

**THE
FABRICIAN TYPES OF INSECTS
IN THE HUNTERIAN COLLECTION AT
GLASGOW UNIVERSITY**

**COLEOPTERA
PART II**

By
ROBERT A. STAIG, M.A., PH.D., F.R.S.E.



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THE
PARASITIC TYPES OF INSECTS
IN THE HUNGARIAN COLLECTION AT
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PART II

By

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INTRODUCTION

This volume is a further contribution towards a descriptive Catalogue of the Insect Types in the Hunterian Collection at Glasgow University.

As stated in the Introduction to Part I, the special interest and importance of Dr William Hunter's Collection of Insects is due to the fact that many of the specimens are the types of insect species founded by J. C. Fabricius, Antoine G. Olivier, Dru Drury and other early entomologists. Therefore it seemed advisable to publish descriptions together with figures of these valuable types and thus make them more accessible for purposes of systematic entomology.

The usefulness of such work has been questioned by one authority, mainly on the ground of defective examples; it has, however, been appreciated by others, notably and in a very understanding way by Dr Walther Horn, Director of the Institute of Entomology, Berlin. He emphasized that 'it is more important to give good descriptions and serviceable illustrations for the future than to continue for ever keeping the historical things sacred and thereby to a great extent "bolting the door" against Science'.

Whatever view may be held as to the value of this publication, it has apparently proved serviceable to specialists, judging from the interest shown in the first published part; it has made known to them the whereabouts of several types and the descriptions of these have helped them to clear up points at issue and settle questions of identity to their satisfaction.

It is a pleasant duty to acknowledge especial indebtedness and express my thanks to the *Carnegie Trustees* for again awarding a special grant towards the cost of production, and to the *Publications Standing Committee of Glasgow University* for similar substantial assistance as formerly to ensure the publication of this second volume.

I also desire to thank Professor Edward Hindle for his promotive approbation of this Catalogue, initiated by his predecessor in the Chair, Emeritus Professor Sir John Graham Kerr, to whom I feel grateful for his continued interest.

The types of Coleoptera herein described (under their *modern* names and in the order adopted in Junk and Schenkling's *Coleopterorum Catalogus*) are those of species belonging to the Families *Endomychidae*, *Coccinellidae*, *Helodidae*, *Buprestidae*, *Elateridae*, *Tenebrionidae*, *Oedemeridae*, *Rhipiphoridae*, *Meloidae* and *Pyrochroidae*; and, as previously mentioned, the descriptions are necessarily limited to those features or characters which I have been able to make out satisfactorily, many of the types being in a more or less defective state with age.

With reference to *Carabus unicolor* Fab., *Carabus pallipes* Fab. and *Scarabaeus fricator* Fab., which are described in Part I, supplementary notes on these are included at the end of this volume. By their helpful interest and special knowledge, Professor Edwin C. van Dyke and Dr Henry C. Fall have enabled me to reach a more definite conclusion as to the identity of the first and second above-mentioned insects. The references and synonyms of several of the types described in Part I have been revised according to the *Coleopterorum Catalogus* (Junk and Schenkling), and these revisions are also included in the supplement.

I have again been fortunate in having the assistance of Miss Margaret Rankin Wilson, D.A. (G.S.A.). Her drawings are admirable portrayals, revealing her sound sense of colour and her skill in rendering the subtle shades of these insects. I am much indebted to her for her constant interest and careful, painstaking work.

ROBERT A. STAIG

THE ZOOLOGY DEPARTMENT
THE UNIVERSITY, GLASGOW
November, 1939

Order COLEOPTERA (*continued*)

Super-family *DIVERSICORNIA* (*continued*)

Family ENDOMYCHIDAE

56. *Aphorista vittata* (Fab.)

Coleopterorum Catalogus, pars 12 (E. Csiki, 1910), Endomychidae, p. 40. *Catalogue of the Coleoptera of America, North of Mexico* (Charles W. Leng, 1920), p. 209.

North America.

- SYN. *Tritoma vittata* Fab., *Mant. Ins.* 1, p. 44, No. 4 (1787); *Ent. Syst.* 1, 2, p. 506, No. 6 (1792).
Catops vittatus Fab., *Syst. Eleuth.* 11, p. 564, No. 3 (1801).
Endomychus lineatus Oliv., *Ent.* VI, 100, p. 1072, pl. 1, fig. 2 (1808).
Eumorphus distinctus Say, *J. Acad. Nat. Sci. Philadelphia*, v, 1825, p. 303.

The type of this species is noted in the card-index of Dr Hunter's Collection as missing; but in Cabinet A, drawer 3, there is a specimen, misplaced under label

'Hab. in Anglia',

which answers the descriptions given by Fabricius and Olivier and resembles Olivier's figure of *lineatus*. This insect has been compared with modern examples of the species in the British Museum, and it is evidently the missing type.

Description of Type, *Tritoma vittata* Fab. Form elongate-ovate, the elytra narrowing in front and behind, convex, smooth and shining; the upper surface reddish brown with patches of black, the under parts and the legs light reddish brown with a scanty covering of very short and fine whitish hairs.

The *head* is reddish brown, oblong and insunk in the prothorax; a deep crescentic suture marks off the flattened

frons from the convex clypeus. The vertex, frons and clypeus are thinly punctulate, the punctules bearing short yellowish white hairs; the labrum also is punctulate and lightly covered with fine hairs; the mandibles are angulate and the tips are produced as long and pointed blades; the other mouth-parts are imperfect in the specimen. The eyes, which are brownish black, oblong and rather narrow, extend from the vertex to the gula; the facets are large and very convex. The antennae are wanting; the bases of the antennae are situated between and above the eyes and on each side of the frons anteriorly.

The *pronotum* is transverse, narrower than the elytra and plano-convex, the disc being a little raised; the front is deeply hollowed and has a thin translucent stridulatory membrane which fills the distinct notch in the middle of the excavated front margin and which projects slightly beyond it; the sides are bisinuate and contracted behind; the base is rather narrow, nearly straight and broadly margined; the front angles are strongly produced and almost sharp, the hind angles are sharply produced, nearly rectangular. The pronotum is strongly marginate, except at the frontal notch where the margin is extended as the stridulatory membrane.

The surface of the pronotum is finely but not very closely punctured with scattered punctules. Upon the disc, directly in front of two black spots and near the front margin, there are two conspicuous pits transversely placed; the basal channel, the channels extending to the hind angles, and the lateral foveae, which extend forward to the middle of the disc, are deeply impressed.

The colour of the pronotum is reddish brown, except the margin, which is black, and the disc which is infusate around two black spots roughly reniform in shape and transversely placed.

The *prosternum* is deep, very convex and smooth; the prosternal process, which is narrow and truncate, meets the mesosternum. The *mesosternum* is narrow between the coxae



Tritoma vittata Fab. × 12

and wider anteriorly; it has a median elevation, it is hollowed on each side and it is bordered anteriorly and laterally by a carina. A straight furrow marks the junction of the mesosternum and the *metasternum*, which has a rounded and raised anterior margin. The posterior margin of the metasternum is between and behind the widely separated posterior coxae; it has the form of a distinct and broadly triangular flange cleft in the middle and thus forming two small triangular lobes. The posterior marginal groove, which marks off the flange, is sharply angulate. A finely impressed median longitudinal line extends from the apex of the posterior marginal groove about halfway towards the anterior margin. The metasternum is finely punctulate, the punctules bearing short and fine whitish hairs.

The *scutellum* is transverse and broadly rounded behind.

The *elytra* are moderately convex, oval, widest about the middle, with the apices gently rounded and with well-developed epipleura. The outer borders of the elytra, the apices and the inner (sutural) borders as far as the middle of the suture are narrowly marginate. The elytral surfaces are regularly but not closely punctulate, the punctules bearing very short silky whitish hairs; and on the inner side of each shoulder callus there is a roughly triangular impression.

The elytra are reddish brown with an elongate black patch along the middle of each outer margin, and with a similar but longer patch forming an irregular border along each inner (sutural) margin, except the apical portion.

The *legs* are moderately long and stout and are lightly covered with short and fine whitish hairs; the anterior coxae are globose and closely approximated, just separated by the thin prosternal process which projects between them; the intermediate or middle coxae are globose and not closely approximated, the posterior coxae are transverse and widely separated; the coxae and femora are separated by large blade-shaped trochanters; the femora are club-shaped, their distal portions being swollen, the tibiae also are distally enlarged,

the anterior and middle tibiae are curved, all the tarsi are wanting.

The groove between the metasternum and the base of the abdomen is deeply marked. There are five visible *abdominal sterna*, which are finely punctulate, and the punctules bear short and fine whitish hairs; the basal abdominal sternite is very large, its length being greater than that of the three succeeding sterna together; the fifth sternite is about half the length of the basal one, and its hind margin is sinuate with a distinct and wide median excision.

Length 5.5 mm.; breadth (across the elytra) 2.5 mm.

Hab. India (Fab.), East Indies (Oliv.).

See Plate 29.

Family COCCINELLIDAE

The following are the species of Coccinellidae mentioned by Fabricius, in his published works, as having been described by him from specimens in Dr Hunter's Collection:

| | |
|-------------------------------|--------------------------------------------|
| <i>Coccinella glacialis</i> | <i>Syst. Ent.</i> p. 80, No. 12 (1775). |
| <i>Chrysomela 10-maculata</i> | <i>Ibid.</i> p. 105, No. 60. |
| <i>Coccinella biguttata</i> | <i>Mant. Ins.</i> 1, p. 59, No. 72 (1787). |
| <i>ursina</i> | <i>Ibid.</i> p. 61, No. 98. |

The above names are the original names as given by Fabricius, and the references are to the works in which these species were first described.

The following species was described by Olivier from a specimen in Dr Hunter's Collection:

*Coccinella annulata*¹ *Ent.* VI, 98, p. 996, pl. 2, figs. 19*a* and *b* (1808).

¹ Previously described by Voet, *Cat. Syst. Col., La Haye*, 2, pl. 45, fig. 9 (1766) and by Linnaeus, *Syst. Nat.* ed. XII, p. 579 (1767).

57. *Brachyacantha ursina* (Fab.)

Coleopterorum Catalogus, pars 118 (R. Korschefsky, 1931),
Coccinellidae, 1, p. 207. *Catalogue of the Coleoptera of
America, North of Mexico* (Charles W. Leng, 1920), p. 212.

U.S.A., Mexico.

SYN. *Coccinella ursina* Fab., *Mant. Ins.* 1, p. 61, No. 98 (1787);
Ent. Syst. 1, 1, p. 291, No. 116 (1792); *Syst. Eleuth.* 1,
p. 386, No. 157 (1801); *Oliv. Ent.* VI, 98, p. 1054, pl. 2,
figs. 14a and b (1808).
ab. *congruens* Casey, *J. New York Ent. Soc.* VII, 1899, p. 117.
ab. *sonorana* Casey, *Canad. Ent.* XL, 1903, p. 413.

The single specimen in Cabinet A, drawer 6, under label

'*Coccin. ursina*
Fabr. MSS'

is apparently the type; it answers the descriptions given by Fabricius and Olivier, except that the spot markings are not white, as stated by Fabricius, but yellow; it also resembles Olivier's figure and it closely agrees with modern examples of the species in the British Museum.

Description of Type, *Coccinella ursina* Fab. Form broadly oval, moderately convex (subhemispherical), surface glossy.

The deeply insunk *head* is yellow and punctulate; the clypeus has, behind the antennal notch, a short knob-like projection overlying the eye; the front margin of the clypeus is sinuate and marginate. The labrum, reddish yellow and with some golden hairs on its surface, is transverse and the anterior angles are rounded; the distal segment of the maxillary palps is thickly enlarged, oblong, somewhat conical and very obliquely truncated. The eyes, pale green, are round and prominent, with the facets slightly convex. The antennae are reddish yellow, moderately long and inserted in a notch of the clypeus at the front of the eyes, a little on the inner side; the basal segment of the antenna is largely exposed, it is partly covered by a thin and reddish semicircular pro-

jection overarching the base of the notch. One antenna is defective, and the other is so placed that it is difficult to get a complete view under the microscope. The number of antennal segments appears to be ten; the first or basal segment and the second are larger than the succeeding five, the third is longer than the fourth, fifth, sixth and seventh; the antennal club is fusiform and is composed of three unequal segments, the apical one being the smallest and the antepenultimate one the largest.

The *pronotum* is transverse and marginate; the arcuate front margin is slightly emarginate in the middle, the anterior and posterior angles are rounded. The pronotum is black with the anterior and lateral portions yellow and the black-yellow boundary line is irregular; the surface of the pronotum is punctulate, and here and there the spaces between the punctules show (under the microscope) an irregular kind of reticulation. The *mese-pimera* are yellow and roughly triangular with the apices at the middle coxae. The *thoracic sterna*, and the *coxae*, are brownish black and punctulate, the punctules bearing short and fine hairs.

The *scutellum* is small and has the form of an equilateral triangle; it is black and a little rugulose.

The *elytra*, moderately convex, are at the base almost as broad as the pronotum and they are narrowly marginate except at the base; the humeral callosities are prominent and the apices are rounded. Upon each black elytron there are five large yellow spots (2, 2, 1); the first two are transversely placed at the base, the outer one is triangular and fills the outer or humeral angle, and the inner one, which is roughly hemispherical, is on the base of the elytron and adjoining the scutellum; the third and fourth spots also are transversely placed about the middle of the elytron, the third is subspherical and on the outer margin, the fourth is roughly spherical and near the sutural margin, and each spot has two small projections posteriorly; the fifth spot is roughly spherical and is situated near the apex of the elytron. The horizontal



Coccinella ursina Fab. × 18

epipleura are a little wider than the metepisternum and become narrowed in front of the first abdominal sternite. The surface of the elytra, like that of the pronotum, is punctulate with a fine irregular reticulation between the punctules.

The *legs* are punctulate and thinly clothed with fine golden hairs; there is a distinct denticle on the outer margin of the anterior tibiae, about the middle of their length.

The *abdomen* has ventrally six free segments. The posterior border of the fifth abdominal sternum is sinuate, that of the sixth is widely emarginate. The coxal lines of the first abdominal sternum are roughly semicircular, but incomplete towards the outer side. The first sternum is the longest, the second is nearly as long as the first, the third and fourth are about half the length of the first, the fifth is, at the outer sides, as long as the second. The abdominal sterna are glossy black and punctulate, the punctules bearing short fine hairs.

Length 3 mm.; breadth 2.5 mm.

Hab. North America (Fab.).

See Plate 30.

58. *Ceratomegilla (Megilla) maculata* De Geer

Mém. Hist. Ins. v (De Geer, 1775), p. 392, t. 16, f. 22. *Coleopterorum Catalogus*, pars 120 (R. Korschefsky, 1932), Coccinellidae, II, p. 312. *Catalogue of the Coleoptera of America, North of Mexico* (Charles W. Leng, 1920), p. 215.

U.S.A., California, Canada, Central and South America, West Indies.

SYN. *Chrysomela 10-maculata* Fab., *Syst. Ent.* p. 105, No. 60 (1775); *Sp. Ins.* I, p. 131, No. 85 (1781); *Mant. Ins.* I, p. 75, No. 112 (1787).

Coccinella 10-maculata Fab., *Sp. Ins.* I, p. 98, No. 29 (1781); *Mant. Ins.* I, p. 57, No. 44 (1787); *Ent. Syst.* I, I, p. 276, No. 50 (1792); *Syst. Eleuth.* I, p. 367, No. 63 (1801); *Oliv. Ent.* VI, 98, p. 1016, pl. 3, figs. 40a and b (1808).

The insect in Cabinet A, drawer 4, under label

‘*Chrys. 10-maculata*
Fabr. pag. 131, No. 85’

is evidently the type. Fabricius in his description of *Coccinella 10-maculata* in *Ent. Syst.* refers to his *Chrysomela 10-maculata* as ‘mera hujus varietas’. Comparing the type with Olivier’s figure of *Coccinella 10-maculata*, the chief difference appears to be confluence of the pronotal spots and of the apical spots on the elytra of the latter.

Description of Type, *Chrysomela 10-maculata* Fab.
Form elongate oblong, moderately convex, the surface slightly glossy and punctulate, coloration orange-red with large black spots.

The *head*, deeply insunk in the thorax, is glossy black with a median longitudinal triangular orange-red patch of very regular isosceles form, its base upon the fronto-clypeal line and its apex at the front margin of the pronotum. The surface of the head is punctulate and finely granulate between the punctules. The frons is flattened, slightly depressed. The clypeus, which is orange-red, is short and transverse, it is marked off by an impressed and slightly arcuate line representing the fronto-clypeal suture, and it is narrower than the space between the insertions of the antennae; its sides are excavated where the antennae are inserted and at the outer side of each antennal excavation there is a short knob-like projection overlying the eye. The clypeo-labral suture is well marked and slightly arcuate. The labrum is dark brown, transverse, rounded in front, its width is the same as that of the clypeus, its length is fully one-third of the length of the head; its surface is thinly punctulate and finely granulate between the punctules, and the punctules bear whitish hairs which are longest at the sides. The last segment of the maxillary palps is dark brown, it is very obliquely truncate and has the form of a somewhat flattened cone. The eyes are subspherical and prominent, with the supraorbital ridges



Chrysomela 10-maculata Fab. × 15

raised and somewhat prominent in front; the facets are slightly convex and under the microscope the finely faceted surface has a silvery grey appearance with vermiculate black markings. The antennae are defective, almost entirely wanting; the antennal insertions are within excavations of the clypeus at the front of each eye and a little on the inner side, and the basal segments are exposed.

The *pronotum* is orange-red with two large black spots which are roughly trilobed in form, transversely placed and near together; the greater part of the disc is occupied by these spots, which extend from the base of the pronotum and reach nearer to the sides than the front. The pronotum is transverse, broadest across the middle, and a little convex; in front it is slightly and widely emarginate and also slightly sinuate; its sides are rounded, the front angles are a little advanced and rounded, the hind angles are rounded; its base is widely lobate about the middle; it is marginate all round, narrowly on the front and on the base, wider on the sides and translucent. The surface of the pronotum is punctulate and finely granulate between the punctules.

The *mesepimera* are roughly triangular, with the blunted apices at the middle coxae, and partly convex, the convexity being confluent with the convexity of the *mesepisterna*. The mesepimera are black and punctulate, the punctules bearing short and fine whitish hairs.

The *prosternum* is convex, a little arched mid-frontally, and it has a narrow brown margin. The prosternal process is convex and terminally rounded, and it extends between but not beyond the anterior coxae. The colour of the prosternum is orange-red, the surface is thinly punctulate, and the punctules bear fine yellowish hairs.

The *mesosternum* is glossy black. The *metasternum* is convex and abruptly declivous to the wide posterior border, and it is marked with a lightly impressed longitudinal line which begins in the posterior dimple at the border and becomes

obsolete towards the front. The surface of the black metasternum is rugulose and punctulate, some of the punctules bearing short and fine whitish hairs. The metasterno-abdominal suture is angular and is situated on a level before the posterior coxae.

Apparently the prothorax has been separated from the rest of the body and glued on; but as the parts are badly fitted together, it is not possible to describe the scutellum and the bases of the elytra.

The *elytra* are orange-red with six large black spots on each elytron arranged 2, 1, 2, 1 at about equal distances apart. The two spots at the base are placed obliquely transverse; the spot on the suture is confluent with the corresponding one on the other elytron, and together they have a pear-shaped form with the narrow end at the base of the elytra; the other spot is on the shoulder callus and is sub-spherical. The third spot, which is the largest, is situated in the middle of the elytron and is transverse and irregular in form. The fourth and fifth spots are transversely placed and roughly rounded; the fourth, which is on the suture, is largely confluent with the corresponding spot on the other elytron, the fifth is situated near the outer margin. The sixth spot, which is the smallest, is roughly oval; it is situated between the suture and the outer margin and near the apex. The elytra are about one-third wider than the prothorax and moderately convex; the shoulders are moderately prominent; the sides are rounded at the shoulders, very slightly hollowed about the middle third of their length, slightly divergent beyond the middle, where the elytra are widest, and rather sharply rounded in towards the apices, which are separately rounded off. The sides of the elytra are also broadly margined and the margins are strongly punctate; the apices are narrowly marginate. The surface of the elytra is punctulate and finely granulate between the punctules. The *epipleura*, which are horizontal and about twice the width of the metepisternum, become narrowed at the first abdominal sternum and gradually

taper to the apices. The surface of the epipleura is punctulate and the punctules bear very short and fine golden hairs.

The *legs* are long, glossy black and thinly covered with short yellowish hairs; the first two segments of the tarsi are thickly golden pubescent beneath.

The *abdomen* has six free ventral segments. The first abdominal sternum is without coxal lines. The fourth sternum is marked by a slightly arched bordering line near the posterior margin; and there is a similar but feebler line on the third and second sterna. The posterior border of the fifth sternum is sinuate and that of the sixth is emarginate. The first sternum is the longest, the second is about half the length of the first, the third and fourth are about equal in length and are shorter than the second, the fifth and sixth are about equal in length and are shorter than the fourth. The abdominal sterna are glossy black with broad orange-red lateral borders; their surface is punctulate and finely granulate between the punctules, which bear very short and fine yellowish hairs.

Length 5.5 mm.; breadth (across the elytra) 2½ mm.

Hab. America (Fab.), South America, Antilles (Oliv.).

See Plate 31.

59. *Hippodamia glacialis* (Fab.)

Coleopterorum Catalogus, pars 120 (R. Korschefsky, 1932),
Coccinellidae, II, p. 341. *Catalogue of the Coleoptera of
America, North of Mexico* (Charles W. Leng, 1920), p. 215.

Pennsylvania, Missouri, Indiana, Massachusetts, North Carolina.

SYN. *Coccinella glacialis* Fab., *Syst. Ent.* p. 80, No. 12 (1775);
Sp. Ins. I, p. 96, No. 19 (1781); *Mant. Ins.* I, p. 56, No. 34
(1787); *Ent. Syst.* I, I, p. 274, No. 39 (1792); *Syst. Eleuth.*
I, p. 364, No. 50 (1801); Oliv. *Ent.* VI, 98, p. 1007, pl. 5,
fig. 68 (1808).

Coccinella abbreviata Fab., *Mant. Ins.* 1, p. 54, No. 14 (1787); *Ent. Syst.* 1, 1, p. 269, No. 19 (1792); *Syst. Eleuth.* 1, p. 360, No. 27 (1801); *Oliv. Ent.* VI, 98, p. 1006, pl. 3, fig. 26 (1808).

Coccinella remota Weber, *Observationes Entomologicae*, p. 49, Kiliae, 1801.

The three specimens in Cabinet A, drawer 6, under label

‘*Coccin. abbreviata*
Fabr. MSS’

answer the descriptions of *abbreviata* given by Fabricius and Olivier and correspond with Olivier's figure; they also answer the description of *glacialis*, which is essentially the same as that of *abbreviata*. One of the specimens has also been compared with the British Museum modern examples of *H. glacialis* and it closely agrees.

The type of this species, described by Fabricius under the name *glacialis*, was stated by him to be in Drury's Collection; his later description of the same insect, under the name *abbreviata*, is said to be from a specimen in the collection of D. Blagden. Probably, as Professor Graham Kerr suggested,¹ the three Hunterian examples are metatypes, determined by Fabricius as conspecific with the Blagden type; and it is also probable that one of them is the Drury insect on which Fabricius founded *glacialis*.

Description of Metatype, *Coccinella abbreviata* Fab.
Form oblong ovate, moderately convex, the surface glossy and punctulate, the head and the pronotum yellow and black, the elytra reddish brown and black, the under parts mainly brownish black.

The deeply insunk *head* is polished black with a fronto-clypeal and central lozenge-shaped yellow-coloured patch, which is continuous on each side with a lesser one of similar shape but transversely placed and extending on the fronto-

¹ ‘Remarks upon the Zoological Collection of the University of Glasgow’ by Professor J. Graham Kerr (*Glasgow Naturalist*, Vol. II, No. 4, September 1910, p. 103).

orbital processes. The surface of the head is punctulate, the punctules bearing short and fine hairs. The frons is flattened and it has a knob-like process in front of each eye. The transverse clypeus, which is marked off by a feebly impressed arcuate line representing the fronto-clypeal suture, is narrowed towards the front; its sides are excavated at the insertions of the antennae. The clypeo-labral suture is well marked and straight. The labrum is black and transverse; it is slightly emarginate in front, rounded at the sides, and the anterior angles are rounded; its width is that of the front of the clypeus and its length is less than one-third of the length of the head; its surface is punctulate and the punctules bear yellowish hairs which are longest at the sides. The eyes are subspherical and moderately prominent; the facets are convex, and under the microscope the finely faceted surface has a golden appearance with small black spot markings. The antennae, which are reddish brown and moderately long, are inserted in an excavation of the clypeus, in front of the eyes (fronto-orbital process) and on the inner side; the first or basal segment is the largest, the second is about half the length and breadth of the first, and the third segment, which is the same length as the second but not as thick, is longer and thicker than the succeeding five, which are about equal in length and thickness; the antennal club is composed of three segments and is fusiform, but blunted at the apex. The maxillary palps are large and four-segmented; the second segment is oblong, the distal segment is flask-shaped with the tip bluntly rounded off.

The *pronotum* is moderately convex, transverse and marginate; the front is widely excavate and slightly arcuate about the middle, the sides are rounded with rim-like margins, the base is sinuate with a slight and broad median lobe towards the scutellum, the anterior and the posterior angles are rounded. The pronotum is polished black and bordered with yellow along the front and the sides. There is a narrow triangular extension of yellow from the middle of the front border on

to the black disc, and upon the black disc there are two yellowish longitudinal vittae femur-shaped and obliquely placed. The pronotal surface is punctulate.

The *meseprimera* are yellow and triangular with the apices at the middle coxae.

The *thoracic sterna* are glossy black and punctulate, the punctules bearing fine yellowish hairs.

The *scutellum* is of triangular form with sinuate sides; it is black and punctulate.

The *elytra*, moderately convex, are, across the base, as broad as the pronotum and broader across the middle third of their length; the bases are sinuate and marginate, the sides are not perfectly rounded and the apices are rounded in at the suture; the margin of the base and of the outer border forms a narrow rim. On the slightly prominent shoulder callus there is a small black spot; a similar but larger black spot, roughly triangular in shape, is situated near the apex; and behind the middle of each elytron there is a large transverse and rounded black spot with an extension outwards and obliquely backwards, thus forming a fascia roughly angular between the suture and the outer border. The three metatypes show variation of the black markings on the elytra; two of the metatypes are without the black spot on the shoulder callus, and on one of these the black transverse fascia near the middle is thinner and the black apical spot much larger. The surface of the elytra is punctulate like that of the pronotum. The horizontal *epipleura* are at the base twice the width of the metepisternum but become gradually narrowed towards the apex.

The metasterno-abdominal suture is angular and is situated on the anterior level of the posterior coxae.

The *coxae* and the *legs* (imperfect in this specimen) are glossy black, punctulate and clothed with fine yellowish hairs.

The *abdomen* has ventrally six free segments; the posterior border of the fifth abdominal sternum is slightly angular,



Coccinella abbreviata Fab. × 10

that of the sixth is slightly emarginate. The sterna are glossy black with orange-coloured outer borders, which are slightly marked on the first and sixth, strongly marked on the second to fifth and in the form of angular patches on the second, third and fourth sterna. The surface of the sterna is closely punctulate and lightly set with short yellowish hairs.

Length 6 mm.; breadth (across the elytra) 4 mm.

Hab. North America (Fab. and Oliv.).

See Plate 32.

60. *Adalia bipunctata* var. *annulata* Linn.

Coleopterorum Catalogus, pars 120 (R. Korschefsky, 1932),
Coccinellidae, II, p. 388.

Palearctic Region, North America, North and Central Africa.

SYN. *Coccinella annulata* Voet., *Cat. Syst. Col.*, La Haye, 2, pl. 45, fig. 9 (1766); Linn. *Syst. Nat.* ed. XII, p. 579, No. 5 (1767); Fab. *Sp. Ins.* 1, p. 94, No. 8 (1781); *Mant. Ins.* 1, p. 53, No. 11 (1787); *Ent. Syst.* 1, 1, p. 268, No. 14 (1792); *Syst. Eleuth.* 1, p. 359, No. 20 (1801); Oliv. *Ent.* VI, 98, p. 996, pl. 2, figs. 19a and b (1808).

The type of this species is pre-Fabrician. The single example in Cabinet A, drawer 6, under label

‘*Coccin. annulata*
Fabr. pag. 94, No. 8’

is the insect (from Germany) described and figured by Olivier; and it has been compared with modern examples of the species in the British Museum Collection.

Olivier's coloured figure (19b) is a useful representation, but the colour pattern is rather diagrammatic.

The brief description of this var. *annulata* given by Fabricius in his *Species Insectorum* and repeated in his subsequent works is apparently quoted from Linnaeus and is without reference to any particular collection. However,

Fabricius may have determined the Hunterian specimen as being conspecific with the Linnaean type, and therefore to be regarded as a homotype of the species.

Description of Homotype, *Coccinella annulata* Linn. Form ovate, very convex, the entire surface glossy and closely punctulate; the head black with two yellow patches; the pronotum black with lateral borders of reddish yellow; the elytra orange-red with two sickle-shaped black markings anteriorly, a broad black band across the middle, and posteriorly a narrower black band which bends abruptly forwards at right angles to join the middle band. The under parts of the body finely punctulate, thinly pubescent and glossy black, except the abdominal sterna which are reddish at the sides. The antennae and mouth-parts reddish brown, the legs black.

The insunk *head* is black with two patches of yellow roughly oval and closely adjoining the eyes, the yellow extending on to the small fronto-orbital processes. The surface of the head is finely punctulate. The transverse clypeus is excavate at the sides, it is narrowed a little at the front and is there also slightly excavated; its front angles project a little forwards and outwards and between these small projections the clypeo-labral suture is deeply marked and straight. The sutural border of the clypeus is yellow. The labrum, which is narrower than the clypeus and punctulate, is black proximally; the distal portion is yellow, rounded in and slightly emarginate. The eyes are fairly prominent and the facets are convex; the finely faceted cornea is brown with a golden lustre. The exposed knob-like basal segment of each antenna is inserted, in front of the eye and on the inner side, on the excavated side of the clypeus between the anterior projection and the fronto-orbital process.

The *pronotum* is transverse and it is widely and deeply excavate in front, the anterior angles are on a level with the middle of the eyes. The front of the pronotum is very slightly arcuate between the anterior angles, which are strongly

rounded; the disc is convex and the sides are flattened out, forming rims which are markedly extended in front; and as the sides diverge gently outwards to the rounded posterior angles, the pronotum is therefore broader behind than in front. The base is broadly lobate. The front and the side rims of the pronotum are narrowly marginate and its surface is punctulate. The disc is glossy black, the side rims are reddish yellow and there is a faint border of the same hue along the front margin.

The *metepisternum* is closely punctate with rugulose effect.

The thoracic sterna are glossy black and punctulate, the punctules bearing short fine hairs; the *prosternum* is convex and rugulose.

The small *scutellum* is black with the centre reddish, sharply triangular and equilateral.

The *elytra*, very convex and finely marginate except on their sutural sides, are, at the base, broader than the pronotum; the bases are distinctly sinuate and the shoulder angles are strongly rounded; the sides are strongly rounded out about the middle and gradually rounded in towards the apices, which are bluntly pointed and a little divergent, and the humeral callus is prominent. The surface of the elytra is punctulate and the colour pattern, orange-red with very conspicuous black markings, is as follows: A broad transverse black band extends across the middle of the elytra from rim to rim, it is irregular in outline and its thickest portion on each elytron is a distinct bulging just beyond the inner or sutural half. Midway between this band and the apex of the elytra there is a similar transverse band, which is narrower and also shorter; it bends abruptly forwards directly under the bulging of the thicker one and thus becomes confluent with it longitudinally. Two markedly rounded areas of red, side by side at the suture, are thus almost entirely encircled; for the black of the two bands extends slightly along the suture on each side. Above the middle band there are two lesser black markings, roughly sickle-shaped and close to-

gether, one on each elytron and extending obliquely outwards from the base at the side of the scutellum; the two 'handles' are contiguous at the bases and divergent at the 'hooks', the concavities of which face inwards and the tips almost reach the middle band.

The reddish yellow horizontal *epipleura* are anteriorly about one and a half times the width of the metepisterna and are gradually narrowed towards the apex.

The *legs* (and *coxae*) are glossy black and punctulate, with fine yellowish hairs.

The *abdominal sterna* are punctulate and lightly clothed with short and delicate recumbent yellowish hairs. The first three sterna are entirely glossy black; the outer portions of the fourth, fifth and sixth sterna are reddish and the posterior borders of the fifth and sixth are almost straight.

Length 4 mm.; breadth 3 mm.

Hab. Europe in gardens (Fab.), Germany (Oliv.).

61. *Adalia decempunctata* (Linn.)

Syst. Nat. ed. x, 1758, p. 366; *Fn. Suec.* 1761, p. 155; *Syst. Nat.* ed. xii, 1767, p. 581. *Coleopterorum Catalogus*, pars 120 (R. Korschefsky, 1932), Coccinellidae, II, p. 411.

Europe, Asia, North Africa.

SYN. *Coccinella biguttata* Fab., *Mant. Ins.* 1, p. 59, No. 72 (1787); *Ent. Syst.* 1, 1, p. 284, No. 80 (1792); *Syst. Eleuth.* 1, p. 374, No. 100 (1801); Oliv. *Ent.* vi, 98, p. 1033, pl. 2, figs. 9a and b (1808).

Coccinella variabilis Fab., *Gen. Ins.* p. 218 (1777); *Sp. Ins.* 1, p. 104, No. 62 (1781); *Mant. Ins.* 1, p. 60, No. 85 (1787); *Ent. Syst.* 1, 1, p. 287, No. 101 (1792); *Syst. Eleuth.* 1, p. 380, No. 130 (1801); Oliv. *Ent.* vi, 98, p. 1046, pl. 7, fig. 105 (1808).

The type of this species is pre-Fabrician; and Korschefsky places *biguttata* Fab. under *decempunctata* Linn. provisionally.

The specimen in Cabinet A, drawer 6, under label

'*Coccin. biguttata*
Fabr. MSS'

is evidently the insect described by Fabricius and Olivier; and the figure of it in Olivier's work is a very good representation. Owing to its frail condition, I have not been able to compare this type with modern examples in the British Museum Collection. It does not resemble any of the varieties of *decempunctata* Linn. in the Bishop Collection; but it closely approaches two examples of a series labelled *variabilis* Ill. in the Bishop (Armitage) Palaearctic Collection.

Description of Type, *Coccinella biguttata* Fab. Form ovate, somewhat oblong, moderately convex, the surface glossy, glabrous above, and punctulate; the head and pronotum black with yellow, the elytra reddish brown with two large suffused light yellow basal markings and with some irregular blackish blotching. The under parts of the body punctulate, lightly hairy and glossy black, except the abdominal sterna which are partly reddish brown. The antennae, mouth-parts and legs reddish brown.

The deeply insunk *head* is black with a broad transverse band of yellow between the eyes; this yellow band is incurved in front (fronto-clypeal suture) and the colour is continuous on the fronto-orbital processes. There is also a narrow transverse strip of yellow, which has a slightly arched hind border, at the clypeo-labral suture. The surface of the head is punctulate, the punctules bearing very short and fine hairs, and on the vertex there is a short row of longer yellowish hairs. The frons is flattened and it has a small fronto-orbital process in front of each eye. The transverse clypeus is narrowed towards the front, its sides being obliquely excavated; the front angles of the clypeus form small anterior lobes projecting upwards and outwards, and between these anterior lobes the clypeo-labral suture is well marked and straight. The labrum is black with a yellowish border; it

is transverse, slightly emarginate in front, rounded at the sides, and the anterior angles are rounded; its surface is punctulate, the punctules bearing yellowish hairs which are longest at the sides. The eyes are moderately prominent; the facets are convex and the finely faceted cornea has a golden appearance with black markings. The antennae are inserted in front of the eyes and on the inner side, each in an excavation of the clypeus between its anterior lobe and the fronto-orbital process; the small anterior clypeal lobe does not entirely cover the base of the antenna. The distal segment of the antennal club is somewhat truncate at the apex. The large terminal segment of the maxillary palps is obtuse-angular and obliquely truncate (securiform).

The *pronotum* is moderately convex, transverse, and widely and deeply excavate in front, the anterior angles being nearly on a level with the anterior portions of the eyes; the front is also slightly arcuate between the anterior angles, which are strongly rounded. The sides of the pronotum have narrow marginate rims and diverge gently outwards to the slightly rounded posterior angles between which the pronotum is broader than in front; the base is strongly and broadly lobate and inturned towards the scutellum. The front margin of the pronotum is narrowly bordered with yellow, the disc is polished black, and the sides are broadly bordered with yellow; the inner boundaries of the yellow side borders are sinuate. The pronotal surface is punctulate.

The *metepisterna* are closely punctate with rugulose effect.

The thoracic sterna are glossy black; the *prosternum* is convex and rugulose; the *mesosternum* is punctate; the *metasternum* is punctulate, the punctules bearing short fine hairs, and it is also marked by two small foveae (horizontally placed) on each side and by a median longitudinal furrow which arises at the metasterno-abdominal suture and becomes obsolete anteriorly.

The *scutellum* is black, sharply triangular and equilateral, and punctulate.



Coccinella biguttata Fab. × 15

The *elytra*, moderately convex and finely marginate all round, are, across the base, as broad as the pronotum and a little broader across the middle third of their length; the bases are slightly sinuate and the shoulder angles are strongly rounded; the sides are subparallel about the middle and gradually rounded in towards the apices, which are bluntly pointed, and the humeral callus is moderately produced. The *elytra* are punctulate and reddish brown, with wavy streaks and blotches of black here and there throughout; and on each *elytron* there is a distinct broad and transverse light yellow fascia, which extends from the outer margin about the humeral angle and round the humeral callus posteriorly where it bends abruptly upwards and reaches about half-way across towards the suture. The outline of this fascia is irregular and obscure. The reddish brown, horizontal *epipleura* are, at the base, nearly twice the width of the metepisterna and become gradually narrowed towards the apex.

The metasterno-abdominal suture is angular and is situated on the anterior level of the posterior coxae.

The *legs* (and coxae) are reddish brown, punctulate and set with fine yellowish hairs.

The segments of the *abdomen* are more or less thinly punctulate and lightly clothed with short fine hairs. The coxal lines of the first abdominal sternum are semicircular and complete; this sternite and also the second and third are glossy black with reddish brown outer borders; the fourth, fifth and sixth sterna are entirely reddish brown, and the posterior borders of the fifth and sixth sterna are straight.

Length $4\frac{1}{2}$ mm.; breadth 4 mm.

Hab. Europe (Fab. and Oliv.).

See Plate 33.