

A C T A   Z O O L O G I C A  
C R A C O V I E N S I A

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Kraków, 15 VII 1957

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Ryszard BIELAWSKI

Uwagi o niektórych gatunkach *Coccinellidae* wraz z opisem  
nowego gatunku z Tonkinu (*Coleoptera*)

Заметки о некоторых видах *Coccinellidae* вместе с описанием  
нового вида из Тонкина (*Coleoptera*)

Notes on some species of *Coccinellidae* and description  
of a new species from Tonking (*Coleoptera*)

[With 50 textfigures]

I. *Epilachna tonkinensis* sp. nov.

Synonym: *Epilachna tonkinensis* WEISE, MS-name.

Holotype. Female. Body markedly convex, almost round, posterior half slightly elongated.

Head with mouth parts orange yellow, except for the brown ends of the mandibulae. Clypeus, anterior margin of frons and basal joints of antennae covered with pale golden hairs; the remaining parts of the head and the labial palps covered with short, adherent golden hairs. Head densely punctate, punctures medium-sized. Spaces between punctures smaller than the diameter of the latter, without any microsculpture. Terminal joint of antennae straight, truncate at the end.

Pronotum small, its width smaller than that of the elytra; its anterior angles rounded, markedly protruding to the front. The anterior margin slightly protruding at the middle. Lateral margins broadly bent upwards with a very feebly arcuate

marginal line. Pronotum orange yellow with distinctly paler lateral margins and anterior angles and with five spots [fig. 1, 6]. The largest spot at the centre; it is oblong and grows broader anteriorly. Two other spots on both sides of the base of the former, the remaining ones at half length of the pronotum, near the lateral margins. The punctures on the pronotum similar in size to those on the head but more sparsely distributed. Microsculpture between the punctures absent. Hairs on the pronotum long, adherent, grey, with a tinge of yellow.

Scutellum triangular, brown, hairy.

Elytra densely covered with greyish-yellow hairs. Lateral margin slightly and narrowly upturned. Anterior half with a narrow lateral margination at the very edge. Posterior half of the elytra slightly elongate. Humeral tubercles very distinct. Apical angle of elytra regularly rounded. Punctulation of the elytra consisting of small punctures of the size of those on the head and pronotum, and of larger ones distributed scantily and irregularly. Around the small punctures there are slight radial lines — traces of microsculpture. Elytra black with orange lateral margin and eight spots. Distribution of the spots as on fig. 1. Two spots at the base of the elytra on both sides of the scutellum, two below the humeral tubercles, one common to both elytra on the suture at the middle of their length, two, transversely elongate, on the lateral margin in the posterior half of the elytra. The previous ones do not touch the lateral margin. The last spot situated at the apex, is common to both elytra and extends to very end of these. This spot is narrower at the middle of its length and appears to consist of two spots connected with each other.

Ventral side of body, epipleurae of the pronotum and of elytra as well as legs covered with short whitish-yellow hairs. Prosternum and epipleurae of the pronotum yellowish, only the process of the prosternum brownish. Mesosternum brownish-black, at the middle of the anterior margin yellowish and slightly concave. Metasternum brownish-black, convex. Metasternal process protruding between the middle legs and provided with a broad marginal welt. Surface of metasternum transversely wrinkled, sparsely punctate, the surface between the furrows with distinct microsculpture. Mesoepipimera yel-

lowish. Metaepisterna brownish-yellow. Abdominal sternites brown with paler margins, the two last sternites completely pale brown. Abdominal line subangulate forming an arch which does not touch the anterior margin of the sternite, and exten-

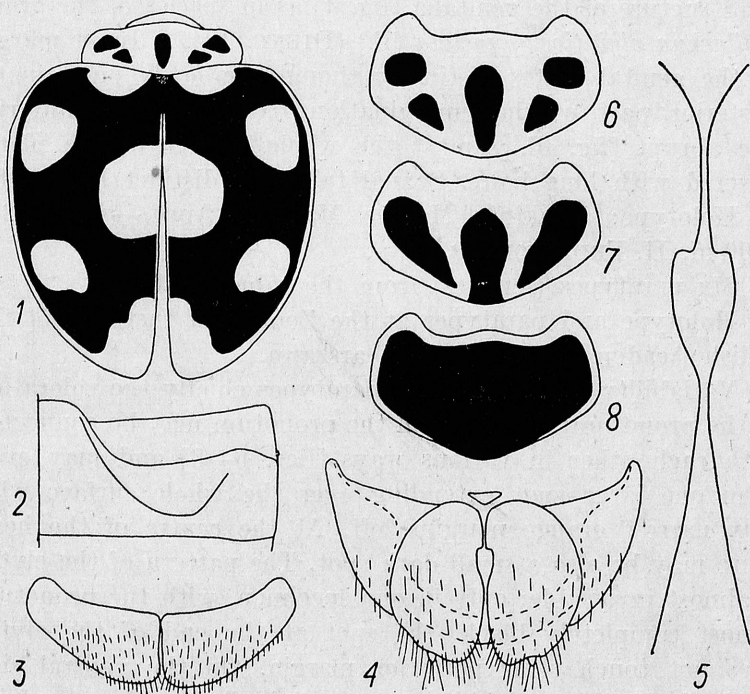


Fig. 1—8

*Epilachma tonkinensis* sp. n.

1 — dorsal aspect; 2 — abdominal line of the first sternite, holotype; 3 — sixth abdominal sternite of female, holotype; 4 — female genitalia, holotype; 5 — emarginations of the inner margins of the genital plates, holotype; 6—8 — variability of pattern on the pronotum (6 — holotype, 7 and 8 — paratypes)

ding to 2/3 of the length of the first sternite [fig. 2]. The punctures on the surface between the abdominal line and the anterior margin of the sternite identical in size with those on the remaining surface of the sternite, but more sparsely distributed. Epipleurae of the elytra yellow with a distinct marginal welt.

Femora of the middle and hind legs infuscated almost all over their length. Claws forked with an additional tooth at the base.



Sixth abdominal sternite split almost completely in two parts [fig. 3] so that it mostly falls apart during preparation. Sixth tergite covered with long hairs, with a wide regular emargination at the middle.

Structure of the genitalia [fig. 4] as in species of the group *Epilachna vigintioctopunctata* (F.) (DIEKE, 1947). Inner margin of the genital plates distinctly though shallowly emarginate; posterior part of the emargination feeble and the anterior one abrupt [fig. 5]. Almost the whole surface of the plates covered with long hairs. Sexual tubercles distinct but slight.

Holotype: Tonking, Montes Mauson, April — May, 2—3000 m, H. FRUHSTORFER.

Six paratypes (females) from the same locality.

Holotype and paratypes at the Zoological Institute of the Polish Academy of Sciences, Warszawa.

Variability concerns in the paratypes chiefly the coloration of the pronotum; the spots on the pronotum may be connected with each other in various ways [figs. 6—8] and may even form one large spot extending over the whole surface with only narrow orange margins left. At the centre of the head there may be also a small dark spot. The pattern of the elytra is almost invariable; only in one specimen, with the pronotum almost completely black, the spot at the end of the elytra does not touch their posterior margin. On the ventral side of the body the variability concerns chiefly the degree of infuscation of the metepisterna and metepimera. The metepisterna may be even black.

The species resembles *Epilachna sparsa* (HBST.) as regards the structure of the genital organs, but the pattern of the elytra proves with sufficient clarity its distinctness. This pattern, on the other hand, is similar to that in *Epilachna gangetica* v. *connecta* DIEKE, as well as in *Epilachna solomonensis* DIEKE, and *Epilachna signatipennis* (BOISD.). The new species resembles also *Epilachna doryca* (BOISD.) in the structure of the female genital organs, but the pattern, size and geographical distribution distinguish the two species. The shape of the emargination of the genital plates clearly distinguishes *Epilachna tonkinensis* sp. n. from the species referred to before.

The specimens described were formerly labelled by R. KOR-



SCHEFSKY as „*Epilachna tonkinensis* WEISE“, however, no such species has been described heretofore. Specimens with similar labels are likely to be found also in other collections and I therefore retain this name.

I am very much indebted to Mr. L. MADER, Vienna, for his communications (in litt.) relating to the species in question.

## II. *Cryptogonus postmedialis* KAPUR

The species was described by KAPUR, 1948 from India and Burma. It resembles in appearance *Cryptogonus orbiculus* (GYLL.), from which it differs in the distribution of the spots on the elytra and in both the male [figs. 9 and 10] and the female [figs. 11 and 12] genital armature.

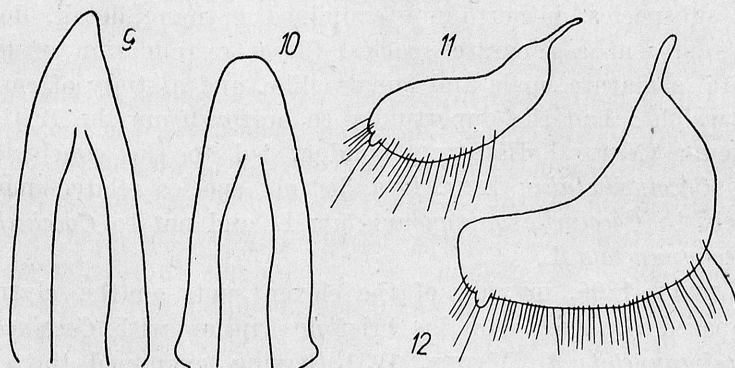


Fig. 9—12

9 — *Cryptogonus orbiculus* (GYLL.), penis from above; 10 — *Cryptogonus postmedialis* KAPUR, penis from above; 11 — *Cryptogonus postmedialis* KAPUR, genital plate; 12 — *Cryptogonus orbiculus* (GYLL.), genital plate.

The specimens I studied are in the collection of the Magyar Nemzeti Múzeum Állattára at Budapest and were collected in the following localities:

1. Formosa, Takao, 1 VIII 1907, H. SAUTER — 1 female.
2. Formosa, Taihorinsho, IX 1909, H. SAUTER — 1 male.

According to the male and female genital armature they should be included in the species referred to above, in spite

of slight differences from the description given by KAPUR, 1948. The difference is that the spot on the elytra is slightly closer to the centre than to the apex of the elytra.

Hitherto the species has not been recorded from Formosa.

### III. *Coccinella ainu* LEWIS

The rich and interesting material of *Coccinellidae* which I received from Professor Dr. M. CHÛJO, Kagawa University, Japan, includes 9 specimens which, according to MADER 1930, should be regarded as representatives of *Coccinella undecimpunctata ainu* LEW. The specimens attracted my attention by the shape of their body distinguishing them from the typical forms of *Coccinella undecimpunctata* L., as well as by the position of the paraocular spot on the head and by the size of the spots on the elytra. Thus the question arose whether this subspecies, hitherto not examined in more detail, does not represent a separate species. Closer examination of the genital armature, male and female alike, and a study of cotypes which I had the opportunity to borrow from the British Museum (Natural History), London, led to the conclusion that *Coccinella ainu* LEW. is a distinct species related most closely to *Coccinella quinquepunctata* L. and not to *Coccinella undecimpunctata* L.

LEWIS, 1896, in view of the eleven spots on the elytra, compared the species in his brief description with *Coccinella undecimpunctata* L. MADER, 1931, having examined the cotypes of *Coccinella ainu* LEW. decided in contradiction to LEWIS that it is merely a subspecies of *Coccinella undecimpunctata* L. and not a distinct species. He reported that the subspecies differs from the typical form in the more marked punctulation on the elytra, in the more rounded outlines of the body and in its geographical distribution. KORSCHESKY, 1932, in his catalogue, quotes it after MADER, 1931 as a subspecies of *Coccinella undecimpunctata* L. Also MIWA and YOSHIDA, 1935, in the catalogue, as well as RUŽIČKA 1942, in his review of the Palaearctic species of the genus *Coccinella* L. quote it as *Coccinella undecimpunctata ainu* LEW.

In view of the rather brief description of *Coccinella ainu* LEW., 1896, it seems advisable to supplement it on the basis of the two following cotypes in the collection of the British Museum (Natural History) labelled:

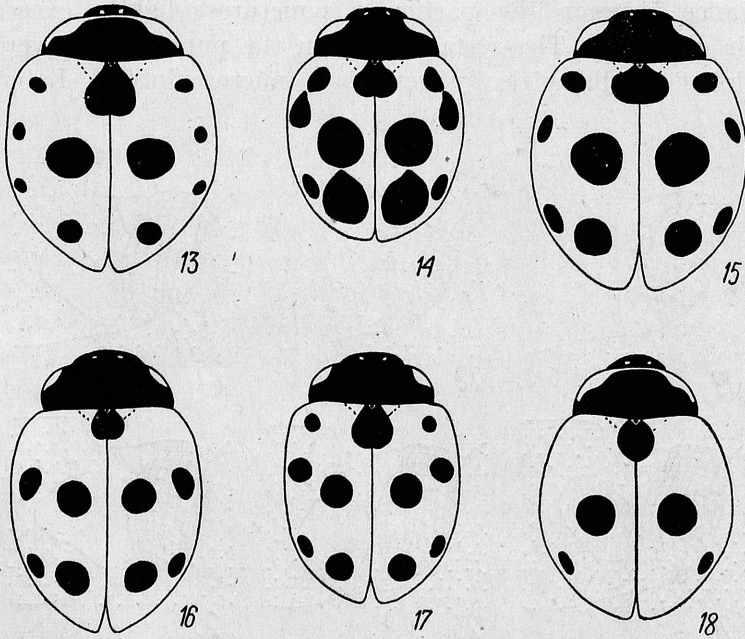


Fig. 13—18

13—15 — *Coccinella ainu* LEW. (13 — paratype); 16—17 — *Coccinella undecimpunctata* L.; 18 — *Coccinella quinquepunctata* L.

„Japan. G. LEWIS, Sapporo“, „*Coccinella ainu* LEWIS“, „Mixed with *C. Crotchii* LEW. in flowers of „immortelles“ growing in a dry Kavva at Moroan. Aug. 80“.

Both specimens examined are males.

Shape of body broadly oval [fig. 13], very much like *Coccinella quinquepunctata* L. [fig. 18] and not like *Coccinella undecimpunctata* L. [figs. 16 and 17]. Head black except for two yellowish-white spots between the eyes and for the yellowish-white anterior margin of the clypeus. The spots between the eyes touch the very edge of the latter [fig. 20]; in one of the specimens they are connected with the white lateral process



of the frons [fig. 19]. In one of the specimens the anterior margin of the pronotum is all yellowish-white, while in the other it is slightly infuscate at the middle. The lateral spot of the pronotum broadly extends to the epipleurae of the pronotum. Punctulation fairly dense on the pronotum. The distance between the particular punctures slightly exceeds their diameters. The surface between the punctures convered with an isodiametrically reticulate microsculpture. Lateral

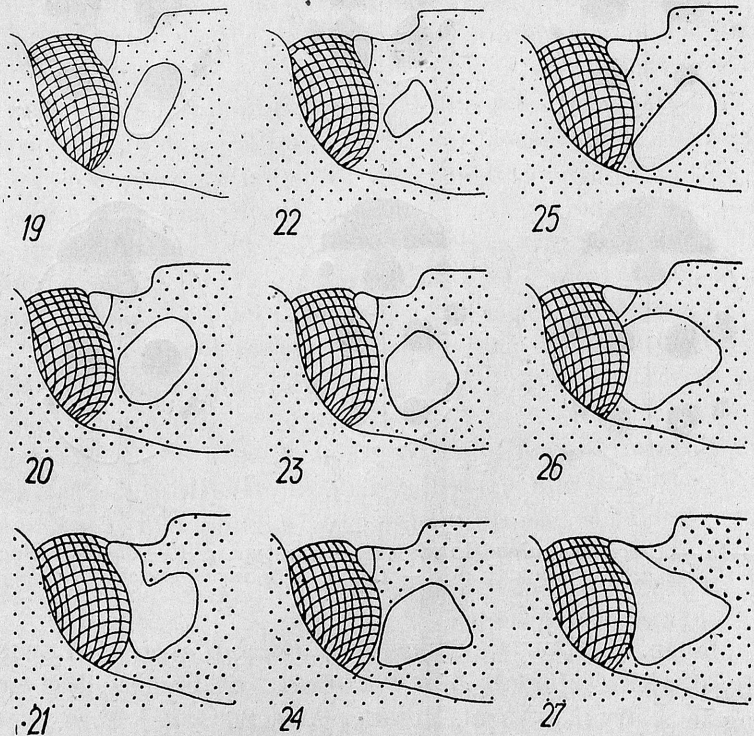


Fig. 19—27. Variability of the paraocular spot.  
19—21 — *Coccinella ainu* LEW.; 22—24 — *Coccinella undecimpunctata* L.;  
25—27 — *Coccinella quinquepunctata* L.

edges of the pronotum marginate and slightly upturned, anterior margin slightly but regularly arcuate. Elytra more densely punctate than the pronotum. Between the punctures almost no traces of microsculpture. Lateral edges of elytra

marginate. Closer to the base of the elytra the margination grows more distinct. Scutellum black, distinctly punctate, without microsculpture. Ventral side of the body and legs black. Antennae and tarsi brown. Mesoepimera white. Hind margin of the metaepisterna almost black, slightly paler at the outer angle. Metasternum with a short, interconnected furrow. Punctures of the metasternum in the furrows, widely dispersed. Lateral margins of first abdominal sternite yellowish. Abdominal sternites covered with minute punctures. The surface between the abdominal line and the anterior margin without punctures but provided with a distinct reticulate microsculpture.

Sixth abdominal sternite deeply emarginate at the middle. In the male genital armature [figs. 37 and 38] siphon not dilated and without opening before the siphonal capsule [fig. 49]. Trabes short, shorter than aedeagus. Basal part of aedeagus small. Penis and parameres of equal length. Lateral margins of penis, seen from above, slightly bent in. Penis, seen from the side, regularly tapering beginning from the base. Merely a very small terminal part of it slightly bent towards the parameres. Parameres, with almost parallel lateral margins, densely covered with short hairs. Posterior process of the basal part in the form of a small plate, vestigial. Length of lateral lobes of the basal part not exceeding half the length of the latter.

The specimens from Japan, kindly submitted by Professor Dr. M. CHÛJO, come from the following localities:

1. Japan: Honshu, Gumma Pref., Numata. 30 V 1942, leg. T. TAKEI — 6 specimens.
2. Japan: Honshu, Gumma — ken, Numata. 20 VII 1945, leg. T. TAKEI — 1 specimen.
3. Japan: Honshu, Gumma Pref., Numata. 10 VIII 1950, leg. T. TAKEI — 1 specimen.
4. Japan: Honshu, Aomori Pref., Towada. 5 X 1954. leg. K. SHIMOYAMA — 1 specimen.

Some of my specimens differ slightly from the cotypes examined in the somewhat more pronounced convexity of the body, in the size of the spots on the elytra [figs. 14 and 15], as well as in the position of the paraoocular spot and of the spot on the pronotum, which in my opinion is all within the



limits of individual variability. The male genital armature is the same in the specimens examined and in the cotypes.

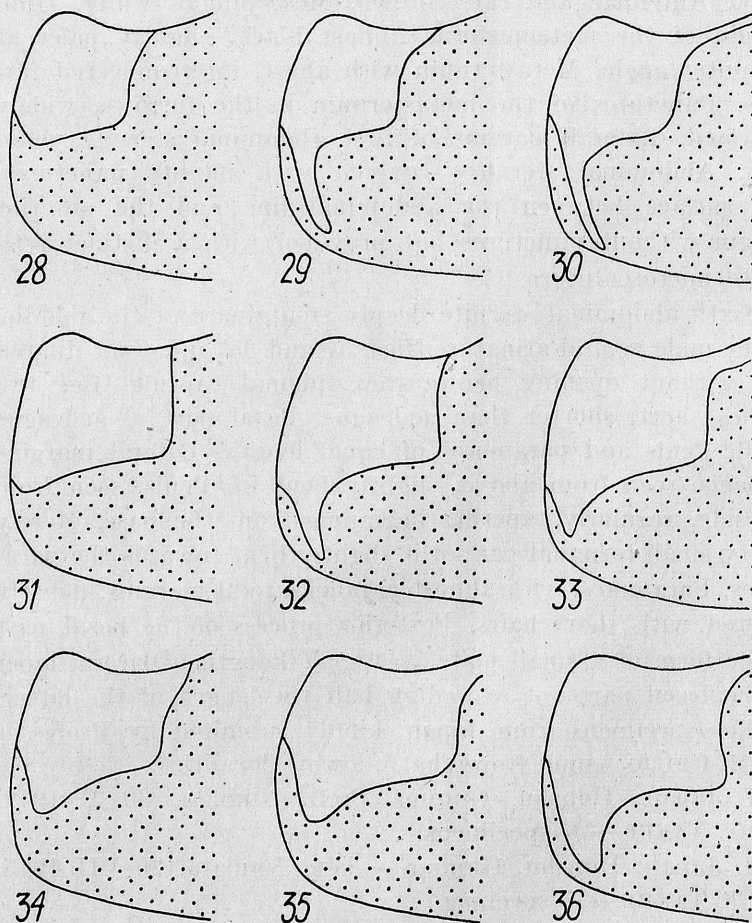


Fig. 28—36. Variability of the lateral spot on pronotum.  
28—30 — *Coccinella undecimpunctata* L.; 31—33 — *Coccinella quinquepunctata* L.; 34—36 — *Coccinella ainu* LEW.

MADER, 1930, distinguishes in his key *Coccinella quinquepunctata* L. and *Coccinella undecimpunctata* L. chiefly by the position of the paraocular spot. He claims that in *Coccinella undecimpunctata* L., unlike in *Coccinella quinquepunctata* L.,



the spot does not lie close to the eyes. On evidence of alone this character the cotypes of *Coccinella ainu* LEW. should be included rather in *Coccinella quinquepunctata* L. Examination of the variability of the position of the paraocular spot in *Coccinella quinquepunctata* L. [figs. 25—27] and in *Coccinella undecimpunctata* L. [figs. 22—24] revealed that this character is not stable. In *Coccinella undecimpunctata* L. there are specimens with spots touching the margin of the eyes; ho-

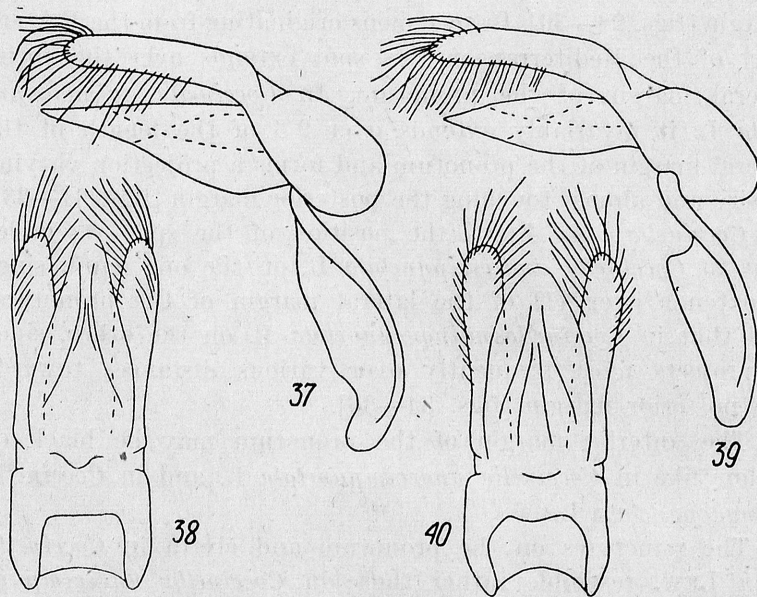


Fig. 37—40. Male genital armature.

37—38 — *Coccinella ainu* LEW. (paratype); 39—40 — *Coccinella quinquepunctata* L.

wever, I have not come across a specimen (among the examined ones) in which the spot was connected with the whitish lateral process of the frons. In *Coccinella quinquepunctata* L. on the other hand, the spot may or may not touch the margin of the eye; it is fairly frequently so diffused on the surface of the head that it unites with the frontal process which is also white. The position of this spot in the examined specimens of *Coccinella ainu* LEW. [figs. 19—21] corresponds to the variability found in *Coccinella undecimpunctata* L. as well

as in *Coccinella quinquepunctata* L. However, the union of the paraocular spot with the coloration of the frontal process, which occurs in *Coccinella ainu* LEW., rather proves the latter species to be more closely related to *Coccinella quinquepunctata* L. than to *Coccinella undecimpunctata* L.

The yellowish spot on the lateral margin of the pronotum extends in *Coccinella undecimpunctata* L. up to the middle of the length of the pronotum or very slightly beyond; it fairly frequently forms a sort of projection towards the posterior margin [figs. 28—30]. In specimens originating from the Eastern part of the Mediterranean this spot extends over the entire lateral margin of the pronotum. In *Coccinella quinquepunctata* L. it invariably extends over  $2/3$  of the length of the lateral margin of the pronotum and forms a projection varying in size and almost touching the posterior margin [figs. 31—33]. In *Coccinella ainu* LEW., the position of the spot resembles that in *Coccinella undecimpunctata* L. on the one hand, since it extends over  $1/2$  of the lateral margin of the pronotum, and that in *Coccinella quinquepunctata* L. on the other, since it projects most frequently over various distances towards the posterior margin [figs. 34—36].

The anterior margin of the pronotum may be black or yellow like in *Coccinella undecimpunctata* L. and in *Coccinella quinquepunctata* L.

The punctures on the pronotum and elytra in *Coccinella ainu* LEW. resemble rather those in *Coccinella undecimpunctata* L., but they are slightly more distinct. In *Coccinella ainu* LEW. there is no microsculpture between the punctures which clearly distinguishes this species from *Coccinella quinquepunctata* L. in which the microsculpture is fairly distinct though shallow and therefore somewhat obliterate.

The elytra of all examined specimens of *Coccinella ainu* LEW. have eleven black spots each [figs. 13—15]. On both sides of the scutellum there are whitish-yellow spots. The discal<sup>1</sup> and the apical spots are the smallest and about equal in size. The pattern on the elytra is fairly constant. Merely in one specimen the humeral, lateral, discal, apical and mar-

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<sup>1</sup> The names of the spots are given after DOBZHANSKY, 1931.



ginal spots are all so close together that they almost fuse in one [fig. 14].

The pattern of the elytra approaches most closely that found in *Coccinella quinquepunctata* ab. *arthurica* JAC. and in *Coccinella undecimpunctata* L.

The characters referred to above, of which the limits of variability overlap, provide no sufficient clue for distinguishing the tree species. Only the structure of the genital armature, male and female alike, together with an entire set of external characters make possible the drawing of a clear distinction.

The most essential difference proving that *Coccinella ainu* LEW. is not a subspecies of *Coccinella undecimpunctata* L. is found in the absence of a dilatation and an opening on the

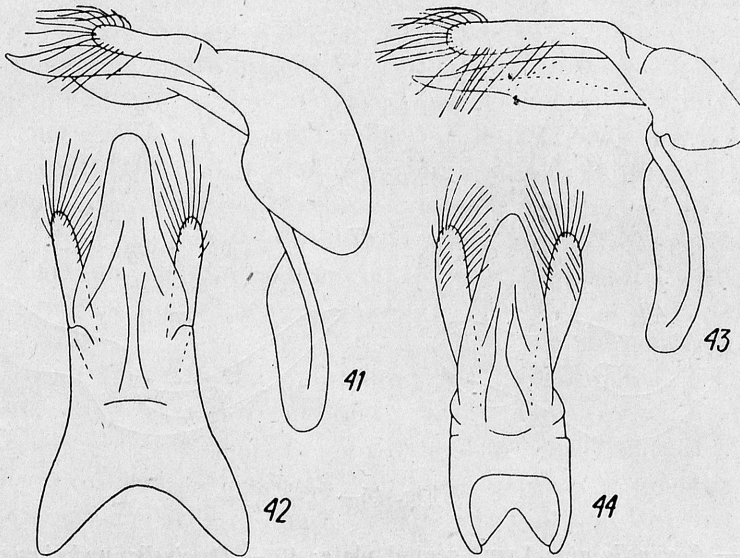


Fig. 41—44. Male genital armature.

41—42 — *Coccinella undecimpunctata* L.; 43—44 — *Coccinella hieroglyphica* L.

sipho before the siphonal capsule [figs. 49 and 50]. The genital armature in the male of *Coccinella undecimpunctata* L. [figs. 41 and 42] is also unlike that in *Coccinella ainu* LEW. As regards the structure of sipho and aedeagus the latter species resembles both *Coccinella quinquepunctata* L. [figs. 39 and 40] and *Coccinella hieroglyphica* L. [figs. 43 and 44]. It differs from the



latter species in the coloration of the mesoepimera, which are black in *Coccinella hieroglyphica* L. and white in *Coccinella ainu* LEW., as well as in the pattern of the elytra. The lateral faces of the penis (seen from above) are in *Coccinella quinquepunctata* L. rather bent out, in some specimens with a tendency to be straight, while in *Coccinella ainu* LEW. they are almost straight, rather with a marked tendency towards bending.

The genital plates in the female genital armature of these species resemble each other. They are compared on figs. 45—48.

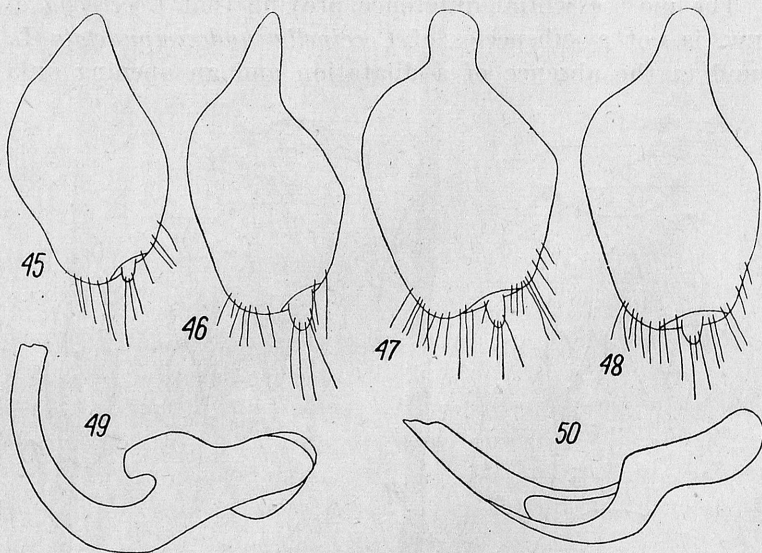


Fig. 45—50.

45 — *Coccinella ainu* LEW., genital plate; 46 — *Coccinella undecimpunctata* L., genital plate; — 47 — *Coccinella quinquepunctata* L., genital plate; 48 — *Coccinella hieroglyphica* L., genital plate; 49 — *Coccinella ainu* LEW., end of the siphon with the siphonal capsule; 50 — *Coccinella undecimpunctata* L., end of the siphon with the siphonal capsule.

On evidence of the data referred to above, *Coccinella ainu* LEW. ought to be regarded as a distinct species whose proper place in the natural system of the genus *Coccinella* L. is next to *Coccinella quinquepunctata* L. and not next to *Coccinella undecimpunctata* L.

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## STRESZCZENIE

W niniejszej pracy autor opisuje nowy gatunek, *Epilachna tonkinensis* sp. n. z Tonkinu. Typy tego gatunku przechowywane są w zbiorach Instytutu Zoologicznego Polskiej Akademii Nauk w Warszawie. Następnie autor podaje *Cryptogonus postmedialis* KAPUR jako gatunek nowy dla fauny Formozy. W końcu autor omawia krytycznie stanowisko systematyczne *Coccinella ainu* LEWIS stwierdzając na podstawie przebadania zmienności poszczególnych cech, że jest to gatunek odrębny, zbliżony do *Coccinella quinquepunctata* L. a nie podgatunek *Coccinella undecimpunctata* L., jak to dotychczas uważano.

## РЕЗЮМЕ

В настоящей работе автор описывает новый вид, *Epilachna tonkinensis* sp. n. из Тонкина. Типы этого вида хранятся в коллекции Зоологического Института Польской Академии Наук в Варшаве. Затем автор приводит новый вид *Cryptogonus postmedialis*

КАРИУ для фауны Формозы. Наконец автор критически рассматривает систематическое положение *Coccinella ainu* LEWIS устанавливая, на основании исследования изменчивости отдельных признаков, что это самостоятельный вид близкий к *Coccinella quiquerpunctata* L. а не подвид *Coccinella undecimpunctata* L. как это до сих пор считалось.

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Redaktor zeszytu: prof dr J. Nast.

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