

XXI. *The water-beetles of Japan.* By DAVID SHARP.

[Read September 3rd, 1884.]

IN the 'Transactions' of this Society for 1873 will be found a paper on this subject, and a supplement thereto was published in the volume for the ensuing year, 1874. The present paper, together with the two just alluded to, will be found to enumerate all the water-beetles of the families *Haliplidæ*, *Dytiscidæ*, *Gyrinidæ*, and *Hydrophilidæ* at present detected in the Japanese islands.

Mr. Lewis' recent visit to Japan has demonstrated that the coleopterous fauna of those sunny islands is richer comparatively than the corresponding regions of Europe; but the water-beetles form apparently an exception to this rule, and the fauna in this department is in variety and number of species at present inferior to that of our own part of the globe. It is probable, however, that this is to a certain extent due to the fact that water-beetles require special modes of collecting, and are thus apt to be neglected, and also to the fact that they are comparatively more numerous, or at any rate more accessible in northern lands: as an instance of which it may be mentioned that Lapland is very rich in these insects. The fauna of the northern portions of the Japanese Archipelago is as yet not so well known to us as that of the southern parts, and, when it has been well explored during favourable seasons, it will probably be seen that the poverty of Japan in water-beetles is not so great as it at present appears.

A detailed comparison of the water-beetle fauna of Japan with that of other regions would therefore be at present premature; but I can scarcely omit to point to the fact that as yet but one species of the great genus *Hydroporus* has been detected there, while in Britain it is represented by thirty-six species; and North America is also very rich in it.

The total number of *Dytiscidæ* known from Japan is at present only about forty species, while in Britain we have 105.

HALIPLIDÆ.

Haliphus ovalis.

Testaceus, vertice, prothoraceque anterieus in medio fusco-maculatis; elytris seriatim fortiter punctatis, maculis nigris quadratis disjunctis ornatis. Long. $3\frac{3}{4}$ — $4\frac{1}{4}$ mm.

Var. Testaceus, immaculatus.

This species is most nearly allied to the European *Haliphus fulvus*, Fab., but is smaller, the space separating the eyes is rather less, and the serial punctures on the elytra are considerably coarser. The spots on the wing-cases are usually more quadrate and less linear than they are in *H. fulvus*, but both species vary so much in their markings that little importance can be attached to this.

Niigata, Tokio, Yokohama, and Kashiwagi.

Haliphus sharpi.

Haliphus sharpi, Wehncke, Stett. Ent. Zeit., 1880, p. 74.

Hakodate; two examples from a stagnant pool.

Haliphus japonicus.

A small series of exponents indicates that the two specimens from which the species was described (Trans. Ent. Soc. Lond., 1873, p. 55) were immature examples of an immaculate variety. The individuals now obtained are spotted in a somewhat indistinct manner, with about ten small quadrate black marks arranged so as to form two angulate transverse series, one on the middle, one behind it; the head is black.

DYTISCIDÆ.

Hydrovatus acuminatus.

Hydrovatus acuminatus, Motsch., Et. Ent., 1859, p. 42.

Two examples; Suruga (near Sasaki) and Otsu. Also in China and Malaya.

Bidessus frontalis.

Breviter ovalis, convexus, ferrugineus, nitidus, antennis extorsum, abdomine elytrisque fuscis, his ad apicem et ad latera

vage testaceo-signatis, fortissime punctatis; clypeo anterieus marginato. Long. $1\frac{1}{2}$ mm.

This is a very distinct species of remarkably short form, and, owing to its margined clypeus, is to be placed in Group 1 of my arrangement of the species of this genus. The thorax is only finely punctate, and has a very distinct plica on each side; the punctuation of the elytra is very coarse, and there is a basal plica continuous with that on the thorax and of about the same length.

Yokohama, and Sakai near Osaka, June 7th, 1881.

Hyphydrus japonicus.

Hyphydrus japonicus, Sharp, Trans. Ent. Soc. Lond., 1873, p. 54.

H. frontalis, Sharp on Dyt., p. 381.

Mr. Lewis having brought back a considerable series, I am unable to distinguish *H. frontalis* from *H. japonicus*, and consider they are but one species varying considerably in punctuation. All the females belong to the opaque form, there being no examples like *H. japonicus* ♀ *a*, or *H. frontalis* ♀ of my monograph. The tubercle on the 1st ventral segment of the male is probably subject to being worn down as the result of some attrition.

Hyphydrus læviventris.

Hyphydrus læviventris, Sharp on Dyt., p. 381.

Yokohama, Tokio; apparently rare. Only two males have been found; one of them has a carina on the 1st ventral, so that it is probable the presence of a peculiar dull space instead of this carina (as described in the monograph) is the result of the latter being worn down by attrition.

Cœlambus vittatus.

Ovalis, convexus, nitidus, ferrugineus, prothorace basi capiteque utrinque nigricantibus, elytris lineis nigris longitudinalibus ad basin discretis, ad apicem fere confluentibus; subtus pectore abdomineque nigerrimis, nitidis; antennis extrorsum fuscis; elytris ad basin parce fortiter punctatis, punctis subtilioribus immixtis, ad apicem dense punctatis. Long. 5 mm.

Mas, unguiculo anteriore tarsorum anticorum crassiore, magis curvato, subabbreviato.

This is very closely allied to *Dytiscus impresso-punctatus*, but has a much more scanty punctuation, and the under surface is shining; it is equally near to *Cœlambus chinensis*, but is more closely punctate, and has black lines on the wing-cases.

This is apparently rare, only four examples having been met with. Junsai, August 29th, 1880; Uyeno, Tokio, in the latter part of autumn.

Deronectes anchoralis.

Oblongo-ovalis, subdepressus, subopacus, subtus nigricans, capite in medio prothoracisque lateribus testaceis, supra testaceus, capitis vertice prothoraceque anterieus et late in basi nigris, elytris nigro-lineatis, lineis confluentibus hic inde maculis interruptis testaceis; antennis pedibusque testaceis, illis extrorsum, his tarsis nigricantibus. Long. 5—5½ mm.

Mas, tarsi anterioribus fortiter dilatatis, unguiculis longissimis, fere rectis.

This species belongs to Group 4 A of my monograph, and may be placed near *Dytiscus depressus*, Fab., though not closely allied to any other species; the male is very remarkable on account of its elongate claws, which are quite as long as all the rest of the tarsus. The punctuation of the surface is excessively dense, and the sutural series of punctures on each wing-case is very distinct; the thorax is rounded at the sides and narrowed behind, and the denticle near the extremity of each elytron is very evident in each sex.

A good series of this species was found at Chiuzenji the fourth week in August, 1881; they were found amongst weeds in the very strong-running stream which feeds the lake there.

Deronectes simplicipes.

Oblongo-ovalis, nitidus, testaceus, prothorace anterieus nigricante, basi maculis duabus plus minusve conjunctis nigris, elytris lineis confluentibus nigris, hic inde maculis testaceis interruptis ornatis; prosterno, pectore abdomineque nigris, antennarum palporumque apicibus fuscis; prothorace lateribus obliquis haud rotundatis, angulis posterioribus rectis. Long. 4 mm.

This species should be placed next *Hydroporus sardus*, Har. Its surface is very nearly smooth; there is, however, a punctuation along the anterior margin, and more

at the base, the punctuation of the wing-cases is extremely indistinct, and there are two more or less distinct longitudinal series of impressed punctures. The confluent black lines leave the base and apex pale, as also some lateral spots, and one or two on the disc. The sexual characters are very slight, but there is apparently a slight dilatation of the front and middle tarsi of the male.

A series of eighteen specimens was found in rivers and streams at Sapporo.

Deronectes hostilis.

Oblongo-ovalis, nitidus, testaceus, prothorace utrinque plaga fusca, elytris lineis nigris, hic inde maculis pallidis interruptis, ornatis; prosterno pectore abdomineque nigris; antennarum palporumque apicibus fuscis; prothorace lateribus curvatis, angulis posterioribus obtusis. Long. $4\frac{1}{2}$ mm.

Mas, tarsi anterioribus dilatatis unguiculis elongatis.

This is very similar to *D. simplicipes*, but has the sides of the thorax differently shaped, the black marks of the upper surface are less extensive, and the male feet more largely developed.

A single example was received from Japan by Mr. Lewis in 1874. The locality, South Kiushiu.

Hydroporus natrix.

Late ovalis, subdepressus, subopacus, niger, fronte in medio, prothoracis fascia transversa elytrisque guttis rotundatis testaceis, antennis pedibusque fusco-testaceis; supra subtilissime punctulato, punctisque majoribus sparsis, prætereaque in elytro singulo seriebus duabus punctorum. Long. 3— $3\frac{1}{2}$ mm.

Body entirely without pubescence; antennæ pale yellow, infusate externally; the upper surface with pallid marks, *viz.*, a large round spot on the middle of the head, four such spots placed transversely at the base of the wing-cases, a second transverse series of four spots (of which, however, the two inner are most frequently absent) across the middle, two other spots (also frequently wanting) behind these, and a small one quite at the extremity; the thorax has a transverse pale fascia of variable width across the middle.

This species belongs to Group 3 of the genus, but cannot be placed in any of the subsections of that

group defined in my work on the *Dytiscidæ*; the under surface has on the breast and basal abdominal segment numerous extremely coarse punctures, the prosternal process is broad and tricarinate, there is a rudimentary abbreviated longitudinal impression near each side of the thorax, so that the insect must be placed between Sections A and C of the group referred to. No conspicuous sexual distinctions can be observed.

Found at Chiuzenji, in the lake, on the south side, the fourth week of August, 1881; a large variety with all the spots largely developed was found, in three examples, at Sapporo.

Hyphydrus rivalis.

A small series of this well-known insect was met with at Sapporo, and a single example at Awomori. These Japanese individuals differ scarcely at all from the North American variety *Hydroporus obesus*, Lec.

Agabus insolitus.

Oblongo-ovalis, depressus, nigerrimus, nitidus, antennis, palpis pedibusque anterioribus rufis, pedibus posterioribus piceis, elytris versus latera guttulis duabus pallidis; corpore superne obsoletissime reticulato, fere lævigato, prothoracis margine laterali crasso. Long. $5\frac{1}{2}$ mm., lat. 3 mm.

This is a very abnormal species for a member of the genus *Agabus*, the coxal lines being but little turned outwards behind, and the swimming-legs slender, and it has more the aspect of a *Platynectes* or *Agabinus*; it is, however, connected to a certain extent with the more ordinary Agabi by means of *A. optatus*, and the characters therefore are not sufficiently definite to justify the establishment for it of a genus distinct from the polymorphic *Agabus*. The outlines of the thorax and elytra are continuous, the hind angles of the former slightly obtuse, the reticulation of the wing-cases is almost obliterated, but the subserial punctures, though fine, are distinct and numerous; there is a pale spot on each near the side beyond the middle, and a second close to the apex. The prosternal process is broad and flat, its anterior portion strongly margined; the wing of the metasternum is very slender, the rather large hind coxæ and the basal ventral segments are finely strigose. The

legs are slender, the femoral setæ very small. The front and middle tarsi of the male are almost undilated, but are furnished beneath with very evident glandular pubescence.

A single example of the male sex was found in Higo in 1882.

Agabus optatus.

Ovalis, parum convexus, niger, nitidus, antennis, palpis tarsisque rufis, pedibus piceis, elytris versus latera guttula parva pallida; corpore supra densissime omnium subtilissime reticulato. Long. $6\frac{1}{2}$ mm., lat. $3\frac{1}{2}$ mm.

Notwithstanding the fact that the coxal lines are less directed outwards behind than usual this species may be placed in the same group as *A. japonicus*, from which species it is readily distinguished by its smaller size and the uniform black colour; the prosternal process is only moderately broad, but is flat and distinctly margined; the swimming-legs are slender, their tibiæ glabrous on the infero-external face; the hind coxæ are rather large, the wing of the metasternum moderate.

A single female example was found in Kiishiu in 1874 (Mr. Wada).

Platambus fimbriatus.

Ovalis, angustulus, convexus, nitidus, rufus, abdomine apicem versus picescente, supra subænescens, capitis maculis magnis, prothoracis lateribus, elytrorumque marginibus laterali basalique late flavis; elytris politis, punctis seriatis magnis impressis. Long. 7 mm., lat. $3\frac{1}{2}$ mm.

This insect is narrower than *Dytiscus maculatus*, and readily distinguished by the very broad lateral and basal margins of the upper surface, and by the very large impressed punctures on the elytra.

The series of nine examples shows very little variation, and the male characters are very slight, there being only an extremely slight incrassation of the front and middle tarsi.

Found at Chiuzenji in the fourth week of August, and in the lake at Hakone.

Copelatus japonicus.

Oblongo-ovalis, depressus, fusco-piceus, capitis prothoracisque marginibus dilutioribus, elytrorum marginibus laterali basalique,

antennis pedibusque testaceis; corpore supra subtiliter punctulato, thorace versus angulos posteriores strigulis brevissimis impressis; elytris striis argutis sex, externa posterius parum abbreviata, striaque submarginali modice elongata. Long. 6 mm., lat. 3 mm.

The male has the front and middle tarsi a good deal dilated, and in the female the sculpture at the hind angles of the thorax is coarser. The species belongs to Group 10, and is not closely allied to any other. The only two individuals found are immature; one was obtained in Kiishiu (*Mr. Wada*), the other has no locality recorded.

Rhantus erraticus.

Ovalis, subdepressus, subopacus, subtus niger, supra testaceus, capite nigro-variegato, prothorace in medio plaga transversa nigra, elytris creberrime nigro-irroratis, antennis pedibusque anterioribus testaceis, femoribus basi nigricante, pedibus intermediis nigris geniculis tarsisque rufis; corpore superne densissime minus subtiliter rugoso. Long. 13 mm., lat. 6 mm.

This species resembles greatly a large flat *Colymbetes pulverosus*, but it has the peculiarity of being dull above owing to a much less obsolete sculpture than exists in the males of other species of this genus. The male has the front and middle tarsi a good deal incrassate, and the claws of the anterior feet are elongate and simple. The female is unknown.

A single example occurred at Yumoto, August 24th, 1881.

Dytiscus marginalis.

The occurrence of this species in Japan, which was previously somewhat doubtful, has been certified by the capture of one female example at Chiuzenji and another at Sapporo.

Dytiscus sharpi.

Dytiscus sharpi, Wehncke, Stett. Ent. Zeit., 1875, p. 500.

This species was met with, though only in four or five examples, at Uyeno, in Tokio, December, 1880. The female before me is of much interest, as, though the peculiar sulcation seen in so many of the species of the genus *Dytiscus* is not present, yet there are on the external part of the elytra three or four slight grooves or striae, being, as it were, the rudimentary condition or

commencement of this sexual peculiarity. The female differs from the male also in having the thorax finely punctured all over, as in the corresponding sex of *D. punctulatus*, the punctures being, however, less dense than in *D. punctulatus*.

Hydaticus thermonectoides.

Breviter ovalis, anterieus attenuatus, convexus, ferrugineus, elytris nigro-irroratis, irrorationibus post medium in fascias duabus nigras condensatis. Long. 10 mm., lat. 6 mm.

The unique specimen, a female, seems to indicate a *Hydaticus* of peculiarly short form, somewhat similar to a *Thermonectes* or *Rhantaticus* in appearance, to be placed near *Hydaticus ponticus*. There is no black marking on the head and thorax; the elytra show very indistinct longitudinal lines of yellow among the black specks; the hind legs are remarkably short. The upper surface has a distinct fine punctuation, but unless this be characteristic of the female there is no sexual sculpture. The species may be readily distinguished from *H. rhan-toides* by the broad shape and the different markings on the wing-cases.

Found on the Wada Pass.

Sandracottus hunteri.

A single example of this well-known species has occurred in Higo.

GYRINIDÆ.

Gyrinus japonicus.

Gyrinus japonicus, Sharp, Trans. Ent. Soc. Lond., 1873, p. 55.

G. curtus, Regt., Ann. Soc. Fr., 1882, p. 168 (nec Motsch.).

This has been brought from Yokohama by Mr. Lewis, and the series now found shows that the species should be placed in the section with dark epipleuræ, although in certain examples a faint rusty colour is apparent on the middle of the basal portion of these parts. The species is remarkable on account of a very distinct sexual sculpture existing in the female, a large portion of each wing-case being covered in that sex by a patch

of very fine alutaceous sculpture, rendering the surface opaque, except that at the suture and at the apex it is rather broadly, at the outer margin narrowly, shining. The individuals from Yokohama have the epipleuræ quite dark, while the specimens formerly brought from Nagasaki possess the faint rufescent tinge above mentioned, but clearly all are one species.

Gyrinus curtus.

Gyrinus curtus, Motsch., Bull. Mosc., 1866, i., p. 165 ;
Sharp, Trans. Ent. Soc. Lond., 1874, p. 417 ;
nec Regt., Ann. Soc. Fr., 1882, p. 168.

This species belongs to the group with red epipleuræ, and I think Motschulsky's name was really intended for it. The sexual sculpture of the female, so apparent in *G. japonicus*, is in *G. curtus* much more indistinct.

Nagasaki and Sapporo.

Gyrinus gestroi.

Gyrinus gestroi, Regt., Ann. Soc. Fr., 1883, p. 165.

Mr. Lewis captured a series of this species near Yokohama at the commencement of winter, and also met with it near Sendai, and at the Ogura Lake in July.

Orectochilus regimbarti.

Elongato-ovalis, fusco-niger, supra undique subtiliter punctato-tomentosus, infra epipleuris pedibus abdomineque late ferrugineis ; labro lato rotundato, mediocriter elongato. Long. $8\frac{1}{2}$ —9 mm., lat. 4 mm.

Mas, elytris sutura parum elevata, ad apicem fere recte truncatis.

Fem., elytris sutura valde elevata, apice in medio angulariter producto.

This species is very distinct from any other with which I am acquainted. The labrum is just about twice as broad as it is long ; the thoracic punctuation is extremely indistinct, and that on the elytra quite fine, and more scanty in the male than in the female. The male anterior tarsi are only moderately dilated.

I have named this distinct species in honour of Dr. Maurice Régimbart ; by the assistance of his carefully

executed plates it is now possible to determine with certainty the species of this very difficult family.

Found in the lake of Chiuzenji about the end of August, 1881.

Orectochilus agilis.

Anguste-ovalis, fusco-niger, elytrorum margine externo angustissime, epipleuris pedibusque, ferrugineis, supra æqualiter punctato tomentoso, capite lævi; subtus piceus; elytris apice subrecte truncato, angulis externis obtusis; labro sat producto, rotundato. Long. $6\frac{1}{4}$ mm., lat. 3 mm.

This is another species very distinct from any yet described, being about the same size as *O. villosus*; it is much less convex, more regularly oval, and it is at once distinguished by the yellow margin of the wing-cases; the outer apical angle of the wing-case is not broadly rounded, as in *O. villosus*, but the hind margin, being nearly straight, the side meets it so as to form a slightly obtuse angle. The male front tarsi are a good deal dilated, and the outer apical angle of the tibia is rounded.

A good series was taken in the river at Kumamoto about the end of May, 1881, but most of the examples are very immature. Rough weather had occurred, and the specimens had taken refuge under weed on the beach.

Orectochilus punctipennis.

Ovalis, angustus, convexus, supra niger, subænescens, nitidus, undique punctato-tomentosus, punctatura minus obsoleta, subtus piceus, abdomine flavescens, pedibus testaceis, labro sat producto, rotundato; elytrorum apice oblique truncato, angulo externo rotundato-obtuso. Long. $5\frac{1}{2}$ mm., $2\frac{5}{8}$ mm.

Closely allied to *O. villosus*, auct., rather smaller and narrower and scarcely so convex, but at once to be distinguished by the (for this genus) unusually coarse punctuation of the elytra; the outer apical angle of the wing-cases is also less broadly and completely rounded than it is in *O. villosus*. The dilatation of the male front feet is rather less than it is in *O. villosus*, the apex of the tibia is similarly formed. The only two examples found are both rather immature, and show, especially the female, slight traces of some longitudinal depressions on the posterior part of the wing-cases.

Ogura Lake, July 1st, one female; Tokio (*Mr. Tanaka*), one male.

HYDROPHILIDÆ.

Hydrocharis libera.

Ovalis, convexa, nigra, antennarum basi testaceo; dense subtiliter punctato, elytris seriebus punctorum impressis conspicuis; prosterno posterius mutico, metasterno posterius apice spinam brevem in medio formante; femoribus posterioribus fere impunctatis. Long. 19 mm., lat. 10 mm.

This species is excessively similar to the European *H. caraboides*, auct., but is readily distinguished by the middle of the prosternum being without spine, by the impunctate femora, and by the projection of the metasternum in the middle behind forming a longer free spine. This latter character will distinguish the species from *H. affinis*, besides the colour differences in the legs, palpi, and inflexed margin of the wing-cases.

Five examples were found at Hakodate towards the end of September, 1880.

Hydrocharis affinis.

Hydrocharis affinis, Sharp, Trans. Ent. Soc. Lond., 1873, p. 58.

H. flavipes, var., Sharp, *op. cit.*, p. 59 (nec Steph.).

Mr. Lewis has now secured a series of about a dozen examples of this species. Though very closely allied to the European *H. flavipes*, I think it will prove distinct, the size being very much greater, the thorax more transverse, the striation on the wing-cases always distinct, and the middle of the prosternum rather differently formed, being shorter in proportion and less produced behind, more obtusely rounded in front. The specimen recorded as being possibly a variety of *H. flavipes* is, I am satisfied, now that I have had an opportunity of comparing it with a series of *H. affinis*, only a small, ill-developed, immature individual of that species.

Found in Ogura lake, near Nara, towards the end of June, and at Niigata in September; I have also a specimen of the species from Castlenau's collection labelled Shanghai.

Hydrophilus rufipes.

The species recorded in Mr. Lewis' catalogue of Japanese Coleoptera as *Sternolophus fulvipes*, Motsch., is this species, common in Eastern Asia; what *S. fulvipes*, Motsch., may prove to be I am still unable to determine.

HYDROCICLUS, n. g.

Gen. *Hydrobio* affinis; corpus rotundatum convexum, palpi maxillares, sat elongati, thoracis longitudine, crassiusculi, articulo pseudo-basali recto, articulo ultimo præcedente longiore; mentum magnum, planum, antè rotundatum, dense sculpturatum. Mesosternum processu elevato, posterius excavato. Pedes tenues, haud natatores, tarsi posteriores subtus pubescentes, haud ciliati.

This rather curious form can only be placed near *Hydrobius*, from which it is readily distinguished by the elongate palpi, and by the clothing of the under surface of the hind feet; the mesosternal process is peculiar; it is rather broad, placed transversely with a subacuminate free extremity, and from its hollowed posterior face emits a very slender process, which connects between the middle legs with a narrow prolongation of the metasternum. The basal halves of the femora are densely and finely pubescent; the antennæ are nine-jointed, with short club; one of the anterior tibial spurs is elongate and much curved.

The Chinese genus *Hydrocassis*, Fairm., is probably an allied form, having, according to the description, a different mesosternal structure.

Hydrociclus lacustris.

Rotundato-ovalis, piceus, antennarum basi, palpis, tibiis tarsisque rufis; supra fortiter punctato, capite thoraceque punctis inæqualibus mixtis; elytris fortiter seriatim punctatis, interstitiis alternis fortiter, apicem versus subasperate, punctatis, margine laterali distante serrato. Long. 7 mm., lat. 5 mm.

Head coarsely punctured, behind with fine punctures between the larger ones, these latter in the middle not extending to the front margin. Thorax very transverse, distinctly margined all round, with numerous distinct irregularly-placed punctures, and with other very fine, more numerous, punctures between these. Elytra with regular series of coarse punctures, which behind and at the sides become striæ, and the alternate interstices bear coarse

punctures, which on the posterior part become more or less asperate.

This is a lake species, occurring in water of low temperature, and has been found at Hakone and Chiu-zenji, but is apparently rare.

Hydrobius pauper.

Oblongo-ovalis, niger, supra nigro-æneus, antennarum basi, palpis tarsisque rufis; supra crebre punctatus, elytris præterea seriatim punctatis, interstitiis etiam punctis interjectis irregularibus parum conspicuis. Long. 7 mm., lat. $3\frac{1}{2}$ mm.

This species is very closely allied to *H. fuscipes*, auct., more especially to the form recently distinguished by Thomson as *H. picicrus*, but, compared with the latter, it is found to be rather narrower, to have the punctuation of the upper surface rather finer, and on hinder half of the elytra more scanty, and the striæ less marked; it is, however, most satisfactorily distinguished by the pubescence and punctuation of the hind femora, which is very much diminished in the present species, being confined to a smaller area, and on that area much less dense, and indeed is almost altogether wanting on the posterior portion of the femur.

Mr. Lewis has brought only a few specimens, and the only recorded locality is Oyama on the main island.

Hydrobius fuscipes.

Dytiscus fuscipes, L., Faun. Suec., No. 766.

Horubetsu, in Yezo; one example.

Philydrus haroldi.

? *P. cinctus*, Harold, Deutsche Ent. Zeit., 1877, p. 343 (nec Say).

Major, ovalis, convexus, nitidus, niger, antennis, palpis tarsisque testaceis, palpis articulo pseudo-basali basin versus late infuscato, antennarum clava obscura, prothoracis elytrorumque marginibus brunneo-testaceis, pedibus piceis, supra crebrius punctato; mesosterni processu falcato. Long. $7\frac{1}{2}$ mm.

This species, closely allied to *P. japonicus*, differs by its considerably larger size, and by the broadly infusate base of the palpi, as well as by the greater prominence

of the apex of the mesosternal process. It is very similar to *Hydrophilus cinctus*, Say, from which it differs by the falcate mesosternal process, as well as other structural characters. It is pretty certainly the species recorded by Harold (*loc. supra cit.*) as being *P. cinctus*, Say, and this latter name must therefore be erased from the list of Japanese Coleoptera.

Sendai, Oct. 20th, 1880, four examples; Osaka, July 6th, one example.

I have dedicated the species to Baron Edgar von Harold, to whom Science is deeply indebted for his contributions to the knowledge of the coprophagous lamellicorn, and other, Coleoptera.

Philydrus subsignatus.

Philydrus subsignatus, Harold, Deutsche Ent. Zeit., 1877, p. 342.

This insect has not been met with by Mr. Lewis. It was found by Dönitz in the lake at Hakone.

Philydrus uniformis.

Ovalis, sat convexus, nitidus, niger, antennis palpis, thorace, elytris, tibiis, tarsis capitisque macula utrinque testaceis; crebre fortiter, punctatus; mesosterni lamina magna. Long. 4 mm.

This little insect, with the upper surface coloured as in *Hydrophilus bicolor*, Payk., is much smaller. The extremities of the maxillary palpi are suffused with fuscous-colour; the punctuation of the elytra is not dense, and larger serial punctures are not to be observed. The large mesosternal lamina has its lower edge free from serration or inequalities, but has a very minute acumen at its anterior angle.

Yokohama, February, 1880.

Philydrus vilis.

Ovalis, sat convexus, nitidus, niger, antennis, palpis, tibiis tarsisque testaceis, antennarum clava infusca, capite nigro macula utrinque testacea, thorace elytrisque fusco-ferrugineis, versus latera dilutionibus; crebre fortiter punctatus; mesosterni lamina parva. Long. 4 mm.

The punctuation of the elytra is not dense, and there are no serial punctures to be observed; the mesosternal lamina, though sharply elevated, extends but little forwards in the anterior direction. The darker colour of the upper surface and the smaller mesosternal lamina make the species very easily distinguished from *P. uniformis*.

A single individual in very bad condition was found at Sapporo.

Philydrus ornaticeps.

Minutus, ovalis, sat convexus, nitidus, niger, antennis, palpis, tibiis, tarsis, thorace elytrisq. testaceis, capite nigro, macula utrinque testacea; crebre punctatus; mesosterni lamina parva. Long. 2—2½ mm.

This, one of the smallest species of the genus, is in colour very similar to *P. uniformis*, as also in punctuation, and, as in that species, no serial punctures are present; the mesosternal lamina, though sharp and definite, is very small.

Kioto, July 4th, 1881. Also found by Mr. Lewis in 1863 at Kiu Kiang, in China.

Philydrus umbratus.

Ovalis, sat convexus, niger, supra fusco-testaceus, prothorace elytrisq. versus latera dilutioribus, capite nigricante utrinque flavo-maculato, antennarum basi, tibiis, tarsis palpisq. testaceis, his articulo ultimo extrorsum infuscato; supra crebre æqualiter punctato, elytrisq. præterea seriatim punctatis, seriebus punctorum posterius profundioribus. Long. 5½ mm.

This species is well characterised by the distinct lines of close punctures on the wing-cases, which become deeper behind so as there to form evident striæ; besides this the elytra are closely punctured, and on some of the interstices there can be distinguished in addition a few larger punctures; the insect is very similar to *P. simulans*, but is readily distinguished by the absence of deep striæ, and by the greater development of the ordinary diffuse punctuation of the wing-cases, so that the irregular larger punctures on some of the alternate interstices are not very conspicuous as they are in *P. simulans*. The mesosternal lamina is large.

This appears to be one of the commoner species of

the genus in Japan, and has been met with at Nikko, Niigata, Yokohama, and Hakodate.

Laccobius bedeli.

Breviter ovalis, convexus, niger, capitis macula utrinque, prothoracis lateribus, antennis, palpis, pedibus elytrisque testaceis, his confertim fusco-lineatis, pallide subguttatis; prothorace crebre fortiter punctato, inter puncta polito; elytris omnino regulariter seriatim punctatis; mesosterni lamina magna. Long. 3 mm.

This, though very similar to the European *L. bipunctatus*, does not agree sufficiently therewith to justify its being treated as a mere variety thereof. *L. bedeli* is larger, and the elytra are smoother, the very regular punctures being smaller and placed much farther from one another, the two pallid spots near the apex characteristic of *L. bipunctatus* are absent, and the mesosternal lamina is much larger.

This is the insect formerly alluded to in Trans. Ent. Soc. Lond., 1873, p. 61, as possibly a variety of *L. minutus*, L., but, now that the characters of that insect and the allied species in Europe have been ascertained, it is evident that the Japanese insect is also distinct, and I have with much pleasure named it in honour of M. Louis Bedel, whose kind assistance has greatly helped me in making out its characters.

Although only a few examples have been brought back the species is probably very common, as it has occurred at several localities, Yokohama, Oyama, Sendai, Hakodate.

Laccobius oscillans.

Ovalis, sat convexus, niger, capitis macula parva utrinque, prothoracis lateribus, antennis, palpis pedibusque testaceis; elytris ex parte majore nigricantibus, plus minusve pallido-subguttatis, lateribus apiceque pallidioribus, seriatim punctatis interstitiis magis sparsim seriatim punctatis; prothorace inter puncta majora tantum obsolete alutaceo-punctato. Long. $2\frac{1}{2}$ mm.

This is excessively similar to the European *L. alternus*, but under the microscope it is seen that the thorax is only obscurely alutaceous. This character is of too much importance in the genus to allow the union of the Japanese and European insects; the former, indeed, is intermediate between the two groups of European species,

for in the species said to have a polished thorax a good microscope reveals more or less distinct traces of the alutaceous sculpture, so that the *L. oscillans*, where the thorax is undoubtedly, though indefinitely, alutaceous, cannot be satisfactorily placed in either of the two groups.

A fair series of *L. oscillans* has been obtained at Hakodate. It sometimes exhibits a pallid spot near the extremity of each wing-case, like the European *L. bipunctatus*.

Note.—A specimen of what is apparently a third species of *Laccobius* has been obtained by Mr. Lewis at Hakodate, but the surface is obscured by a very fine coating of some mineral substance that cannot be removed, and that renders its accurate observation impossible.

Berosus vestitus.

Niger, capite superne thoraceque late in medio ænescentibus, hoc ad latera testaceo, antennis, palpis, pedibus elytrisque testaceis his crebre fusco-irroratis, subtiliter striatis, crebre punctatis, subtiliterque pubescentibus. Long. 4 mm.

Head and thorax closely punctate, the latter with a longitudinal smooth space on the middle. Elytra rather closely punctate, with blackish punctures, each of which bears a fine depressed hair, and with fine striæ, which are rather more distinct at the apex than at the base. Mesosternal carina reduced to a raised line running along the middle of the mesosternum; carina on basal ventral segment distinct and rather elongate.

Only two individuals have been found of this very distinct little species, one at Bukenji, the other at Niigata in September, 1881.

Octhebius inermis.

Niger, opacus, antennis, palpis pedibusque testaceis; capite thoraceque fere impunctatis, illo vertice trifoveolato, hoc posterius fortiter angustato, et membrana pellucida angustissima marginato, medio canaliculato, disco utrinque longitudinaliter impresso, versus angulos anteriores oblique impresso; elytris seriatim vix regulariter punctatis, nudis, interstitiis haud punctatis. Long. 2 mm.

The labrum is entire; the thorax becomes a little broader from the front for nearly one-half the length, and is then abruptly narrowed, the excised portion being bordered with a very narrow margin of white membrane; viewed in a certain direction the

longitudinal impression on each side of the middle channel is seen to be divided into two impressions; the large impression marking off the portion at the anterior angles is deep and very broad. The under surface is rendered ashy by a very minute dense pubescence, the two terminal segments being left bare.

The species is not closely allied to any other, but may be placed near *O. nanus*, St.

A single example was met with at Miyanoshita in May, 1880.

Hydrochus æqualis.

Supra, metallico-ferrugineus, subtus niger, antennis, palpis pedibusque testaceis; prothorace fortiter punctato, subinæquali, vix foveolato, posterius angustato; elytris seriatim fortiter et profunde punctatis, interstitiis angustis, fere omnino similibus et æqualibus. Long. 3 mm.

This little insect, though very similar to *H. japonicus*, is distinct by the absence of evident areolæ on the thorax.

Only two individuals have been found, one at the Ogura Lake, the other at Osaka, both in the early days of July, 1881.

Helophorus sp. ?

The only evidence of the occurrence of any species of this well-known genus in Japan* is a very dirty specimen, found at Kobe, of what may perhaps be our common species, *H. griseus*, though its condition does not allow this to be certainly decided.

Cyclonotum orbiculare.

Hydrophilus orbicularis, Fab., Syst. Ent., 229, 5.

The Japanese individuals are rather less globose, and have a slightly coarser punctuation, than the European individuals.

It is apparently confined to the north in Japan, having been found at Hakodate, Sapporo, and Otaru, in the island of Yezo.

Mr. Lewis failed to take *Sphæridium* in Japan, although continually looking for it. The genus is as common in China as in Britain.

* Since this was written a second species of *Helophorus* has been received, and is described at the end of this paper.

Cercyon setulosus.

Oblongo-ovalis, subdepressus, niger, antennis palisque testaceis, pedibus sordide testaceis; prothorace ad latera vix subsinuato, angulis posterioribus obtusis haud rotundatis, parce obsoleteque punctato; elytris subopacis, striatis, striis fere impunctatis, postice paulo profundioribus, interstitiis haud punctatis, obscure setosulis. Long. 2 mm.

Allied to *C. algarum* and *C. aptus* by the subopaque, less punctate, upper surface, and by the interstices of the elytra being but little convex behind; from *C. aptus* it is readily distinguished by the more slender legs, which are armed with finer spines, and by the hind tibiæ being undilated at the extremity. The fine setulosity on the interstices of the elytra, though obscure, is diagnostic of this species.

Half a dozen specimens have been found, but the locality has not been preserved; no doubt the insect is of maritime habits.

Cercyon sharpi.

Cercyon Sharpi, Harold, Deutsche Ent. Zeit., 1878, p. 68.

I have not been able to identify Von Harold's description with any insect known to me. The species is a little doubtful, as Harold misunderstood my description of *C. dux* in certain points. I do not think, however, that his description can apply to the species just named.

Found at Tokio by Hilgendorf.

Cercyon aquaticus.

Cercyon aquaticum, Muls., Palp., p. 174.

This European species was found in seven examples at Otaru.

Cercyon ovillum.

Cercyon ovillum, Motsch., Schrenck's Reisen, p. 129.

Two examples of this common Amur-land species were met with at Sapporo.

Cercyon unipunctatus, var.

Coccinella unipunctata, L., Faun. Suec., No. 470.

A single example of a variety with remarkably coarse sculpture was found at Tomakomai, August 18th, 1880, in company with a series of the European *C. quisquilius*.

Cercyon vagus.

Ovalis, convexus, posterius subacuminatus, nitidus, piceus, supra obscure rufus, hic inde vage piceo-suffusus, antennis palpisque testaceis, pedibus rufis; prothorace crebrius sat subtiliter punctato, elytris profunde striatis, interstitiis parce obsolete punctatis. Long. $2\frac{3}{4}$ mm.

To be placed near *C. ustus*, but readily distinguished by the deeply striate elytra so that the interstices are convex, and by the obsolete punctuation of these latter, the striæ are only obscurely punctured. Only two individuals have been found, and, as the coloration of the surface differs in the two, it is evidently variable, and need not at present be alluded to in detail.

Found at Miyanoshita in May, 1880, and also at Oyama.

Cercyon placidus.

Ovalis, convexus, nitidus, niger, antennis palpisque testaceis, pedibus rufis; prothorace subtiliter minus crebre punctato; elytris anterieus seriatim punctatis, posterius profunde striatis, interstitiis parce punctatis. Long. $2\frac{3}{4}$ mm.

Black, with the head and thorax picescent, very shining, with quite fine and scanty punctuation on the thorax; on the elytra there are very distinct series of punctures; those near the suture are quite fine at the base, but become deep striæ behind.

The species may be at a glance distinguished from *C. vagus* by the fine thoracic punctuation, and from *C. ustus* by the elytra being marked with deep striæ behind.

Found at Hitoyoshi and Nikko, but only three examples.

Cercyon æqualis.

Ovalis, convexus, nitidus, ferrugineus, supra niger, anterieus picescens, antennis palpisque testaceis, pedibus rufis; prothorace crebre fortiter punctato; elytris seriatim punctatis, posterius substriatis, interstitiis crebre fortiter punctatis. Long. $2\frac{1}{2}$ mm.

Extremely similar to *C. placidus*, but readily distinguished by the coarser punctuation of the thorax and elytra, the latter being also less deeply striate behind. It is distinguished from *C. ustus* by the shorter form, blacker and more unicolorous upper surface, and by the rows of punctures on the elytra being deeper at the extremity.

I have seen only two examples, found at Nikko.

Cercyon rotundulus.

Breviter ovalis, convexior, ferrugineus. antennis palpisque testaceis, supra piceus, nitidus, prothorace sat crebre et sat fortiter punctato, elytris æqualiter crenato-striatis, interstitiis parce punctatis. Long. 2 mm.

Distinguished from *C. ustus* and *C. placidus* by the shorter and more convex form, and from the former by the much less punctate elytra; and from *C. placidus* by the striæ being less deepened behind, and it has moreover the basal joint of the hind tarsus much shorter than either of those species.

Only two examples have been seen by me: Miyano-shita, May, 1880, and Chiuzenji, August 19th, 1881.

Cercyon rubicundus.

Rotundulus, convexus, ferrugineus, nitidus, antennis palpisque testaceis sat crebre subtiliter punctatis, elytris seriatim sat fortiter punctatis, seriebus postice haud magis impressis. Long. 2 mm.

This little insect will be distinguished amongst its allies by the rotund form and the shining, more pallid, upper surface. It has short legs, and the polished space on the middle of the metasternum is less expanded laterally than is usual, and is flat and very definitely punctate.

Miyanoshita and Nagasaki.

Oosternum sorex.

Cercyon sorex, Sharp, Trans. Ent. Soc. Lond., 1874, p. 418.

I indicated when describing it the probability that this insect would have to be generically separated from *Cercyon*, and it now appears that it may be placed in

Oosternum, recently established for a Central American insect. Only another solitary individual of this minute species has been brought back by Mr. Lewis; found at Nagasaki on the 1st of March, so that it appears to be a rarity.

PERATOGONUS, n. g.

Corpus subrotundatum, convexum, supra et infra politum. Labrum exsertum. Mentum planum, obsolete punctatum, opacum, pubescens. Prosternum in medio parvum, utrinque ante coxas nullum. Femora margine anteriore recto, posteriore angulariter dilatato, glabra. Pedes intermedii valde distantes, mesosterni processu latissimo, brevi, in medio anterieus angulariter prominulo. Pedes posteriores breves, tarsi perbreves.

The above characters readily distinguish this curious little insect from all the other genera of *Sphæridiidæ* yet known. It may be placed between *Oosternum* and *Deltostethus*. The five joints of the very short tarsi are each almost of one length, and the claws are very minute.

Peratogonus reversus.

Rotundatum, convexum, nigro-piceum, politum; antennis, palpis pedibusque testaceis; elytris profunde striatis, striis internis ad basin subtilioribus, ibidemque discrete punctatis. Long. 2 mm.

The head and thorax are almost impunctate, but the elytra are scored by very coarse striæ, those towards the sides being directed obliquely upwards; the interstices, like the head and thorax, are shining and almost impunctate; there are only eight true striæ, the two outer ones being replaced by a few coarse serial punctures. The metasternum has a few very coarse and deep punctures on each side.

Found in a few examples at Nagasaki in March and April.

Cryptopleurum subtile.

Cryptopleurum atomarium, var. ?, Sharp, Trans. Ent. Soc. Lond., 1874, p. 420.

Breviter ovale, parce pubescens, ferrugineum, thorace in medio plus minusve infuscato, capite, prosterno pectoreque nigricantibus, antennis pedibusque testaceis; prothorace subtiliter crebre punctato, elytris sat profunde striatis, striis anterieus evidenter punctatis, interstitiis sat crebre obsolete punctatis. Long. 2 mm.

Very closely allied to the European *C. atomarium*, but smaller and paler, and readily distinguished by the much feebler punctuation of the surface. Like its European congener, it varies considerably in size and in depth of coloration.

Found at Otsu and Otaru.

Pachysternum hæmorrhoum.

Pachysternum hæmorrhoum, Motsch., Bull. Mosc., 1866, i., p. 168; Von Harold, Deutsche Ent. Zeit., 1878, p. 69 ? ?

I still fail to identify this insect, and think it very doubtful whether Harold was correct in his identification of it. Indeed, I should suppose the latter entomologist was speaking of *Megasternum distinctum* were it not for his saying that the thorax is "sehr fein punktirt." For some further remarks on Harold's views as to this species cf. Ent. Mo. Mag., xv., pp. 278—9.

LIST OF JAPANESE WATER-BEETLES.

HALIPLIDÆ.

HALIPLUS.	<i>Haliplus sharpi</i> , Wehncke.
<i>Haliplus ovalis</i> , Shp.	„ <i>japonicus</i> , Shp.

DYTISCIDÆ.

NOTERIDÆ.	BIDESSUS.
NOTERUS.	<i>Bidessus frontalis</i> , Shp.
<i>Noterus japonicus</i> , Shp.	<i>Hydroporus japonicus</i> , Shp.
CANTHYDRUS.	HYPHYDRUS.
<i>Hydrocanthus politus</i> , Shp.	<i>Hyphydrus japonicus</i> , Shp.
	„ <i>frontalis</i> , Shp.
LACCOPHILINI.	„ <i>læviventris</i> , Shp.
LACCOPHILUS.	CÆLAMBUS.
<i>Laccophilus lewisius</i> , Shp.	<i>Cælambus vittatus</i> , Shp.
„ <i>flexuosus</i> , Aubé.	
„ <i>difficilis</i> , Shp.	
„ <i>Kobensis</i> , Shp.	DERONECTES.
	<i>Deronectes anchoralis</i> , Shp.
HYDROPORIDÆ.	„ <i>simplicipes</i> , Shp.
HYDROVATUS.	„ <i>hostilis</i> , Shp.
<i>Hydrovatus acuminatus</i> , Motsch.	

HYDROPORUS.

Hydroporus natrix, Shp.
Hyphyrus rivalis, Gyll.

COLYMBETIDÆ.

AGABUS.

Agabus japonicus, Shp.
 „ *optatus*, Shp.
 „ *insolitus*, Shp.
 „ *conspicuus*, Shp.

PLATYNECTES.

Agabus dissimilis, Shp.

PLATAMBUS.

Platambus fimbriatus, Shp.
Agabus pictipennis, Shp.

ILYBIUS.

Ilybius apicalis, Shp.

COPELATUS.

Copelatus japonicus, Shp.
 „ ? spec.

RHANTUS.

Colymbetes pulverosus, Steph.
Rhantus erraticus, Shp.

DYTISCINI.

DYTISCUS.

Dytiscus sharpi, Wehncke.
 „ *marginalis*, L.

HYDATICIDÆ.

HYDATICUS.

Dytiscus grammicus, Germ.
Hydaticus thermonectoides, Shp.
 „ *rhantoides*, Shp.
 „ *bowringi*, Clk.
Dytiscus vittatus, Fab.

SANDRACOTTUS.

Sandracottus hunteri, Shp.

GRAPHODERES.

Hydaticus Adansi, Clk.
 „ *japonicus*, Shp.

ERETES.

Dytiscus sticticus, Linn.

CYBISTRINI.

CYBISTER.

Cybister japonicus, Shp.
 „ *lewisianus*, Shp.
Dytiscus tripunctatus, Ol.
Cybister brevis, Aubé.

GYRINIDÆ.

DINEUTES.

Dineutes marginatus, Shp.

GYRINUS.

Gyrinus curtus, Motsch.
 „ *japonicus*, Shp.

Gyrinus gestroi, Regt.

ORECTOCHILUS.

Orectochilus regimbarti, Shp.
 „ *agilis*, Shp.
 „ *punctipennis*, Shp.

HYDROPHILIDÆ.

HYDROPHILUS.

Hydrophilus cognatus, Shp.
 „ *japonicus*, Shp.

STERNOLOPHUS.

Hydrophilus rufipes, Fab.

HYDROCHARIS.

Hydrocharis affinis, Shp.
 „ *libera*, Shp.

HYDROBIUS.

Hydrobius fuscipes, L.
 „ *pauper*, Shp.

HYDROCICLUS.

Hydrociclus lacustris, Shp.

PHILYDRUS.

Philydrus haroldi, Shp.
 „ *japonicus*, Shp.
 „ *umbratus*, Shp.
 „ *simulans*, Shp.
 „ *subsignatus*, Har.
 „ *uniformis*, Shp.
 „ *vilis*, Shp.
 „ *ornaticeps*, Shp.

HELOCHARES.

Helochares striatus, Shp.
 „ *lewisius*, Shp.

LACCOBIUS.

Laccobius bedeli, Shp.
 „ *oscillans*, Shp.

VOLVULUS.		<i>Cercyon setulosus</i> , Shp.
<i>Volvulus profundus</i> , Shp.		„ <i>algarum</i> , Shp.
AMPHIOPS.		„ <i>sharpi</i> , Har.
<i>Amphiops mater</i> , Shp.		„ <i>laminatus</i> , Shp.
BEROSUS.		„ <i>aquaticus</i> , Muls.
<i>Berosus punctipennis</i> , Har.		„ <i>ovillum</i> , Motsch.
„ <i>japonicus</i> , Shp.		<i>Sphæridium quisquilius</i> , L.
„ <i>vestitus</i> , Shp.		„ <i>unipunctatum</i> , L.
„ <i>lewisius</i> , Shp.		<i>Cercyon vagus</i> , Shp.
HYDROCHUS.		„ <i>placidus</i> , Shp.
<i>Hydrochus japonicus</i> , Shp.		„ <i>æqualis</i> , Shp.
„ <i>æqualis</i> , Shp.		„ <i>ustus</i> , Shp.
HELOPHORUS.		„ <i>rotundulus</i> , Shp.
<i>Helophorus</i> sp. ?		„ <i>olibrus</i> , Shp.
„ <i>auriculatus</i> , Shp.		„ <i>rubicundus</i> , Shp.
OCTHEBIUS.		OOSTERNUM.
<i>Octhebius inermis</i> , Shp.		<i>Cercyon sorex</i> , Shp.
CYCLONOTUM.		MEGASTERNUM.
<i>Cyclonotum latum</i> , Shp.		<i>Megasternum gibbulum</i> , Motsch.
„ <i>simplex</i> , Shp.		„ <i>distinctum</i> , Shp.
<i>Hydrophilus orbicularis</i> , F.		PACHYSTERNUM.
„ <i>breve</i> , Shp.		<i>Pachysternum hæmorrhoum</i> , Motsch.
CERCYON.		CRYPTOPLEURUM.
<i>Cercyon dux</i> , Shp.		<i>Cryptopleurum subtile</i> .
„ <i>aptus</i> , Shp.		PERATOGONUS.
		<i>Peratogonus reversus</i> , Shp.

ADDENDUM.

Helophorus auriculatus.

Niger, supra fusco-æneus, palpis pedibusque testaceis; thorace ad latera antè sinuato, angulis anterioribus prominulis; elytris regulariter seriatim punctatis, interstitiis alternis subelevatis et ultra medium subtuberculatis. Long. 6 mm.

This is a very distinct species, with a peculiar formation of the sides of the thorax, the front angles being unusually prominent, and the sides a little behind the front somewhat dilated, so that a slight emargination exists behind the front angles; on the under surface a prominent carina extends longitudinally a little distance from the side; the thorax is covered with fine granulations, those near the side being more distinct; its sulci are fine; there is a short series of punctures on each side of the suture of the elytra at the base.

Miyanoshita.



1884. "XXI. The water-beetles of Japan By David Sharp." *Transactions of the Entomological Society of London* 32, 439–464.

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