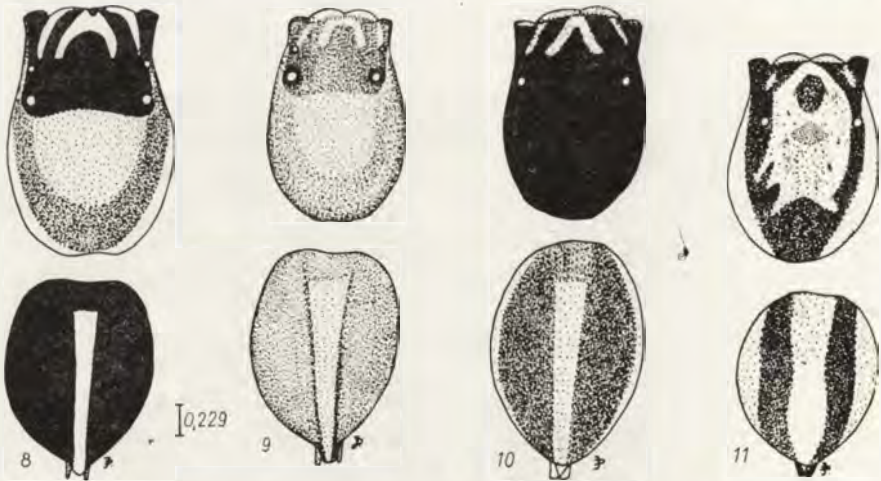
Figs. 6-7. *Aelurillus festivus* (C. L. KOCH, 1834). Epigynum before and after mecaration.

atypical *Aelurillus v-insignitus* (CL.) or *Aelurillus affinis* (LUCAS, 1839) perhaps. I have observed that both males and females of what I consider *Aelurillus festivus* do occur together in the same environment: grass overgrown limestone slopes near Tyniec and behave in a somewhat different manner than *Aelurillus v-insignitus*, so I feel justified in assumption that both sexes are conspecific. This agrees also with CHYZER and KULCZYŃSKI (1891) and M. DAHL (1926).

Aelurillus v-insignitus (CLERCK, 1758)

Synonym: *Aelurillus gilvus*: CHYZER and KULCZYŃSKI, 1891, nec SIMON, 1868.

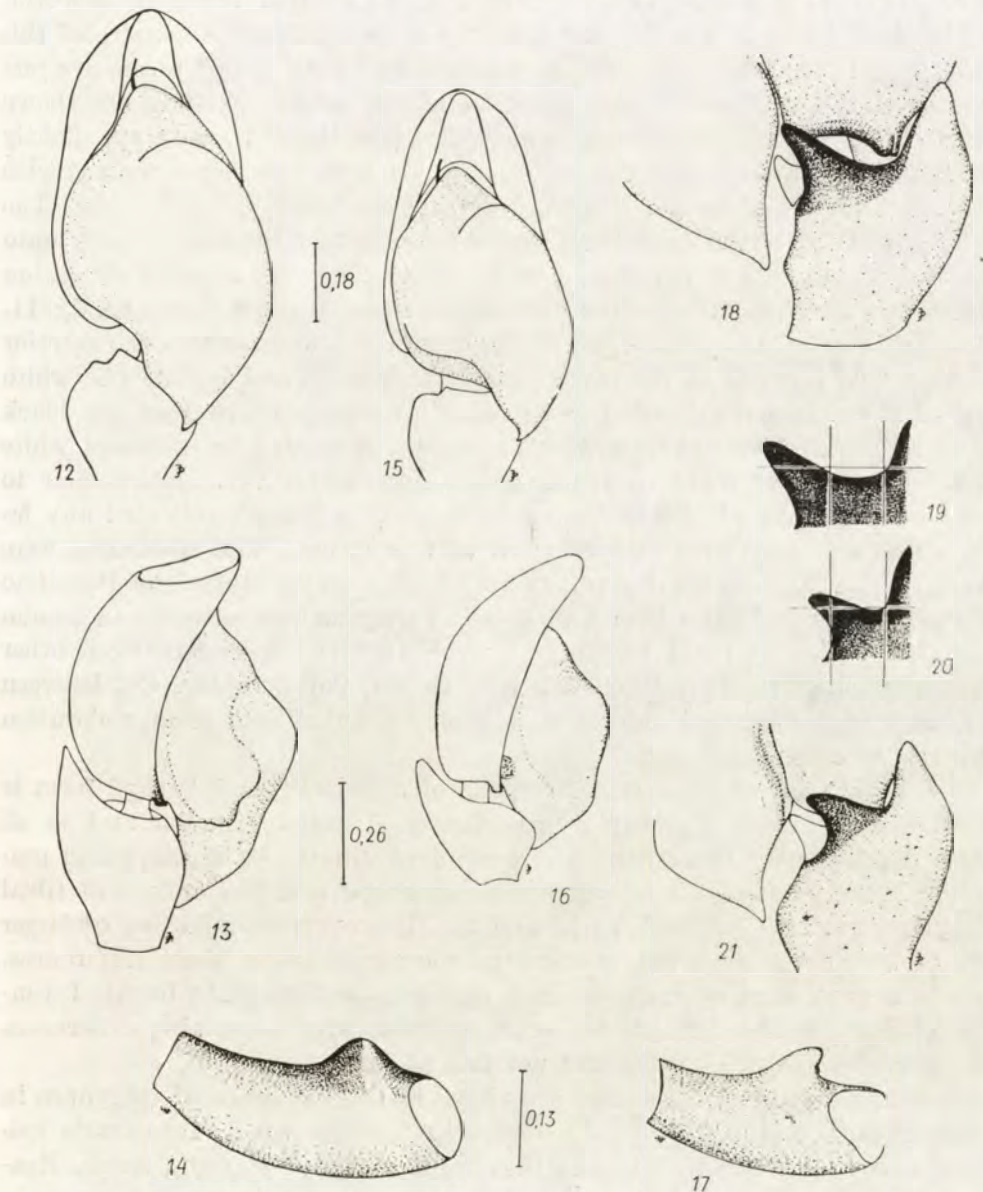
Material: "*Aelur. insignitus* Banyuls, coll. L. BERLAND" — 1 ♂, 1 ♀ coll. MNHN-Paris; "*Aelurillus festivus*" 1 ♀ from Southern Norway — coll. J. A. L. COOKE — Oxford; *Aelurillus gilvus* det. ex coll. W. KULCZYŃSKI: 2 ♀♀ from Poland, 1 ♂ from "Kolozsvar" [Cluj, Rumania], 2 ♂♂, 1 ♀ from Caucasus Mts., 1 ♂ from Budapest coll. IZ PAN-Warszawa; *Aelurillus v-insignitus* — det. W. KULCZYŃSKI — 2 samples from Poland and 4 other from various parts of Europe (Finland, Czechoslovakia, Yugoslavia) — coll. W. KULCZYŃSKI, IZ PAN-Warszawa; 9 samples from Puszcza Kampinoska, Poland, leg. det. J. PRÓSZYŃSKI, coll. IZ PAN-Warszawa; 1 ♂ — from near Piaseczno, Poland, leg. W. STAREGA, coll. IZ PAN-Warszawa; 4 samples from Mt. Ślęza, Poland — coll. M. CZAJKA; 9 samples from Southern France and Italy, leg. M. PRÓSZYŃSKA and J. PRÓSZYŃSKI, det. J. PRÓSZYŃSKI, coll. IZ PAN-Warszawa; 6 ♂♂ labelled with a number "95" from the East Siberian Expedition of PRZEWAŁSKI — det. J. PRÓSZYŃSKI — coll. IZ PAN-Warszawa.



Figs. 8–11. *Aelurillus v-insignitus* (CLERCK, 1758). Colour pattern variation in males: 8 — Ślęza Mt. "black" specimen, 9 — Puszcza Kampinoska "grey" specimen, 10 — Col Bayard, France specimen, 11 — Portofino Vetta, Italy specimen.

These are some troubles with this species due to its wide individual variation. There are at least two types of coloration and of structure of genital organs in these spiders in Poland. One form has black eye field and abdomen in male, its white "V" sign on the cephalothorax and white stripe on the abdomen

are strikingly distinct (fig. 8). It is known from the Ślęza Mt. massiv, some 35 km. SSW from Wrocław, where it dwells on rocks and stones in sunny places. The other form is much paler, usually greyish with very indistinct white greyish



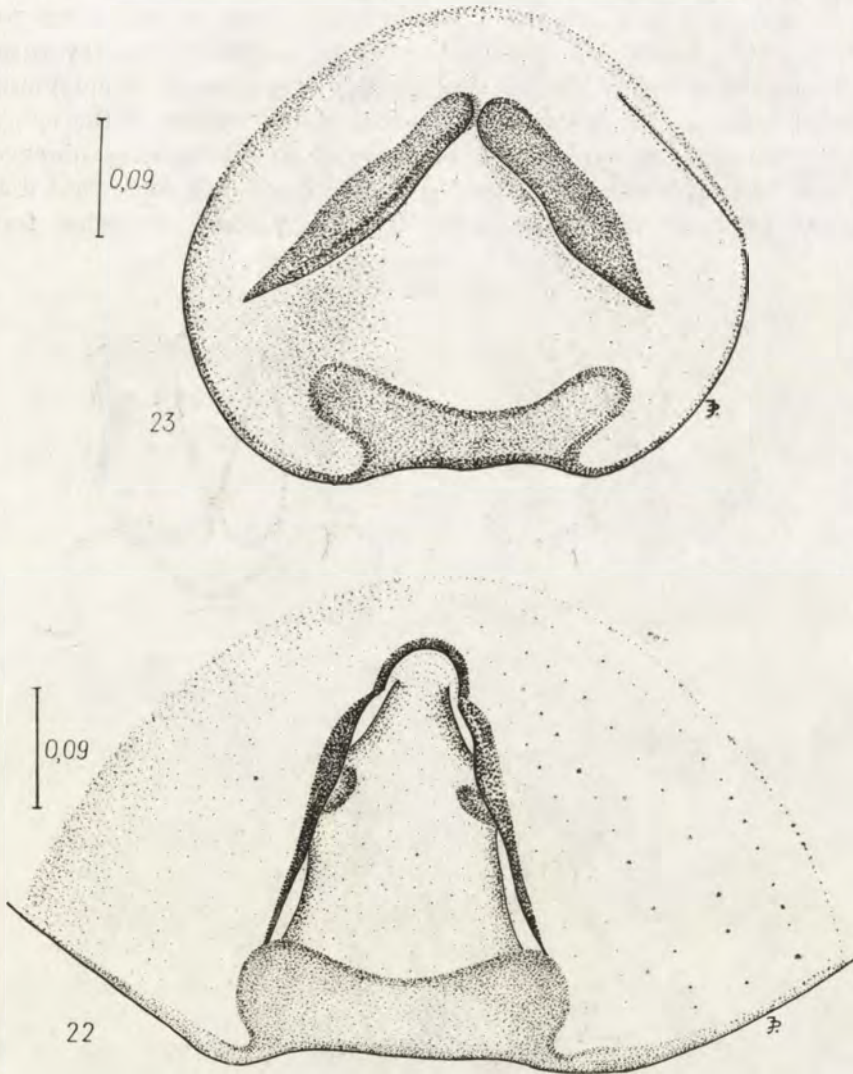
Figs. 12-21. *Aelurillus v-insignitus* (CLERCK, 1758). Variation in male copulatory organ: 12-14, 18, 19 - "black" specimen; 15-17, 20, 21 - grey specimen, 12, 15 - ventral view; 13, 16 - lateral view; 18, 21 - tibial apophysis, 19-20 diagram showing differences in tibial apophysis shape and proportions in "black" and "grey" specimens; 14, 17 - femoral protuberance.

“V” sign. I have found numerous specimens of that form on dry and warm sand dunes covered with lichens in the Puszcza Kampinoska, forest near Warsaw, and in several other places on sandy grounds. Both forms look so different that I took them, at first, for two different species. Further research, however, revealed that there is a very wide range of colour-variation in males of this species, and it appears quite possible that “black” and “grey” forms are just extremes of the variation. Other examples of the colour variation are shown on figs 10–11. The specimen from French Alps (Col Bayard near Gap, slightly more than 1200 m. above the sea) has entirely black cephalothorax with greyish indistinct “V”, its abdomen is dark grey and the stripe greyish-white. The whitish coloration of the lateral surfaces of the abdomen expands slightly onto the dorsal surface and is visible as a white “rim”. The very unusual coloration found in two males from Portofino Vetta near Genoa, Italy, is shown on fig. 11. The central area of the eye field and thorax is whitish and fuses with the anterior “V” sign. The margins of the cephalothorax are white and broad. The white “rim” of the abdomen expanded so far onto the dorsal surface, that the black area is reduced to two narrow parallel stripes, separated by a broad white stripe. The copulatory organs of males from Portofino Vetta are similar to those of other males of the species, unfortunately I haven’t collected any female specimen to confirm identification of the species. The specimens were collected on sunny clearing and ruins of a building on the summit of Portofino Vetta promontory, about 1 hour walk from a Portofino Vetta Hotel and a radio transmitter aerial. It must be said, however, that the specimens from other Ligurian localities (Camping Cogoleto near Genoa, Col Turchino, Col between Leuna and Lago Lavagno) did not show such a peculiar coloration. Coloration of females is less characteristic.

The comparison of male genital organs of a “black” and “grey” form is shown on figs. 12–21. The “grey” specimen is distinctly smaller and so all its organs are smaller too. There are some minor differences in shape and proportions in all parts, the most discernible in shape and proportions of tibial apophysis (figs. 19–20 as well as 18 and 21). However, examination of larger series of specimens does not confirm taxonomic value of these differences. There is a good deal of variation and numerous intermediate forms. I cannot exclude that there might be some taxonomically acceptable differences between of both forms, but I could not find them myself.

Much more striking differences are visible in the structure of epigynum in females of both forms. Figs. 22–23 show epigynum in two KULCZYŃSKI’S specimens, corresponding with “black” (fig. 22) and “grey” (fig. 23) forms. Examination of a number of specimens from various geographic areas shows again a considerable variation and numerous intermediate forms. The internal structure of epigynum does not give much help in this case. The spermathecae are heavily sclerotized vesicles consisting of two fused longitudinal chambers. The copulatory opening is located in the anterior part of epigynum, usually

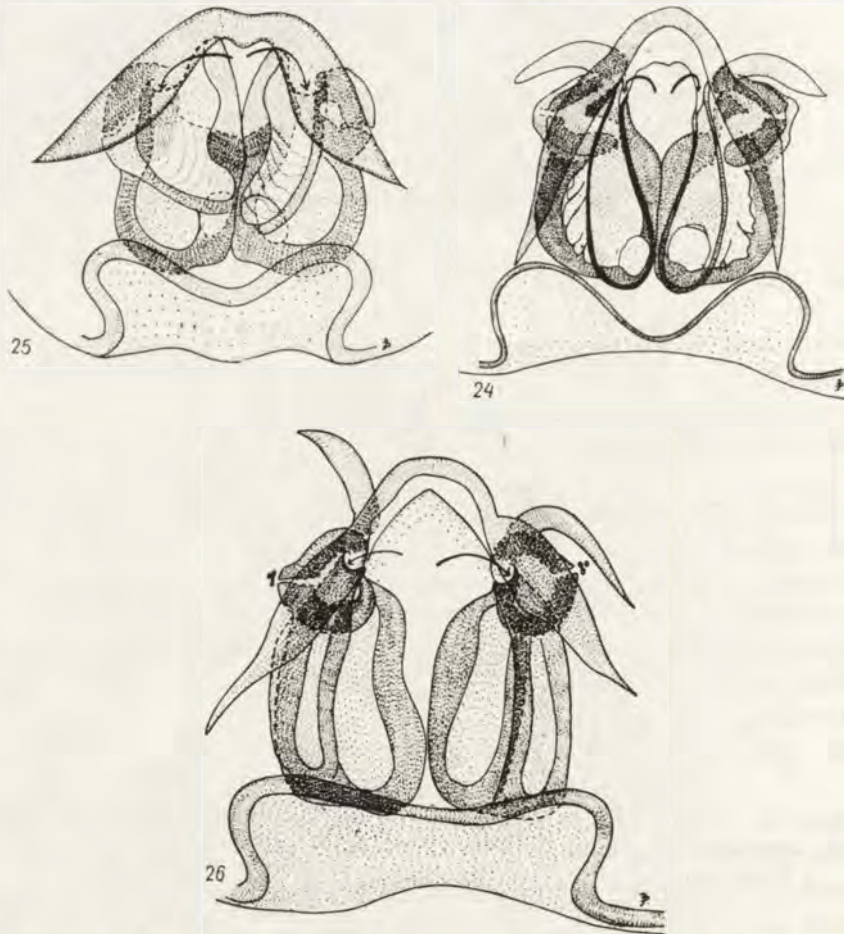
underneath the sclerotized "roof" and pass directly into first longitudinal chamber of spermatheca, without any intermediary canal. The first longitudinal chamber opens into a second, more dorsally located chamber at the end of spermathecal vesicle. The second chamber leads to a spherical terminal vesicle



Figs. 22-23. *Aelurillus v-insignitus* (CLERCK, 1758). Variation in female copulatory organ. Epigynum: 22 - "black" specimen; 23 - "grey" specimen.

lying on the level of the copulatory opening but dorsally to it, that is underneath the opening and roof when studying the preparation ventral surface uppermost nuder a microscope. There is an opening of an accessory gland in

the terminal vesicle and a conical sclerotized fertilisation canal (broken and lacking in some preparations). The differences between prepared epigyna I studied is in location of a copulatory opening, which may be under the "roof" or outside it, position of the first chamber in relation to the second one, position of the whole spermatheca in relation to the roof and so on. The first impression is that these differences are quite considerable, closer examination reveals, however, that the basic plan of the structure is identical in every case. The spermathecae are spherical bodies and during preparation of epigynum can always twist and move in relation to the external sculpture of the epigynum. That is presumably the explanation of some of the differences observed. It appears that spermathecae shown on fig. 25 are fixed in a somewhat diagonal position and those on fig. 26 are lying flat but pushed somewhat forward.



Figs. 24–26. *Aelurillus v-insignitus* (CLERCK, 1758). Variation in female copulatory organ. Epigynum after maceration: 24 — "black" specimen; 25 — "grey" specimen; 26 — specimen from Banyuls, France.

Differences in more median or periferic location of first chambers (figs. 24, 26) do not seem to be significant.

All these explanations are hypotheses and should be checked on larger series of specimens.

III. Redescription of *Heliophanus varians* SIMON, 1868

Material: a) "*Hel. varians* E. S. Polonia b. 2321, 867" — 1 ♂ — lectotype new, 1 ♀ — paralectotype new, coll. E. SIMON, MNHN-Paris; b) "*Heliophanus varians* SIMON, Orsova 1873, VI coll. HERMAN. Lt. sz. 882" "SIMON vidit" — 1 ♂, Zool. Mus. Budapest.

Remark. All previous quotations in the literature are doubtful and need revision. CHYZER and KULCZYŃSKI (1897: 289) state that their specimens of that species are really *H. flavipes* (HAHN) (♂) and *H. cupreus* (WALCK.) (♀). TACZANOWSKI's specimens of that species, identified by SIMON himself, are really a mixture of females of *H. dubius* C. L. KOCH and males of *H. cupreus* (WALCK.) and *H. flavipes* (HAHN). The type-specimens seems to be different from remaining Central European species but these differences are slight, especially in male. The whole genus need a detailed revision and until that no conclusions can be considered as final.

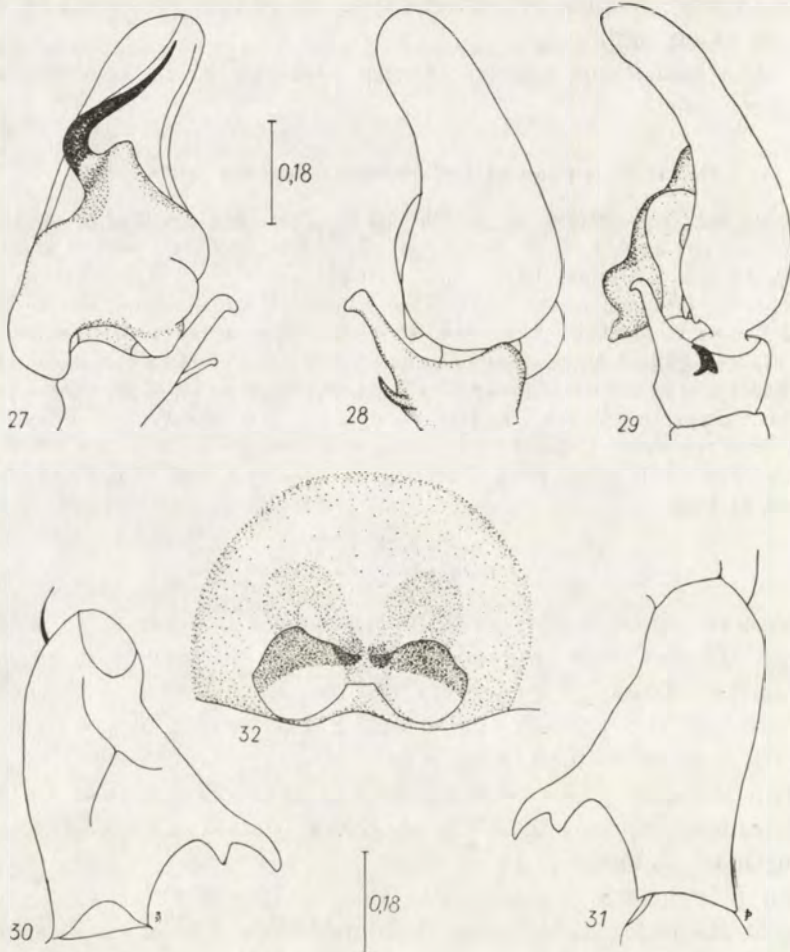
Description of male

Cephalothorax brown, eye field brown with surrounding of lateral eyes black brown. Thorax with two paler areas behind the eye field, separated by a median darker streak. Clypeus very narrow. Length of cephalothorax 1.98, length of eye field 0.84, width of eye field I 1.08, width of eye field III 1.21. Ratios: a — 0.42, b — 0.89, c — 0.78.

Abdomen dorsally greyish-brown with a white line consisting of white setae on the anterior dorsal edge of the abdomen. Abdomen ventrally — fawnish-grey. Length of abdomen 2.13.

Sternum pale brown. Coxae fawn. Maxillae fawn with two angular protuberances at the outer distal angle. Labium brown. Chelicerae fawnish-brown with a large single tooth on the inner posterior and 2 teeth on inner anterior margin. Pedipalps brown with lateral edges of the cymbium darker. The shape of the copulatory organ is shown on figs. 27–29. There are two tibial apophyses, the posterior one very thin and small — much smaller than in the related species *H. flavipes* (HAHN), resembles to certain extent *H. corsicus* SIM. (KRAUS 1955 and figs. 28–30). Femoral apophysis (figs. 30–31) directed posteriorwards, forked at the end. It is worth of notice that the specimen of *H. varians* from the HERMAN collection, Zool. Mus. Budapest, has right palpus deformed — much smaller with undeveloped tibial apophyses and femoral apophyse unforked.

Legs. Femora I–IV brown with distal dorsal tip yellowish with a few white setae. There is a stripe of white setae on inner anterior edge of femora III–IV, and a similar but shorter one on femur II. Patella I brown, its inner lateral edge paler and covered with whitish setae. Tibia I brown with a stripe of white setae on inner anterior edge. Remaining segments brown with tibiae, metatarsi and tarsi II–IV somewhat paler. Length of segments of legs: I 0.48+0.63



Figs. 27-32. *Heliophanus varians* SIMON, 1868, male and female copulatory organs. 27-29 — male copulatory organ, ventral, dorsal and lateral views; 30-31 — male pedipalp femoral apophysis, lateral inner and outer surface views. 32 — epigynum.

+0.78+0.66+1.17, II 0.42+0.51+0.55+0.48+0.90, III 0.45+0.51+0.58+0.51+0.93, IV 0.49+0.90+0.81+0.55+1.12. Ratio d — 1.40.

Remark: the coloration of the specimen is presumably faded and the natural coloration was presumably darker.

Description of female

Cephalothorax dark brown with central area of the eye field pale brown, surrounding of eyes lateral almost black. Clypeus very narrow. Length of cephalothorax 2.40, length of eye field 0.85, width of eye field I 1.23, width of eye field III 1.35. Ratios: a — 0.35, b — 0.91, c — 0.69.

Abdomen dorsally pale brownish-grey, covered with colourless shining scales. Dorsal surface bordered along the edge with a belt of white scales. Abdomen ventrally slightly paler. Length of abdomen 4.25.

Epigynum — oval with median constriction formed by posterior edge folded anteriorwards in the middle (fig. 32) and giving the epigynum the final shape resembling the sign ∞ . There are two lateral depressions on the epigynum separated by the indistinct median ridge. The copulatory openings are located in the anterior outer parts of the epigynal depressions, the copulatory canals form a long narrow bow stretching far to the front from the epigynum. In *H. flavipes* (HAHN) epigynum forms an oval depressed plate without constriction and only with a very indistinct fold at the rear margin, the copulatory canals do not exceed anterior margin of epigynum. In *H. auratus* C. L. KOCH epigynum has two depressions separated by a very distinct ridge.

Sternum brown. Coxae pale fawn. Maxillae brown, white tipped, without angular protuberances. Labium brown, white tipped. Chelicerae brown with a large single tooth on inner posterior and two teeth on inner anterior margin. Pedipalps — femur brown with a pale yellow streak distally on dorsal surface, remaining segments pale yellow.

Legs. Femur I dark brown with a paler, white setae covered spot distally on dorsal surface. Femora II–IV dark brown with two longitudinal yellow streaks separated by a median brown one on the dorsal surfaces, ventrally and laterally brown. Remaining segments yellow with brown antero-lateral surfaces of patellae, tibiae and, less distinctly, metatarsi I–IV. Length of segments: I 0.49+0.60+0.70+0.66+1.03, II 0.45+0.57+0.57+0.48+0.97, III 0.54+0.78+0.69+0.58+1.05, IV 0.55+1.08+0.93+0.66+1.35.

Remark. The natural coloration is presumably darker.

IV. On *Pellenes nigrociliatus* (L. KOCH, 1875) and *Pellenes nigrociliatus* var. *bilunulatus* SIMON, 1877

In his posthumous sixth volume of the "Les Arachnides de France" SIMON has included his previously described species *Pellenes bilunulatus* SIMON, 1877 into *Pellenes nigrociliatus* (L. KOCH, 1875) as a varietas. *P. bilunulatus* was described on a basis of a single specimen from Penne, Dept. Tarn in Southern France, differing from the typical *P. nigrociliatus* in presence of a white longitudinal line on the eye field, and the connection between left and right first white diagonal line on the abdomen, forming a complete bow. SIMON perhaps was not entirely sure that the holotype specimen belongs to a separate species because he added a remark stating that this sort of coloration is typical for young specimens in related *Pellenes* species. Had SIMON really been uncertain he would be right because closer examination of a number of specimens reveals that in *Pellenes nigrociliatus* it is a juvenile coloration too.

I owe my specimens to Prof. Dr. I. MIKULSKA, Nicolaus Copernicus University, Toruń, who has carried interesting biological observations on numerous specimens of a spider found on the outskirts of Toruń and subsequently identified by M. Jacques DENIS as the *Pellenes nigrociliatus* var. *bilunulata*. Studying three of these specimens I have found a grey "juvenile" coloration of abdomen resembling that in *P. nigrociliatus* var. *bilunulatus* in two specimens (fig. 40), the third specimen was a typical *P. nigrociliatus* with black abdomen and short and broadly separated white diagonal lines (fig. 42). I compared these specimens with the holotype specimen of *P. bilunulatus* and a Silesian specimen presumably syntype of *P. nigrociliatus* from the SIMON's collection, MNHN, Paris, send to me very kindly by Dr. M. HUBERT and Mme F. REBIÈRE, MNHN, Paris. The results of comparison leave no doubts that despite of the differences in coloration and minor differences in genital organs, all these specimens are conspecific and that name *P. nigrociliatus* var. *bilunulatus* SIMON, 1877 should be considered a junior synonym of *P. nigrociliatus* (L. KOCH, 1875). The revised description of female *P. nigrociliatus* is as follows.

***Pellenes nigrociliatus* (L. KOCH, 1875)**

Synonyms and combinations: *Attus nigrociliatus* [E. SIM. (in litt.) — sic!] L. KOCH, 1875¹,

Pellenes nigrociliatus: SIMON, 1876, BONNET, 1958,

Pellenes nigrociliatus var. *bilunulata*: SIMON, 1937, DENIS and MIKULSKA, 1960, MIKULSKA, 1961a, 1961b,

Pellenes nigrociliatus var. *bilunulatus*: BONNET, 1958,

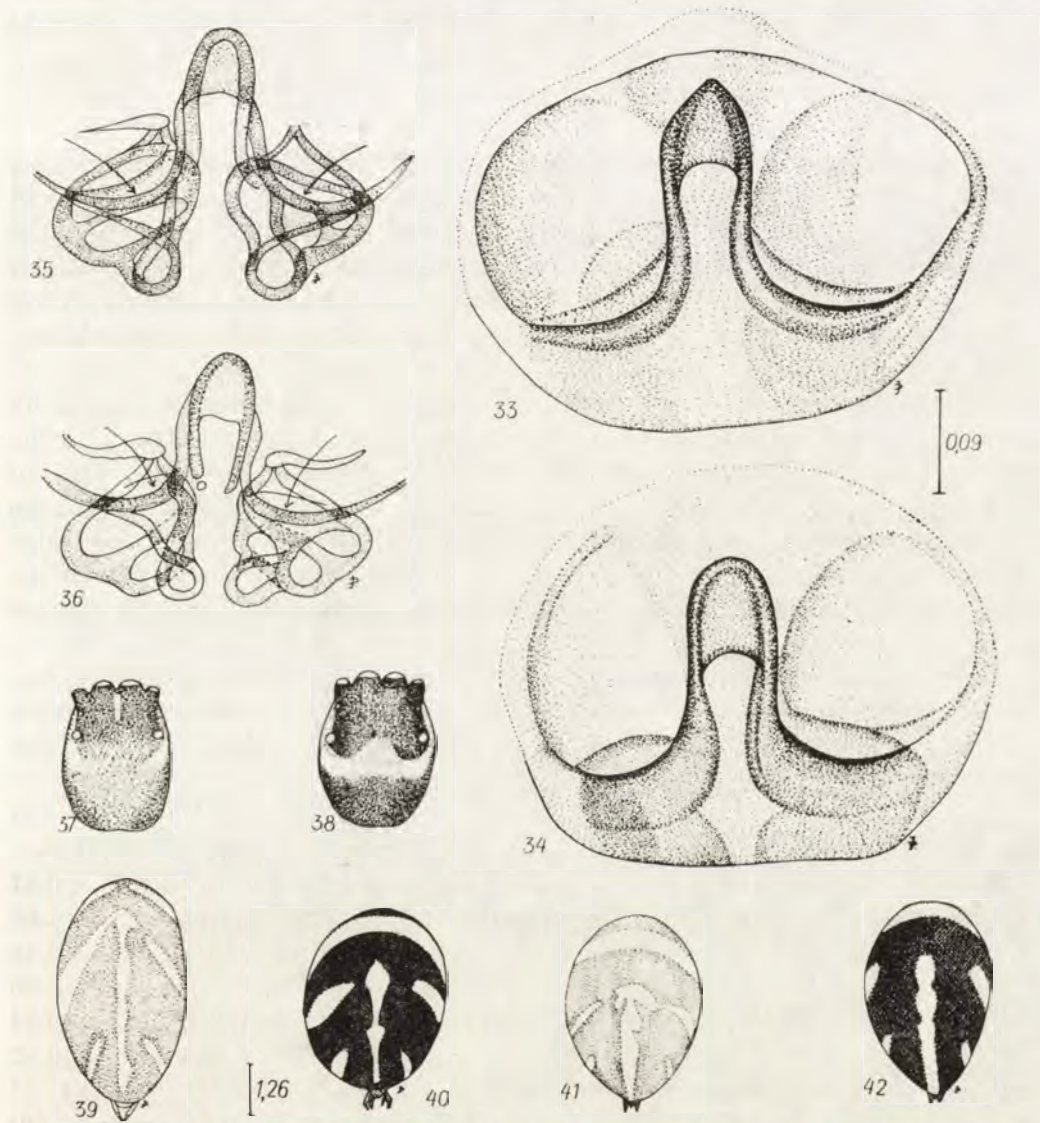
Pellenes nigrociliatus bilunulatus: DENIS and MIKULSKA, 1960.

Material: a) "*Pellenes bilunulatus*, Gallia [Penne, Dept. Tarn.] b. 2379, 2228" — 1 ♀ — holotype — coll. E. SIMON, MNHN-Paris. b) "*Pellenes nigrociliatus* L. K. Silesia b. 2379, 3101" — 1 ♀ — most probably a syntype, coll. E. SIMON, MNHN-Paris. c) "*Pellenes nigrociliatus* L. K. ♂ Exercéret 9. VI. 07" — 1 ♀ — coll. R. DE LESSERT, MHN-Genève. d) "*Pellenes nigrociliatus* var. *bilunulata*. Outskirts of Toruń, Poland, det. J. DENIS and I. MIKULSKA, leg. I. MIKULSKA" — 3 ♀♀ — coll. IZ PAN-Warszawa (a gift from Prof. Dr. I. MIKULSKA). e) "*Pellenes nigrociliatus* SIM., Kiten near Mičurin, Bulgaria, 2. VI. 1966, leg. W. STARĘGA, det. J. PRÓSZYŃSKI". 1 ♀ — coll. IZ PAN-Warszawa.

Description of females

Cephalothorax dark brown with two large pale yellow spots covered with white scales behind eyes III. Eye field black brown with white longitudinal median line (figs. 37–38) consisting of white scales. The length of the line differs considerably and may be absent entirely — as in syntype specimen. Clypeus

¹ The authorship of this species is a bit confused — L. KOCH wrote SIMON's name, SIMON originally that of L. KOCH and latter his own. There is no doubt that the first published description is that of L. KOCH (1875) — and that it was written by L. KOCH alone. It was only L. KOCH's assumption that SIMON had earlier written and sent under press a description of this species, and that assumption appeared false because SIMON's description appeared in 1876, a year later. Therefore it is L. KOCH who must be considered the author and not SIMON.



Figs. 33-42. *Pellenes nigrociliatus* (L. KOCH, 1875). Variation in females: 33, 35, 38, 40 — syntype specimen from Silesia; 34, 36, 37, 39 — holotype specimen of *P. bilunulatus* SIM.; 41-42 — Toruń specimens. 33-36 — epigynum before and after maceration; 37-38 — cephalothorax colour pattern; 39-42 — abdominal colour pattern.

narrow, covered with white scales. Length of cephalothorax¹: 2.10+2.17+1.95+2.31+2.24+2.46, length of eye field 0.87+0.90+0.93+0.97+0.85+1.03,

¹ It is worth of attention that specimens from Toruń are the smallest of all and the dimensions increase in specimens from more southern localities. To show this I quote the measurements in the following order: three specimens from Toruń+syntype from "Silesia"+holotype of *P. bilunulatus* from Tarn. Dept+Bulgarian specimen.

width of eye field I $1.27+1.30+1.29+1.38+1.27+1.42$, width of eye field III $1.42+1.53+1.48+1.57+1.44+1.66$. Ratios: $a - 0.41+0.41+0.48+0.42+0.38+0.42$, $b - 0.89+0.85+0.87+0.88+0.88+0.86$, $c - 0.68+0.69+0.72+0.70+0.67+0.72$.

Abdomen black brown, sometimes greyish (juvenile coloration) with thick white lines on the anterior edge, median longitudinal and two pairs of short diagonal lines (figs. 40, 42). In forms with retained juvenile coloration the first pair of diagonal white lines may be extended as to contact with the anterior tip of median white line (figs. 39, 41), the connection is, however, very thin. Abdomen ventrally pale greyish-brown with median longitudinal stripe whitish. Length of abdomen — $2.85+2.70+2.47+2.77+3.52+3.37$.

Epigynum has two round depressions in the anterior half separated by a central sclerotized fold ended anteriorly with vaginal roof (figs. 33–34). The spermatheca is a compact sclerotized body without separate canals. The copulatory opening cavity is funnel-shaped and leads through a twisted passage into small round chamber at the rear end of spermatheca, there are two transverse oval chambers and a terminal cone (figs. 35–36) anteriorly from that. The vagina is located anteriorly to the spermathecae — a position characteristic for the genus.

Sternum dark brown. Coxae I–II dark brown, III–IV fawnish-brown. Maxillae and labium dark brown, white tipped. Chelicerae dark brown with single large black tooth on inner posterior edge and two teeth on inner anterior edge. Pedipalps pale yellow.

Legs brown, paler or darker in various specimens, anterior leg darker and more robust. Dorsal surfaces paler. Length of segments: I $(0.52+0.48+0.46+0.55+0.54+0.60)+(0.52+0.55+0.49+0.60+0.54+0.67)+(0.73+0.75+0.67+0.78+0.75+0.90)+(0.73+0.82+0.75+0.82+0.75+0.90)+(1.11+1.14+1.09+1.17+1.12+1.42)$, II — $(0.45+0.42+0.46+0.48+0.49+0.54)+(0.45+0.46+0.42+0.46+0.46+0.54)+(0.52+0.55+0.51+0.57+0.54+0.67)+(0.57+0.66+0.57+0.63+0.67+0.75)+(0.87+0.96+0.90+0.96+0.97+1.12)$, III — $(0.54+0.61+0.54+0.54+0.61+0.67)+(0.75+0.78+0.75+0.75+0.75+0.87)+(0.82+0.75+0.78+0.87+0.82+0.97)+(0.82+0.81+0.79+0.82+0.82+0.97)+(1.57+1.57+1.57+1.59+1.65+1.85)$, IV — $(0.57+0.57+0.57+0.57+0.60+0.66)+(0.73+0.78+0.67+0.72+0.69+0.84)+(0.63+0.67+0.60+0.69+0.67+0.72)+(0.60+0.60+0.54+0.55+0.60+0.67)+(1.05+1.27+1.14+1.15+1.09+1.47)$. Ratio $d - 0.76+0.90+0.77+0.79+0.82+0.74$.

It must be underlined that the leg III is distinctly longer than leg IV, the biggest differences being in tibia, patella and femur.

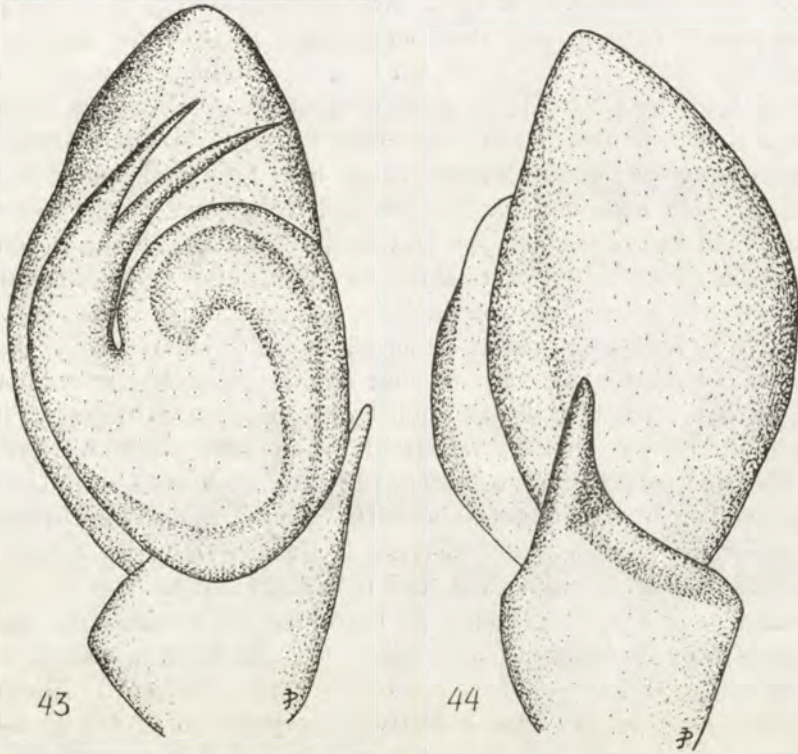
Remarks on male

I have seen a single male of this species a long time ago during my visit in Museum d'Histoire Naturelle, Genève¹ in 1965.

¹ I shall always remember the very kind hospitality of the late Dr. H. GISIN, Curator of Invertebrates in that Museum, who has made it possible for me to make study on DE LESSERT'S collection.

I made only incomplete study at that time but because it appeared impossible to obtain any male specimen from Poland I decided to quote these in this paper to give at least some indication on its features.

The abdomen of male is dark brown with a single median white line expanded into a round spot anteriorly and stretching from the anterior one third of the abdomen up to spinnerets. Chelicerae with single tooth on inner posterior and two teeth on inner anterior margin.



Figs. 43-44. *Pellenes nigrociliatus* (L. KOCH, 1875). Male copulatory organ: ventral and lateral views.

Tibial apophysis on pedipalps thin and straight, the conductor and stylus arise laterally from bulbous as a single process and separate in a mid-length, the conductor being slightly shorter than stylus (figs. 43-44). The presence of more or less developed conductor is characteristic for the genus.

Length of cephalothorax 1.62, length of eye field 0.70, width of eye field I — 1.02, width of eye field III — 1.12. Ratios: a — 0.43, b — 0.91, c — 0.68.

Length of segments of legs: I $0.42 + 0.50 + 0.65 + 0.62 + 0.95$, II $0.37 + 0.35 + 0.37 + 0.50 + 0.70$, III $0.45 + 0.55 + 0.55 + 0.62 + 1.20$, IV $0.47 + 0.47 + 0.45 + 0.37 + 0.87$. Ratio $d - 0.82$.

The male is smaller than female, the proportions are, however, quite comparable. Leg III is again longer than leg IV and tibia III longer than tibia IV.

The behaviour of this species calls for some attention.

Females of *Pellenes nigrociliatus* have a very curious habit of hoisting above the ground the twisted hollow objects like empty snail shells or twisted dry leaves, suspending them on grass straws as a hiding and cocoon protecting place. It was first observed by ZIMMERMANN and reported by L. KOCH (1875:17), who wrote about this species: "Die Eiersäckchen meist in verdorrten Blättern, welche an Grashalmen oder anderen am Boden befindlichen Sachen aufgesteckt waren" and confirmed later by a series of detailed observations by MIKULSKA (1961a, b, also DENIS and MIKULSKA, 1960). It was I. MIKULSKA who observed the actual process of hoisting up the snail shell, hiding of spider in the shells attacking of prey. Females can be observed from early May till August, the eggs, usually 10 in the cocoon, are laid in May and the young hatch 2 weeks after. A single male was observed early in April, before appearance of females. L. KOCH observed male specimens in May, females and cocoons at end of June and in July. Only females were observed to hoist shells above the ground. The shells of a *Helicella* snails are hoisted by gradual pulling of numerous threads, one by one, attached to the shell from an elevated object. The pulling of a single thread by a spider is barely visible and the whole process very slow — the shell moves 3 centimeters upwards within 20 minutes time, it is finally suspended 20 centimeters above the ground and 3 centimeters below the suspension point. The shell aperture is then covered by a web curtain, the spider leaves retreat only when shell is in full sunlight.

According to L. KOCH, ZIMMERMANN has found his specimens on sun-exposed sandy places near Rothenburg and Niesky in the Lausitz region, in eastern part of Germany, and these places are terra typica. The word "Silesia" on the SIMON's label refer to the administrative incorporation of the Lausitz region into Silesian province at that time. The specimens of MIKULSKA came from a sunny, grass covered slope at the outskirts of Toruń, Northern Poland, so the environment of the species is in both cases comparable. The collecting localities in Hungary are more numerous and distributed in various part of the country (CHYZER and KULCZYŃSKI, 1891), it is also known from Czechoslovakia, Austria, Rumania, Bulgaria, Yugoslavia, Egean and Thyrranian Sea Islands, Southern France (Departments Tarn and Basses-Alpes) and from English (La Manche) Channel Islands. The presence of the species in south-western part of the USSR needs confirmation and the report on its occurrence in Japan is rather unconvincing. All these data give a very incomplete picture of real distribution of the species. It may be labelled perhaps a "South European species" until new evidences will fill the gaps.

V. On *Philaeus bilineatus* (WALCKENAER, 1826) and *Philaeus chrysops* (PODA, 1761)

It appears that the problem of existence of *Philaeus bilineatus*, a species reported by a number of authors, arose from individual variation due to irregularities in secondary sexual dimorphism in well known and widespread species *Philaeus chrysops*.

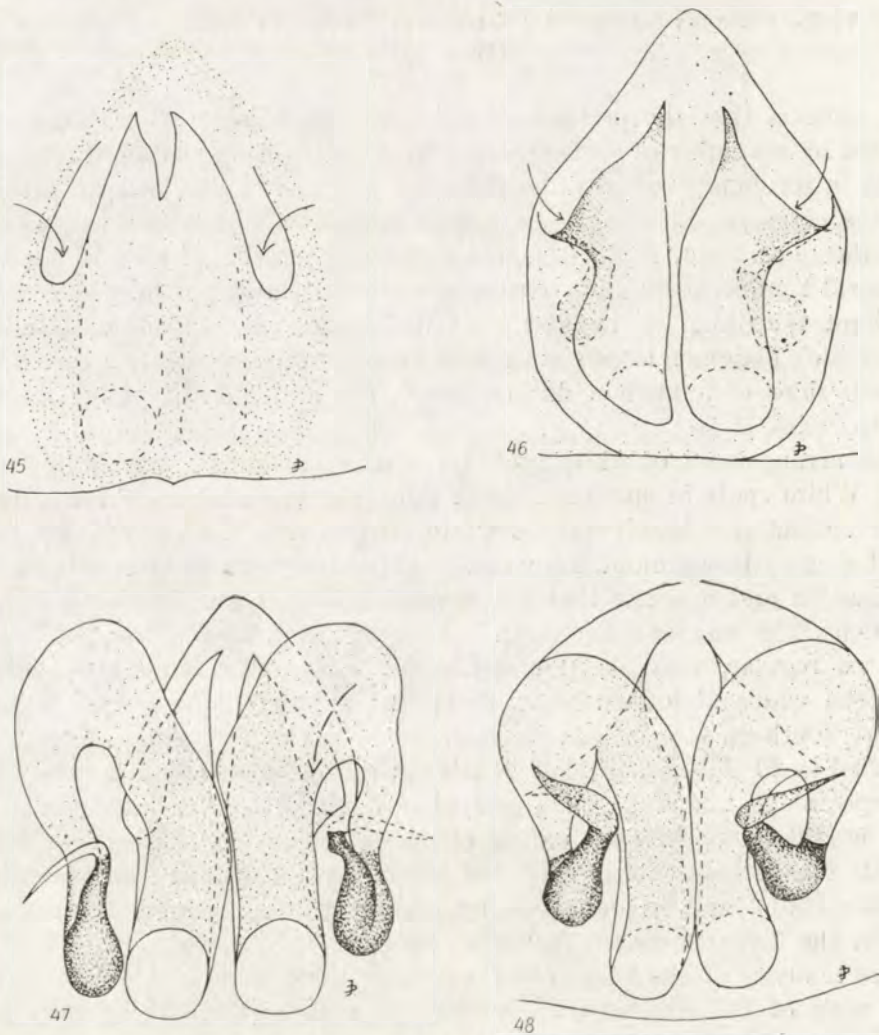
Philaeus chrysops, a Mediterranean species occurring also on isolated spots in Central Europe, including sparsely distributed places on the whole territory of Poland, is striking by the intensely red abdomen with a black median streak. The female's abdomen is grey with some usually indistinct white spots scattered on both sides of a median darker areas. The abdomen of young specimens of both sexes is grey.

The arrangement of white spots on female's abdomen vary quite considerably. White spots in specimens from Fontaine de Vaucluse, France, do form two indistinct and barely visible white streaks devoid of any sharp borders with dark grey background. They can be quite easily overlooked during a casual examination and it seems that this condition is prevalent in South European specimens. The females collected in Poland, however, have these streaks turned into two regular, very sharp and distinct white lines, stretching parallelly along the whole abdomen. That abdominal pattern happens also sometimes in more southern populations for instance in SIMON's specimen from France, identified as *Ph. bilineatus*. That female coloration happens sometimes in young male specimens, in a stage when pedipalpal tarsus is swollen but the copulatory organ is still covered by the cuticle of tarsus and presumably not yet entirely formed. I have seen such a specimen from Rozwadów near Tarnobrzeg (PRÓSZYŃSKI, 1961), and in described by SIMON (1868) specimen from Warsaw, kept in the TACZANOWSKI'S collection (IZ PAN-Warszawa).

The analysis of the literature shows that there is no single remark on an adult male of *Ph. bilineatus*, early SIMON's remark (1868) being disproved in his latter publication (1876) and by examination of his specimen. The female specimens of *Ph. bilineatus* described by SIMON (1876) and CHYZER and KULCZYŃSKI (1891) are identical with *Ph. chrysops* females from Poland.

The copulatory organs of females of typical *Ph. chrysops* and *Ph. bilineatus* (figs. 45–48) are identical in their general outline and do not show any significant differences. Therefore it should be concluded that both forms are conspecific, that in some populations white spots on female's abdomens are changed into two regular parallel white lines and that some immature males have retained their juvenile, or may be female coloration. The name *Philaeus bilineatus* (WALCKENAER, 1826) should be therefore considered a junior synonym of the name *Philaeus chrysops* (PODA, 1761).

It would be very interesting to find out whether the "*bilineatus*" males retain their unusual coloration after reaching full maturity.



Figs. 45–48. *Philaeus chrysops* (PODA, 1761), epigynum before (ventral view) and after maceration (dorsal view); 45, 47 — *Ph. bilineatus* specimen from SIMON collection; 46, 48 — a typical specimen from Fontaine de Vaucluse.

The above conclusions have been drawn from the study of the following material: a) "*Philaeus bilineatus* W. Gallia, b. 2400, 746" — 1 ♀, coll. E. SIMON, MNHN-Paris; b) "*Dendryphantès bilineatus* (WALCK.) Warszawa, leg. W. TACZANOWSKI, det. SIMON, 74" — 1 juv. ♀, coll. W. TACZANOWSKI, IZ PAN-Warszawa; c) "*Philaeus bilineatus* (WALCK.) det. [sub 732] W. KULCZYŃSKI; Węgry [Hungary], Simontornya, 1887, leg. LENDL" — 3 ♀♀, 8 juv. — coll. W. KULCZYŃSKI, IZ PAN-Warszawa; d) identified by J. PRÓSZYŃSKI specimens of *Ph. chrysops* from: Rozwadów distr. Tarnobrzeg, on a sand dune, 19. IX. 1957, leg. B. BURAKOWSKI — 1 juv. ♂, 2 juv. ♀; numerous specimens from Puszcza Kampinoska near Warszawa — leg. J. PRÓSZYŃSKI; Fontaine de Vaucluse, Dept. Vaucluse, France, on limestone

rocks 14-15. V. 1966, leg. M. PRÓSZYŃSKA and J. PRÓSZYŃSKI — 3 ♀♀, 1 juv. ♂ — all specimens kept in the coll. IZ PAN-Warszawa.

VI. On *Phlegra luteofasciata* (SIMON, 1871)

It is a relatively simple case of a mistake arisen from overestimation of individual variation. After study of a pale specimen of a *Phlegra* with distinct paler stripes on the cephalothorax SIMON decided that it differs from his very dark specimens of *Attus fasciatus* and described as a new species *Attus luteo-fasciatus* (1871). Later (1937) he has changed its systematic position and included as a subspecies into *Phlegra fasciata* (HAHN, 1826). Closer examination of the holotype of *Phlegra luteofasciata* shows that its copulatory organs do not differ from SIMON'S drawings of *Phlegra fasciata* (SIMON, 1937:1220) and the slight difference in coloration is not significant in view of general variation of that character. An additional argument is that *Phlegra luteofasciata* is known from a single specimen, the holotype, from Poland and has been never collected again.

To straighten that question out I have studied the holotype and decided that it is conspecific with *Phlegra fasciata* (HAHN, 1826) and that the name *Phlegra luteofasciata* (SIMON, 1871) should be considered a junior synonym. The redescription is given below.

Phlegra fasciata (HAHN, 1826)

Synonyms and combinations: *Attus fasciatus*: SIMON, 1868,

Attus subfasciatus SIMON, 1868,

Attus luteo-fasciatus SIMON, 1871,

Phlegra fasciata: SIMON, 1876 et auct.,

Phlegra luteofasciata: SIMON, 1876,

Phlegra subfasciata: SIMON, 1876,

Phlegra fasciata luteofasciata: SIMON, 1937,

Phlegra fasciata subfasciata: BONNET, 1958.

Material: "*Phlegra luteofasciata* E. S. Polonia, b. 2381, 895" — 1 ♂ — holotype, coll. E. SIMON, MNHN-Paris.

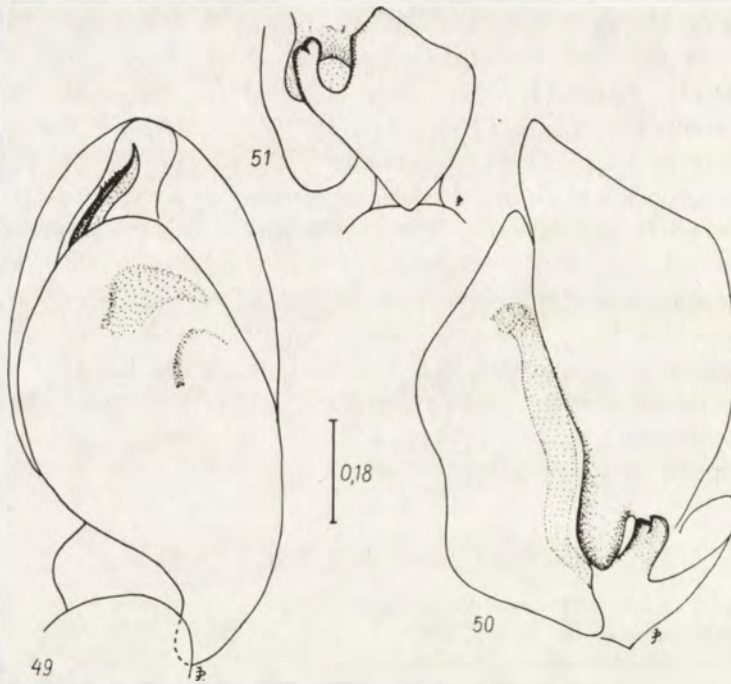
Remark: The whole genus *Phlegra* SIMON, 1876 deserves detailed revision. The differences between species are not clear, the details of copulatory organs, especially in females unknown, the individual variation has never been studied. There is also a question whether the genus *Phlegra* or some of its species do really differ from the genus *Aelurillus* SIMON, 1884.

Description of male (holotype of *Ph. luteofasciata*)

Cephalothorax light brown with eye field dark brown and thorax dorsally brown with two yellow stripes along the lateral edges of the dorsal surface. Clypeus broad, whitish yellow. Length of cephalothorax 2.77, length of eye field 0.90, width of eye field I 1.32, width of eye field III 1.35. Ratios: *a* — 0.32, *b* — 0.97, *c* — 0.68.

Abdomen dorsally dark brown, ventrally pale greyish-fawn, its length — 2.47.

Sternum and coxae pale yellow. Maxillae and labium pale yellow, white tipped. Chelicerae pale yellow with a small single tooth on inner posterior, and two teeth on inner anterior margin.



Figs. 49–51. *Phlegra fasciata* (HAHN, 1826). Male copulatory organ of the holotype specimen of *Ph. luteofasciata* (SIM.), ventral and lateral views and dorsal view of tibia.

Pedipalps pale yellow. The copulatory organ resemble in its general outlines the same organ in the genus *Aelurillus* SIM. The bulbus is long and broad, the visible part of the stylus is broad with a series of minute teeth on outer lateral edge (fig. 49). The ventral tibial apophysis is relatively thin and crossed by the transversal groove across the tip, it articulates with the lateral projection of the cymbium. The dorsal edge of tibia rises dorsally to apophysis and forms a second apophysis resembling that in *Aelurillus* (figs. 18, 21) but is much broader (figs. 50, 51).

Legs fawn with femora I–IV pale fawn. Tarsi I–II have scopulae. Length of segments of legs: I $0.67 + 0.64 + 0.90 + 0.82 + 1.35$, II $0.63 + 0.60 + 0.73 + 0.79 + 1.29$, III $0.82 + 1.05 + 0.84 + 0.75 + 1.50$, IV $- + 1.32 + 1.29 + 0.99 + 1.89$. Ratio \bar{d} — 1.53.

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STRESZCZENIE

[Tytuł: Notatki o systematyce *Salticidae* (*Arachnida, Aranei*). I-VI].

Autor podkreśla konieczność rewizji podziału rodziny *Salticidae* na podrodziny i jako pierwszy krok w tym kierunku proponuje połączenie 4 podrodzin, obejmujących mrówkokształtne *Salticidae* w jedną, wspólną podrodzinę *Synemosyninae* BANKS, 1892.

Autor synonymizuje następujące gatunki:

Aelurillus gilvus (SIMON, 1868) z *Aelurillus festivus* (C. L. KOCH, 1834),
Pellenes bilunulatus SIMON, 1877 z *Pellenes nigrociliatus* (L. KOCH, 1875),
Philaeus bilineatus (WALCKENAER, 1826) z *Philaeus chrysops* (PODA, 1761) i
Phlegra luteofasciata (SIMON, 1871) z *Phlegra fasciata* (HAIN, 1826)

oraz podaje redeskrypcje tych gatunków. Autor analizuje zmienność indywidualną *Aelurillus v-insignitus* (CLERCK, 1758), który występuje w Polsce w dwóch formach: czarnej i szarej (interpretowanej przez KULCZYŃSKIEGO jako *Ae. gilvus*), zmienność *Pellenes nigrociliatus* (L. KOCH, 1875) i *Philaeus chrysops* (PODA, 1761). Autor redeskrybuje również typy opisanego z Polski zapomnianego gatunku *Heliophanus varians* SIMON, 1868.

РЕЗЮМЕ

[Заглавие: Заметки по систематике *Salticidae* (*Arachnida, Aranei*). I-VI].

Автор считает, что разделение семейства *Salticidae* на подсемейства требует ревизии и как первый шаг в этом направлении предлагает объединить муравье-подобных *Salticidae* в одно общее подсемейство *Synemosyninae* BANKS, 1892.

¹ There is quite a lot of confusion in quotation of that important book of SIMON, which appeared printed in 4 parts in years 1897-1903 and has been bound into a single volume with the front page date 1897. The foot note on page 1080 of the book gives information that the pages 381-668 appeared in 1901 and the pages 669-1080 in 1903. Following that I accept the above quotation as a proper way of quotation of the *Salticidae* part of the 2-nd volume of the SIMON's book.

Автор синонимизирует следующие виды:

Aelurillus gilvus (SIMON, 1868) с *Aelurillus festivus* (C. L. KOCH, 1834),
Pellenes bilunulatus SIMON, 1877 с *Pellenes nigrociliatus* (L. KOCH, 1875),
Philaeus bilineatus (WALCKENAER, 1826) с *Philaeus chrysops* (PODA, 1761) и
Phlegra luteofasciata (SIMON, 1871) с *Phlegra fasciata* (HAHN, 1826)

и приводит переописания этих видов. Автор анализирует индивидуальную изменчивость *Aelurillus v-insignitus* (CLERCK, 1758), который встречается в Польше в виде двух форм: черной и серой (Кульчинский считает ее *Ae. gilvus*), изменчивость *Pellenes nigrociliatus* (L. KOCH, 1875) и *Philaeus chrysops* (PODA, 1761). Автор приводит также переписание типа забытого вида *Heliophanus varians* SIMON, 1868, который был описан из Польши.

