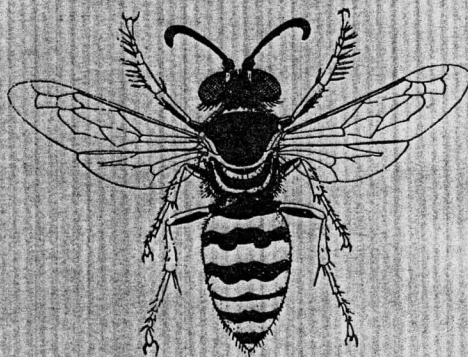


SPECIAL PUBLICATIONS
OF THE
JAPAN
HYMENOPTERISTS ASSOCIATION

NO. 25



M I S H I M A

APRIL 15, 1983

C O N T E N T S

Tsuneki, K. :

Revision of the type specimens of three species of <u>Liris</u> described by Frederick Smith (Hymenoptera, Sphecidae)	1
Larrinae of New Guinea in the collection of the Hungarian National Museum of Natural History, Budapest (Hymenoptera, Sphecidae) ...	6
Key to the Papuan species of <u>Liris</u> (<u>Leptolarra</u>)	29
Tentative key to the species of <u>Dicranorhina</u> in Indo-Australian and Pacific areas	36
Key to the species of <u>Pison</u> known from New Guinea	42
<u>Chrysolarra</u> spp. Cameron, 1901, are presumably ssp. <u>binghami</u> of <u>Liris</u> (<u>Leptolarra</u>) <u>deplanatus</u> (Kohl, 1883), with one other synonym (Hymenoptera, Sphecidae)	54
Revision of the holotype of <u>Odontolarra</u> (= <u>Lyroda</u>) <u>nigra</u> Cameron, with remarks on its subspecies and the description of a closely related new species from Japan (Hymenoptera, Sphecidae)	57
A new species of <u>Psen</u> (<u>Psen</u>) found in Japan (Hym., Sphec., Pemphredoninae)	63

REVISION OF THE HOLOTYPE OF ODONTOLARRA (= LYRODA) NIGRA CAMERON,
WITH REMARKS ON ITS SUBSPECIES AND THE DESCRIPTION
OF A CLOSELY RELATED NEW SPECIES FROM JAPAN
(HYMENOPTERA, SPHECIDAE)

By K. TSUNEKI

In connection with the revision of the Indian species of the genus Lyroda Say (Tsuneki, SPJHA, 24: 69-77) I have reexamined the type specimen of Odontolarra nigra Cameron, 1904. As a result it becomes clear that Lyroda japonica Iwata is only a geographic race of nigra and during the course of reviewing the specimens of japonica it has happened that a closely allied undescribed species is discovered.

Thanks to the kind help of Mr. C. R. Vardy, British Museum (Natural History) and Dr. A. S. Menke, U. S. Department of Agriculture, the present study could be done and to whom I wish to express my cordial gratitude.

1. Lyroda nigra (Cameron, 1904)

Odontolarra nigra Cameron, Zeitschr. Syst. Hymen. Dipt., 4: 12, 1904 (♀, India, Sik-
kim).

Lyroda nigra: Bohart and Menke, World Sphecid., p. 299, 1976 (listed).

Observation of the holotype

Present state of the specimen: A pinned specimen, mounted on a slit of card paper; the pin is shortly cut off above the insect. Right hind leg from trochanter apically lacking, otherwise complete, wings obliquely raised, Al and clypeus are partly attached with mud, possibly showing the ground burrowing habits of the species. With four labels: (1) 7 mm round red-margined Type label, (2) 3×10 mm card paper "Cameron Coll. 1903 121" pressed in 2 lines, (3) 23×15 mm white card paper, with "Odontolarra nigra Cam., Type, Darjeeling" handwritten in 4 lines with black ink, (4) Museum label, B. M. TYPE, HYM (pressed in 2 lines), 24 414 (handwritten) in 3 lines.

♀. Length 7.5 mm in the posture with curved gaster, possibly 8.5-9 mm under natural condition (Cameron says 8 mm). Black; mandible ferruginous, at base and apical area dark brown, tegula translucent pale brown; spurs, claws and spines of legs ferruginous, wings strongly yellowish, apically paler. Hair silvery, on GT 1-3 pile band well defined, in some light somewhat brassy, on GT 5 pile dense, pale brassy, on pygidial area dark brown, but in oblique light brassy.

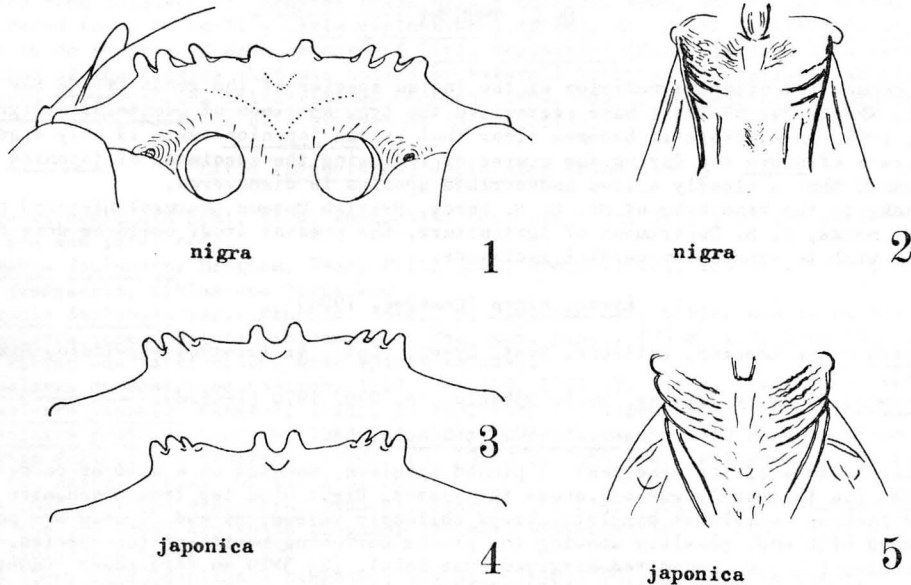
Clypeus: Fig. 1 (median pair of teeth at apical margin not completely symmetric, but this may vary), very similar in the state of apical dentation to Lyroda japonica occurring in Japan. Measurements (within parenthesis: L. japonica, ♀):

HW, HL, IODv, A3=100, 50, 52, 24 (100, 52, 51, 24). OOD:Od:POD:OCD=7:3:7:15 (7:3:8.5:16). A, 2, 3, 4, 5, .. 10, 11, 12=3, 10, 7, 6.5, .. 5, 5, 6.5 (3, 10, 7, 6.5, .. 5, 5, 6.5). A3=AW×4 (AW×4). IODv:IODm:IODc=10:11.5:11 (10:11:11.5). AOD:WAS:IAD=5:5:6 (6:5:6.5). Abscissae 1, 2, 3, 4, 5 of radial vein, when A5=3, relatively =9, 2, 7, 11, 3 (11, 2, 5, 12, 3).

Head seen in front with inner orbits subparallel, frons medianly distinctly furrowed, the furrow with a shining bottom line, but anteriorly shallowed and at above antennae replaced with a short carina which is seen from above produced like a tooth; occipital carina low, but distinctly raised, ending suddenly beneath head, without reaching buccal carina; mesoscutum medio-anteriorly distinctly, but rather broadly furrowed till near middle, including within the slightly divergent admedian lines, scutellum medio-posteriorly, postscutellum medianly, both minutely and weakly tuberculate (scuto-scutellar furrow is destroyed by the thick pin). On mesopleuron epimeral area is roundly swollen, somewhat conical, scrobal furrow distinct, curved along lower margin of epimeral area, smooth, episternal furrow strong, foveolate. Propodeum in dorsal view wider at base than long in middle (till apex of posterior aspect which is almost semi-circular), with long distinct medial carina, but without lateral ones, in lateral view posterior end of dorsum slightly produced (where in dorsal view transversely, shortly carinated), dorsum flat, posterior aspect somewhat roundly swollen, in vertical view posterior aspect medianly finely furrowed and surface transversely rounded. Basal platform of GT 1: Fig. 2, pygidial area similar in form to that of japonica (oval, with apex narrowly rounded).

Frons, vertex, mesoscutum very minutely punctate-reticulate, mesopleuron feebly

microcoriaceous, without puncture; propodeal dorsum somewhat coarsely rugoso-reticulate, longitudinal rugae slightly stronger than the transverse, on posterior aspect rugae slightly coarser and from postero-medial centre somewhat arcuately radiating; sides on dorsal half transversely rugoso-striate, below finely, closely and weakly punctulate.



According to the observation *Lyroda nigra* (Cameron) (♀) is different in the dentation of the apical margin of the clypeus from the same sex of *Lyroda formosa*, *venusta* (s. Tsuneki, 1983), *binghami* and *salai* hitherto recorded from India in that the interserial area (area between lateral series of three teeth and medial series of two teeth) is without additional tooth or teeth, and it is certainly a distinct species. Accordingly, there is no need of any synonymizing in regard to the Indian species. On the other hand, among the exotic species such is certainly present. It is *Lyroda japonica* Iwata, 1933. This species is very similar to *nigra* in its clypeal dentation as shown in Figs. 3 and 4. However, the detailed comparison indicates that in *japonica* the interserial distance is relatively much greater than in *nigra*, namely in *japonica* it is subequal to the width of the lateral series of 3 teeth (Figs. 3 and 4 - this character is very constant in *japonica* ♀), while in *nigra* it is distinctly narrower than the width of the lateral series (Fig. 1). Moreover, in *japonica* propodeal dorsum usually with distinct lateral carinae, vestiture usually much more broadly and distinctly brassy and the body size much larger (♀ 10-12 mm, ♂ 6-8 mm).

Of the differences above mentioned the first that is related to the apical structure of the clypeus is most important and in a view it may be considered almost as worthy as the difference in dentation. But here the stress is placed upon the pattern of the dentation, because in a few specimens of *L. japonica takasago* occurring in Formosa the structure approaches very close to that of the nominate form (see remarks on this subspecies), and as to the lateral carinae of propodeum, certainly they are usually present, but frequently the carinae are very weak, short and indistinct and rarely completely lacking (in ♂ as a rule without lateral carinae) and can not be considered important, and so *japonica* is synonymized with *nigra*, but as its geographical race:

Lyroda nigra japonica Iwata, 1933

Hereupon the taiwanese race of *japonica* is turned to the subspecies of *nigra*:

Lyroda nigra takasago Tsuneki, 1967

As to the unknown male of *L. nigra* the general characters of it can be presumed through the knowledge of that of *japonica* and *takasago*, of which explanation will be given in the following chapter.

2. *Lyroda japonica* Iwata, 1933

Lyroda japonica Iwata, Annot. Zool. Jap., 14: 7-9, 1933 (♀ ♂, Japan, figs.).

Lyroda japonica: Bohart and Menke, World Sphecid., p. 299, 1976 (listed).

Specimens examined: 38 ♀ 26 ♂: 1 ♂ Aomori (Tateoka), 1 ♀ Toyama (Hakui), 7 ♀ Ishikawa (Tetori Park), 16 ♀ 15 ♂ Fukui (Mikuni, Yashirodani, Yunoh, Sabanami, Ohno, Hossaka, Hishima, Arashiguchi), 5 ♀, Tochigi (Utsunomiya), 1 ♀ Shizuoka (Mishima), 5 ♀, Kohchi (Ashizuri), 3 ♀ 10 ♂ Kagoshima (Satamisaki).

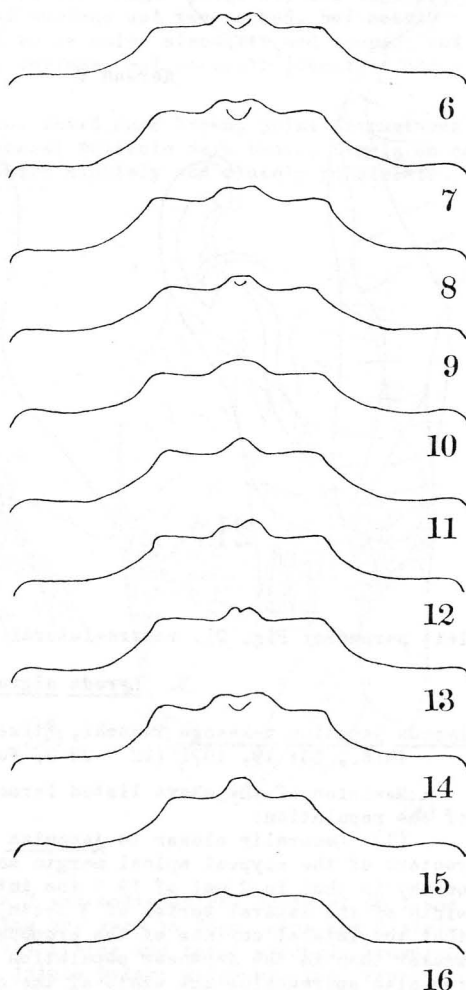
In regard to the female of this subspecies explanation has been done at some length in the preceding chapter in connection with the nominate species. Here mention will be made mainly as to its male:

♂. 6.5-8.5 mm. Similar in colour generally to ♀, but mandible more broadly variable in colour: most usually on basal 2/3 ferruginous and apical 1/3 brown, reddish brown or dark brown, but sometimes basal area (variable in width) blackish, sometimes whole the organ completely ferruginous, rarely in frontal view almost completely black, but in lateral view apical half distinctly brownish. Tarsi apically brownish, especially so in fore leg and in all legs beneath, a pair of round reddish marks on GS 2 present, but less frequent than in ♀, while the scattered small obscure reddish marks are more frequent on GS 2-4. Hair silvery, only very rarely on thorax and gaster with a slight tint of brassy; pile bands on GT 1-3, and dense pile on GT 6 are present. Measurements:

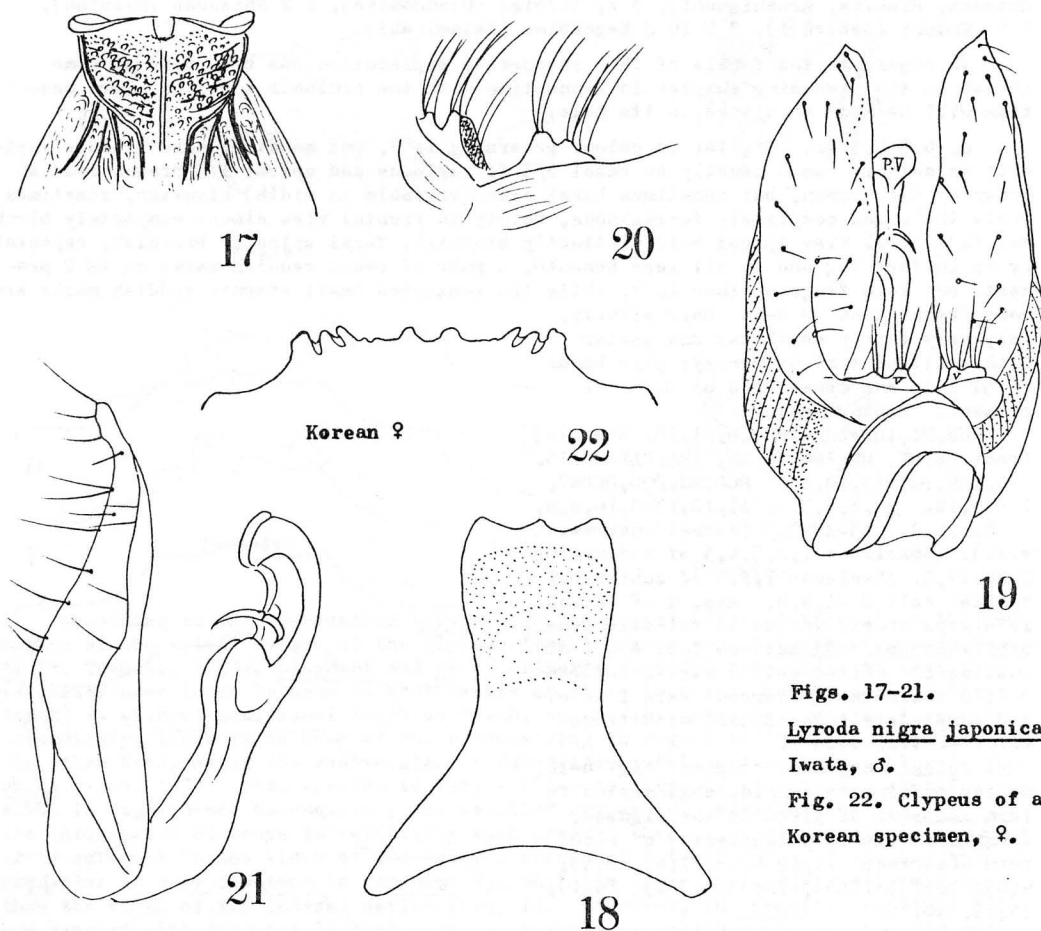
HW, HL, IODv, A3=100, 50, 51, 18. Seen in front HW, HL, CML=100, 76, 22. CML:CLL=20:15. AOD, WAS, IAD=13, 10, 13. OOD, Od, POD, OCD=7, 3, 8.5, 12. A2, 3, 4, 5 .. 11, 12, 13=5, 10, 8, 8, .. 6.5, 6, 9. A3=AW×2.5 (dorsal -narrowest view). Abscissae 1, 2, 3, 4, 5 of radius=16, 2, 10, 17, 5. Abscissae 1, 2, 3 of cubitus of cubital cell 2 =1, 9, 9. Abs. 2 of radius is always short, varies in relative length (when abs. 5=5) between 1-5, abs. 1 of cubitus of cubital cell 2 varies between 0-2, 0 shows that recurrent vein 1 is often completely interstitial with transverse cubital vein 1.

Apical margin of clypeus: Fig. 6-16, median prominence considerably varied in form and size as given in the figures, frequency (within parenthesis) of each form observed: Figs. 6(2), 7(4), 8(3), 9(6), 10(1), 11(3), 12(3), 13(1), 14(1), 15(1), 16(1).

Propodeal dorsum with long distinct medial carina, reaching almost to apical margin, but without lateral carinae, only on postero-lateral areas at verge to sides transverse carinae become sparse and often shortly highly raised, but not always strongly so. The platform at base of GT 1 is usually as given in Fig. 17, more roundly narrowed towards medio-apical furrow. Epipygium flattened, with distinct lateral carinae, not so long as in ♀, apical area translucent pale yellow, apex broad and gently rounded out. GS 8: Fig. 18, curvature of the lateral margins and developmental degrees and relative size of apical teeth are considerably variable, but the apical margin is constantly tridentate. Genitalia in latero-ventral view: Fig. 19, paramere at base medianly bluntly carinated



beneath, ventral surface sparsely setaceous, the setae strong and long, but always only about 20 in number on whole the ventral surface, volsella not well developed, consisted of 2 tubercles, low and high, carrying about 8-9 long standing setae - the constancy of this 2-peaked structure is confirmed with 6 specimens of the genitalia - (Fig. 19, V, seen obliquely from left side, and Fig. 20, seen obliquely right side). Penis valve and



Figs. 17-21.

Lyroda nigra japonica
Iwata, ♂.

Fig. 22. Clypeus of a
Korean specimen, ♀.

left paramere: Fig. 21, ventro-lateral view from right side.

3. *Lyroda nigra takasago* Tsuneki, 1967

Lyroda japonica takasago Tsuneki, Etizenia, 20: 58, 1967 (7 ♀ 4 ♂, formosa, figs.);
Ibid., 55: 19, 1971 (12 ♀ 28 ♂, Formosa).

Revision of the above listed Formosan specimens confirms the following characters of the population:

(1) Generally closer to *japonica* than to nominate race, especially in the characters of the clypeal apical margin and the propodeal lateral carinae in ♀; but noteworthy is that in 2 out of 19 ♀ the interserial distance is distinctly smaller than width of the lateral series of 3 teeth, very close to the state in *nigra nigra* and that the lateral carinae of the propodeal dorsum are in all the specimens generally weaker than in the Japanese population (sometimes rather indistinct) and this character also approaching the state of the nominate form.

(2) Body is generally much smaller than in the Japanese population, ♀ mostly 8-9

mm, ♂ 6-7 mm, with a few exception.

(3) In ♀ hair on lower frons and clypeus always silvery, less marked on basal half of clypeus than in the Japanese specimens as given in the original description.

Remarks. The two exceptional specimens of *takasago* in the structure of the clypeus seem to give support for having considered the relative width of the interserial distance less important than the pattern of the dentation at the time of separation of *japonica* at the subspecies rank.

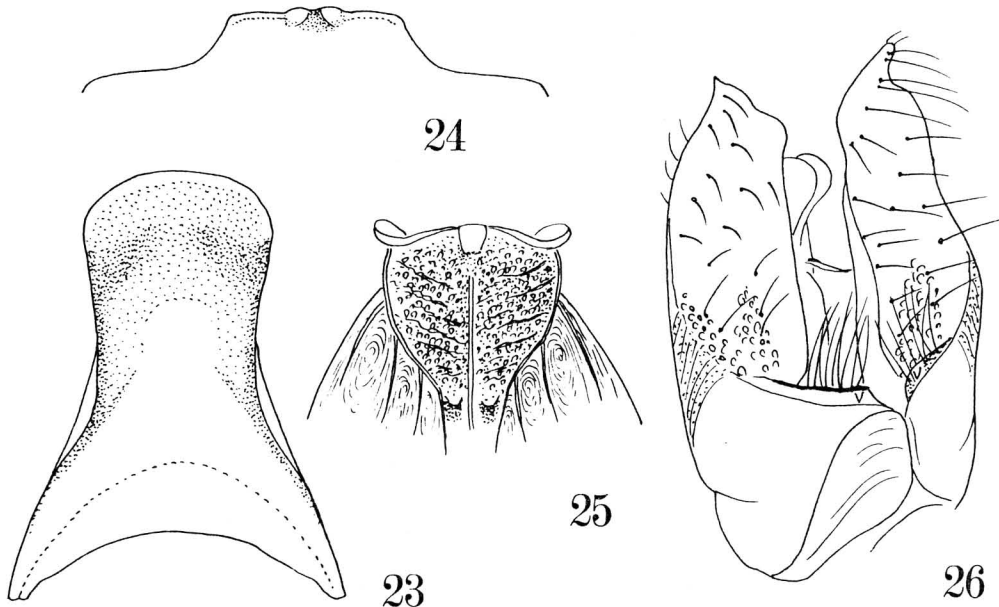
In the specimen (♀) from Central Korea (Mt. Shoyo) interserial area of the clypeus minutely sinuate (Fig. 22), but whether this is constant in the Korean population or not is uncertain, since the specimen examined is but a single.

4. *Lyroda fukuiensis* sp. nov.

♂. Length 9.5 mm. Very similar in external characters to *L. nigra japonica* ♂, differing from it in the following characters:

Gastral sternite 8 with apex broadly rounded (Fig. 23), epipygium without distinct lateral carinae, clypeus at apex in middle provided with a pair of very feeble rounded prominences (Fig. 24), the prominences are rather made clear by the intervallic rounded hollow (in one aberrant specimen of *japonica* the clypeal form is very similar - Fig. 16 - , but in this specimen GS 8 is typical to *japonica*, namely tridentate at apex - Fig. 18), basal platform of GT 1 relatively longer (Fig. 25, cf. Fig. 17) and in genitalia (Fig. 26) volsella with dorsal surface not two-peaked, but nearly flat (Fig. 26, V), sickle-shaped appendages of penis valve slenderer and longer, and paramere without baso-medial carina on ventral surface, but coarsely granular (setae very sparse as in *japonica*).

♂. Black; mandible ferruginous, with apical third dark brown, palpi ferruginous and basally darker, apical marginal area of humeral tubercle dark brown, tegula on anterior half and inner margin brownish black (where minutely and closely punctulate),



rest translucent pale yellow, sides of GT 1 and 2 and medio-apical parts of GS 1 and 2 obscurely reddish (but here the reddish maculae may vary in form, size and distribution); articulations of legs reddish brown, all tibiae and tarsi strongly brownish, especially spurs, base and underside of tarsal joints paler; wings hyaline, feebly darkened throughout, stigma and veins ferruginous. Hair silvery, on gaster pile bands on GT 1-3 present and GT 6 is densely covered with pile, epipygium also closely cover-

ed with silvery hair. Measurements:

HW,HL,IODv,A3=100,52,52,18. HW,HL,CML=100,78,24 (frontal view). CML:CLL=20:17 (showing clypeus slightly more produced than in nigra japonica). AOD,WAS,IAD=10,10,11 (WAS relatively wider). IODv,IODm,IODc=20,21,21. A2,3,4,5, .. 11,12,13=5,10,8,8, .. 7,7,10. A3=AW× 2.1. OOD,Od,POD,OCD=7,3,9,13. Abs. 1,2,3,4,5 of radius (when abs.5=5) =17,1,12,18,5(left), =17,4,11,18,5(right), Abs.1,2,3 of cubitus of cubital cell 2 =3,10,11 (same scale and in both wings), (abs. 2 of radius shows the degree of convergency of transverse cubital veins 1 and 2, in this specimen it is markedly different between left and right wings).

Structure and sculpture, including punctation, of occipital carina, pronotal dorsum and sides, mesothorax, metasternum, scutellum (with medio-apical shining low tubercle), postscutellum (medianly weakly carinate) and legs (especially the carinae and spines of hind tibia) as in niger japonica, ♂.

♀, unknown.

Holotype: ♂, Japan, Fukui Pref. Hossaka, river bed sand plain, 7.IX.1962, K. Tsuneki leg. (Coll. Tsuneki).

Remarks. In this specimen the apical parts of both wings are heavily rubbed off and lacking of lateral carinae of the epipygium is apparently due to rubbing down. However, as the male does not work for nesting (certainly in this specimen the mandibles, clypeus, spurs, spines and claws of the legs are acute), why such a rubbing occurs is unknown.

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GENERAL INDEX

<u>appendiculata</u> (<u>Chrysolarra</u>) ..	54	<u>*morobensis</u> (<u>Liris</u>)	23
<u>*aurarius</u> (<u>Liris</u>)	9	<u>nigra</u> (<u>Odontolarra</u>)	57
<u>aureosericea</u> (<u>Chrysolarra</u>) ...	54	<u>nigra</u> (<u>Lyroda</u>)	57
<u>aurulentus</u> (<u>Liris</u>)	7	<u>*novaguineanum</u> (<u>Pison</u>)	49
<u>binghami</u> (<u>Liris</u>)	54	<u>*novaguineanus</u> (<u>Liris</u>)	16
<u>*biroi</u> (<u>Liris</u>)	14	<u>novarae</u> (<u>Tachysphex</u>)	41
<u>*biroi</u> (<u>Pison</u>)	46	<u>ornatitarsis</u> (<u>Liris</u>)	29
<u>bismarckianum</u> (<u>Pison</u>)	45	<u>*papuana</u> (<u>Dicranorhina</u>)	31
<u>deplanatus</u> (<u>Liris</u>)	54	<u>*papuana</u> (<u>Larra</u>)	6
<u>*difficilis</u> (<u>Liris</u>)	4, 13	<u>*papuanus</u> (<u>Liris</u>)	8
<u>*erimaense</u> (<u>Pison</u>)	50	<u>*papuanus</u> (<u>Tachytes</u>)	38
<u>exilipes</u> (<u>Liris</u>)	2	<u>*papuensis</u> (<u>Dicranorhina</u>)	34
<u>festinans</u> (<u>Liris</u>)	20	<u>*papuensis</u> (<u>Liris</u>)	26
<u>formosa</u> (<u>Lyroda</u>)	41	<u>polita</u> (<u>Larra</u>)	6
<u>foveiscutis</u> (<u>Liris</u>)	29	<u>pruinosa</u> (<u>Chrysolarra</u>)	54
<u>fulvopilosus</u> (<u>Tachytes</u>) ...	54, 55	<u>*timbang</u> (<u>Liris</u>)	24
<u>fulvovestitus</u> (<u>Tachytes</u>)	55	<u>subtessellatus</u> (<u>Liris</u>) ...	1, 11
<u>*fukuiensis</u> (<u>Lyroda</u>)	61	<u>takasago</u> (<u>Lyroda</u>)	58, 60
<u>funerea</u> (<u>Liris</u>)	29	<u>trifasciata</u> (<u>Liris</u>)	20
<u>hospes</u> (<u>Pison</u>)	43	<u>vindex</u> (<u>Liris</u>)	29
<u>*huonense</u> (<u>Pison</u>)	48	<u>*yanonis</u> (<u>Liris</u>)	17
<u>*huonensis</u> (<u>Dicranorhina</u>)	33		
<u>*huonensis</u> (<u>Liris</u>)	15		
<u>ignavum</u> (<u>Pison</u>)	45		
<u>insularis</u> (<u>Liris</u>)	3		
<u>iridipenne</u> (<u>Pison</u>)	43		
<u>japonica</u> (<u>Chrysolarra</u>)	54		
<u>japonica</u> (<u>Liris</u>)	20		
<u>japonica</u> (<u>Lyroda</u>)	57, 58, 59		
<u>laboriosa</u> (<u>Liris</u>)	5		
<u>luzonensis</u> (<u>Liris</u>)	4		
<u>mindanaoensis</u> (<u>Liris</u>)	8		
<u>*miyagino</u> (<u>Psen</u>)	63		
<u>modestus</u> (<u>Liris</u>)	29		

Remarks.

- * ... New species.
- ** ... New subspecies.

SPECIAL PUBLICATIONS OF
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NO. 25.

Published on April 15, 1983

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