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MDCCLXXI.

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FOR

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“By-the-by, what is often called indolence is in fact the unconscious consciousness of incapacity: the importunity to overcome it is often as injudicious as to force an unwilling player to the whist-table, to the great annoyance of his partners.”
—*Crabb Robinson's Diary*, iii. p. 355.

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EXPLANATION OF PLATE.



- Fig. 1. *Acidalia strigaria*, Hübner, see page 88.
2. *Homœosoma senecionis*, H. Vaughan, see page 91.
3. *Trachonitis* (?) *Pryerella*, H. Vaughan, see page 90.
4. *Cordulia metallica*, Van d. Lind., see Ent. Month. Mag., vol. vii.
p. 38.
+ a, front view of head; + b, lateral view of *appendices anales* ♂.
5. *Bembidium quadripustulatum*, Dejean, see page 26.
6. *Hydroporus minutissimus*, see Ent. Ann. 1870, p. 46.
7. *Philonthus cicatricosus*, Erichson, see page 34.



The Woodcut on the Wrapper represents—

Tapinotus sellatus, Fab., see page 25.

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MY SECOND VISIT TO THE ENGADINE.

BY H. T. STAINTON, F.R.S.

THE readers of "The Entomologist's Annual for 1866" need not to be told that my four days' sojourn at Pontresina in July, 1865, had rendered me extremely desirous to pay a second visit to the Engadine.

I had hoped to have carried out this intention in 1866, but unfortunately the contest then going on between Italy and Austria necessitated the presence of Swiss troops near the southern frontier, and I apprehended that the hotels in the Engadine might be inconveniently crowded; so that after staying at Chur some days and visiting Churwalden, and even driving as far as Lenz, I resolutely turned my back on the Engadine and followed up the Vorderrhein valley to Dissentis and Sedrun, and over the Oberalp Pass to Andermatt.

My determination this year had been early made to revisit the Engadine, and to devote a longer time to the exploration of its beauties. Three of the Stettin Lepidopterists had also determined to make it the ground of their Swiss tour for 1870; and though I feared Dr. Staudinger with his "Catalogue," and Herr von Heinemann with his work in hand on the "Tineina of Germany and Switzerland," were much too occupied to venture on an Alpine excursion, yet I hoped to meet some of my Munich correspondents there, as well as the trio from Stettin. I had heard that the hot weather had prevailed in Switzerland as well as in England, and that

the season, both florally and entomologically, was unusually forward, and I was urged by Professor Frey to start early, for he wrote on the 22nd June—"For the Engadine the first half of July may be very good, but the second will be almost too late." But at the time I received this admonition, I was already aware that the second half of July would be well advanced before I could reach the Engadine, for I could not see my way to leaving home before the 13th of July.

My friends from Stettin were to start on the 7th of July, so that I calculated they would be there more than a week before me; but yet I hoped that we should have some pleasant days together and expected to profit by their experience.

I slept at Dover on the 13th of July, and the following day had a splendid passage in the "Prince Imperial" (does this vessel still bear that name?) to Calais; on board I read in the "Times" that the candidature of the Prince of Hohenzollern for the throne of Spain had been officially withdrawn, and so any qualms I might have had as to the *possibility* of war on the Continent were at an end.

Conceive then my astonishment when at Rolandseck the following evening I heard that France *had* declared war against Prussia; I thought the waiter was romancing.

Having had some experience of travelling in time of war (in 1859 seeing the Austrian soldiers at Augsburg *en route* for Solferino), I saw no sufficient reason to turn back—besides I had a month to spend in Switzerland—and possibly I might find the course quite clear when I wished to return; moreover, the attraction of the coolness of the high stations in the Engadine was not to be lightly overlooked after the roasting and frying we had undergone at home—so on the 16th July we continued our journey to Frankfort.

We found all our friends at Frankfort evidently very ill at ease; having so recently experienced a hostile occupation,

they had no wish to be again in the same predicament, but we quite satisfied ourselves before we left Frankfort that the notion of divisions in Germany existed only in the brains of dreamers.

On Sunday (July 17th) at 5 A.M. we saw the regiment quartered in the barracks opposite the "Römischer Kaiser" march off to the railway station, and we heard in the evening that all the troops had left Frankfort for the frontier. We considered it problematical whether on the Monday we should be able to get by the "Badische Eisenbahn" from Frankfort to Basle, but we resolved to try, and were only inconvenienced by the large number of fellow-travellers in a southerly direction, who went in the same train. The confusion at the Frankfort station, where Hauptmann Lucas von Heyden rendered us most essential aid, for which we felt most thankful, was only a small foretaste of the confusion that awaited us at Basle; there our luggage was not obtainable till the next morning, and the hotels being all full, we had to sleep where we could.

The next day (the 19th) we left Basle (a very Babel for the time) and pushed on to Chur, where I found letters from Professor Hering and Dr. Schleich of Stettin, and from Herr Hartmann of Munich. The Stettin entomologists had passed through Chur on the 9th on their way to Samaden; Herr Hartmann found himself too much occupied to leave home, but he assured me I should find Herr Pfaffen-zeller, of Munich, at Samaden.

I wrote a line to my Stettin friends to announce my arrival at Chur, and to say that I was going first to Maria, but that after a few days' stay there I proposed to spend a day or two at Samaden.

On the evening of Thursday (July 21st) we arrived at

Maria bei Sils, and were comfortably housed at the "Alpen Rose."

Friday (July 22nd) was a splendid cloudless day; the thermometer outside our window was at 48° Fahrenheit when I first looked at it, and never rose above 62° in the shade the whole day. I may here mention, that during our whole stay in the Engadine we never saw the thermometer above 65° in the shade, though during that very time it reached 91° in the south of England. Our first attempt at exploring the locality was made up the valley of the Fex, on the left-hand side; here we had not progressed far, when, on a rock-face, we found *Solenobia* cases, which were however all empty, and whilst we were getting these we were accosted by an old gentleman, Herr Knateck, an entomologist from Berlin, settled in the Engadine, who informed us he was in the habit of collecting these *Solenobia* cases for Professor Frey of Zürich. This is the species which was first erroneously supposed to be *Conspurcatella*, and is now known as *Alpestrella*, Heinemann. As we walked along the narrow footpath we noticed from time to time swarms of a pale blue *Polyommatus* settled in the moister, boggy places; this I was afterwards assured by Professor Frey was no other than our own *P. Corydon*.

Amongst the herbage I started a *Gelechia tripunctella* (a creature just like our *Cinerella*, only rather larger and with three black spots), which I captured; but, with the exception of a *Tortrix* and one Dipterous insect, this was my only capture that day. We went gradually creeping up the valley till we came in view of the Fex Glacier and the surrounding peaks, all standing out gloriously against the cloudless sky.

Of larvæ a few of a *Depres-aria* in the flowers of an *Umbellifer* were secured; but my most interesting find that day was the deserted mines of a *Micropteryx* larva in the

leaves of *Alnus viridis* (the Alpine alder); these mines were by no means scarce—and they probably indicate some species at present entirely unknown to us—and besides that, they give us the intimation that we should examine our own alder bushes to see whether we have not also with us an alder-feeding *Micropteryx*.

The afternoon that day was spent in driving to Samaden and back, as I thought I ought to lose no time in inquiring for my Stettin friends; but I heard at the new Bernina Hotel, which had sprung up, mushroom-like, since my visit to Samaden in 1865, that Professor Hering and Dr. Schleich had already departed. Our driver, who seemed about thirteen, was asleep the greater part of the way from Maria to St. Moritz, and we had to poke him from time to time lest he should “zu Grunde gehen.” On our return we walked up the hill to St. Moritz, and there I found some more *Depressaria* larvæ, in the umbels of a small Umbellifer; from these I have since bred two *D. Heydenii*.

The following day was again cloudless! and this time we tried the right side of the valley of the Fex, which we found a much more prolific hunting-ground than the opposite side of the valley. We ascended through a steep firwood, the undergrowth consisting of *Vaccinium myrtillus* and *Vitis-idaei*. Some large yellow *Compositæ* were attractive to many *Tortrices* and a few *Tineæ*, as well as to the *Rhopalocera*. I could not resist catching a splendid *Argynnis Lathonia*, just to enjoy the pleasure of having a good look at it, and then let it go again.

There was a decent winding path through the wood, and after surmounting the first steep ascent the ground was nicely broken into little knolls and hollows, so that there were snugly sheltered spots—exposed to the sun but sheltered from the wind. The ground was almost carpeted with *Dryas octo-*

petala, unfortunately then out of bloom; a careful and prolonged search in every likely place to find some straggling blossoms only furnished me with one solitary flower, a flower I had always longed to see and which I then beheld for the first time. Flying amongst the plant, and so constantly settling on it, that I felt convinced there was some intimate connection between the plant and the insect, I observed *Pamplusia monticolana*, Duponchel.* This insect I afterwards found to be one of the greatest nuisances at Maria; I was constantly catching it to see what it was, its flight not being sufficiently distinctive to enable me to recognize it with certainty. At Pontresina, where there was no *Dryas*, I saw none of the *Pamplusia*.

Here I also met with a pale ochreous *Elachista*, the *Heinemanni* of Frey. Sitting on a flower of *Chrysanthemum leucanthemum* was a showy green *Butalis* (*amphonycella*), and here I may notice that I constantly observed that the species of *Butalis* in the Engadine had a great fancy for the flowers of *Compositæ*, and I got into the habit of looking on all the large, showy composite flowers to see if they would furnish me with a *Butalis*. Amongst a small *Daphne*, which I presume must be *Daphne alpina*, I met with a specimen of *Anchinia laureolella*; and this, with two specimens of *Gelechia tripunctella* and two of *Penthina Charpentierana*, was my morning's work.

In the afternoon I revisited the same locality, and finding that the *Anchinia laureolella* was freely on the wing from

* In Staudinger and Wocke's Catalogue *Alpestrana*, Herrich-Schäffer, is given as a synonym for the insect; but Herrich-Schäffer's insect is not the species I mean, which is quite recognizably figured by Duponchel in his fourth supplementary volume, pl. 83, f. 3, under the name of *Coccyx monticolana*, and has no affinities with the unicolorous *Dichro-ramphe* to which Herrich-Schäffer's *Alpestrana* seems nearly related.

4.30 to 5.30, I captured nearly 50 of them; another *Elachista Heinemanni* and another *Butalis* were the only other captives which fell to my lot.

The next day we had a few light clouds, which gradually increased in the afternoon. The morning produced 8 *Elachista Heinemanni*, 6 *Gelechia tripunctella*, 1 *G. instabilella* (fancy finding this sea-shore insect some 6000 feet above the sea level!), 2 *Pleurota bicostella*, 4 *Anchinia laureolella*, 1 *A. grisescens*, &c., &c.

The afternoon was devoted to a visit to the Maloja Pass, which only a little above the head of the Lake of Sils drops down very abruptly on the Italian side. Directly one had descended a little on the southern slope of the pass a different and more luxuriant vegetation was noticed, and the chiff-chaff, whose note we had not heard at Maria, showed that there was also an ornithological difference. The light clouds of which I had already spoken prevented us from having the splendid view which we might have had under more favourable auspices.

I was in great hopes, having found that *Anchinia laureolella* was freely on the wing towards evening, that *A. grisescens*, which has always been a rarity, might have a similar habit, but though I easily secured some 40 more of the first-named species I saw none of the latter; I, however, consoled myself with a *Bucculatrix aurimaculella* and one of *B. alpina*, Frey.

The next day I tried some fresh ground, almost overhanging the Lake of Sils, on the road to Isola, but with the exception of more *Gelechia tripunctella* (an insect, by the way, that you always find everywhere in these Alpine regions) and a *Crambus radiellus* I boxed nothing.

In the afternoon we left Maria (N.B.—to go to Maria again earlier in the season and stop there longer) and pro-

ceeded to Samaden. It began thundering before we left Maria, and though we managed to get to Samaden without much rain, we were no sooner housed (not in the *large* hotel, that was *actually full*, and we were obliged to be in a *dépendance* some little distance from the hotel) than another thunderstorm began, and the rain poured down heavily. I must admit that I was disappointed with the effect produced by the thunder amongst these hills; I have heard far finer effects of sound produced among the low hills down the Clyde.

The next morning I determined to ascertain whether Herr Pfaffenzeller, of Munich, was still at Samaden. I interrogated the waiter, who could give me no information, so I applied to the landlord, whose answer was, "Er ist gestern gereist"—"He has been here for fully six weeks, but he left here yesterday." So perished my last chance of finding a colleague in the Engadine.

The morning was bright and sunny, and I first tried down the valley in the direction of Bevers. I tried a dry steep slope on the left, but found nothing except a plant or two of *Laserpitium hirsutum*, which were almost eaten down to the ground by the larvæ of *Depressaria laserpitii*. Finding this collecting-ground unprofitable, I returned to Samaden, crossed the Inn and then turned into the meadows, where every one was busy making hay, and where I saw, to my surprise, that even in the valley and at that elevation, the grass had been actually burnt quite brown; in crossing these meadows I gradually approached the rising ground on the south side of the valley, and there, under some fine arolla trees, I hoped to have had some sport. I tried several boggy bits of ground, several heathy places, but alike in vain. I saw no *Tineina*, so I was obliged to content myself with a *Lithosia aureola* and a *Crambus radiellus*. On the whole,

from my morning's ramble, I did not form a very exalted opinion of the entomological capabilities of Samaden, though I am quite willing to concede that there may be good localities about if one knew where to find them.

On Wednesday, July 27th, we left Samaden for Pontresina. We were unable to get into the hotel, and were obliged to have lodgings a little way off, and it was three days before we could get housed at the Krone. In fine weather this is little inconvenience, but when it rains cats and dogs, as it did one evening at dusk, just as we were going to supper, it is no easy work to avoid the various spouts from the roofs which at such times send down perfect streams of water. Our experimental dodging about between them seemed to furnish great amusement to the small children of Pontresina.

Our first afternoon at Pontresina was devoted to a pilgrimage to the Morteratsch Glacier; it was dull but not raining as we went, but whilst we were staying at the foot of the glacier it began to drizzle and rained pretty steadily all our way back. My best capture was a specimen of *Gelechia elatella* sitting on a rock-face. I also met with single specimens of *G. interalbicella* and *G. instabilella*, and with two specimens of *Diasemia literalis*.

The following morning was rather inclined to be wet, but about midday it cleared up, and in the afternoon I visited the hilly ground between the Morteratsch and Roseg streams; here I found a worn *Chauliodus scurellus*, and I also met with *Cerostoma falcella* (both insects I had never seen alive before). I noticed that the *Falcella* was attached to a broad-leaved shrub with blue berries, and doubted not that earlier in the season the larvæ would be obtainable on this plant; by the aid of Professor Frey I afterwards ascertained that this shrub was *Lonicera cærulea*. In the course of my stay at Pontresina I obtained more than 30 *Cerostoma falcella*.

The next day I returned to the same locality between the two streams, where I again obtained a *Chauliodus scurellus*, 4 *Sophronia parenthesella*, an *Acrolepia*, which I at first took for *Arnicella*, but which Professor Frey says is the *Adjectella*, Heyden; I also caught a solitary specimen of a small yellow-headed *Tinea*, which I believe to be *Ignicomella*.

The next day we had a splendid morning and we drove to the Bernina Pass, having magnificent views of the mountain tops as we went along; we passed the Lago Bianco and the Lago Nero, but by the time we reached the actual pass clouds had begun to form in the valley to the south, so that our view there was not what we had anticipated; and as we returned we noticed that many a glacier and many a mountain top, which had been quite clear as we passed in the morning, were then concealed by the rapidly increasing clouds.

That afternoon we flitted to the Krone, having at last succeeded in getting rooms there. Herr Gredig has promised to enlarge his hotel by next summer, so as to be able to accommodate more visitors; the large new hotel on the Samaden road may also perhaps be open in 1871.

In the evening I went out, but the only noticeable capture was a fine sleeping *Hadena*, on a wooden fence, just as if it were in England—the specific name I have not yet ascertained.

The following day it rained in the morning for some hours, but in the afternoon it cleared up, and we walked by the *old* Samaden road till we came to a nice rocky place, where there were bushes of *Lonicera cærulea* and *Cotoneaster vulgaris*; the first-named plant furnished us with several *Cerostoma falcella*, and the *Cotoneaster* showed a plentiful supply of screwed leaves which had been tenanted by the

larvæ of *Ornix Pfaffenzellerei*. I fortunately found a few leaves in which the larvæ were still feeding, and after my return home I had the pleasure of breeding one imago. Here also I noticed leaves of *Epilobium angustifolium*, which showed the deserted mines of the larvæ of *Laverna Raschkiella*.

August 1st was a glorious day, and we started off for the Roseg Glacier in a berg-wagen: the sensation of a ride in a berg-wagen (especially on the front seat) is something almost indescribable to those who have not felt it—you feel that if there is any thing in you free to obey the laws of gravity, it will be certainly shaken to the lowermost portion of you; occasionally a bigger jolt than usual jerks you fairly off your seat: in short, it is almost impossible to resist laughing at the ridiculous position in which you seem to be placed, as if you were being specially jerked and jolted for the amusement of the companions of the back seat. When we reached the place beyond which even berg-wagens cannot proceed, we were very glad to turn out and find that the jolting we had undergone had not deprived us of the use of our limbs. We followed the little path by the side of the stream till, as we approached the glacier, we found that our best course lay in the bed of the stream itself. It was a brilliant sunny day, and the extensive range of snowy peaks seen from the foot of the glacier looked glorious. Entomologically the day was not prolific; of course there was the ubiquitous *Gelechia tripunctella*, and a *Butalis* sunning itself on a flower, but these were the only *Tineina* I brought back from the Roseg Glacier.

In the evening on the old Samaden road I met with single specimens of *Gelechia instabilella*, *G. interalbicella* and *G. pictella*.

August 2nd, we had another glorious day, and this was devoted to the Val da Fain. The readers of the Annual of 1866 will recollect the description of the visit to this valley July 13th, 1865. On the present occasion there was no such extraordinary abundance of *Rhopalocera*, but one must bear in mind that we had had a precociously forward season, with the hot forcing weather of the early summer, and it was now three weeks later than on the occasion of my previous visit. There was hardly a particle of snow to be seen on the sides of the valley. One noticeable insect was a day-flying *Noctua*, which specially frequented the flowers of a thick-stemmed red *Sedum*, sitting there so lazily that they might be quietly boxed; they were in very good condition.

I also took one specimen of a conspicuous *Depressaria*, which I showed to Professor Frey, but which he did not recognize; he suggested that it might be some late-appearing species, which had fallen to my lot by my visiting the locality so late in the season. Since I returned home I find I obtained a specimen of this *Depressaria*, when at Munich in June, 1868, from Herr Pfaffenzeller, under the name of *Marmorosella*, "in leaves of *Laserpitium*," and that I had previously noticed at Ratisbon in Dr. Herrich-Schäffer's collection a "*Depressaria marmorosella*, n. s., e. l., seeds of *Laserpitium*, bred by himself, Engadine."

I saw one other specimen in the Val da Fain, but failed to capture it, much to my annoyance. It is perhaps most nearly allied to the Livonian *Depressaria hepaturiella*. None of my other captures on that day were at all noteworthy.

August 3rd was our last day at Pontresina, and we again visited the hilly ground between the Morteratsch and Roseg streams. On this occasion I caught several *Argyresthiæ*,

hoping they might be Frey's *Submontana*, but they all proved to be the common *Sorbiella*; I took however a single specimen of the *Coleophora lepidella*, Frey.

In the evening I visited some *Laserpitium* plants, on the old Samaden road, which I had noticed were much devastated by *Depressaria* larvæ; I filled a good-sized tin with pieces of the plant infested by these larvæ, but these only produced, after I got home, the ordinary *Depressaria laserpitii*.

We left Pontresina after breakfast the next morning, and drove over to Samaden, where we found the first news of the actual commencement of hostilities. Sarrebrück had been taken! We returned by the Albula Pass, which we then saw for the first time; in the evening we reached Chur.

We spent two days at Zürich, where I had long talks with Professor Frey *de omnibus Tineinis Helveticæ et quibusdam aliis*; and I had the pleasure of introducing to him my friend Mr. Arthur Grote, whom I had accidentally met at the Hotel Baur au Lac.

On the Sunday afternoon Professor Frey showed us a short telegraphic communication announcing the battle of Wörth.

We had still a week to spend in Switzerland, and this was to be devoted to Andermatt—so we went on the next day to Lucerne. There we found such a string of startling telegrams, with the intimation that Paris was declared in a state of siege, that it seemed problematical whether, after all, our return journey would not be more easily effected *viâ* Germany than *viâ* France. We went on the next day to Andermatt, where we had three days of bad weather; the roads were in a dreadful state of mud, rendering excursions anything but pleasant. The larva I there saw of *Vanessa Antiopa* I have already noticed in the "Entomologist's

Monthly Magazine," but the great feature of the locality was the numerous larvæ of *Hadena pisi*; you could count them by hundreds, and on all sorts of plants.

The last afternoon it cleared up a little, and we drove as far as Réalp; but there was this time no chance of good weather for the Furka.

The morning we left Andermatt to return to Lucerne it was splendid—such a brilliant clear sky—it was magnificent; we could not help regretting that we had not arranged to stop another day, so as to have been able to devote that morning to the Furka. However, as it turned out, it was just as well, for though in the gorge of the Schöllinen, and far below Geschenen, the fine crags and snow patches were seen to the utmost advantage, by the time we left Amsteg the clouds had already begun to form, and ere we reached Fluellen the tops of even very moderate hills were entirely concealed.

On reaching Lucerne we eagerly sought all the latest news, but except that the French armies had retired upon Metz, we could not ascertain that anything further had occurred since we left Lucerne at the beginning of the week.

We therefore resolved to return home by Friederichshafen, Frankfort, Cologne and Brussels, which we happily accomplished with little more than a few hours' delay.

At Brussels Dr. Breyer showed me a recent capture (a specimen of *Nonagria brevilinea*), an insect which had previously been unique in the collection of Messrs. C. and J. Fenn.

On Friday (August 19th) we left Brussels and reached home.

TRICHOPTERA.



STRAY NOTES ON SWISS TRICHOPTERA.

BY R. M'LACHLAN, F.L.S.

My friend Mr. Stainton, with his usual kindness, did not neglect to pin any Trichopterous insects that came in his way during his recent visit to the Engadine, and brought home a large number. In order to render his account of the visit more complete, I have drawn up the following list of species taken, the localities and dates being supplied from his notes. If all our entomologists who spend their vacation amongst the Swiss Alps were to follow his good example, we should soon obtain a fair idea of the Swiss Trichopterous Fauna, which is probably richer than that of any district of the same limited extent in Europe,—perhaps I might say in the world.

Phryganea obsoleta, Hag. One remarkably large and fine male example by the stream at Maria, flying early in the morning, 24th July. This hitherto little-known species is spread over all northern and central Europe, but would appear to be nowhere so common as its congeners.

Anabolia (?) *cænosa*, Curtis? I am not quite clear as to the identity of the Engadine examples with this rare British species. They are nearly twice the size of ours, but appear to agree tolerably well in structural characters, though I do not possess a British male with which to compare them.

The position of the insect is doubtful. It is not a true *Anabolia* as restricted to *A. nervosa* and allies, nor will it come very satisfactorily in either *Stenophylax* or the *Desmotaulius* group of *Limnophilus*. On the 29th July, Mr. Stainton took nineteen examples from off stone posts bordering the road between Pontresina and Samaden, in the forenoon, and in the evening twenty-six more from off the same posts, yet he did not notice, either then or at other times, a single specimen on the wing; on the 2nd August an additional nineteen; and on the 30th July, three dead ones floating on the water of a little tarn above the Lago del Croce, in the Bernina Pass. These latter are much smaller than the others, but yet larger than British specimens.

Hydroptila tineoides, Dalm. Two examples, in the evening of July 23rd, at the Lake of Sils.

Odontocerus albicornis, Scop. Six on the 25th July, at the south-east side of the Lake of Sils; sitting on grasses in the day-time.

Mystacides nigra, L. Forty-nine examples on the 23rd and 24th July, at the Lake of Sils, chiefly by sweeping rushes; a few were sitting on stones.

Cyrnus trimaculatus, Curt. Two examples from the Lake of Sils, on the 23rd July.

At Zürich, from the 5th to 7th August, were found *Leptocerus cinereus*, Curt., the brown form; *L. albifrons*, L., and one male of *L. aureus*, Pict., a species I did not possess, and which appears to be rare, for I have only seen single specimens from Sweden, Holland, and Switzerland; *Setodes lacustris*, Pict.; *Cyrnus trimaculatus*, Curt.; *Neureclipsis bimaculata*, L., in extreme abundance, recalling to mind one of its synonyms, *tigurinensis*, Fab.; *Hydroptila angustella*, McLach.; *Psychomyia gracilipes*, Curt.; *P. fragilis*, Pict.;

Hag., one specimen; *Tinodes* sp. *Agapetus comatus*, Pict. Also *Sisyra fuscata*, Fab., *Chrysopa 7-punctata*, Wesm., *Ephemera glaucops*, Pict., and sundry undetermined small *Perlida*.

At Maria, on the 24th July, thirteen specimens, and at Andermatt, 10th August, one specimen, of a *Panorpa*, which is certainly that figured as *P. vulgaris* in Imhoff and Labram's "Insekten der Schweiz," but which I cannot separate by any structural characters from *P. communis*, although its small size and very sharply-marked wings give it a different appearance. M. De Selys-Longchamps finds the same form in Belgium with *communis*, yet appearing to keep itself distinct. If only a variety, it is certainly a well-marked one.

I believe I have now given a *résumé* of my friend's doings in Switzerland, so far as they concern me. He brought home over 300 individuals, comprising the before-named species; and it must be remembered that these were only the casual captures of an entomologist who had his own special pets to look after, and who is probably not acquainted with all the devices whereby caddis-flies may be dislodged from their retreats. For instance, at the Lago del Croce in the Bernina Pass, Mr. Stainton searched in vain for a single Trichopterous insect. Professor Zeller, however, assures me that had he been there he would not have returned empty-handed.

Some years since, I heard that a Monograph of Swiss Trichoptera was in preparation by M. E. Pictet, son of the author of the "Récherches." Need I say how eagerly such a work has been looked for by me. But the realization of the project would now seem as far distant as ever.

COLEOPTERA.

NEW BRITISH SPECIES, CORRECTIONS OF NOMENCLATURE, ETC., NOTICED SINCE THE PUBLICATION OF THE ENTOMOLOGIST'S ANNUAL, 1870.

BY E. C. RYE.

ALTHOUGH, compared with some former lists, the result now recorded of the past twelvemonth's work may not especially impress that period upon the memory, the British Coleopterist will not, in all probability, be likely to forget 1870; during which year (in addition to the depression caused to all departments of science through the chief sources of continental knowledge being dried up by the fierce fires of war) he has had to lament the loss of the great Lacordaire, and of his own countrymen, the gifted and acute Haliday (who, if devoted to *Coleoptera* alone, would easily have been a second Erichson), and Dawson, the pioneer of the present small band of workers in Britain. That band, small as it is, is practically in imminent danger of reduction by two of its chief members extending, in perhaps the natural course, their field of study, to the detriment of merely British forms; and too many of its effective constituents have made no sign during the past year, so that the thirty-seven additions to our list during that period (apart from insects raised to specific rank at the expense of others before known to us, or of doubtful value, or not yet satisfactorily determined), are

to be credited to nine observers only; and of that number Messrs. Matthews, Bold, Hislop, and M'Nab respectively claim one each; to Mr. Champion must be referred two; to the Rev. H. S. Gorham, three; to Mr. Crotch, four; to Dr. Sharp, seven; and the remainder to myself. I may observe, that I have in reserve more species to add to our list; but that I hesitate to do so until they shall have received from German or French authorities a corroboration which, in the state of affairs existing on the continent, it is impossible for me to obtain at present.

These thirty-seven additions consist of an *Amara*, a *Bembidium*, an *Actocharis*, an *Ocalea*, two *Aleocharæ*, a *Calodera*, an *Oxypoda*, a *Homalota*, a *Placusa*, an *Oligota*, a *Philonthus*, a *Xantholinus*, a *Sunius*, a *Stenus*, a *Trogophloeus*, an *Anisotoma*, a *Colon*, five *Meligethes*, two *Cryptophagi*, a *Dolichosoma*, a *Dasytes*, a *Meloë*, two *Trachyploëi*, a *Bagoüs*, a *Baridius*, two *Tomici*, a *Ptenidium*, a *Lathridius*, and a *Bythinus*; and of them ten have been brought forward as also new to science, by Dr. Sharp and myself in equal proportions. One new genus (*Actocharis*) has also been created by Dr. Sharp.

The following notes will briefly indicate certain interesting papers and observations that have been published since the last "Annual:"—

Dr. Sharp (*Ent. Mo. Mag.*, vol. vi, p. 253 *et seq.*), in a most carefully written paper, has revised the British species of *Hydrobius* and *Philhydrus*, adopting Thomson's additional genera *Enochrus*, *Paracymus* and *Anacæna*, and Mulsant's *Helochares*, for all of which he gives diagnostic characters, and the principal cibarian organs of which I have illustrated from his dissections. He considers that an arrangement of the species of these genera in accordance with their facies would also be a natural one as regards their

anatomical and generic characters ; and he increases our lists by one new species and one Stephensian revival, both at the expense of the insect usually known here as *Hydrobius limbatus*, but which is now to be recognized as *Anacæna globulus*, Payk.

Dr. Sharp (*l. c.*, p. 230) has also published some interesting notes on the identity of certain species of *Homalota* taken by Mr. Crotch in the Asturias with our recorded British species ; and considers that the number of European species in that genus will be found to be much smaller than would be supposed from the large number in this country. Mr. Champion, *l. c.*, p. 257, has also contributed a list of localities for upwards of eighty British species of *Homalota*.

Mr. Crotch has communicated to the Entomological Society a laborious paper on "The Genera of *Coleoptera* studied chronologically," and has in Newman's "Entomologist," No. 73, given short characters for and observations upon the British species of *Triplax*, *Engis* and *Rhynchites*. In the latter genus he adopts *purpureus*, Linn. (1758) for *æquatus*, Linn. (1767), Desb. des Loges ; *interpunctatus*, Steph., for *alliarie*, Schön. ; and *planirostris*, Fab., for *uncinatus*, Thoms., pointing out characters whereby the rarer *nanus*, Payk., found on birches, may be known from it,—viz., the considerably smaller size, obsolete punctuation of the head and less regular punctuation of the thorax and elytra, and much shorter rostrum, which is angular at the base.

Dr. Algernon Chapman (*Ent. Mo. Mag.*, vol. vi, p. 230) has published some additional notes on the parasitism of *Aphodius porcus* upon *Geotrupes stercorarius* ;—M. Reiche (in *Ann. Soc. Ent. Fr.*, 4me sér., ix, Bull., p. xxii) having stated his opinion that further observations on the point were necessary before that parasitism could be accepted as

proved. Dr. Chapman has also, in the same Magazine (vi, p. 259 *et seq.*), described the larva and given an elaborate account of the œconomy of the rare *Abdera bifasciata*, which lives on *Corticium quercinum*, a fungus growing on oak boughs. He has also given (*l. c.*, pp. 103 and 132) an exhaustive life-history, from original observation, of *Platypus cylindrus*; and (Ann. and Mag. of Nat. Hist., Oct. 1870) has, by corroborating and extending the late Mr. Stone's observations, further elucidated the œconomy of *Rhipiphorus*, which is indubitably a parasite, and not, as argued by Mr. Murray in the same publication (Nov. 1869), an inquiline. Mr. Murray appears, however, to have himself abandoned his first views on the subject. Dr. Chapman's paper is illustrated by a carefully executed plate of the larva of *Rhipiphorus*, with details.

Mr. Moncreaff has (Ent. Mo. Mag., vol. vii, p. 81) given some interesting particulars of the œconomy of the rare *Mecinus collaris*, which he finds in galls on *Plantago maritima*; *M. pyraster* occurring in those of *P. lanceolata*; he also notes *Baridius laticollis* as bred in plenty from roots of *Sisymbrium officinale*. I reared some forty specimens of this beetle from an inch or two of the infested root sent to me by this careful observer, to whose energy we are indebted (besides very many rarities and other species new to our lists) for the discovery of a second British species of *Cathormiocerus*, which has been sent by Mr. Crotch to Dr. Seidlitz for determination, so that we may expect to be able to include it in our next year's list. I have given at full length (Ent. Mo. Mag., vol. vii, p. 150) the differences between this insect and *C. socius*, and have ventured to add some observations on the points supposed to separate *Cathormiocerus* from *Trachyphlæus*, which in my opinion are not generically distinct.

Mr. Moncreaff's captures in the neighbourhood of South-sea appear to me to be more interesting to British Coleopterists than anything that has occurred for many years; and his records of *Drypta* as connected with *Anthoxanthum odoratum*, *Homaloplia ruricola* from blackthorn, *Lucanus* from elm, *Hedobia* from bramble, *Magdalinus cerasi* on elm, *Mecinus circulatus* from *Plantago coronopus*, *Hylobius* on thistles, *Brachytarsus scabrosus* from furze, and *Stenostola ferrea* from hazel, are also noteworthy.

The following minor observations have appeared in the Ent. Mo. Mag.:—the Rev. H. S. Gorham's identification of the "Hop-flea" as *Psylliodes attenuatus*; Mr. A. Müller's note of indications of reasoning power in *Ceuthorhynchus sulcicollis*; Dr. Buchanan White's observations on the *Coleoptera* of Strath-glass, Inverness-shire; Mr. Hislop's list of Morayshire beetles, including several species new to Scotland, and the Rev. Mr. Somerville's notes on the earlier stages of certain Scotch *Phytophaga*; the recognition by Dr. Kraatz of *Donacia comari* as a good species; the hints of M. M. Bellevoye and Abeille de Perrin as to habits of ♀ of *Drilus flavescens*; and Mr. J. F. Scott's note on the occurrence of several *Opilus mollis* and *Callidium variabile* at "sugar."

In "Newman's Entomologist," Mr. Cordeaux's remarks on the œconomy of *Ceuthorhynchus contractus*, and Mr. Roman's account of vast numbers of an un-named *Galleruca* floating on the sea, on the north-east coast, seem deserving of notice.

Of work by continental entomologists reported during the past year as specially interesting to us, there is but little to record.

The first volume of M. Fauvel's "Faune Gallo-Rhénane,"

containing the introductory portion of the work, has been completed; but no idea can be formed from it of the method in which the practical portion will be treated, except that it may at least be opined that it will be exhaustive.

M. Pandellé's monograph of the European Tachyporidæ (Ann. Soc. Ent. de France, 4me sér., T. ix, 1869, p. 261 *et seq.*) has been abstracted by myself in the Entomologist's Monthly Magazine, vol. vi, pp. 209—12, with especial regard to the British species. In it, *Lamprinus* is generically merged with *Tachyporus*, and *Mycetoporus* and *Bryoporus* disappear in *Bolitobius*; certain recognized species of Stephens are rejected on the score of "inconvenience," whilst one or two of that author's errors are endorsed; and the following observations occur (besides a few others to be hereafter specifically noticed), possibly of interest to British Coleopterists:—*Hypocyptus pulicarius* is suppressed specifically, Dr. Kraatz being stated to have sent a large example of *H. seminulum* under that name (Erichson's *pulicarius* not being mentioned); the *H. anisotomoides* of our lists is not mentioned; *Mycetoporus nanus* is referred to Erichson, and not to Gravenhorst; Hardy and Bold's name is retained for their *Bryoporus castaneus*, instead of *Hardyi*, Crotch, as the prior Stephensian *castaneus* does not stand specifically; and *M. longulus*, *lepidus* and *brunneus*, Marsh., Steph. (= *bimaculatus*, Boisd. et Lac., *ruficornis*, Ktz., *punctiventris*, Thoms.) are evidently considered as specifically non-separable, though given as distinct by the author.

M. Tappes (Ann. Soc. Ent. Fr., 1869, ix, p. 7) has recorded his opinion, fortified by that of several of his colleagues, that *Cryptocephalus bipustulatus*, Fab., is perfectly distinct from *C. bipunctatus*, of which *C. lineola* is the only recorded British form; and Mr. Crotch has noted Mannerheim's

statement that *C. Wasastjernii* lives on *Carduus heterophyllus* in shady places.

Of many rare or interesting species recorded as taken in Britain since the publication of the last "Annual," the following appear especially worthy of notice:—

Blemus longicornis and *Bembidium anglicanum*, Sharp, in Cumberland, and *Agabus tarsatus* in Northumberland; by Mr. Bold; *Brachonyx indigena*, *Pissodes notatus*, *Gymnusa brevicollis* and *Mycetoporus lucidus*, in Morayshire, and *Magdalinus duplicatus* on Deeside, by Mr. Hislop; *Agabus Solieri*, ♂ and ♀ (Mam Suil), *Dytiscus lapponicus*, *Pyrrochroa pectinicornis* and *Zeugophora Turneri* (not rare, on aspens), in Inverness-shire, by Dr. Buchanan White; the second recorded British specimen of *Mycetophagus fulvicollis*, at Dall, Rannoch, *Silpha dispar* in some numbers at Loch Leven, *Rhizophagus cribratus* plentifully in fungoid growth on an oak-root, *Apteropeda globosa* and *Heterothops prævius* (in a stable) near Ripon, by Mr. E. A. Waterhouse; *Colon Zebei*, *Crepidodera atropæ* and *Scydmaenus pumilio* at Mickleham, *Colon viennense* and *Anthonomus Chevrolati*, New Forest, *Stenus major*, Morden, *Leptinus* with *Formica fuliginosa*, Tilgate, *Triplax Lacordairii* in some numbers at Darenth (also taken by Mr. O. Janson and Dr. Power), *Ceuthorhynchideus frontalis*, Bris., in quantity on *Artemisia maritima* at Whitstable, unaccompanied by *troglydites*, *Haliphus mucronatus*, Soham, Cambridge, *Phyllotreta sinuata*, Wicken, *Anisoxya fuscula* in numbers, Darenth, and *Megapenthes tibialis* and *Anobium denticolle* (Turnerian revivals), Richmond Park, by Mr. Champion; *Platytarsus setulosus*, Schön. (*Strophosomus hirtus*, Walton), in primrose roots, in the metropolis, by Mr. Pelerin; *Aleochara ruficornis*, ♂, Llangollen, *Scraptia fuscula*, *Prionocyphon serricornis*, *Plegoderus dissectus*, *Lathridius testaceus* and

Sphindus dubius, Sherwood, *Cryptocephalus 10-punctatus* and var. *bothnicus*, Burnt Woods, Staffordshire, and *Bledius fuscipes*, mihi, in profusion, on Crosby Sands, Liverpool, by Mr. J. Kidson Taylor; *Pissodes notatus* in quantity on Chatt-moss by Mr. Broadhurst and Mr. Morley; *Homalota crassicornis*, ♂, and *H. sylvicola*, near Manchester, *Gymnusa brevicollis*, sparingly, on Chatt-moss, and *Orchestes scutellaris* at Timperley, by Mr. Morley; *Bembidium obliquum*, *B. Sturmii*, *Aleochara cuniculorum*, *Deleaster*, *Bledius subterraneus*, *Mycetoporus lucidus*, *Hydnobius strigosus*, *Cyrtusa minuta*, Wat. Cat., *Læmophlæus bimaculatus*, *Parnus auriculatus*, and *Mordella fasciata*, in some numbers, at Bearsted, near Maidstone, by the Rev. H. S. Gorham; *Lymnæum nigropiceum*, Southsea Beach, *Hydroporus unistriatus*, Canal, Portsea, *Anisotoma ciliaris*, Cumberland Fort, *Throscus obtusus*, Portsea, *Tychius Schneideri*, Whitham Hill, *Orthochætes setiger* and *Thyamis dorsalis*, abundant on *Senecio Jacobæa*, *Thyamis verbasci*, var. *thapsi* and *Lytta vesicatoria*, Portsdown, and *Corylophus sublævipennis*, Southsea Common, by Mr. Moncreaff. Among Dr. Power's notable things are *Cryptocephalus Wasastjernii*, taken during the past summer at Woodbastwick, Horning; *Trogophlæus foveolatus*; *Tapinotus sellatus* (the second known British example), taken on 6th March, 1838, by the Rev. Laundry Brown of Norwich, out of moss, at Horning, Norfolk (the species occurs in Sweden on *Lysimachia thyrsoflora*); and the identical specimen figured and described by Curtis as *Hygrotus bisulcatus*, having the name in that author's handwriting attached. This insect, supposed to have been lost, was also taken by the Rev. L. Brown, on 16th May, 1836, in the brick pits, Cambridge, and has always remained in his collection: it is identical with *Hydroporus unistriatus*, Germ., of which it is a pallid and somewhat large individual.

It will be observed that *Microptinus gonospermi* has as yet no real claim to admission even in the European list.

1. ANCHOMENUS VERSUTUS, Sturm.

var. *lugubris*, Dufts., Faun. Austr., ii, p. 137 ;
Schaum, Ins. Deutschl., i, p. 421 ; E. C. Rye, The
Entomologists' Monthly Magazine, vol. vii, p. 36.

I have met with what I consider to be this form, amongst a number of the type taken at Wimbledon.

2. AMARA QUENSELI, Schön., Syn. Ins., i, p. 190 ; Schaum,
Ins. Deutschl., i, p. 542 ; R. Hislop, Ent. Monthly
Mag., vol. vi. p. 212.

Two or three specimens of an *Amara* found by Mr. Hislop at a height of between 2,000 and 3,000 feet on the mountains of Braemar in June, 1869, have been referred to *A. Quenseli* by M. Putzeys, to whom they were forwarded by Mr. Crotch. This species belongs to the sub-genus *Celia* ; and, compared with *A. rufocincta* and *bifrons*, is broader, more ovate and depressed, with the elytral striæ faint and not deepened towards the apex. It is brassy in colour ; but the elytra seem to be sometimes non-metallic and dull ferruginous, while the thorax is greenish.

3. BEMBIDIUM QUADRIPUSTULATUM (Frontisp., Fig. 5),
Dej. ; Schaum, Ins. Deutschl., i, p. 732 ; H. S.
Gorham, Ent. Monthly Mag., vol. vii, p. 35.

A small series of this interesting addition to our list has been taken during the past summer by the Rev. H. S. Gorham, in a wet place at Bearsted, near Maidstone, in company with *B. Sturmii*. It is intermediate between *B. quadrimaculatum* and *quadriguttatum*, from the former of which it differs in its superior size and darker legs ; from the latter in its smaller size, shorter build, and smaller elytral

spots; and from both, in its antennæ being black from the base.

4. *ACTOCHARIS*, *g. n.*, Sharp, Ent. Monthly Mag., vol. vi, p. 279 (characterized, and maxilla and labium figured).

The obsolete eyes, four-jointed anterior and intermediate and five-jointed posterior tarsi, two-jointed labial palpi, bifid ligula, and swollen third and subulate apical joint of its maxillary palpi, give an anomalous character to the species upon which this genus is founded. Dr. Sharp, however, thinks there is no doubt that it must be placed among the true *Aleocharidæ*, though in the elongate lobes of its maxillæ it clearly approaches *Myllæna*,—and, in its palpi, *Gyrophæna*. He thinks it best placed near *Silusa*.

5. *ACTOCHARIS* *READINGII*, Sharp, *l. c.*, 1 May, 1870, (described).

This insect, originally found (I believe beneath high-water mark) by Mr. Reading, and subsequently by Mr. Wollaston, near Plymouth, has for many years been recognized, but without a name, in the chief British collections. Now that it has in these latter days been described by a British Entomologist (who has adopted the M.S. name originally proposed for it by Mr. Janson, by whom it was originally detected), M. Fauvel in Deyrolle's "Petites nouvelles Entomologiques" has claimed priority for the name, *marina*, under which he states that he has described it in 1869. I have been unable, however, to find any such description by him during that year.

6. *OCALEA* *LATIPENNIS*, Sharp, *l. c.*, p. 280 (described).

Allied to *O. castanea*, Er.; but rather larger, darker in

colour, with much broader elytra, and slightly longer and more slender antennæ, which are not quite so much thickened towards the apex.

Found very rarely by Dr. Sharp (to whom it was also communicated some years ago by Mr. Hislop), only on the banks of Scotch rivers. I have it from Derbyshire.

7. *ALEOCHARA FUNGIVORA*, Sharp, *l. c.*, p. 280 (described).

Allied to *A. mycetophaga*, Kr., but not so brightly coloured, with the abdomen less narrowed towards the apex and more sparingly punctured. From *sanguinea* and *mærens* it may be known by its shorter and more clavate antennæ, thus resembling *mycetophaga*.

Three specimens were found by Dr. Sharp, in fungus, at Eccles, Dumfries-shire.

8. *ALEOCHARA MACULATA*, Ch. Brisout, Gren. Cat. et Mat., 1863, 25, p. 18; H. S. Gorham, *l. c.*, vol. vii, p. 136.

The Rev. Mr. Gorham records the capture by himself, some years ago, in shingle, by the banks of the Lyn, North Devon, of an insect which has been determined by M. Brisout himself as above.

Compared with *A. cuniculorum*, Kr., this insect is larger, with longer and stouter antennæ, shorter legs (the middle tarsi especially being shorter) and darker femora, more sparingly clothed with golden pubescence, and with a less closely punctured abdomen.

M. Fauvel has long ago assured me, that the German reference of M. Brisout's species, as a synonym to *cuniculorum*, was incorrect; and Mr. Gorham's observations fully corroborate that opinion.

9. CALODERA RUBENS, Er, Gen. et Spec. Staph., p. 67; Ktz., Ins. Deutschl., ii, p. 142; E. C. Rye, *l. c.*, vol. vi, p. 229.

Several specimens of this insect have been taken by Mr. Champion in a marshy place near Lee; and a very large number have subsequently been taken by Dr. Power at Cowley.

Its dull appearance, and even and somewhat parallel form, prevent its being confused with any of our recorded species of *Calodera*; and it, perhaps, most resembles a small specimen of *Homalota languida*,—but with much more transverse joints to its antennæ. It is pitchy black, with reddish-brown antennæ and legs, and is exceedingly finely and closely punctured all over.

10. OXYPODA LONGIPES, Mulsant, Op. Ent., xii, p. 103; D. Sharp, *l. c.*, vol. vi, p. 281.
? *metatarsalis*, Thoms.

Closely resembles *O. vittata*, from which, however, it appears to differ very decidedly in the much longer intermediate joints of its posterior tarsi, and also in the larger terminal joint of its antennæ.

Dr. Sharp records the capture of a single specimen by himself at Aberlady, near Edinburgh.

11. HOMALOTA ALGÆ, Hardy, Trans. Tyneside Nat. Field Club, ii, p. 78 (1851); T. J. Bold, Ent. Monthly Mag., vol. vii, p. 136.

Mr. Bold corrects the date on the title page of the separate copies of the Catalogue of Coleoptera of Northumberland and Durham, written by Mr. Hardy and himself: this should apparently have been 1846—1852, instead of 1852 only; as the publication in the Tyneside Nat. Field Club's Trans-

actions began in 1846, was continued in 1851 (in which year the description of Mr. Bold's species was published), and concluded in 1852.

This would give Hardy's *algæ* priority of a year over *puncticeps*, Thoms., but Dr. Sharp, who acknowledges this priority, adopts the latter author's name, as Hardy's description applies to *both* species. Mr. Crotch proposed to adopt Hardy's name for *maritima*, Waterh. (*flavipes*, Thoms.), to which the description of Hardy's type does not apply.

12. HOMALOTA PAVENS, Er., Col. March. (1839).
obliquepunctata, Wollaston, Ins. Mad.
 (1854).

Dr. Sharp, *l. c.*, vol. vi, p. 230, March, 1870, has pointed out this synonymy, subsequently brought forward by M. Fauvel.

13. HOMALOTA MONTIVAGANS, Wollaston, Cat. Mad. Col.
 (1857).
pulchra, Ktz., Ins. Deutschl. (1858).

Dr. Sharp has also shown the identity of these insects.

14. HOMALOTA SHARPI, Rye, *l. c.*, vol. vii, p. 6 (described).

A single specimen of this insect, from the London district, long set aside in my collection as undescribed, and recently examined by Dr. Sharp and Dr. Kraatz, is apparently allied to *H. vagepunctata*, Wollaston (from the Canaries), from which its broad head, unicolorous dark antennæ and finer and closer pubescence would seem to distinguish it. It very slightly resembles *H. muscorum*, Brisout (*picipes*, Wat. Cat.), but must be placed with *pulchra* and *clientula* in group xxii of Dr. Sharp's revision.

15. *PLACUSA DENTICULATA*, Sharp, *l. c.*, vol. vi, p. 281
(described).

Less depressed than most of its congeners, and remarkable by the characters of its male, in which sex the upper surface of the seventh abdominal segment has two tubercles before the apex, which is armed with two lateral incurved spines, between which are three linear teeth, of which the two outer are bifid.

It appears to be very rare; and has been found at the overflowing sap of birch-trees at Hampstead, Rannoch, and Strathglass.

16. *OLIGOTA RUFICORNIS*, Sharp, *l. c.*, vol. vi, p. 282
(described).

Larger and broader than *O. pusillima*, with the thorax more transverse, the elytra longer and broader, and the abdomen slightly narrowed towards the apex. A little larger than *O. atomaria*, but with rufo-testaceous legs and antennæ, of which the club is broader.

Very common in hay-stack refuse near London.

17. *HYPOCYPTUS APICALIS*, Brisout, Gren. Cat. et Mat., 1863, p. 30; Pandellé, *l. c.*, p. 285; E. C. Rye, *l. c.*, vol. vi, p. 210.

Expressly attributed to England by M. Pandellé. This species is stated by Brisout to be very near *rufipes*, Kr. (which, according to Pandellé would seem to be probably only *longicornis*), but rather larger than that insect, of a blacker colour, with longer antennæ, and a lighter-coloured abdomen, which is more strongly contracted at the extremity.

18. *HYPOCYPTUS NIGRIPES*, Stephens, Ill. Mand., v, p. 188;
Pandellé, *l. c.*, p. 284; E. C. Rye, *l. c.* vol. vi, p. 210.

M. Pandellé identifies *pygmæus*, Ktz., with this insect, of which he sinks it as a synonym. But Stephens' *insect* is *H. longicornis*, Payk., and in its description in the "Manual" (where it is referred to *læviusculus*, Mann.) is stated to have the hinder angles of the thorax *very* straight,—a definition which does not agree with the characters of *pygmæus*.

19. *TACHYPORUS TERSUS*, Er., Gen. et Spec. Staph., p. 237;
Ktz., Ins. Deutschl., ii, p. 425; Pandellé, *l. c.*, p. 301;
E. C. Rye, *l. c.*, vol. vi, p. 211.

The *T. tersus* of Wat. Cat. (common at Lee-pit, on Barnes Common, and elsewhere in the London district) appears not to be the insect known by that name to M. Pandellé, but to be as yet apparently undescribed; M. Fauvel, indeed, some time ago informed me of his intention to publish a description of it under the name *scutellaris*. Its very light straw-colour and abrupt triangular black scutellar patch render it abundantly distinct from all our other species, and its want of a black lateral margin at once prevents it from agreeing with the descriptions of *tersus*. Dr. Sharp, however, has given me specimens from Croydon as identical with M. Pandellé's *tersus*, but not seeming to agree quite satisfactorily with Erichson's description, which states *tersus* to be like *chryso-melinus*, but smaller, narrower, less convex, with a shorter thorax and proportionately rather longer elytra (his note is contradicted in that respect by his description), which are more obsoletely punctured, and the mouth black, except in its lower portion (here again the note and description disagree).

20. TACHYPORUS ABDOMINALIS, auct.; Pandellé, *l. c.*, p. 305;
E. C. Rye, *l. c.*, vol. vi, p. 211.

This name must be removed from our lists. All British insects representing it that I have seen are simply pale *solutus* or *obtusus*; and the species itself is virtually non-existent, the *abdominalis* of Gravenhorst being pale *brunneus*,—of Kraatz, pale *ruficollis*,—of Erichson, pale *obtusus* and a new species from Berlin and Austria (*Erichsonis*, Pandellé),—and of Mannerheim, pale *obtusus*, according to Pandellé.

21. BRYOPORUS RUGIPENNIS, Pandellé, *l. c.*, p. 352 (*Bolitobius*); E. C. Rye, *l. c.*, vol. vi, p. 212.

The insect referred to in Ent. Ann. 1867, p. 62, as probably a dark var. of *B. rufus*, is described under this name as a good species by M. Pandellé, who states that it differs from *B. rufus* in having its eyes convex, the large middle punctures of the thorax distant from the margin in the proportions of 16—20, instead of 9—10 (as in *rufus*), the outer punctures approaching the margin “*via*” instead of “*evidenter*,” and the longitudinal striolæ of the elytra more defined. It is stated to be often confounded with *B. rufus*, and to occur in the Pyrenees and Alps. Mr. E. A. Waterhouse has placed in my hands a specimen of a *Bryoporus* also taken on Grayvel by himself, which I intend to forward to M. Pandellé on the earliest opportunity, as its characters render it peculiarly interesting with regard to the relations of *rufus* and *rugipennis*.

22. MYCETOPORUS REYI, Pandellé (*Bolitobius*), *l. c.*, p. 345;
E. C. Rye, *l. c.*, vol. vi, p. 211.
angularis, Muls. et Rey, *nec* Payk., Steph., or
Sachse.

23. *PHILONTHUS CICATRICOSUS* (Frontisp., fig. 7), Erichson, Gen. et Spec. Staph., p. 454; G. R. Crotch, Proc. Ent. Soc. Lond., 7 Feb., 1870; Ent. Mo. Mag., vol. vi, p. 240; H. Moncreaff, "Newman's Entomologist," No. 75, p. 43; Ent. Mo. Mag., vol. vii, p. 155.

Mr. Crotch has brought forward this South European species, found by Mr. Moncreaff very sparingly under stones and sea-weed on Southsea Beach, from June to October. That gentleman appears to have taken it as long ago as the spring of 1867, and to have unfortunately distributed it as the commoner *S. fucicola*, from which it differs in its rather larger size, much larger and flatter head, lighter and longer antennæ, ferruginous abdomen and distinctly and coarsely punctured elytra. The punctures of the head are those of the *Cafius* type exaggerated to the utmost, being widely and shallowly scooped out; and in Mr. Moncreaff's insect the normal rows of dorsal thoracic punctures (which are from Erichson's description evidently variable in number and extent) are represented by two large shallow discal depressions. These characters, added to its shorter and narrower elytra, will serve also to distinguish this species from the universal *P. xantholoma*.

Erichson's locality for *P. cicatricosus* is Sicily; but it has recently been taken in the south of France (I have it from Hyères). I am indebted to Mr. Moncreaff for the splendid specimen figured on the frontispiece.

24. *XANTHOLINUS DISTANS*, Muls.; Ktz., Ins. Deutschl. ii, p. 639; E. C. Rye, *l. c.*, vol. vii, p. 9.

Two specimens, taken by myself at Rannoch (and one of which has been named as above for me by Dr. Kraatz), differ from *X. tricolor*, of which the type form also occurred at Rannoch, in being smaller, with the thorax reddish *behind*,

and having finer and less numerous punctures in the two dorsal longitudinal striæ. A third example in my collection has the thoracic punctuation of *tricolor*; so that Mulsant's original reference of *distans* as a variety to that species may be correct. *X. distans* somewhat resembles very light specimens of *X. linearis*, as Dr. Kraatz remarks; indeed, the specimen above mentioned to have been named by him has been also named *linearis* for me by M. Fauvel. It seems, however, to differ structurally from that species.

25. *SUNIUS NEGLECTUS*, Märk.; Ktz., Ins. Deutschl., ii, 722; H. S. Gorham, Proc. Ent. Soc. Lond., 7 March, 1870; Ent. Monthly Mag., vol. vi, p. 267.

Rather larger, and especially broader than *S. angustatus*, with the elytra comparatively slightly shorter, and their punctuation and that of the underside of the head rather stronger; the head also is shorter and wider. This insect is apparently equally common with *S. angustatus*; and is one of those species that are most readily separable by a superficial examination.

26. *STENUS OSCILLATOR*, Rye, *l. c.*, vol. vii, p. 7 (described).

A single specimen, taken by Dr. Power at Holme Bush, Sussex, on 19th April, 1863, appears as it were intermediate between *S. paganus* and *S. latifrons*, having the palpi and antennæ coloured as in the former, and being of the size and build and having the dark legs of the latter. It differs from both of those species, however, in its less strong and not quite so close punctuation, more shining appearance, more decided frontal elevation, and in its thorax being somewhat less suddenly and more slightly contracted behind. Its antennæ, also, seem thinner and longer than those of *latifrons*.

Returned to me as unknown by Dr. Kraatz and M. Fauvel.

27. *TROGOPHLÆUS SPINICOLLIS*, Rye, *l. c.*, vol. vii, p. 8 (described).

A single specimen of this very distinct insect, taken by Mr. J. Kidson Taylor of Manchester, under *rejectamenta* of the river Mersey, on 9th Aug., 1868, has been corroborated for me by Dr. Kraatz as undescribed. Dr. Kraatz refers it to *Ancyrophorus*; but the decidedly subulate apical joint of its maxillary palpi and its concealed scutellum appear to me to point in preference to *Trogophlæus*. The sharply spined anterior angles of its thorax prevent its being confused with any other allied species known to me; in other respects, compared with *T. scrobiculatus*, Er. (*arcuatus*, Wat. Cat.) and *T. riparius*, Boisd., it may be known by its shorter and stouter antennæ, the greater depth between the back of its eye and the hind margin of its head, its smaller and scarcely cordate thorax, of which the punctuation is very coarse and the dorso-lateral depressions are less conspicuous and not so complicated, and its wider, longer, and much more coarsely punctured elytra.

28. *HOMALIUM BREVICORNE*, Er.; Ktz., *Ins. Deutschl.*, ii, p. 993, note; E. C. Rye, *l. c.*, vol. vii, p. 153.

To this species, upon which, considered as British, M. Fauvel has thrown some doubt (see *Ent. Ann.*, 1870), must in my opinion be referred some specimens recently taken by Mr. J. Hardy, at Wooler, in fungus, on alders; and also two specimens erroneously named *gracilicorne* for me by M. Fauvel (*Ent. Ann.*, 1870, p. 88), which, with many others, were taken by Dr. Power at Balmuto, Fifeshire. *H. brevicorne*, when fully mature, bears a considerable

superficial resemblance to a small *H. monilicorne*, with which species alone Erichson compares it; it is, however, more closely allied to *H. vile*, as Kraatz notes;—from which it may be known by its decidedly larger size, more robust and broader build, more shining thorax, stouter antennæ, and stronger punctuation, that of the elytra being more confused, almost rugulose in places, and not forming occasional striæ.

29. HOMALIUM GRACILICORNE, Fairm. et Lab.; E. C. Rye, Ent. Ann., 1870, p. 88; *l. c.*, vol. vii, p. 153.

Only the London-district specimen mentioned in my original record of this species appears to be rightly so referred; it bears considerable superficial resemblance to an immature specimen of the narrow form of *Philorhinum subpubescens* (*humile*, Er.), and is rather larger than *H. vile*, much lighter in colour, with stronger and not so close punctuation on the thorax, the sides of which are more rounded and which has no dorsal depressions, and with the punctuation of the elytra coarser and not so close,—not forming occasional striæ. Compared with type *H. brevicorne*, it is smaller, narrower, lighter, with no dorsal depressions on the thorax, the sides of which are more rounded and less contracted behind, the two basal joints of the antennæ are not so stout, and the sub-apical joints not so transverse, the punctuation of the elytra is not so close, and the abdomen is not so shining, being more coriaceous. Dr. Power has recently given me some further specimens of *H. brevicorne* from Balmuto, which differ slightly from the two examples above mentioned from the same locality. The smallest of these further specimens resembles my *gracilicorne* in having scarcely a trace of the usual thoracic depressions; but the structural and colour differences above specified still remain.

30. HOMALIUM HEERII, T. Blackburn, *l. c.*, vol. iii, p. 93 (? Heer); E. C. Rye, *l. c.*, vol. vii, p. 152.

One of the specimens upon which this species was introduced as British by the Rev. T. Blackburn, by whom it was given to me, is, in my opinion, a highly coloured variety of *H. vile*, Er.; and Dr. Power has come to the same conclusion as regards his own exponents of *H. Heerii*. That species does not seem to be universally (if at all) known on the continent; and may not improbably itself be a var. of *H. vile*, as Mr. Blackburn's insect agrees well enough with Heer's description, and was returned without comment to me by M. Fauvel, to whom I sent it as *Heerii* at his request, when he was engaged on the *Brachelytra*.

31. COLON DENTICULATUM, Ktz., Stett. Ent. Zeit., 1850, p. 189; Tournier, Ann. Soc. Ent. Fr., 4me sér., vol. iii, p. 151; E. C. Rye, *l. c.*, vol. vii., p. 9.

Corroborated for me by Dr. Kraatz., who states it to be universally very rare. I have a male from Hythe, and there is a female in Dr. Sharp's collection (also another of that sex, I believe, in Dr. Power's cabinet).

It is slightly allied to *C. appendiculatum*, but is smaller, more convex, and with the posterior femora of the ♂ armed only with a small pointed straight tooth beneath.

32. ANISOTOMA SIMILATA, Rye, *l. c.*, vol. vii, p. 8 (described).

A single specimen of this insect, taken by myself at Shirley, is closely allied to *A. badia*, from which it differs in its rather larger size and lighter colour, the more slender basal joints of its antennæ, and its proportionately rather longer elytra, of which the punctures (though regular and well-defined) are much more delicate,—the fourth stria from

the suture being, moreover, slightly flexuous about its upper third.

Dr. Kraatz has returned this specimen to me as a good species, certainly distinct from *A. badia*.

33. MELIGETHES FULVIPES, Brisout, Gren. Cat. et Mat., 1863, p. 49; E. C. Rye, *l. c.*, vol. vi, p. 257.

“6, *spec. nov.*?” Wat. Cat.; E. C. Rye, *l. c.*, vol. iii, p. 232.

Identified by M. Brisout himself from specimens sent by me to him. British specimens named *coracinus* by that authority for Mr. Crotch, and given to me by the latter gentleman, are, in my opinion, undistinguishable from this insect. The true *coracinus*, Sturm, Er., should have the punctuation rather finer, the legs rather darker, and the antennæ decidedly darker, with the club almost black and the tibiæ broader. These points of difference are from a comparison of the Southend insect with Erichson's types of *coracinus*.

34. MELIGETHES BRUNNICORNIS, Sturm; Er., Ins. Deutschl., iii, p. 184; E. C. Rye, *l. c.*, vol. vi, p. 282.

ochropus, Bold, *l. c.*, vol. iii, p. 47, *nec* Sturm.

Corroborated for Mr. Crotch and myself by M. Brisout.

This species is apparently widely distributed and not uncommon (the Rev. H. S. Gorham records it from the neighbourhood of Maidstone, as probably occurring on honeysuckle), and may be known from its close ally, *M. difficilis*, by the closer punctuation of its elytra and its lighter-coloured antennæ and legs.

Mr. Bold's Northumbrian *ochropus* must be referred to *M. brunnicornis*, as I have satisfied myself by examination;

as must also the insects which I have myself hitherto attributed with doubt to *ochropus*. Mr. Crotch's *ochropus* is also, in my opinion, *brunnicornis*; it has been named *morosus* by M. Brisout, but certainly does not agree with the description of that species. *M. ochropus* must, therefore, be erased from our list; but the species brought forward by me heretofore as *M. Kunzei* is corroborated by M. Brisout.

35. MELIGETHES VIDUATUS, Sturm; Er., *l. c.*, p. 185;
E. C. Rye, *l. c.*, vol. vi, p. 283.

Determined as British by M. Brisout from specimens sent by Mr. Crotch and myself.

This species may be known from *M. pedicularius*, Er. (*nec* Wat. Cat.), by its lighter antennæ, the more rounded sides of its thorax (which is scarcely so closely punctured), its more abruptly broadened hinder tibiæ, and its rather broader anterior tibiæ, the apical teeth of which are sharper and longer.

36. MELIGETHES PEDICULARIUS, (Gyll.?) Er., *l. c.*, p. 186;
E. C. Rye, *l. c.*

In the collections of Messrs. Crotch and Bold and Dr. Power. Determined by M. Brisout.

The anterior tibiæ are very slightly widened, with the entire outer margin toothed, the denticulations being stronger towards the apex, with the last but one most prominent.

37. MELIGETHES BIDENS, Brisout, *l. c.*, p. 52; E. C. Rye,
l. c.

pedicularius, Wat. Cat., *nec* Er.

This insect, common at Mickleham on *Teucrium scordonia*, differs from true *pedicularius* in being rather smaller and narrower, less convex, duller (being more finely and closely punctured, with the punctuation at the base of the

elytra very delicately transversely rugulose), and with the anterior tibiæ much more widened towards the apex, which is armed with (usually) only two well-defined teeth.

38. MELIGETHES OVATUS; Sturm; Er., *l. c.*, p. 198; E. C. Rye, *l. c.*

Determined as British by M. Brisout from specimens sent by Mr. Crotch and myself.

Though associated with *M. flavipes*, this insect is very like *M. viduatus*, but of a shorter ovate form, with the thorax more abruptly narrowed in the apical third and the tibiæ broader, the armature of the anterior pair being less defined.

39. MELIGETHES ROTUNDICOLLIS, Brisout, *l. c.*, p. 56; E. C. Rye, *l. c.*, vol. vi, p. 257.

A specimen taken by myself at Mickleham has been thus identified by the founder of the species. It is allied to *M. picipes*, from which it differs in its thorax being more strongly rounded at the sides, its finer punctuation, and the slighter external denticulation of its anterior tibiæ.

40. MELIGETHES LUGUBRIS, Sturm; Wat. Cat.; E. C. Rye, *l. c.*, p. 283.
ebeninus, Crotch, Cat., *nec* Forst.

This synonymy is communicated to me by Mr. Crotch, on M. Brisout's authority.

41. MELIGETHES PALMATUS, Er., Ins. Deutsch., iii, p. 204; E. C. Rye, *l. c.*
obscurus, Crotch, Cat., *nec* Er.

This synonymy is also communicated to me by Mr. Crotch on M. Brisout's authority. Mr. Crotch's *insects* are the *M. distinctus* of Wat. Cat., in my opinion; but they do not seem to me to agree precisely with the descriptions of any of those species.

42. MELIGETHES BIDENTATUS, Brisout, *l. c.*, p. 61; C. E. Rye, *l. c.*

Determined by M. Brisout from two specimens in Mr. Crotch's collection.

It is allied to *M. erythropus*, but rather wider and more convex than that species, with closer punctuation, wider tibiæ, and a bidentate projecting transverse keel at the extremity of the last abdominal segment in the male.

43. CRYPTOPHAGUS VALIDUS, Ktz., Stett. Ent. Zeit., 1856, p. 240; E. C. Rye, *l. c.*, vol. vii, p. 9.
fumatus, E. C. Rye, *l. c.*, vol. vi, p. 257, *nec* Gyll.

Several examples of this fine species were taken by Mr. T. J. Bold in Northumberland; and one of a pair of these, for which I am indebted to the accustomed liberality of that gentleman, was returned to me by M. Brisout as *C. fumatus*, and brought forward by me under that name. The other specimen was shortly afterwards returned to me by Dr. Kraatz as his *C. validus*, with which Mr. Bold's insect accords much better than with *fumatus*. Of our species, *C. validus* seems most to resemble a very large example of the pallid form (*patruelis*) of *scanicus*; from which it differs in its thorax being more rounded behind the middle, with the lateral denticle further removed from the anterior callosity (of which the posterior margin is not acutely defined, but merges in the space between the callosity and lateral denticle), and longer, more parallel and more finely punctured and densely golden-pubescent elytra.

44. CRYPTOPHAGUS FUMATUS, Gyll., Ins. Suec., i, p. 167, iv, p. 285; Er., Ins. Deutschl., iii, p. 363; T. J. Bold, *l. c.*, vol. vii, p. 35.

A single specimen, taken by Mr. Bold near Newcastle, is

evidently the true *C. fumatus* of Gyll. As Erichson notes, it curiously simulates one of the larger species of *Corticaria*; and in the form of its elytra, size, and colour of its pubescence is most allied to *C. validus*, from which it differs in having its thorax more nearly quadrate, with the anterior callosity more developed (sub-cyathiform, and somewhat suggestive in that respect of *C. acutangulus*). Its different thoracic callosity, shape of elytra and short golden pubescence, not disposed in striæ, will serve to distinguish it at once from *C. cellaris*.

De Marseul follows Erichson in considering Stephens' *fumatus* as rightly named, and therefore British; but Stephens' insect is *dentatus*.

45. *MACRONYCHUS* (?) *PARUMOCULATUS*, Hardy, Trans. Tyneside Nat. F. Club, ii, p. 270; Cat. Ins. North. & Durh., Col. (app.), p. 242, *Hydrochus*; T. J. Bold, *l. c.*, vol. vii, p. 35.

Mr. Bold publishes a redescription by Mr. Crotch of Hardy's insect, which appears to be one of the *Elmidæ*, and closely allied to *Macronychus*, though its antennæ are eleven-jointed.

No further evidence is adduced in support of the claim of this insect to be considered British.

46. *HYDROBIUS FUSCIPES*, Linn.; E. C. Rye, *l. c.*, vol. vii, p. 36.
a: ? *subrotundus*, Steph., Ill. Mand., ii, p. 128; Manual, p. 90.
b: *chalconotus*, Leach, 1814; Steph. Mand., ii, 1829, p. 128.
æneus, Solier, Ann. Soc. Ent. Fr., iii, 1834, p. 314.

I have recorded the recent occurrence here of these two

forms, of which *a*, compared with typical *fuscipes*, is shorter, broader and more globose, with shorter legs and tarsi, the elytra not so evidently crenate-striate, and with no larger irregular punctures in the alternate interstices; and *b*, though apparently quite mature, is conspicuous from its bright metallic green colour and light legs.

47. ANACÆNA GLOBULUS, Payk., Faun. Suec., i, p. 188
 (*Hydrophilus*); D. Sharp, *l. c.*, vol. vi, p. 255.
Hydrobius limbatus, Wat. Cat.

Larger, broader and more convex than the two next mentioned species, with the elytra darker and tarsi stouter.

48. ANACÆNA VARIABILIS, Sharp, *l. c.*, vol. vi, p. 255
 (described).

This insect, common in England and rare in Scotland, has a black head, with pitchy palpi, of which the apical joint is black, the base of the antennæ testaceous, the thorax pitchy-black with lighter sides, the elytra pitchy or pitchy-testaceous and the legs pitchy-red. A variety has a small rufo-testaceous spot on each side of the head, before the eyes.

49. ANACÆNA BIPUSTULATA, Stephens, Ill. Brit. Ent. ii,
 p. 133 (*Hydrobius*); D. Sharp, *l. c.*, vol. vi, p. 256.

Common in England, but apparently not occurring in Scotland. The *large* testaceous mark on each side of the head, the testaceous palpi, of which the apical joint is pitchy, the testaceous thorax, of which the disc is more or less infuscate, the testaceous, black-freckled elytra and testaceous legs, added to its rather more widely oval shape, will serve to distinguish this from the preceding species.

50. MICROPTINUS (NITPUS) GONOSPERMI, Du V. ; E. C. Rye, *l. c.*, vol. vi, p. 182.

A communication from Professor Syme (published by myself as above) justifies the opinion expressed in Ent. Ann. 1870, that this species cannot be considered indigenous to the British Isles.

51. DASYTES OCULATUS, Kies., Berlin. Ent. Zeit., 1867, p. 115; G. R. Crotch, Proc. Ent. Soc. Lond., 4 April, 1870; "Newman's Entomologist," No. 79, p. 111.

coxalis, Mulsant and Rey (1868).

plumbeus, Illig., Thoms. (*nec* Müller)

This synonymy (and that of the two following species) is on the authority of Mr. Crotch, who records *D. oculatus* as taken by Mr. Wollaston in Lincolnshire; and states that the males may be distinguished by their large globose eyes, the space between which is much narrower than in *D. plumbeus* (*flavipes*, Wat. Cat.); the females of *oculatus* having the base of the antennæ and the anterior coxæ testaceous, whilst in the same sex of *plumbeus* only the second joint of the antennæ is testaceous,—the eyes, moreover, being less developed.

Kiesenwetter's insect is from the Sierra de Jaen.

52. DASYTES PLUMBEUS, Müll., Kies.
flavipes, Oliv., Muls. (*nec* Fab.)
fuscus, Thoms. ? (*nec* Kies.)

53. DASYTES PLUMBEO-NIGER, Goeze.
*æratu*s, Steph.
*ærosu*s, Kies.
*plumbeu*s, Oliv., Fourc., Muls. (*nec* Müll.)
*sub-æneu*s, Thoms., Crotch Cat. (*nec* Schön.)

54. *DOLICHOSOMA PROTENSA*, Gén , Ins. Sard., i, p. 19, t. 1, f. 10 (*Dasytes*); K ster, K f. Eur., xxxi, p. 9; Redt., Faun. Austr., Ed. 2, p. 546 (*Psilothrix*); G. R. Crotch, Proc. Ent. Soc. Lond., 4 Apr., 1870; Ent. Mo. Mag., vi, p. 286.

Mr. Crotch has exhibited this insect, taken some years ago in the Isle of Wight, and agreeing entirely with examples from Carthagenae. This insect, originally described from Sardinia, is at its largest about the size of the smallest *D. nobilis*, bright green or blue in colour, shining, with scattered, long, erect hairs, thickly punctured, the punctures of the head and thorax flat at the bottom, which is again punctured in the middle.

55. *MELO  DECORUS*, Brandt und Ratz., Mediz. Zool., ii, p. 111, note; B. und Erichson, Mon. Gen. Melo s, p. 137, 22, t. 8, 6-7; Redt., Fauna Austr., ed. 2, p. 650; W. R. McNab, Ent. Monthly Mag., vol. vii, p. 149.

Dr. McNab records a single example of a *Melo * taken in October last by himself near Cirencester, which is apparently to be referred to *M. decorus*. It is stated to come nearest to *M. rugosus*, and to be small (4 or 5 lines long), of a very dark blackish-blue colour, with very transverse thorax, which has three longitudinal grooves, a large head and filiform antennae.

M. decorus appears to be recorded only from Hungary, and *M. pygmaeus*, Redt., from France and Germany (Redtenbacher states that it occurs rarely in mountainous districts), the latter being considered specifically identical with it by Gemminger and v. Harold.

56. *TRACHYPHLE S LATICOLLIS*, Sch n., Gen. et Spec. Curc., vii, p. 118; Seidlitz, Die Otior. sensu str.,

Berl. Ent. Zeitschr., xii, p. 106; G. R. Crotch, Proc. Ent. Soc. London, 2 May, 1870; Ent. Monthly Mag., vol. vii, p. 21.

Of this widely-distributed species, five examples, for one of which I am indebted to Mr. Crotch's liberality, were taken by that gentleman at Weston-super-Mare.

Superficially resembling *T. spinimanus*, from which the much shorter armature of its anterior tibiæ at once separates it, this insect is more closely allied to *T. alternans*, having the armature of the anterior tibiæ similar but much less pronounced, and distinctly striated elytra, with level interstices, all moderately thickly set with fine setæ, instead of indistinct striæ, and the alternate interstices elevated and setose, as in *alternans*.

57. TRACHYPHLÆUS MYRMECOPHILUS, Seidlitz, *l. c.*, p. 124;
E. C. Rye, *l. c.*, vol. vii, p. 149.

For the addition of this interesting species to our list, we are indebted to the energy of Mr. Moncreaff of Southsea, who has taken several specimens of it near Lumps pond, Southsea Beach, it having only been recorded before from the Escorial, Spain.

Mr. Moncreaff's insect agrees with Seidlitz's *myrmecophilus* in being as it were intermediate between *T. aristatus* and *T. squamulatus*, differing, however, structurally from both. It has the stout clubbed elytral setæ of *aristatus* (though they are not *quite* so pronounced), but its thorax is not so wide, and its elytra are more elongate, not being so inclined to globose-oval. The second segment of its abdomen, moreover, is divided from the first by an arched suture, and is longer than the 3rd and 4th segments together; whereas in *aristatus* the second segment is divided from the first by a straight line, and is scarcely so long as the 3rd and

4th segments together,—the segmental divisions, also, being stronger. From *squamulatus* it recedes in its much stouter and more evident elytral setæ, its larger eyes, laterally more rounded and bristly thorax, rather longer second abdominal segment, and less horizontal antennal furrow or “scrobs,” which is directed at first rather upwards and then down towards the eye, and has its upper margin not so sharply defined.

58. TYCHIUS (SIBYNES) SODALIS, Germ., Ins. Spec., p. 294; (Boh.) Schön., Gen. et Spec. Curc., vii, ii, p. 327; E. C. Rye, *l. c.*, vol. vi, p. 257; H. Moncreaff, *ibid.*, vol. vii, p. 154.

cretaceus, Brisout, Guér. Rev. et Mag., 1860, p. 168.

statices, Moncreaff, M.S.; Ent. Ann., 1870, p. 107.

The above synonymy is authenticated by M. Brisout.

59. BARIDIUS SCOLOPACEUS, Germ., Ins. Spec., 202; Redt., Faun. Austr., ed. 2, p. 784.

vestitus, Perris, Landes, iii, 63; G. C. Champion, Ent. Monthly Mag., vol. vii, p. 107, and p. 136.

A single example of this species, which differs from all our recorded *Baridii* in being densely clothed with brown scales, variegated above and sparingly scaled beneath with white, was taken by Mr. Champion in June last, by promiscuous sweeping on the Kentish coast. Mr. Champion's insect appears to agree best with Perris' *vestitus*, now considered specifically identical with *B. scolopaceus*, which occurs rarely on water-plants on the continent.

60. BAGÖUS NODULOSUS, Schön., Syn. Ins. 75; E. C. Rye, *l. c.*, vol. vi, p. 257.

This species has apparently escaped record as genuinely

British by mere accident, as Mr. Crotch tells me that he has for some time been aware of its occurring in this country,—where, indeed, it would seem, from his experience, to be less rare than *B. binodulus*. My example of *B. nodulosus*, obtained from Mr. Brewer, to whom I believe it passed from the late Rev. H. Clark's collection, has been corroborated for me by M. Brisout. It is of about the same size and facies as *binodulus*, but may readily be distinguished from that species by its possessing only one nodule near the apex of each elytron (on the 4th interstice) instead of two elevations (on the 2nd and 4th interstices).

B. nodulosus was some time ago erroneously introduced by myself into our list, on the authority of an enormous abraded example of *B. lutulentus*. See Ent. Ann., 1864, p. 86.

61. CEUTHORHYNCHUS TRIANGULUM, (Boh.) Schön., Gen. et Spec. Curc., viii, ii, p. 154; E. C. Rye, *l. c.*, vol. vii, p. 36.
vicinus, Brisout.

M. Brisout, who has confirmed certain small *pseudo-chrysanthemi* from Southend for me as his *C. vicinus*, has also communicated to me the above synonymy, on the authority of Germar's type.

C. triangulum is itself referred as a synonym to *C. molitor* (Gyll.) Schön., *l. c.*, p. 153, in the 3rd edition of De Meuse's Catalogue.

62. CEUTHORHYNCHUS DISTINCTUS, Ch. Brisout, L'Abeille, vii, p. 42, Feb., 1870; E. C. Rye, *l. c.*, vol. vi, pp. 229 & 257.

This insect, differing from *C. marginatus* solely in having only six (instead of seven) joints to its funiculus, has been
1871.

referred to by me in Ent. Ann., 1866, and Ent. Mo. Mag., vol. vii, p. 58, as a variety of that species; and I am confirmed in that idea by my capture (recorded as above) of a specimen having six joints to one funiculus, and seven to the other.

63. *TOMICUS NIGRITUS*, Gyll., Ins. Suec., iv, p. 623, ♂ ; Thomson, Skand. Col., vii, p. 364; D. Sharp, *l. c.*, vol. vi, p. 256.
suturalis, Gyll., *l. c.*, p. 622, ♀ .

Dr. Sharp records the capture of an example of this species by himself, in Strath Glass, Inverness-shire, named by Herr Eichhoff, to whom it was forwarded by Mr. Crotch.

This species differs from its close ally *T. laricis*, Fab., in being slightly smaller, with white pilosity, the elytra less strongly punctate-striate, with the retuse portion at the apex not so extensive, more obsoletely punctured, and less strongly denticulated at the sides, and the club of the antennæ subtruncate at the apex instead of rotundate, with the divisions of the joints curved, instead of straight, as in *laricis*. The female, to which sex Dr. Sharp's insect is referred, has the retuse portion of the elytra denticulated at the sides, with three larger sharp teeth; whilst the male appears to have the apex pitchy red, with crenulated sides and smaller teeth. The species occurs in Sweden, Germany, France and Spain.

64. *TOMICUS (DRYCEETES) BICOLOR*, Hbst., Natursyst. Käf., v, p. 116; Ratz., Forstins., i, p. 161, t. 12, f. 9—10; G. C. Champion, *l. c.*, vol. vii, p. 107.
fuscus, Gyll. (? Marsham).

Mr. Champion records a single specimen of this insect (? from oak) taken by himself in June last at Darenth

Wood; and I have long had specimens in my collection taken Mr. Crotch at Down, near Beckenham.

Compared with its ally, *T. alni*, this insect is more hairy, broader, with the thorax more shining behind, being punctured instead of granulated, and having an obsolete transverse depression behind the middle, and with its elytra much more retuse at the apex.

65. *TOMICUS (DRYCECETES) ALNI*, Georg, Stettin. Ent. Zeit., 1856, p. 59; D. Sharp, *l. c.*, vol. vi, p. 256.
Marshami, Rye.

A specimen of the insect named *Marshami* and supposed by me to have been Marsham's *fuscus*, and distinct from Gyllenhal's species of that name (which is identified with *bicolor*, Herbst), has been sent by Mr. Crotch to Herr Eichhoff, who considers it must be referred to Georg's prior *alni*. The different trees (alder and beech) in which the two insects were found, and the obscure nature of Georg's description and Ratzeburg's postscript thereto, prevented me from identifying my insect with *T. alni*, the correct affinities of which do not seem until quite recently to have been appreciated on the continent.

Mulsant's *alni*, published in the same year as Georg's species, sinks as a synonym of *Saxesenii*, Ratz.; otherwise *Marshami* might possibly still have stood.

66. *TRICHOPTERYX (ACRATRICHIS) PUNCTATISSIMA*, Motschulsky, Bull. Soc. Imp. Nat. Mosc., 1868, No. 3, p. 178; E. C. Rye, *l. c.*, vol. vii, p. 59.

Ascribed to England only, and stated to be very close to *T. grandicollis* in form and colour, but shorter, with the posterior angles of the thorax less projecting, the antennæ

rather short, testaceous, with brown club; the legs testaceous, with the femora darkened, and the punctuation fine and close.

67. TRICHOPTERYX (A.) SUBÆNEA, Motsch., *l. c.*, p. 179;
E. C. Rye, *l. c.*

Also ascribed to England only. This insect is described as of the form and colour of *fascicularis*, Gillm., but a third smaller and more convex, very shining, black, with a bronze reflection; with testaceous legs and blackish antennæ, of which the base is slightly testaceous.

Both it and the preceding are placed by the author in his section of the genus wherein the elytra are rather short, but slightly attenuated behind.

68. PTENIDIUM INTERMEDIUM, Wankowicz, Ann. Soc. Ent. Fr., 4e sér., ix, p. 412; A. Matthews, Ent. Monthly Mag., vol. vii, p. 152; T. Wilkinson, *ibid.*

Mr. Matthews considers Wankowicz right in erecting to the rank of a species an insect which, from want of adequate material, he himself had some years ago considered simply a variety of *evanescens* (*apicale*, Er.); compared with which, its thorax is less tumid on the upper surface and sides, with the usual basal foveæ much more distinctly marked, the punctuation of its thorax and elytra is deeper and more distinct, and its colour is throughout of a more rufous tint. Mr. Wilkinson records the capture of this insect near Scarborough, under rotten birch bark, in March and April.

Thinking it possible that some entomologist may follow the bad example of Gillmeister, and again include all the species of this group under one generic appellation, Mr. Matthews has proposed, to avoid the repetition of "*intermedia*,"

Gillm., by calling this species, after its captor, "*Vankoviezii*."

69. *LATHRIDIUS CONSTRICTUS*, Gyll., Ins. Suec., iv. p. 138; Mann., Vers. Cortic. u. Lathr., 1844, p. 81; E. C. Rye, *l. c.*, vol. vi, p. 283.

I have a British specimen of this insect, already attributed to us by Mannerheim, evidently through *ruficollis*, Marsh., being erroneously attributed to it as a synonym by that author,—who also credits our lists with *L. rugicollis*, Ol., *hirtus*, Schüpp., and *rugosus*, Hbst., *Corticaria longicornis*, Hbst., *linearis*, Payk., and *similata*, Schüpp.; all of which, save *L. rugosus*, detected here long after the publication of Mannerheim's work, are apparently considered British by him through Stephensian errors.

L. constrictus is closely allied to *L. carinatus*, Gyll., but is rather smaller, narrower, and of uniformly lighter colour, with the thorax especially longer and narrower and divided as it were into two lobes, of which the anterior is much the larger, and very rounded at the sides, with no trace of any angle in front.

Thomson founds his genus *Coninomus* on these two species, conspicuous for the two-jointed club of their antennæ. See Kraatz, Berl. Ent. Zeit., xiii, p. 129.

De Marseul sinks *constrictus* as a syn. of *limbatus*, Först.,—repeating, however, the latter name by itself at the end of the genus, as if unknown to him; but Kraatz states that it is *carinatus* that is identical with Förster's species.

70. *BYTHINUS GLABRATUS*, Rye, *l. c.*, vol. viii. p. 33 (described).

The very shining appearance, light colour, almost total

want of punctuation and long basal joint of the antennæ of this species at once remove it from all of its congeners known to me. M. Brisout also has returned it to me as quite unknown at Paris. Three specimens were taken in August, 1865, in a mossy hollow on the chalk, on Seaford Downs, in company with *Trichonyx Mærhelii* and a small yellow *Myrmica*, by Mr. G. R. Waterhouse's sons.

10, LOWER PARK FIELD, PUTNEY, LONDON, S.W.

24th November, 1870.

HYMENOPTERA.



NOTES ON VARIOUS SPECIES OF APIDÆ, FORMICIDÆ,
FOSSORES AND VESPIDÆ; WITH OBSERVATIONS ON
SOME OF THE PARASITES ON THE LATTER.

BY FREDERICK SMITH.

NOT a single species has, to my knowledge, been added to our indigenous Bees, Wasps, or Formicidæ, during the present season of 1870; it is true that I shall announce the discovery of an additional species of Ant, but that was captured in the year 1866. I have myself, and no doubt other entomologists have been congratulated upon the fine season we have enjoyed; our friends, who so kindly expressed their pleasure, did so in the certain assurance that a fine season ensured an abundant entomological harvest; but we, who have been blessed by the enjoyment of many fine summers, have ascertained by repeated experiences, that what is generally understood of a fine season, by no means ensures a prolific entomological one.

Having visited the Suffolk coast at, and in the neighbourhood of Lowestoft; paid several visits to Southend; spent five weeks on the coast of North Devon; and made an excursion to Tenby, on the coast of South Wales; also, in the month of June, having had an opportunity of entomologizing in Warwickshire, I have perhaps had a more extensive range, during a single season, than I ever previously enjoyed. Notwithstanding these facilities, I have experienced

the most unsuccessful campaign that ever fell to my lot; the results will, however, add a few crumbs to our entomological banquet.

In the neighbourhood of Warwick I did not meet with a single Hymenopterous insect that is not common in the London district; but I am led to the belief, that the Coleopterist would fare better, the district being beautifully wooded and in many respects a charming locality.

My visit to Lowestoft yielded nothing that has not been recorded as occurring there in former volumes of the Entomological Annual. I had, however, a particular purpose in visiting this locality, but my hopes were doomed to disappointment. I have recorded my endeavours in former years to discover, by rearing the insect from the caterpillar, the male of the Tenthredo, *Eriocampa ovata*; an insect found throughout Europe, described by Linnæus, very plentiful occasionally in this country as well as on the continent; but of which no one has been successful in discovering the male. I have usually taken the insect about the latter part of July and during the month of August, at which period the larvæ are abundant, feeding upon the alder. I have twice reared a considerable number of *Eriocampa* from the caterpillar; on one occasion about fifty, and subsequently upwards of a hundred, the whole of which have proved to be females. I therefore thought I would visit the locality a few weeks earlier; I did so, but I found only the female sex. The male has, therefore, yet to be discovered, and I still think the most likely way for doing so is by rearing large numbers from the caterpillar state.

My visit to North Devon enables me to add three species of *Apidæ* to the list published in last year's Annual, *Andrena spinigera*, *Megachile maritima* and *Cælioxyx vectis*. The first species was taken near to Ilfracombe; the *Megachile*

and its parasite were both captured at Woolacombe Sands, in Morte Bay, in August last. And I may incidentally mention that I picked up on these sands, in the month of October, two specimens of *Aphodius lividus*; at the same time thousands of the *A. contaminatus* were scattered there by a strong land breeze.

I can only add one species, *Ceropales maculata*, to my last year's list of N. Devon *Fossores*, this was found in the same locality as the former insects.

To the list of *Vespidæ* I can add the Hornet, *Vespa crabro*; I saw numbers of the workers busy capturing flies on the flowers of the ivy in the month of October.

Last year I recorded the capture of many specimens of the local insect, *Tiphia femorata*, and I observed that they were all of a much larger size than any I had found in Surrey or Kent; this season I found the species equally abundant, but they were uniformly one-third smaller than last year's captures; these smaller examples occurred at Ilfracombe, the larger ones were found at Woolacombe Sands.

I do not know with certainty, but observation has led me to believe, that *Tiphia* is a parasite upon *Aphodius*. Every entomologist knows that the *Aphodius* is found commonly in the droppings of horses and cows, and I have repeatedly found *Tiphia* under those of cows, when the heat has dried up the moisture and when the droppings may be turned over as if they were pieces of bark or turf. It may be argued that the *Tiphia* merely resorted to such a situation for shelter from the sun's heat, but this fossorial insect appears to revel in the most intense heat, and is found active, and apparently enjoying itself most, when the heat is greatest; at such times it sometimes swarms on the flowers of the wild carrot (*Daucus carota*), or on those of the samphire (*Crithmum maritimum*). I have never had the means of digging beneath the

dried-up droppings when I have observed *Tiphia* under them, neither have I ever seen *Tiphia* enter the holes down which the larvæ of *Aphodius* had burrowed when full fed and about to undergo their change to the pupa state; but I have seen *Tiphia* just within the holes, and, having done so on several occasions, I am led to think it highly probable that it will some day be found that *Tiphia* is the parasite of *Aphodius*. I am otherwise totally ignorant of its habits.

I remarked that the specimens of *Tiphia* taken at Ilfracombe were uniformly much smaller than those taken at Woolacombe; this circumstance I believe to be attributable to a more scanty supply of food; probably at Woolacombe the larvæ had fed upon that of a large species of *Aphodius*, those at Ilfracombe having been nourished upon a smaller one.

I have a species of ant to add to the British Formicidæ; and when I call to mind that, limited as my opportunities of research have been for some years past, yet notwithstanding I have added *Formica congerens* and *F. sanguinea*, for in old collections the latter species was represented by varieties of *F. rufa*, the true *F. sanguinea* being discovered by myself at Blackwater in Hampshire; I have also added *F. exsecta* and *F. umbrata*, *Ponera punctatissima*, *Myrmica lippula* and *M. fugax* to our list;—this convinces me that, if entomologists were to collect the *Formicidæ*, particularly in the more northern parts, our list of British ants would soon be materially increased.

I have failed to discover the common wood ant near Ilfracombe, although I still think it must inhabit some of the woods in that district; probably those at Lee, which I have not visited. At Lynmouth the species is common enough in the woods leading up to Water's Meet; at this latter spot I may notice that *Formica fusca* is extremely abundant under

the large flat stones that lay about just at that point; but what is most worthy of notice is the fact that about the middle of August, the time I visited the spot, none of the larvæ of this ant had enclosed themselves in cocoons, a similar circumstance I never observed in the London district. I have before found the pupæ naked in the Isle of Wight, in which instance the nest was also under a stone. At Water's Meet this was the case in every instance.

This circumstance would appear to indicate the habit of a species distinct from the universally distributed *Formica fusca*; it was, however, undoubtedly the latter insect, well known as one that usually encloses itself in a silken cocoon, when the larva becomes full grown and about to change into the nymph state. I am therefore led to ask the question, were the larvæ, reared under stones, destitute of the fluid necessary for spinning the cocoons? or, being protected by the flat stones from vicissitudes of the weather, therefore the cocoon became unnecessary, and they desisted from spinning one? now, if so, would it be necessary that these larvæ should discharge this fluid before changing to the nymph state? Larvæ and pupæ were mixed together in every stage of development. These nests of *F. fusca* swarmed with the Myrmecophilous beetle, *Atemeles emarginatus*; they were also equally abundant in nests of *Myrmica ruginodis* and *M. lævinodis*.

The presence of these parasitic *Coleoptera* in ant's nests still requires investigation; what is their mission? Many species found in such situations are undoubtedly intruders, the situation either furnishing some kind of sustenance or a comfortable habitat in which to take up their abode; but there are others, such as *Lomechusa*, *Myrmedonia*, *Dinarda*, *Atemeles* and *Claviger*, that must in some way contribute to the economic uses of the ants; all these are carried by them

into their nests, and are also borne off by them when their nest is disturbed; this, I think, conclusively determines their being advantageous inmates in some way or other, and probably all of them in the same way as *Claviger* has been observed to be by P. W. J. Müller, who, in "Germar's Magazin der Entomologie," states that he observed the ants imbibing a secretion emitted by *Claviger* from orifices situated at the sides of the abdomen where the little tufts of hair are observable; the ants, Müller informs us, nourish the *Claviger* with honey extracted from flowers. I have repeatedly found *Claviger testaceus* in nests of *Formica flava*, most abundantly so in the month of April, at which time I have also noticed in the same nests quantities of oblong black eggs. After several failures, I at length succeeded in breeding from these a species of *Aphis*, with mottled wings; the specific name I was unable to ascertain. I succeeded in rearing this *Aphis* by covering the bottom of a small tin box with mould pressed down, upon which I placed the eggs and covered them with damp moss; by placing this in the sun for warmth, taking care never to allow it to become dry, I succeeded in rearing the *Aphis*.

The species of *Myrmica*, new to the British list, which I have now to add to our Fauna, is *M. Kollari*, the *Tetramorium Kollari* of Mayr. Dr. Roger, in his Catalogue of Genera and Species of Ants, published in the "Berlin. Ent. Zeitschrift" (1863), reduces Dr. Mayr's species to a synonym of the *Formica guineensis* of Fabricius, of course an African insect; at the same time he also reduces a species which I described, from Panama, under the name *Myrmica reticulata*. I know nothing of Fabricius's insect, but think it highly improbable that a species common in Austria should be the same as that from Guinea; but I am quite satisfied that the Panama species is distinct, although very

similar, but when placed side by side the distinctions are obvious.

The British specimens of *Myrmica Kollari* were taken by Mr. J. Brewer at Sheerness in 1866. These specimens I had lost, as I believed, but a few weeks ago they were sent to me to name by Mr. Nicholas Cooke, to whom I had sent them inadvertently when forwarding other insects. *Tetramorium Kollari* is of the same size as the common *Leptothorax acervorum*, and at first sight looks very like it; but it has 4-jointed maxillary palpi; *Leptothorax* has them 5-jointed; in both the labial palpi are 3-jointed. The most obvious distinctions, those indeed which will at once serve to separate the species, are, first, the colour of the head; in *L. acervorum* it is black or dark brown, in *T. Kollari* it is palish red, the same colour as the thorax. Another distinction is, that the former insect has the head very delicately striated longitudinally, whilst in the latter it has a number of longitudinal carinæ, between which it is coarsely punctured; the thorax is also rugosely punctured; the antennæ are entirely pale, the club in *L. acervorum* is blackish.

This addition increases the number of our British ants to thirty-three; for we regard *Pheidole lævigata* and *Myrmica domestica*, both species found in houses, as imported insects; this will make the number of undoubted British ants thirty-one.

Cynips lignicola.—The male sex of this gall-fly has yet to be discovered; I had hoped to have announced it as a discovery this season, having had the first chance of breeding it that has ever occurred to me.

It is generally known among entomologists, that the late Mr. Benj. Walsh succeeded in obtaining males of an American species, *Cynips spongifica*; specimens of both the sexes

he kindly forwarded to me, at the same time giving an account of the course to be pursued in order to secure a chance of obtaining males. It is necessary, in the first place, to obtain a large quantity of the galls just at the time when they are becoming hard and woody, before a single fly has arrived at maturity—certainly before any have escaped from the galls. For three successive years I have searched for such an opportunity, and this summer it fortunately occurred to me. Last summer I visited Ilfracombe, and, in a wood about two miles from that place, I found a part that had been cleared of the trees and underwood; I observed many stumps of oaks, from which vigorous shoots were springing, but not a single gall was to be found on them at that time. This summer I visited the wood again, and was delighted to see an abundance of galls; when I first saw them they were green and pulpy—this was at the beginning of August. As I intended remaining the entire month at Ilfracombe, I felt assured that I had dropt upon a golden opportunity for investigation. I watched the galls occasionally, until I found, on opening a few, that the perfect insects might shortly be expected to issue from them. I then commenced collecting and securing them in a number of fine net bags—in all, I collected 4,410 galls. During the third week of August the flies began to appear, and from that time up to the beginning of November they continued to do so, in greater or less numbers, this being accelerated or retarded by the warmth or coolness of the temperature. Out of the 4,410 galls only 1,562 gall-flies have been developed, the whole being of the female sex.

Mr. Walsh informed me, that he had some seasons bred as many as 2,000 flies, all of which proved to be females; for, he added, males do not appear to be developed every season—such had been the result of his own expe-

rience. I have, on previous occasions, bred many hundreds of these gall-flies, but always from galls collected either in September, October, or in early spring, and from such it appears there is not the slightest chance of obtaining males. I own to being greatly disappointed this season, but the failure, in my own case, may perhaps stimulate others to follow up the subject, and I hope with better results.

In breeding a large number of these gall-flies certain phenomena present themselves, without offering, at the same time, any obvious explanation; at the same time, it is not easy to suggest any probable cause for such circumstances. In cutting open a number of galls, I found flies, one in about a hundred, that were only half the normal size of the species; these are not examples from which a gradual scale of dimension can be traced up to the largest specimens; this diminution of size might reasonably have been expected to occur in such flies as were developed from the smallest galls—but such was not the case—several were found in full-sized galls. Unless we seek for a solution of this circumstance in a supposition that the larvæ in such cases were arrested, whilst feeding, through falling into an unhealthy condition, I am at a loss to offer any other suggestion. When I first found a minute fly of this kind, I certainly thought I had discovered the male *Cynips* at last. I have still upwards of 2,000 galls containing *Cynips*, that is to say, exclusive of such as have been attacked by parasites, of which I have found two—the *Callimome Devoniensis*, and an apparently undescribed species of *Decatoma*—but none of the remaining galls will produce males. Mr. Walsh informs us, that he has bred thousands of flies from these old galls, which always develop females; such has always been my own experience, and others have recorded similar results.

Having alluded to parasitic Hymenopterous insects, it will

probably prove interesting to pursue the subject a little further, by a few observations on the various species of insects that are parasitic on the *Vespidæ*. The parasites on the *Vespidæ* are numerous, and may be subdivided into three sections: first, vegetable parasites; secondly, parasites that live internally in both the larval and perfect conditions; and, thirdly, such as are nourished by feeding upon, and destroying the wasp, in its larval state.

Not any species of wasp indigenous to this country has been observed to be subject to the attack of vegetable parasites, but several exotic species commonly suffer thereby; the *Polistes crinita*, from Cayenne, is frequently found to be so much infested by a fungus, which shoots out its spores so luxuriantly into hair-like threads, as to have caused the species to receive several names indicative of the circumstance, such as *P. crinita*, *P. vegetans*, &c.; this species is best known to science as the *Polistes americanus* of Fabricius. There are other species belonging to this genus, as well as to the genera *Icaria* and *Polybia*, subject to this disease of fungoid growth.

Internal parasites are not uncommonly found in the bodies of our native wasps belonging to the genus *Vespa*. The hornet is infested by a species of *Entozoa*, *Gordius Vespeæ crabronis*; another species belonging to the genus *Spherularia*, *S. Vespeæ vulgaris*, infests the common wasp; and Dr. Ormerod, in his excellent work on the "Natural History of British Social Wasps," found a species of *Gordius* infesting it also.

These attacks, both from fungoid growth and also from the presence of *Entozoa*, there can be little doubt, render the queen wasps incapable of carrying on the business of their economy.

The next internal parasite to which I have occasion to

allude has been assigned by several modern entomologists to the order Coleoptera ; it is the *Xenos vesparum* of Rossi, who first discovered this class of parasites ; it is closely allied, generically, to that of *Stylops*, the well-known parasite of the *Andrenidæ*. This parasite commonly infests the *Polistes gallica*, and also *Polistes biglumis*, both abundant on the continent, but not found in this country. An allied species, *Xenos Peckii*, is found commonly in North America.

I will now proceed to notice such parasites as attack the various species of the genus *Vespa* inhabiting this country. *Vespa crabro*, the common hornet, is attacked by a Coleopterous insect belonging to the family *Staphylinidæ*, *Quedius dilatatus*, an insect of great rarity hitherto, but probably only so because the habitat it frequents is rather dangerous of access under ordinary circumstances ; and, as hornets are active by night as well as by day, not even to be approached with impunity, unless the person is clad in an impenetrable garb. The larva of *Quedius dilatatus* is said to feed upon that of the hornet, and on one occasion I saw a considerable number of dead larvæ, doubtless of that species, found in a hornet's nest. I think it very probable that various other parasites infest the nests of this wasp ; for, as we shall see in the case of the common wasp, *Vespa vulgaris*, whose economy we are more familiar with, its parasites are numerous.

Vespa vulgaris is subject to the attacks of insects belonging to the orders Diptera, Hymenoptera and Coleoptera. Belonging to the Diptera may be mentioned two species of the genus *Volucella*, *V. pellucida* and *V. bombylans* ; in some nests I have found larvæ of both these species very abundantly. When the colony of this wasp is attacked, as I have occasionally observed them to be, by a kind of epidemic dysentery, larvæ of some species of *Silpha* is commonly

found feeding upon the dead larvæ of the wasp, but these attacks cannot be classed among the parasitic ones.

Another dipterous insect, *Phora floralis*, attacks the larvæ, and also the pupæ of *Vespa vulgaris*, as many as eight or ten feeding upon a single larva or pupa. In a piece of comb, lately sent to me, I observed that these parasites so completely devoured the pupa, as to leave only the thin outer integument remaining; more than half the wasps were devoured in this manner. I do not imagine that wasps are very frequently attacked by *Phora*; the first instance that has come to my notice having been discovered by a friend during the present season.

The Hymenopterous parasites of *Vespa vulgaris* are an ichneumon, *Chyromon vesparum*, and *Chrysis ignita*; the latter parasite does not confine its attacks to the genus *Vespa*, it also attacks species of the genus *Odynerus*, solitary wasps. I have bred it also from nests of bees, such as *Osmia bicornis* and *Osmia aurulenta*; others have found it parasitic upon the larvæ of species of fossorial Hymenoptera.

The only Coleopterous parasite on *Vespa vulgaris* that I am acquainted with is *Rhipiphorus paradoxus*, and, as the nature of its parasitism has lately been the subject of considerable difference of opinion, but which direct observation has during the present season happily set at rest, I will briefly endeavour to trace the history of this very interesting parasite.

The parasitical connexion existing between *Rhipiphorus* and *Vespa vulgaris* appears to have been first recorded by Germar in the year 1813, in the "Magazin der Entomologie," but the nature of its connection was conjectural, the perfect insect only having been observed by him. Many entomologists have subsequently found the perfect beetle in the nest. Mr. MacLeay, as recorded by Mr. Curtis, must

have met with the parasite shortly after Germar's discovery. The Rev. F. W. Hope found it plentifully, not only in the nest of *Vespa vulgaris* but also in that of *V. rufa*. The first notice that I can trace of the true nature of its parasitism is that of Mr. Denison, who says that it "devours the grub of the wasp entirely." He does not enter into particulars of the observations made which warranted him in making this statement, but it is just to assume that he did make such, and this view is, I think, confirmed by the observation of Mr. Bigg, who records the discovery, and who states that Mr. Denison found the parasite in several instances, and observed it in all the stages of its growth. This was some time previous to the year 1835.

Nothing further respecting the habits of *Rhipiphorus* is recorded until 1865, when the late Mr. Stone published his observations in the twenty-third volume of the "Zoologist." He there records the fact of finding in a nest of *Vespa vulgaris* "several pupæ of the parasite and numbers of the perfect insect, males and females, but could not detect the presence of a larva." Three days later he was more fortunate, for on taking a nest of the wasp, and proceeding to open the closed-up cells, he found "a larva of the parasite firmly attached to the full-grown larva of the wasp, the mouth of the former buried in the body of the latter just below the head." The larva, he tells us, was of minute size, and appeared to have only very recently fastened upon its victim; but so rapid was its growth, that in the course of the following forty-eight hours it attained its full size, having consumed every particle of its prey with the exception of the skin and mandibles. Mr. Stone tells us that from subsequent observations he was enabled to make—clearly implying that he observed more than one larva of the parasite devouring its victim—that these parasitic larvæ, when they

once fasten upon the larva of the wasp, scarcely appear to cease feeding until they become full grown.

To my mind, these records satisfactorily trace the precise nature of the parasitism of *Rhipiphorus*. Latreille, it is true, had previously published his opinion that *Rhipiphorus* was a guest in the wasp's nest, that is, deposited its eggs in the cells, and that the wasp nourished its larva as if it was one of its own offspring; this opinion, I believe, had only conjecture for its foundation. Mr. Curtis adopted the same view, although he was acquainted with the observations of Mr. Denison; but I am inclined to think he only did so because he could not believe in the possibility of Latreille being in error.

It has been a matter of surprise to many entomologists, having these records before them, that a naturalist of the standing of Mr. Murray should have endeavoured to rebuild, as it were, the fallen fabric erected by Latreille; but Mr. Murray had possessed himself of an amount of material which he no doubt considered amply sufficient for the purpose; in fact, he considered that it substantiated Latreille's hypothesis. The article published in support of this view appeared in the *Annals and Magazine of Natural History* for November, 1869.

It is not necessary to follow the details recorded in the paper alluded to; suffice it to say, that nothing was observed which affected the correctness of Mr. Stone's observations; on the contrary, there was much that was really confirmatory of it; but Mr. Murray, from his point of view, was induced to consider them proofs of the correctness of the Latreillian hypothesis; so the matter rested until the present season.

In the month of August last, most fortunately, Mr. Murray was the first to discover the unstable foundation he had built upon, and was the first to write, "I have solved the *Rhipi-*

phorus question, and have to haul down my flag; the *Rhipiphorus* is a true parasite; I have traced it from the egg to the perfect insect." Nothing could be more satisfactory than that he himself should have traced it, and nothing more graceful than the candid acknowledgment of his own erroneous conclusions. Mr. Murray was only a few days in advance of another and a more fortunate observer; Dr. Algonon Chapman was working in the same field; he also obtained a nest of *Vespa vulgaris*, and, as he informs us in his admirable paper published in the *Annals and Magazine* for October last, that he easily ascertained that the larva of *Rhipiphorus* eats that of the wasp after the latter has spun up.

Mr. Chapman tells us that he failed to find any eggs of the parasite, and it will be seen from what follows that where the eggs are deposited is not known. He ascertained, however, a point in the history of *Rhipiphorus* that had never previously even been conjectured; he discovered the first stage of the young parasite after leaving the egg, which proved that the history of *Rhipiphorus* is parallel to that of *Meloë* and *Stylops* in its earliest stage; the larva is then a little black hexapod, exceedingly minute, and having a triangular head with a pair of three-jointed antennæ, with legs very like those of the larva of *Meloë*, the tibiæ ending in two or three claws; each abdominal segment has a short lateral spine, pointing backwards, the last segment terminating in a large double sucker. This little larva finds a wasp grub, and piercing a hole in its skin makes its way into its interior.

At what precise period of the growth of the wasp grub that of the parasite enters it has not been observed; it was however ascertained that it remains there until the larva of the wasp is full grown and has spun itself up in the cell; Mr. Chapman discovered it in such a full grown larva. At

the side and in front of the third and fourth segments of the wasp grub, the *Rhipiphorus* was observed shining through the skin; the *Rhipiphorus* larva was also observed when emerging from the wasp grub; at the time of so doing it casts a skin, together with the black head, legs, plates, &c.; it then moves onward to the anterior surface of the second segment of the wasp, where it at once seizes hold, and, thus situated, it feeds upon its victim until full grown, when it changes to the pupa state and thence into its perfect condition. All the parasites, the wasps of course also, emerge from the cells during the autumn, and probably all of them quit the nest, and, as Mr. Chapman is led to believe, the parasites hibernate during the winter. The point therefore that requires investigation is the place and manner of oviposition of *Rhipiphorus*; this point once obtained, the history of the parasite will have been pretty fully ascertained. Another season's research will probably enable Mr. Chapman to complete this link still wanting in the life-history of *Rhipiphorus*.

LEPIDOPTERA.


 NOTES ON NEW AND RARE BRITISH LEPIDOPTERA
 (EXCEPTING TINEINA) IN 1870.

BY H. GUARD KNAGGS, M.D., F.L.S.

ONCE more the time for reckoning up the work of the past season has come round, and on me again devolves the pleasant task of gathering together, sifting and sorting into something like order, the discoveries and contributions towards a knowledge of our moth fauna, accumulated since the publication of our last little volume.

The year 1870, although it may not have produced anything very startling in the way of additions to our lists, has been a very average one. We have certainly no new butterfly nor sphinx, nor can we boast a new bombyx, at least only half a *Psyche*, namely, "the better half" of *Fumea reticella*,—but we have a new *Plusia*, though it is somewhat unsatisfactory that a single example only has been secured—not but that *P. ni*, which was discovered two years ago, is in the same predicament—but then *ni* is an European species, whereas unfortunately this one is not; this, however, will be discussed further on. We have two new Geometræ, both in the genus *Acidalia*, which, with four new knothorns, two new tortrices and a new plume, will be sufficient to give our old heads something to think about. The following is our list of discoveries :—

1. *Fumea reticella*, Newman, ♀.
2. *Plusia verticillata*, Guenée.

3. *Acidalia perochruria*, Fischer von Röslerstamm.
4. *Acidalia strigaria*, Hübner (Fig. 1).
5. *Pempelia obductella*, Fischer von Röslerstamm.
6. *Trachonitis pryerella*, H. Vaughan (Fig. 3).
7. *Homœosoma saxicola*, H. Vaughan.
8. *Homœosoma senecionis*, H. Vaughan (Fig. 2).
9. *Argyrolepia luridana*, Gregson.
10. *Peronea proteana*, Herrich-Schäffer.
11. *Pterophorus aridus*, Zeller.

Before discussing these, we will proceed to our usual gossip about the rarities which have occurred during the past season. Firstly, the scarcer butterflies have been sparingly represented; two examples of *P. Daplidice* have occurred at Portsmouth and one at Brighton; *A. Latona* has been taken near Chilham (one of its old localities by the way), and *V. Antiopa* in Suffolk, near Rochester, and at Cheltenham.

As for hawk-moths we have never had such an *embarras des richesses*. *D. Livornica* has been taken all over the country in England, Ireland, Scotland and Wales—from the Isle of Wight to the north of Perthshire—sometimes singly, at others by twos, threes, or even in greater numbers, now in the perfect state now in the larval state, here in the spring there in the summer, more rarely in the autumn. Altogether something like half a hundred captures must have been made, and many a young collector will doubtless look back on 1870 as the great *Livornica* year. *Deilephila Galii*, too, has been extraordinarily common; it certainly has never appeared in these isles in anything like the abundance of the past season. Hundreds of larvæ have been taken. Its distribution has been north, east, west and south, and there must be but few collections that do not now possess a madder-hawk. My old friend (Dr. Boswell Syme), by the

way, mentions a peculiarity he has noticed in Scotch larvæ, namely, that unlike their southern relatives, they refuse to eat *Galium mollugo*; possibly at some remote period we may possess a Scotch sub-species of the insect. *D. euphorbiæ* is mentioned in the "Entomologist" as having been taken in the larval state near Ipswich, but as there is no sea spurge in the neighbourhood, the lady's-bedstraw, upon which they fed, must be taken *cum grano salis*; there can, I think, be no doubt of *galii* having been mistaken for *euphorbiæ* by the correspondent in question. *Chærocampa nerii* has been recorded since our last as having been secured near Birmingham—but that was in '69. *C. celerio* has turned up at Lytham, Cheltenham and Selling, and *S. philanthiformis* has been detected in Scotland. On the other hand, it may be mentioned, that *Sphinx convolvuli* has been decidedly scarce, or else collectors, having been surfeited with it in former seasons, may not have thought it worth while to chronicle captures of it.

Bombyces and Pseudo-bombyces of note do not appear to have shown up in any numbers: for *D. bicuspis* the localities N. Staffordshire and Leominster are given; *P. nubeculosa* occurred just where it might be expected to occur. We have Mr. Hellins's authority for *N. trilophus* in the larval state near Exeter; but, best of all, *Gluphisia crenata* has been rediscovered in the Isle of Man by the ubiquitous Mr. Meek.

Of Noctuæ we have a respectable sprinkling, and some of the takes in this department are of an unusually interesting nature; notably the capture of above a dozen examples of Fenn's *Nonagria brevilinea* at Horning by Mr. George King is especially worthy of notice. This really good species has for six years remained unique, during which it has, of course, gone through the usual probationary process. First it was the

arundineta of Schmidt; then, when *arundineta* was proved identical with the *neurica* of Doubleday's Catalogue, it naturally became the true *neurica* of Hübner; and that failing also, it subsided in due course into a variety of something or other: indeed, I have heard it whispered, that it might even be *Leucania comma* in disguise. Now, however, Mr. King's discovery sets at rest these surmises, and there can be no doubt, in the mind of the most sceptical, that *brevilinea*, Fenn, is a species abundantly distinct from any other described *Nonagria*. Mr. King's captures also show us that the species is variable; for example, while the ground-colour appears to vary from fawn-colour to dark-brown, the markings are very erratic, the characteristic basal streak from which the insect takes its name being in some cases almost obsolete. A figure of this interesting *Nonagria* (copied from the original specimen which was captured at Ranworth) will be found in the "Annual" for 1865, and a full description of it in the "Entomologist's Monthly Magazine," vol. i. p. 107. A few *Acronycta alni* have turned up as usual; one, a fine imago, was secured in the London district at Bishop's Wood, Hampstead. Several *Leucania albipuncta* have been taken at sugar at Folkestone, and an example is also stated to have made its appearance at Canterbury. *Nonagria elymi* is recorded from Cleethorpes and South Shields. For *Pachetra leucophæa* new localities have been found, namely, Tunbridge and Folkestone, this latter disposing of the *Pachetra* sp. ? of my Folkestone list; for although Mr. Ulyett's specimen differs in several respects from any *P. leucophæa* that has come under my notice, both in the character of the stigmata, length of antennæ, &c., it must, for the present, be accepted as of that species. A few *Triphæna subsequa* have occurred in Morayshire and elsewhere. A third British *Pachnobia alpina* has fallen to

Mr. Eedle's lot in Perthshire. *Dianthæcia irregularis* has been bred in this country from larvæ feeding, as was last year predicted, on a Caryophyllaceous plant, *Silene otites*. *D. capsophila*, *Barrettii* and *cæsia* have each occurred in their respective habitats, and *compta* has been found at home in a new locality, the Isle of Man. *Polia nigrocincta* has been taken again in the larval state. A single specimen of *Crymodes exulis* is recorded as having been taken in Strathglass in 1869, thus making the ninth or tenth known British specimen. *Xylomyges conspicillaris* has been scarcer than usual at Worcester. More *Xylina furcifera* have been captured beyond those mentioned in our last volume. A fourth British *X. Zinckenii* has been taken at Darent. *Agriphila sulphuralis* seems to be becoming quite a suburban insect, captures of it being noted from Erith, Hackney Marshes, Lower Clapton and Wandsworth. *Plusia orichalcea* has been taken in Cornwall; and lastly, but not leastly (at any rate in point of size) *Catocala fraxini* has visited the Regent's Park; and this reminds me that the sight I had of this specimen (alive) taught me something of which I was previously entirely ignorant, namely, that the creature is endowed, for some inscrutable reason, with large fans (or rather in this particular instance with a large fan) on its forelegs, after the fashion of certain *Pyrales* and *Geometridæ*—here is food for meditation!

Of Geometers, the most important capture of the season has been *Lythria purpuraria*, which has moreover been bred from the egg, for the first time, in this country. *Acidalia rubricata* and *rusticata* have been duly announced as occurring at Folkestone, thereby corroborating the respective captures there some years ago of single examples of each of these waves by my friend Mr. Lynch and myself. *Boletobia fuliginaria* has been captured at Blackfriars. The two rather

rare pugs (*irriguata* and *consignata*) have been bred by Mrs. Hutchinson. And a series of wonderful varieties of *C. immanata*, black, with clearly defined white markings, has been bred by Mr. Doubleday from eggs received from Orkney through the late Edward Hopley.

Among Pyrales the most remarkable incident has been the occurrence in Norfolk of *Lemiodes pulveralis*, a species (and genus too) but last year for the first time introduced to our lists, at which time the insect had been captured almost simultaneously in two distinct south-coast localities. At Folkestone, this season, quite a haul of it is said to have been made, and the questions arise in our mind, "Has *Lemiodes* hitherto been overlooked in this country?" or "Is it one of those queer things, which, like *Sterrha sacraria*, *Spilodes palealis*, &c., start up mysteriously at intervals to disappear again as unaccountably?" Should the answer to the former question be in the affirmative, we may naturally expect that *pulveralis* will soon become a common British insect. In favour of this view the fact, that two of the haunts in which the moth has been found are of the marshy character so congenial to the species, must be taken into consideration; and the third locality, for aught I know to the contrary, may present the same fen-like appearance. Then, again, the very thoughts of working a district of this kind, especially after dusk, is repugnant to the feelings of the bulk of collectors, though the few who do hunt in such places rarely fail of meeting with their reward. This, coupled with the inconspicuous nature of the insect, may have had much to do with its having escaped notice. Its occurrence in large numbers, in one of the localities, too, would seem to strengthen this hypothesis; but the argument is by no means conclusive, for *S. palealis* has occurred in various parts of the country—sometimes one might say in profusion—and *sacraria* has at times been sufficiently common, yet where

are they now?—*Scoparia Zelleri* has been taken somewhat freely in North Devon, and a few specimens of *S. basistrigalis* have turned up at York; *Melissoplaptus cephalonica* has been detected in the metropolis; *Homæosoma nebulella* has occurred at or near Norwich, and *Chilo mucronellus* at Horning.

The most noticeable Tortrices are *Penthina ustulana* (*carbonana*) in N. Devon; *Carpocapsa funebrana*, *Grapholita Æmulana* (*modestana*) and *Eupæcilia curvistrigana* in the same locality, and *Catoptria expallidana* and *P. oppressana* in the neighbourhood of Norwich.

Of Plume moths *Oxyptilus lætus* has again been captured by the Hon. T. de Grey, and *Platyptilus isodactylus* and *Pterophorus Lieniganus* have been detected by Mr. Barrett near Norwich.

A few varieties have been noticed during the past season: black *Argynnis Euphrosyne*, with a few red blotches; white *Polyommatus Phlæas*; *Arctia caja* having the forewings chocolate with very little white marking, and the hind blackish with a red margin, &c. But by far the most interesting and instructive varieties which have been brought before us are three extraordinary examples of *Dianthæcia conspersa* captured some years since in N. Devon, two of them being bred specimens. These were innocently announced in the February No. of Newman's Entomologist as *D. Barrettii*!! though the gentleman who communicated the note concerning them had evidently been persuaded as to their being of the last-named species against his own better judgment. These specimens approach *D. Barrettii* in colour as nearly as it is possible to conceive *conspersa* approaching it at all, and show us very clearly how utterly any mere alteration of colour has failed to give to them even the faintest resemblance to *Barrettii*: indeed

it has quite the converse effect, for the similarity of colour shows up the forms and textures of the two species in such a manner as can leave no possible doubt of their distinctness in the mind of any one who (as Mr. Gregson pithily puts it, Entom. 97) "has form and is not colour blind," and (he might have added) is not the victim of ideas. We now see that in assuming a darker shade *conspersa* does not acquire a rough coat, nor do we observe that the insect becomes broader in the wings or alters the shape of its wings, or becomes more robust, or in fact drops any of its characteristic structural peculiarities to attain those of another species. This much is instructive. The question, however, which has been in my mind for some years is this: "Is *Barrettii* a true *Dianthæcia*?" When some ten or twelve years ago a male example only of the future *D. Barrettii* was known, Mr. Doubleday considered it a *Hadena*, and my opinion, given at that time, was that it was nearer to *Polia*. Even in his description of the insect (Annual, 1864) after the female had been discovered, Mr. Doubleday indicates a doubt as to its being a thorough-going *Dianthæcia*. My impression still is that, so soon as the natural history of the species shall have been worked out, it will be found necessary to erect a genus for its reception.—*Dicranura vinula* has laid a white egg, and lovers of the monstrous will be interested to hear that *N. baja* has paired with *L. pallens*, and *C. cubicularis* ♂ with *S. ulvæ* ♀; in fact, exceedingly eccentric appear to be the habits of the present generation of insects, for *Icarus* (*Alexis* that was) has been caught making love (?) to a bit of blue paper, and *Euphrosyne* to the knob of Dr. Chapman's umbrella; and, if we are to believe all that we read, *D. Euphorbiæ* has taken to eating bedstraw and *Gortyna* potato tubers, and *H. prasinana* to "uttering a shrill and peculiar sound at quick intervals," which it con-

tinued to utter until boxed, reminding one of Dickens' story of the child who, having swallowed a necklace, was admitted to the hospital, where it made a noise like a young rattlesnake, until at last it became such a nuisance to the other patients that it had to be muffled in the watchman's great coat. Of course we have all heard of the celebrated spider that screamed so successfully as to freeze somebody's blood, and we *know* that Death's-heads *do* squeak—but *prasinana!* surely it must have been a bat.

NEW BRITISH SPECIES IN 1870.

FUMEA RETICELLA, Newman, ♀.

The female of *Fumea reticella* with its case has at length been discovered by Mr. D. T. Button near Gravesend. These females and their cases resemble those of *Fumea pulla* and *crassiorella*, but are larger, and there is no down towards the anal extremity of the female. Mr. Bond, my kind informant, tells me that the bodies of the females in his possession are now all black, but that they were probably not so when alive.

PLUSIA VERTICILLATA, Guenée.

P. verticillata, Gn. 344; *acuta*, Wlk. var.

A single apparition of this novel *Plusia* is recorded in the Entomologist's Monthly Magazine, vol. vii., p. 138, by Mr. Moore, as having been taken by Mr. H. P. Robinson of Tunbridge Wells. The moth, attracted, no doubt, by light, flew in at his drawing-room window in May last.

Mr. Robinson's insect agrees in the minutest detail with *Plusia acuta*, Wlk. (hitherto represented by a single speci-

men in the National Collection from Congo); they both present certain very slight points of difference from *verticillata*, Gn., but as these trivial differential characters seem by no means sufficient to constitute it a distinct species, it has been considered best to sink *acuta* as a variety of *verticillata*.

On first thoughts it certainly looks bad for Mr. Robinson's insect that its exact counterpart should only have occurred in Africa; but let us see.—“The *Plusiæ*,” M. Guenée remarks, “inhabit pretty nearly every part of the globe, Europe and North America appearing nevertheless to, particularly, agree with them * *.” Then, just at this part of the genus, we stumble on a number of species so intimately related to one another, that it is difficult to suppose that natural selection, climatic influence, or some other cause has not been at work to manufacture species.—To give an idea of this close alliance, first, we see how inconveniently close is *acuta*, Wlk., to *verticillata*, Gn.; then, according to Mons. Guenée, *verticillata* is “*extremely* close” to *chalcites*, Esp.; *rogationis*, Gn., is also “*very* close” to *chalcites*, and “*extremely*” so to *precationis*, Gn.—*Oo*, Cramer, is also close to *chalcites*, while *signata*, Fab., is very close to all of them: quite a little system of which *chalcites* is the fixed star round which the rest revolve; and *chalcites* at any rate is a born European, Italy, Dalmatia and the South of France being mentioned as localities for it.

Again, let us look at *Leucania extranea*.—Here is an insect which abounds in North and South America in its typical form; it occurs in Java and India in a slightly modified form, var. A. of Gn.; and in New Holland in a still more altered state, var. B of Gn.—This species is not included as European in Staudinger's catalogue, and yet nevertheless has been taken in this country on three separate

occasions. As for the injudiciousness of admitting the species to our lists as British on the authority of a single specimen a few words may be said. Firstly, its congener *P. ni*,* so recently acquired, is in the same predicament, unless indeed a *Plusia*, said to have been taken in the New Forest, and exhibited at a meeting of the Entomological Society, be another, which, I should fancy, it would be far more likely to be than *interrogationis*.—Of course other species innumerable have at first been unique, and have been looked at suspiciously. What, for instance, was thought of the first *Odontia dentalis*, which is now a sixpenny insect, and dear at the price?

ACIDALIA PEROCHRARIA, Fischer v. R.

Acidalia perochraria, F. v. R. p. 125, pl. 49, f. a—g;
Gn. ix. p. 448.

When first *Acidalia ochrata* was turned up at Southend, in Essex, it was mistaken for the *perochraria* of Fischer, and for some time stood in our collections under that name. Monsieur Guenée pointed out, however, that our Southend specimens, though resembling *perochraria* in size, the continental *ochrata* being rather larger, were evidently from the structure of the antennæ the true *ochrata*, the black pectinations of *perochraria* being entirely wanting in our insect. Guenée also indicated an important character, which seems to have escaped the observation of Fischer, that the hind tibiæ in *perochraria* are entirely destitute of spines.

Some ten years ago I received from my friend Mr. Birchall two examples of this wave as *ochrata*; these struck me as being quite distinct from the *ochrata* of our cabinets, and I

* Mr. W. R. Jeffrey writes that he has a specimen of *Plusia ni*, captured at Penzance, in May, 1869, hovering over flowers.—H. T. S.

at once forwarded them to my friend Mr. Doubleday, who, while admitting their distinctness, said that nothing could be done without a full authentic account of their capture. This I was unable to obtain. Mr. Birchall could state nothing more definite than that "he believed he bought them of Harding,"—and here the matter dropped. These specimens, however, remained separated from *ochrata* in my collection up to the time that I disposed of it, when I gave one of the examples to my friend Mr. Vaughan, at the same time telling him that it would be sure to turn up some day as a species new to us—my ground for believing this was their unmistakable British set, gilt No. 10 pins, if I rightly remember, having been used for the purpose.

Mr. Vaughan was not long in discovering authenticated specimens captured near Red Hill, Surrey, respectively on Aug. 4th, 1869, by Mr. Walter Weston, and by Mr. Sydney Webb in 1865. These Mr. Vaughan brought forward in "The Entomologist's Monthly Magazine" (vol. vii. p. 138), as the "true *ochrata*, Scop., and new to our lists."

The following translations respecting the distinguishing characters of Fischer von Röslerstamm's *perochraria* and *ochraria*, S. V., have been kindly furnished to me by Mr. Stainton, and will be read with interest.

*Fischer von Röslerstamm on ACIDALIA PEROCHRARIA and
OCHRARIA* [published in 1838].

ACIDALIA PEROCHRARIA, Fischer v. R.

Tab. 49, fig. a—g.

Freyer, Neuere Beit. I., tab. 66, fig. 3 (nicht 1 & 2),
s. 123, *ochrearia*, var.

Alis ochraceis, feminae pallidioribus, strigis tribus obscu-

rioribus, fascia maculari flavida ante marginem posticum.

Freyer has figured *perochraria* as a variety of *ochrearia*, and of this fact I have been assured by the sight of the original specimen. It is possible that earlier authors, when describing *ochrearia*, may truly have had that species, or *perochraria*, or both together, before them; hence no certain references can be given. Scopoli first gave the name *ochrata*, but it is not certain which species he intended. Borkhausen's *ochreata* and Schrank's *ochrearia* appear to be our *perochraria*. Hübner's *ochrearia*, fig. 110, is from all its characters that species, which is held at Vienna to be the *ochrearia*, S. V., where *perochraria* was formerly considered as a variety of *ochrearia*. The variety of *ochrearia* mentioned by Treitschke, and the additional observation on the female given at vol. 7, p. 214, belong to *perochraria*; but the later notice given in his supplementary 10th vol., part 2, p. 202, that there is a still smaller, paler yellow variety, belongs to a distinct and new species, the *filacearia*, Tr., which he has also taken in meadows near woods at Füssen in July; it is very similar to Hübner's *flaveolaria*, fig. 341.

Much, however, as *perochraria* resembles *ochraria*, and the latter has also considerable resemblance with *rufaria*, yet on a careful examination we find considerable differences; those most decided are furnished by the antennæ when examined through a lens of considerable power. I annex a comparative sketch of these differences.

Perochraria. Antennæ pale ochreous-yellow; in the male with strong black-brown pectinations, on which stand bristly grey hairs. The female has small brown-grey pectinations.

Ochraria. Antennæ pale ochreous-yellow; in the male the small pectinations are scarcely any darker, each

pectination bears two short hairs of the same colour, each of these hairs is finely pubescent at the side. The female is almost without pectinations.

Rufaria. Antennæ whitish-yellow, consisting of conical joints, which are at their ends clothed around with little hairs, and are only perceptible in the male when highly magnified; the antennæ of the female appear to be perfectly smooth.

The anterior wings of the male of *perochraria* are pointed at the apex and the hind margin is slightly rounded; those of the female are more sharply pointed and the hind margin is almost straight. The head, thorax, abdomen and all the wings are of various shades of ochreous-yellow in the male; in the female, which is always smaller, they are paler; the cilia are generally brown-grey, sometimes iron-grey and not rarely ochreous-brown. Of the three ochreous-brown transverse lines, the first is curved, the second nearly straight, more resembling a "central shade," stands exactly in the middle and in it is the black-brown central spot, which however is in most specimens wanting; the third, consisting of several small indented curves, is generally the darkest and is outwardly margined by pale ochreous spots. Near the dark hinder margin is an indistinct pale ochreous indented line, almost parallel to the third transverse line; it somewhat resembles a fascia composed of spots. Before the cilia we sometimes see small black-brown streaks, more frequently in the female.

The posterior wings only bear two transverse lines, between which stands the rarely absent black-brown central spot; in other respects they are marked as the anterior wings.

In many specimens the transverse lines on all the wings are hardly perceptible.

The underside is just as variable as the upperside; there

is the same ground colour, but it is more or less dusted with fine blackish atoms and there are two black-brown transverse lines on each wing; near the hind margin is an ochreous-yellow indented streak as on the upperside. When the black central spots are visible that of the anterior wings is on the first transverse line, that of the posterior wings immediately behind the first transverse line. The cilia beneath, except in some few specimens, are grey-brown or iron-grey, and before them one sometimes perceives a black-grey line or short streaks of that colour.

Perochraria I have received from many localities; it is very common in Bohemia, Austria, Saxony, Prussia, Silesia, Mecklenburg, and I believe also in Hungary, Carinthia and Styria; it seems to be scarce at Augsburg. In Bohemia and near Vienna I found it, at the end of May, throughout June up to the beginning of July, in meadows and the borders of woods. According to Goldegg's careful journals and the assertions of other entomologists it has also been taken in August and September on the higher mountains near Vienna. In Mecklenburg and near Glogau and Frankfurt on the Oder it is only found at the end of July and in August. A second brood, however, has not been observed.

ACIDALIA OCHRARIA, S. V.

Tab. 50, fig. 1 a—c.

Treitschke, 6 Bd. 2 Abth. S. 6 (ohne die var.) & 10 Bd. 2 Abth. S. 322; *ochrearia*, Hübner, Geom. Fig. 110. Freyer, Neuere Beit. 1 Bd. S. 123, Tab. 66, figs. 1, 2, (nicht Fig. 3 var.).

Alis dilute ochraceis, feminæ paulo obscurioribus, strigis

tribus fuscis, fascia maculari diluta ante marginem posticum.

Whilst referring to what I have already said of this species under *perochraria*, I will try, on account of the great resemblance between the two species, to make the differences between them even more distinct. I have already mentioned the very different antennæ of *perochraria* as the most striking point of difference between the two species; but there are yet several differences, as will be seen from the following description.

Ochraria is rather larger than *perochraria*; the apex of the anterior wings is sharply pointed, and the hind margin in the male very slightly rounded; in the female it is straighter, whence the apex is more pointed. Head, thorax and all the wings are pale ochreous-yellow, sometimes with fine brown atoms; the abdomen is rather paler. The female is usually darker; but sometimes we find females as pale as an average male and sometimes we find males as dark as an average female. The anterior wings have, as in *perochraria*, three generally dark brown (more rarely rather paler), distinct transverse lines; of these the first is curved, the second in the middle, like a "central shade," is almost straight, and the third and darkest is finely toothed and slightly curved. Between the first and second lines (thus not on the second line as in *perochraria*) is a very faint ochreous-brown short streak, often altogether wanting. The third line is externally bordered with paler, and parallel to it, near the dark hind margin, is a very pale indented line or rather a fascia of spots. The cilia are hardly any darker than the disk of the wings; before them there is generally a fine dark-brown line, and not rarely in the cilia themselves, at the end of each nervure, is a small blackish spot.

The posterior wings have, as in *perochraria*, two transverse lines, but the distinct dark brown central spot is placed before the first transverse line (not behind it, as in *perochraria*); the second and darkest transverse line consists of several small curves; its bordering and the hind margin are as those of the anterior wings.

Beneath all the wings have the colouring of the upper side, but generally much suffused with black-brown atoms, especially the anterior wings. They have, as in *perochraria*, two black-brown transverse lines, and near the hind margin is the pale indented line or fascia of spots more distinct than on the upper side. On each wing, before the first transverse line, is a black-brown spot, but not unfrequently this is wanting on the anterior wings, or even on all. The cilia are rather darker than above, with the tips paler.

Ochraria, of which the females are more rarely taken, flies in July and to the end of August in dry meadows and on the borders of woods near Vienna, in Hungary, Carinthia, near Augsburg, Glogau, Frankfort-on-the-Oder. It is curious that *ochraria* has not yet been found in Bohemia, Saxony and Mecklenburg, and there *perochraria* alone occurs, whilst at Laybach, Frankfort-on-the-Oder and Glogau, where *rufaria* however is wanting, both *perochraria* and *ochraria* occur, the latter being rather the scarcer, and near Vienna all the three species occur in equal plenty.

HERR FRIEDRICH SCHLAEGER in the BERICHT DES LEPIDOPTEROLOGISCHEN TAUSCHVEREINES, 1846, p. 171, writes thus:—

“Fischer von Röslerstamm has already called our attention to the fact that under the name of *Acidalia ochrearia* two different species have been confounded. The larger

species he pronounces to be the *ochrearia* of Hübner—the smaller species he named *perochraria*.

“For many years in our ‘Tauschverein’ both species have been offered; but under both names it was always only the smaller species, *perochraria*, which was sent, and never *ochraria*. Also in the Silesian ‘Tauschverein,’ where I tried to obtain *ochraria*, I had not better success. Hence it appears very clearly that most of the members of our ‘Tauschverein’ are ignorant of the distinctions between the two species.”

I quote this to show how easily the two species are confused even by collectors of some standing, for many young entomologists have a habit of referring to the specimens in the National Collection as if they were necessarily all correctly named. Now, in a genus like *Acidalia* or like *Eupithecia*, unless the entire series of specimens have been thoroughly overhauled by a competent *Acidaliologist* or *Eupitheciologist* it would be very unsafe to place any confidence in them.

ACIDALIA STRIGARIA, Hübner (Fig. 1).

Just in good time for this Annual paper, my kind friend Mr. Bond brought me for inspection a couple (♂ and ♀) of examples of an *Acidalia*, which we at once compared with *A. strigaria* in my collection, received some years since from Dr. Staudinger, and found to agree perfectly with that species. These interesting specimens were captured this season, near Gravesend, by Mr. D. T. Button.

As *strigaria* will have to come in our lists next before *sylvestraria*, Hb. (? Linné's *immutata*), the only British species to which it bears the remotest affinity, though even from that it is distinct indeed, a short sketch of its chief

characters, comparing it here and there with *sylvestraria*, may serve to impress it on the memory of the reader, though doubtless the figure given at the commencement of this volume will, should our artist be in his usual happy mood, do more to give an idea of it, than words can possibly convey.

The fore wings are pointed, very much so in the female; the hind wings are distinctly angulated at about the middle of the hind margin; the ground-colour of the fore wings is a faint brownish-grey, with a dash of olive, and dusted all over with innumerable black atoms, especially along the costal nervure; cilia of the same colour, but without the black atoms. All four wings, too, are bordered with a remarkably fine continuous black line at the insertion of the cilia (the corresponding border in *sylvestraria* is dotted); the lines, which are brownish, and four in number, are much less wavy and irregular than those of *sylvestraria*; they are also more conspicuous, straighter, and more obliquely placed. On the disc of the hind wing in the male is a small black dot, but none on the fore wing (as in *sylvestraria*), and the female is destitute of even this adornment—has no discal dots at all in point of fact.

The larva has been figured by Hübner.

PEMPELIA OBDUCTELLA, Fischer von Röslerstamm.

In the "Entomologist's Monthly Magazine," vol. vii. p. 85, Mr. Meek records the capture of several examples of this handsome *Pempelia* by Mr. Button near Gravesend. It is one of those conspicuous insects that was almost certain to occur here if only searched for with a moderate amount of intelligence—the larva occurring on *Origanum vulgare* and *Mentha arvensis* in May and June. The perfect insect appears in July and August; it is allied to the group of

Ornatella, but may be readily recognized by the dark, chestnut-brown anterior wings, which are only paler along the costa and on the inner margin, and by the second transverse line, which ceases far below the costa and is broadly interrupted near the inner margin.

TRACHONITIS (?) PRYERELLA, H. Vaughan (Fig. 3).

This fine *Phycis*, of which three specimens only are at present known to science, all of them females, and all, I believe, captured in the metropolis, has recently been described by Mr. Howard Vaughan in the "Entomologist's Monthly Magazine," vol. vii. p. 130. *Pryerella* does not appear to be at all nearly related to any British species. It should come nearest to the genus *Phycis* in our cabinets, but is of altogether a different build, having a comparatively broad thorax and robust abdomen. Mr. Vaughan, considering that it most resembles *Trachonitis* in its generic characters, has provisionally placed it in that genus. As our artist will give a figure of the species, it is not necessary here to make a repetition of the already published description.

In February, 1864, a specimen of this insect was submitted to Mr. Stainton for identification by its captor (Mr. Eedle), who took it in his garden near Hackney the previous September. Mr. Stainton was unable to recognize the insect, or to identify it with any described species, and Mr. Eedle most liberally added it to that author's collection. In October, 1864, Mr. Eedle again took this insect; but Mr. Stainton, knowing the difficulties of the "Knot-horn" group, did not venture to describe the species, without seeing a more extensive series, and so the matter has remained to the present day.

HOMÆOSOMA SENECTIONIS, H. Vaughan (Fig. 2).

To Mr. Howard Vaughan we are indebted for this interesting addition to our *Phycidæ*. He discovered it, together with its larva, in Essex, and seeing its distinctness from any other described *Homæosoma*, has named it as above in the "Entomologist's Monthly Magazine," vol. vii. p. 131. The species would seem to be double-brooded, since the perfect insect appears in May and July, and the larva, of which a description has been published from the pen of Mr. Buckler, in June.

Senecionis has the cut of *nebulella*, but is hardly so long in the wing as that species; it is also a smaller insect, though Mr. Vaughan has shown me two diminutive specimens of *nebulella* received from Mr. Barrett, which are certainly even less—still these are exceptional. Then again a blackish-grey costal dash at the outer third, and another starting obliquely from near the apex, which we notice in *nebulella*, are wanting in *senecionis*.

At first sight *senecionis* bears considerable resemblance to *binævella*, but though a smaller insect, it is comparatively longer in the wings, and the dotted markings are not generally so well expressed as in *binævella*. But the great character of which, no doubt, our artist will give a good account, is the straight oblique subterminal dotted line which runs nearly parallel with the apical margin. This character alone would separate it from *binævella* or any other *Homæosoma*.

The larva mines in the stems of ragwort, pushing out little heaps of frass, which are agglomerated together by webs.

Dr. Staudinger informs us that, when in Spain, he bred *Homæosoma nebulella* freely from *Senecio Jacobæa*.

HOMŒOSOMA SAXICOLA, H. Vaughan.

This species is very closely allied to *H. nimbella*, with continental specimens of which I have had an opportunity of comparing it, and doubtless stands in many of our collections under that name. It is, however, a rather longer, narrower-winged insect than *nimbella*. Its costal white dash is much more conspicuous, and the two longitudinal white lines, which are plainly seen in *saxicola*, are but feebly expressed in *nimbella*. The dots at the inner third of the wing are placed obliquely in *nimbella*, whereas, so far as my observation goes, in *saxicola* they are generally placed one over the other, or, if there is any obliquity at all, it is in the direction opposite to those of *nimbella*. Then the female of *saxicola* is narrower-winged, and the costa is a trifle straighter. The true *nimbella* appears to be intermediate between *saxicola* and the *reductella* of Mann.

For this addition also we are indebted to Mr. Vaughan, who, in 1867, reared specimens from larvæ found feeding in the flower-heads of a species of chamomile in the Isle of Man in September, 1866.

From what he recollects, Mr. Vaughan believes the larva was obese and greenish, with darker blotches in the back.

PERONEA PROTEANA, Herrich-Schäffer.

This is a species which there seem to be fair grounds for considering distinct from *potentillana*, Cooke, seeing that the former has been bred in abundance from larvæ found feeding on *Comarum palustre* by the Hon. Thomas de Grey, while the latter, according to Mr. B. Cooke, feeds exclusively on *Fragaria*. Whether it be distinct from *Comariana*, Zeller, is another matter which has not yet been

decided in this country. We certainly have an inconvenient number of very closely allied species just at this point—*schalleriana*, *potentillana*, *comariana*, *proteana*, *comparana*—and Mr. de Grey believes still another species, intermediate between *proteana* and *schalleriana*, larger than the former, and having the appearance of being more thickly scaled and less glossy than the latter.

ARGYROLEPIA LURIDANA, Gregson.

In Newman's Entomologist for May, at page 80, Mr. Gregson thus describes a *Tortrix* which he considers to be an *Argyrolepia* new to science:—"Expands about three-eighths of an inch. Antennæ short. Palpi, face, head and thorax whitish straw-colour. Upper wings silvery straw-colour; near the base a faint ochreous indistinct striga, then a well-defined broad central band reddish-ochreous, cut inwardly in the centre of the outer edge by a light triangular notch, which forms the base of a square in the band from costa to notch; below the cut is a rather darker dot on the outer edge of the central band, then a slight suffused mark below the disk, and a large shapeless patch near the tip of the wing, darkest upon the costal edge; point of wing light; cilia suffused. Under wings silvery-grey. Several specimens first taken by Mr. Hodgkinson, early in May, at Witherslack, Westmoreland, and again, when we (J. B. H. and C. S. G.) were there together, on the 18th of May, 1869."

PTEROPHORUS ARIDUS, Zeller.

In a foot note to the last Annual paper Mr. Stainton quotes from a letter of Professor Zeller to the effect that a plume moth captured by Mr. D'Orville, in Devonshire, appeared

to him identical with *Pt. aridus*. He then indicates a doubt as to whether *aridus* is really distinct from *serotinus*, a point which he leaves to the energy of British Lepidopterists to determine. At page 88 (vol. vii.) of the E. M. M., Mr. Gregson mentions having captured, in the Isle of Man, an example which he finds, on comparison with Mr. D'Orville's insect, to be identical with it, and adds that, so far as he could ascertain from the rugged nature of the locality, the food plant of *Pt. serotinus* (*Knautia arvensis*) was not growing anywhere near. Some more positive proof must of course be forthcoming before we can say positively that *aridus* and *serotinus* are or are not distinct species.

KENTISH TOWN,

November 27th, 1870.

Larvæ detected in 1870.

Name.	Date.	Food.	By whom and where described.	Remarks.
<i>Erebia Medea</i> ..	ff. June b. . .	Aira precox ..	William Buckler, E. M. M. vii. 64.	Only partially and inaccurately described before.
<i>Epialus velleda</i> ..	ff. April e. . .	Brake fern ..	William Buckler, E. M. M. vii. 84.	Mentioned before, but not described, by Mr. Steele, its discoverer.
<i>Xylina semibrunnea</i> ..	ff. July b. . .	Ash ..	E. Newman, Entom. p. 161.	Adheres tenaciously to objects.
<i>Eupithecia irriguata</i> ..	ff. May e. . .	Oak ..	C. Dietze, Stett. Ent. Zeit. 1870, p. 336.	Pupa under moss.
<i>Homœosoma senecionis</i>	ff. June ..	Ragwort ..	H. Vaughan, E. M. M. vii. p. 131.	Mines the stems, ejecting bags of frass.
<i>Homœosoma saxicola</i> .	ff. Sept. ..	Chamomile ..	H. Vaughan, E. M. M. vii. p. 131.	Feeds in the flower-heads.

LEPIDOPTERA.



NEW BRITISH TINEINA IN 1870.

BY H. T. STANTON, F.R.S.

THE novelties I have to announce are four in number. They are not, as has sometimes been the case, old and well-known continental species, but are all new to science.

With regard to three out of the four, I must admit, with regret, that I cannot give complete descriptions, but trust that, by thus publicly calling attention to their existence, I may, at no distant date, have longer series of the insects before me, and then be enabled to give the needful descriptions.

The four species in question are —

Swammerdamia nanivora.

Gelechia gracilella.

Gelechia confinis; and

Argyresthia ærariella.

SWAMMERDAMIA NANIVORA, n. sp.

From the *Swammerdamia* larva on *Betula nana* found by Dr. F. Buchanan White in Strathglass, Inverness-shire, in September, 1869 (see Ent. Ann. 1870, p. 4; E. M. M. vol. vii. p. 51), I bred a specimen, which accords with none of our existing species. Except in its much smaller size

(nearly of the size of *S. pyrella*), it has considerable resemblance with a species from Southern Russia, which I have received from Dr. Staudinger under the name of *S. ornichella*.

It is far more mottled than our ordinary birch-feeding *S. griseocapitella*, and the sub-apical white costal spot is unusually large and distinct; the dark blotch on the middle of the inner margin is also more conspicuous than usual.

My readers will not expect me to describe a new *Swammerdamia* from a single specimen, but the larva was so different from that of *S. griseocapitella*, that I apprehend there can be no difficulty in pronouncing it that of a distinct species, and I therefore append a description of the larva received on the 18th September, 1869, from Dr. F. Buchanan White, and which was unfortunately so near pupation that I had not time to get it figured.

Length 4 lines. Pale reddish-brown, with dark red-brown slender dorsal and broad subdorsal stripes; head small, black; second segment black, with a slender whitish central line; anal segment with a small black plate.

The sides are more of a whitish-green.

Makes a web on the twig of *Betula nana*, and gnaws the leaves.

I hope those who have an opportunity of collecting amongst *Betula nana* will bear this insect in mind.

GELECHIA GRACILELLA, n. sp.

Mr. C. Eales, of South Shields, has sent me three specimens of a *Gelechia* which he believes to be new, and for which he proposes the above name.

They were taken in a green lane, about a mile from South 1871.

Shields, on the 29th May, flying at dusk amongst hawthorn.

I am strongly of opinion that these specimens really do represent a *Gelechia* hitherto unknown to us; certainly I know of no species to which they can be referred.

Unfortunately, however, there is such an absence of character about them, that I am unable to seize upon any salient point whereby to define them, and the three specimens are all different.

Two of them come very close to the male of *G. acuminatella*, but the hind margin of the anterior wings is more rounded; moreover, one of these two is a female, and therefore very different from the small pointed-winged female of *G. acuminatella*.

In one specimen, the dark ochreous streaks of *Acuminatella* are not perceptible, and in this specimen the three black spots are particularly distinct, that on the fold and the second discoidal spot being very conspicuous; this specimen has the head rather pale greyish-ochreous.

GELECHIA CONFINIS, n. sp.

This is allied to *Affinis* and *Umbrosella*, but with the anterior wings narrower and *black*er than in those species; the pale opposite spots are ill-defined yellowish, and show much less tendency to form an angulated fascia than in *Affinis*. The posterior wings are also darker than in *Affinis* and *Umbrosella*.

Mr. C. G. Barrett bred several specimens, June 5th—19th, 1870, from moss received from Dr. Buchanan White, May 20th, 1870, from Perthshire, as containing larvæ of the genus *Eudorea*. I defer giving a description of the insect till I have had the opportunity of examining a more extensive

series. Dr. Buchanan White has kindly furnished me with the following history of the discovery of these larvæ:—

“A year or two ago I found a larva feeding on moss, and sent it to you thinking it was a *Gelechia* larva. You however suggested that it was a *Scoparia*. Finding more of these larvæ, I reared some, and found that they were *Scopariæ*. Next spring (1869) I met with them again; knowing that Mr. Buckler had not figured any *Scoparia* larvæ I sent some to him and kept the rest. About July he wrote saying that some small black moths, belonging he thought to the genus *Gelechia*, had appeared. A few days afterwards several appeared in my jam-pots. These I made out to be (as I thought) *Gelechia affinis*, and told Mr. Buckler so.

“Last spring I sent some larvæ feeding on moss to Mr. Barrett, as he wished to breed *Scoparia muralis*. I also sent some moss to Mr. Buckler.

“Some time in the summer Mr. Barrett wrote to me to ask if I knew what the *Gelechia* was that he had bred from the moss, as he thought it was different from *Gelechia affinis* (at any rate from the Southern form of that insect). I also bred a few specimens this summer.

“I wrote to Mr. Buckler to see if he had figured the larva, but he had not detected it amongst the moss.

“I hope to be able to send you some of these larvæ next spring.

“The locality is ‘near Perth, on old walls.’ The mosses in which the *Scoparia* larvæ feed (and therefore the *Gelechia* larvæ also) are *Hypnum cupressifolium*, *H. rutabulum*, *Tortula ruralis*, *T. intermedia*, *Grimmia pulvinata*, *Bryum capillare* and *B. cæspititium*, but I think that probably any moss growing on old walls will be equally palatable.”

ARGYRESTHIA ÆRARIELLA, n. sp.

Alis anticis nitidis, saturate æneis, capite flavido-brunneo.

Exp. al. 5 lin.

Head yellowish-brown; palpi grey, the middle of the terminal joint darker grey; antennæ fuscous.

Anterior wings rather glossy, unicolorous dark bronzy-green (almost an invisible green), with just the ghost of a small dark mark on the costa before the middle; cilia paler, inclining to grey at the anal angle.

Posterior wings grey, with paler cilia.

Mr. Sang met with several specimens of this novelty at the Brushes, near Staleybridge, the first week in June, 1870; they were all beaten from oaks; there was plenty of mountain ash near, but none were beaten from it.

NOTES ON SERICICULTURE.

—◆—

BY ALEXANDER WALLACE, M.D.

FOR the third time at this season I beg to submit some salient points connected with Sericulture to the notice of the readers of the "Entomologist's Annual." The inquiry into the feasibility of this great and lucrative industry, new to us inhabitants of Great Britain, has been stimulated during the past year, not merely at home but also in our colonies, mainly through the efforts of the Silk Supply Association.* Circulars have been addressed to all silk-producing districts and colonies possessed of suitable soil and climate, calling attention to the great advantages accruing from the development of Sericulture, and inviting experiment. Much valuable information thereby gained will be found in the pages of the "Silk Supply Journal" (issued quarterly), together with a good deal of information especially useful to emigrants and incipient Sericulturists. Experiments at home have been carried out at the South Kensington Museum by the Silk Supply Association; by Captain Mason, at Yately, near Farnborough, Hants; and by myself at Colchester. Of these the former failed, partly owing to the difficulty of obtaining the requisite supply of fresh leaves, partly from want of the necessary appliances for maintaining an equal temperature and ventilation. Enough,

* Their office is 65, Moorgate Street, London.

however, was accomplished to show that the production of good cocoons was no difficult matter. Captain Mason, who has experimented in mulberry silk culture for the last ten years, showed me his *Magnanerie* in June, full of worms, all doing remarkably well; he anticipated a successful season; but about their mid-age a severe thunderstorm, with lightning, killed off a great number; his crop was therefore light. At Colchester, though the temperatures were very low, the worms did well, and, with one exception, were easily reared; but a delicate French race (*Morichaud*), producing a very large white cocoon, all failed: the trial, however, convinced me that no practical difficulty exists to prevent the rearing of the mulberry worm in England in considerable numbers.

One or two points it is desirable to mention, in order to dispel ignorance. The ordinary silk-worm, as grown in England and purchased in Covent-garden, spins a small golden-yellow pointed cocoon; this is of no commercial value. Intending experimenters should therefore obtain good Japanese, Australian, or other sound eggs of healthy races, and of breeds producing a valuable cocoon; otherwise their labour will fail to meet its full reward. The practical test of all races is the cocoon; sample cocoons should therefore be had of the vendor, and the eggs guaranteed to produce similar cocoons. But the Japanese cards of eggs come over to Europe without sample cocoons, as their races are all well known, and the marks or brands on the back of the cards indicate their origin.

Many little arts are practised to economize labour, which are not generally known in this country. 1st. It is desirable, to save labour, that all the worms in the same tray should pass their change at the same time; to effect this, all the worms hatched out on the same day are kept together

throughout their life; they will thus all pass their moults together, if properly fed and if healthy and vigorous, and spin their cocoons at the same time. 2nd. In changing the worms it is desirable to place over them either a net or papier filets (which consists of a sheet of paper pierced by machinery with numerous holes), and to place the food above this; the worms crawl through the interstices to the fresh food; in about six hours all are away from the litter, which may then be removed and thrown away. 3rd. A mulberry-leaf cutting machine will in a few minutes cut up the leaf to any requisite fineness, and in one hour do the work of a day's cutting up by hand—these and other devices greatly economize labour, and therefore the expense of rearing the worms; the labour of getting the leaves still remains an expensive item. 4th. It is generally supposed that the common hand reel suffices to reel silk; this is a mistake, first, the threads of three, four or more cocoons must all be united, slightly twisted and passed up to the reel, where they are wound on the cross, that is, the thread, being guided by a to and fro lateral action, is wound diagonally and not straight over the preceding threads; the result is, that the thread unreels throughout from the skein on to the swift or bobbin without check, but if reeled without the cross system the threads draw up and tangle; another point of importance is that the thread should be of even thickness throughout. The producer is therefore advised, as the safest plan, to place his cocoons in the market for sale, in preference to reeling the silk himself; cocoons will always fetch their price, and, if properly dried and pressed into a bale, will travel safely long distances. The risk of deterioration by improper reeling, as well as the cost of skilled labour and of the necessary machinery, is also avoided. With regard to other countries: in Egypt, Mr. Maxwell Anketell has been appointed by the

Viceroy to superintend silk culture under the government ; in California there is now a large production of silk, and from 150*l.* to 250*l.** have been realized, it is stated on good authority, in one season from one single acre planted with mulberry trees. In our colonies, Government grants are being made in various parts of Australia and New Zealand to encourage Sericiculture, and it is not improbable that Jamaica will follow suit; at the Cape, perhaps the best fitted of any climate for the growth of the mulberry, progress is being made, and excellent silk has been sent to this country. It would be well if intending emigrants would learn a little about silk culture before leaving England; with this view, we intend shortly to open at Colchester a school of Sericiculture, where the necessary operations may be seen in full swing. Various devices have been communicated to me for the purpose of economizing labour in silk culture, which will be developed and brought out from time to time. The first of these is the mulberry-leaf cutter † already referred to, which was most successfully used by me last season. Eggs have already been sent from California and Australia to the continental markets, the precursors of a large trade. One point, as regards Australia, deserves special remark. Mr. Brady of Sydney states: " For three summers and two winters I have had silk-worms of the mulberry breed in every stage, and during the whole of that period of over 700 days I have had silk every day; moths, eggs, caterpillars of every age and cocoons contemporaneously, without

* This amount was derived mainly from the sale of eggs; which at the present high prices, viz, 15*s.* to 25*s.* per oz, produce a most lucrative return to those countries which, like Japan, California, Australia and England, &c., are free from diseases.

† This may be obtained from Messrs. Teutschel, Colchester. See Advertisement.

a single exception. In addition to this, I have been able to eliminate the disease, which is such a serious drawback in other countries." It is probable that other places, such as Jamaica, where the thermometer rarely falls below 68°, and does not exceed 90°, might produce a like result; in which case the development of silk industry will not fail to produce, alike to the colony and its parent, most beneficial results, as is evident from the following extract: "The fact of producing silk day by day was most wonderful, and was what was not done in any other part of the world; and Mr. Chadworth, M.P., at the same meeting took occasion to say, in reference to this Australian plan, that the daily production exhibited an improvement in the production of silk which would be as important a fact as ever occurred in the silk trade."* Another branch relating to silk industry may be with advantage introduced into Great Britain, viz., the reeling of silk from the cocoons. This has been hitherto confined in Europe chiefly to Italy and France, but there is no reason why it should not be allowed to benefit the women and children of Great Britain. The art is easily learnt,† and cocoons from our colonies will shortly be sent over to be reeled in Europe; there is therefore no reason why a lucrative occupation should not be given to our operatives. It is to be expected also, in this as in other industries, that English mechanics and machinists will not fail to improve the reeling machines now in use. With a view to this end being attained, it is proposed in Colchester to start some reeling machines, not only to show what can be done in

* N. S. W. Correspondence relating to cultivation of silk, presented to both Houses of Parliament by command. Sydney, 1870.

† We have the authority of Captain Mason and Mrs. Whitby for this statement. Reeling machines may be obtained from Messrs. Teutschel, Colchester. See Advertisement.

England, but also to teach the art of reeling to others inclined to diffuse this useful industry. With regard to the other wild silk-worms, little remains to be said; nothing material having been done in 1870.

1st. The *Yama-Mai* has been introduced into New Zealand, Australia and America. (I learn that out of 1,600 eggs some Frenchmen in America reared 800 cocoons last season.) In Great Britain, as before, success was most variable; some very good cocoons were sent to me from Twickenham, which produced large vigorous moths, but on the whole the season was too warm and dry. I am promised valuable information from Japan regarding these insects and their culture, but as yet it has not reached me.

2nd. *B. Pernyi*—this moth has also been introduced to America and Australia; it is more easy to rear than *B. Yama-Mai*, but does not produce so good a silk. It was easily reared last season in many parts of Great Britain.

3rd. *B. Cecropia* was not quite so vigorous as last year; it is easily reared, and a great favourite, because of the beauty of the larva and imago.

4th. *B. Polyphemus* has not yet been sent over in sufficiently large quantities to obtain a trial in Great Britain.

5th. *B. Cynthia*, introduced into Australia some years ago, is now so abundant that unless kept down by birds it would soon become a perfect pest. As yet no means of reeling the silk of these cocoons in a cheap, simple and efficient way has been made public, though several patents have been taken out for this purpose and good silk has been obtained. There are also several very promising schemes in course of development for reeling the silk of the wild worms; one especially was brought under my notice last month: should this or any other succeed, then those countries where the wild silk-worms flourish in abundance, as *B. Cynthia*

does in Australia, *B. Ricini* and the Tusseh moth in India, will derive a highly beneficial result.

In conclusion I would remark, that the more I see of Sericulture the more I am persuaded that England has a great rôle to play therein, not merely at home, in the production of healthy seed free from disease, in the development of the silk-reeling industry, in teaching her children the art of cultivating silk-worms, that they may carry with them and practise such art in distant colonial climes; lastly, in improving, by means of the skill and intelligence possessed by her sons, the different processes and machinery requisite in the various industries which must be called into play before the juice of the mulberry or other leaf is changed, through the medium of the silk-worm, into that most precious and beautiful of all fabrics—silk; but also in her colonies, where, in a climate far more salubrious than that of Europe, millions of acres of land, unequalled in natural suitability for growing silk and capable of producing, if properly developed, thousands of bales annually, await cultivation. It is simply astonishing how the inhabitants of Great Britain shut their eyes to the advantages to be derived from silk industry. Had Italy or France possessed such colonies as New Zealand, Australia or the Cape, they would long ere this have derived enormous revenues from the cultivation and export of silk to Europe. Mr. Brady, from Sydney, writes:—“Not only is there nothing to prevent silk from being raised as cheaply in Australia as in France or Italy, but there is very good reason to believe that, favoured as we are by the climate and cheap land, we may be in a position to undersell any country in Europe.”

TRINITY HOUSE, COLCHESTER,

December 12th, 1870.

NEW BRITISH LEPIDOPTERA SINCE 1853.

—◆—
 BY H. T. STAINTON, F.R.S.

FIVE years ago I gave a detailed summary of the new species noticed in the first eleven volumes of this Annual; and I now briefly enumerate the entire list of novelties in the whole series of the Annual, including the present volume.

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Remarks on the genus Gelechia as subdivided by Von Heinemann in
his "Schmetterlinge Deutschlands und der Schweiz," Zweite
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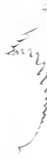












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## EXPLANATION OF PLATE.

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- Fig. 1. *Zilora ferruginea*, Paykull, see page 78.
2. *Pediacus depressus*, Herbst, see page 68.
  3. *Stelis octomaculata*, Smith, see page 94.
  4. *Crambus alpinellus*, Hübner, see page 118.
  5. *Phoxopteryx paludana*, Barrett, see page 120.
  - 5a. Anterior wing of *P. Lundana*.
  6. *Zygæna exulans*, Hochenwarth, see page 112.
  7. *Meligethes pictus*, Rye, see page 67.
  8. *Baridius scolopaceus*, Germar, see page 46 and E. A. 1871, p. 48.
- 

The Woodcut on the Wrapper represents—

An aspen leaf from near Fort Klamath, Oregon, North America, mined by the larva of a species of *Antispila* or *Aspidisca*. It was received in October from Lord Walsingham.

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## BRITISH GALL-INSECTS.



BY ALBERT MÜLLER, F.L.S.

IN return for the numerous favours and liberal contributions received at the hands of many of our best observers, scattered all over England and Scotland, it is my pleasant duty to offer here for the first time to them and to Entomologists in general a summary, however defective, of our actual knowledge of British gall-insects proper. I wish I could include Ireland too, the native isle of the late gifted Mr. Haliday, but no information or specimens have thence reached me. I hope,—may I not say we all hope?—this hint will stir up the younger naturalists of that land not to let the grass grow in the intellectual foot-prints left by their great countryman.

The following list of gall-insects proper will exclude the numerous *Acaridæ*, producing similar excrescences.\* It will further exclude the vast host of parasitic or inquilinous creatures of all sorts, which haunt galls without being directly or otherwise the prime cause of their appearance. There are animal and vegetable galls. With the former we are not concerned here; they occur mostly on or under the skin of living mammals and birds, and are caused by Dipterous (*Æstrus*) or acarideous parasites. Even man is not exempt, as Signor Moriggia has described and figured a singular horny excrescence of great length, growing from the back of the hand of a lady, and containing in its cavities

\* I hope shortly to treat of the gall-producing *Acaridæ* elsewhere. Contributions are always welcome.

great quantities of *Acarus domesticus*. (Zoological Record, vol. iv. p. 192.)

Vegetable galls are excrescences or deformities of living plants, caused by animal influence and serving for the protection and sustenance of animal brood. Their formation always takes place while the plant is still growing, but their functions do not always cease with the decay of the plant, the juices of which have helped to form them. It happens in many instances, that the ripe gall becomes detached and continues to afford shelter and food, or, at least, the needful moisture, to its inhabitant or inhabitants. This is particularly the case with galls originally formed on organs of deciduous trees or low plants of annual growth.

Very few families of plants are altogether free from these parasitic growths caused by insect-agency, but, so far as my knowledge goes, none have as yet been detected on fungi and mosses, although there is no apparent reason why these kinds of organisms should enjoy immunity.

Galls occur on all vegetable organs; none escape their deleterious presence: root, stem, branch, bud, leaf, blossom, fruit—all have to pay their tax in kind,—a tax of the most injurious sort, consisting of their own sap. The outward appearance and internal structure of vegetable galls are so diversified, that I cannot even glance at these subjects here; it would positively take dozens of pages to treat them even in the most superficial way, and piecemeal information is worse than useless. For the purpose of identification I have, however, used in some instances the terms “monothalamous” (single-celled) and “polythalamous” (many-celled). In Mr. Francis Walker’s “*Insecta Britannica—Diptera*,” vol. iii (under the heading “*Cecidomyia*”), and in the “*Entomologist’s Monthly Magazine*,” vol. v., observers will find lists of plants, known or suspected to bear galls in

this country. But experience has shown to me, that it is sometimes positively against the interests of science, to trust too much to the lines of investigation laid down by others, and I would therefore earnestly entreat all such, as have the leisure, to examine again for themselves whatever plants come under their notice, and if they should meet with any excrescence unknown to themselves, to communicate forthwith with me on the subject. I always prefer to examine well-known objects over again, than run the risk of missing a novelty. Already I possess materials for a further list of gall-bearing British plants, which is still receiving continuous additions.

The following orders of insects furnish gall-makers:—

1. HYMENOPTERA.

- a. *Cynipidæ*.
- b. *Tenthredinidæ* (saw-flies).
- c. *Chalcididæ* (*Isosoma*).

2. DIPTERA.

- a. *Cecidomyidæ* (gall-midges).
- b. *Mycetophilidæ*.
- c. *Trypetidæ*.
- d. *Agromyzidæ*. (Query? if any British gall-makers are known.)

3. COLEOPTERA.

- a. *Curculionidæ* (gall-weevils).
- b. *Sagridæ* (exotic only).
- c. *Lamiadæ*.

4. HOMOPTERA and HETEROPTERA.

- a. *Aphidæ*.
  - b. *Psyllidæ*.
  - c. *Coccidæ*.
  - d. *Tingidæ*.
- } No gall-makers known to me in  
 Britain at present, although the  
*Psyllidæ* are sure to produce some.

## 5. LEPIDOPTERA.

- |                                                                   |                                             |
|-------------------------------------------------------------------|---------------------------------------------|
| a. <i>Egeriidæ</i> .                                              | } No gall-makers known to me in<br>Britain. |
| b. <i>Tortricidæ</i> .                                            |                                             |
| c. <i>Tineidæ</i> .                                               |                                             |
| d. <i>Pterophoridæ</i> (no gall-maker known to me in<br>Britain). |                                             |

## CYNIPIDÆ.

The Rev. T. A. Marshall having lately brought together the most important features of our knowledge of this group in a series of papers in the "Entomologist's Monthly Magazine," vol. iv., it only remains for me to recapitulate the information there contained, and to offer such additions and alterations in the list and nomenclature as are in unison with my own views and those now held by continental authors. I have ventured to introduce in brackets the new generic divisions lately promulgated abroad, and, wherever needful, I have pointed out the specific names which will have to supersede many of those now familiar to us. There are yet several of Curtis' names to be referred to their continental equivalents; but, in the absence of types, his papers are the only materials to work upon, and, when at leisure, I hope to compare their contents with my British collection. As Mr. Marshall's papers are probably accessible to most of the readers of the "Annual," I refer to them for the enumeration of the scattered notes which have been published up to the time of the former's appearance.

## I. CYNIPS.

1. *C. (Dryophanta) folii*, L. (Marshall, E. M. Mag. iv. p. 6).

Note.—The breeding of flies from the apricot-sized galls on the underside of oak leaves should be continued, as it is

very likely that Britain possesses the closely allied *D. scutellaris*, Oliv., as well as *D. folii*. The former occurs abroad on *Quercus pubescens*.

2. *C. (Dryophanta) longiventris*, H. (Müller, E. M. Mag. vii. p. 108).

Bred from pea-shaped, depressed, monothalamous galls on the underside of oak-leaves. Colour dark red, traversed by yellow or greenish rings.

3. *C. (Dryophanta) agama*, H. (Müller, Proc. Ent. Soc. Lond. 1870, xxxiv., gall).

Bred from globular brown galls on the underside of oak leaves; internal cavity rather large in comparison to the shell of the gall.

4. *C. (Dryophanta) divisa*, H.

Bred from pea-shaped, small, depressed galls on the underside of oak-leaves. When fresh, they have a rosy cheek, dry they are brownish-yellow. The internal cavity rather small in comparison to the size of the gall.

5. *C. (Aphilothrix) gemmæ*, L. (*fecundatrix*, H., Marshall, E. M. Mag. iv. p. 8).

The maker of the well-known artichoke gall. Mr. Marshall has adopted Hartig's later name, in consequence of Linné's insect being probably (?) a *Synergus*. There is, however, no need for doing so, as this probability cannot be proved now. Linné's description of the gall is quite unmistakeable, and his diagnosis of the insect is no better and no worse than those of many other of his species, the names of which are strictly upheld in connection with their productions. The term "*gemmæ*" conveys a very appropriate meaning, and points at once to the "*Habitat in Quercu, ubi gemma in gallam imbricatam inæqualem terminalem transit,*

quæ insectum fovet," while Hartig's name of "*fecundatrix*," besides being of later creation, does positive mischief by inculcating a serious biological blunder, inasmuch as the insect, far from acting as "*fecundatrix*" to the bud, positively destroys the vitality of the incipient acorn by turning it into a larval and pupal cell. (See Gardener's Chronicle, 1871, No. 36, p. 1162.) The specific name "*gemmæ*" belongs to the originator of the gall, and following Schenck, Mayr, v. Schlechtendal and others, I believe I act for the best in retaining it for the same. Bred.

6. *C. (Aphilothrix) radialis*, Fab. (Marshall, E. M. Mag. iv. p. 7). Bred.

7. *C. (Aphilothrix) corticalis*, H. = *Sieboldi*, H. (Müller, Gardener's Chronicle, 1870, No. 40, p. 1312, fig. 239, gall).

Bred from barnacle-shaped or crater-like monothalamous galls on the slender branches of the oak. I hope to give shortly in the "Entomologist's Monthly Magazine" the synonymy and natural history of this fine addition to the British list.

8. *C. lignicola*, H. (Marshall, E. M. Mag. iv. p. 7; Müller, Proc. Ent. S. Lond. 1869, 25, Scent.).

Mr. Marshall has sunk *C. Kollari*, Giraud, as a synonym of *lignicola*, H. This may be correct, so far as our actual knowledge goes, but I would invite observers to continue to give their attention to the breeding of the *Cynipidæ* from these "marble-galls," as it strikes me that we have hitherto mixed up two or even three species under the name of *C. lignicola*. The galls are now so common that many may be inclined to pass them over altogether, while our knowledge of their makers is by no means satisfactory.

Note.—Do not reject small specimens for breeding pur-

poses. Read an interesting note on the naturalization of this species by Dr. R. C. R. Jordan, E. M. Mag. viii. p. 51.

## II. BIORHIZA.

9. *aptera*, Fab. (Marshall, E. M. Mag. iv. p. 172; Smith, Proc. Ent. Soc. Lond. 1869, 25 (gall above ground); Müller, Zoologist, 1870, p. 2028, Scent.).

10. *renum*, H. Gir. (Müller, Proc. Ent. Soc. Lond. 1870, 34, gall).

Bred from distinctly reniform, flattened, small pale-green galls, seated in numbers on the underside of oak-leaves. The galls are full grown by the end of October, when they drop to the ground. Monothalamous; diameter seldom more than two millim.; if not stung by inquilines, they swell up during the winter, and assume a more or less regular egg-shape; insect appears in early summer. Shirley.

## III. NEUROTERUS.

11. *numismatis*, Oliv. = *C. Quercus-tiaræ*, Curtis (Gardener's Chronicle, 1843, p. 52; *N. Reaumuri*, H., Marshall, E. M. Mag. iv. p. 147).

Bred from the silky button-galls on underside of oak-leaves. Exceedingly numerous this autumn. Shirley.

12. *lenticularis*, Oliv. (*Malpighii*, H., Marshall, E. M. Mag. iv. p. 124).

Bred from the common oak spangle, with depressed outer margin, covered with rusty-brown pubescence.

13. *fumipennis*, H. (Marshall, E. M. Mag. iv. p. 125).

Bred from smooth, greenish, then purplish, cup-shaped spangles, with depressed centre and raised margins.

In the E. M. Mag. iv. p. 147, we read that Mr. Parfitt and Mr. Kidd have both bred *N. fumipennis* from hairy

pea-galls on the underside of oak-leaves.—May I ask both these gentlemen to repeat the experiment next season, as the hairy pea-gall they describe belongs, according to all appearances, to *Spathogaster tricolor*, H. In repeating the experiment, care should be taken to remove all spangles from the leaves and to let only the hairy pea-galls remain.

14. *ostreus*, H. (Müller, E. M. Mag. vii. p. 209). Bred.

#### IV. ANDRICUS.

15. *curvator*, H. (Müller, E. M. Mag. vii. p. 39). Bred.

16. *inflator*, H. (Müller, E. M. Mag. vii. p. 157). Bred.

17. *noduli*, H. (Marshall, E. M. Mag. iv. p. 102). Bred.

18. *ramuli*, L. (*C. ramuli*, Marshall, E. M. Mag. iv. p. 8).  
Bred.

#### V. TERAS.

19. *terminalis*, Fab. (Marshall, E. M. Mag. iv. p. 148).

The maker of the common oak-apple. Bred.

#### VI. SPATHEGASTER.

20. *baccarum*, L. (Marshall, E. M. Mag. iv.) Bred.

21. *tricolor*, H. (Marshall, E. M. Mag. iv. p. 226 et *galla*,  
ib. iv. p. 147, sub *N. fumipennis*).

Bred from white pea-galls covered with sparse, roseate hairs on the underside of oak-leaves.

#### VII. DIASTROPHUS.

22. *Rubi*, H. (Marshall, E. M. Mag. iv. p. 223).

On *Rubus cæsius*, and also in the galled tops of *Pteris aquilina* (?). Read my note in Proc. Ent. Soc. Lond. 1 May, 1871. I shall be glad if observers will keep a sharp look out for unexpanded fronds of the common brake to see if they can confirm the above observation, as my specimen



was in a bleached and withered state when I received it from Mr. Rothney.

## VIII. RHODITES.

23. *Rosæ*, L. (Marshall, E. M. Mag. iv. p. 173).

The maker of the common bedeguar. I have described curious specimens of the latter in the "Zoologist," 1868, p. 1206, and 1870, p. 2303.

24. *Eglandericæ*, H.

Bred from smooth globular, monothalamous green galls, tinged with red, on the underside of the leaves of *Rosa canina*.

25. *Rosarum*, Gir.

Bred from a monothalamous green gall with long isolated hard spikes, which was found at Bromley, in Kent, on a white cluster-rose on the 26th June, 1870. I have since found the same gall on *R. canina* in the neighbourhood of Elmers End. Dr. Gray has long ago described this gall from British specimens found near West Wickham, also on *Rosa canina*. Trans. Ent. Soc. Lond. ser. 2, 1858, vol. iv., Proc. p. 94.

26. *spinosissimæ* (Gir. Taschenberg, nec Inchbald).

Bred from polythalamous, fiery red galls of irregular size and shape on *Rosa spinosissima*. The galls are berry-, egg- or cushion-shaped, and frequently beset or bordered with short spines. I have seen the galls and their makers from Cumberland (Armistead) and Southsea (Moncreaff).

## IX. TRIGONASPIS.

27. *megaptera*, Pz. H. (Marshall, E. M. Mag. iv. p. 272).

I have never met with this insect or its gall.

## X. AULAX.

28. *Sabaudi*, H. (Marshall, E. M. Mag. iv. p. 273). Bred.

29. *Brandtii*, Ratz. (Marshall, E. M. Mag. iv. p. 274).

I do not know this species from autopsy.

30. *glechomatis*, H. (Marshall, E. M. Mag. iv. p. 274).

31. *brevicornis*, Curtis, (Marshall, E. M. Mag. iv. p. 275).

Also unknown to me. *Potentilla* should be examined for this or an allied species.

32. *Rhœadis*, Kt.

Bred from inflated capsules of *Papaver rhœas et dubium*, containing numerous egg-shaped larval cells imbedded in the pith.

## TENTHREDINIDÆ.

My collection contains specimens collected in localities as far distant as Devonshire and the Shetlands and from many a county between; but it is useless to enumerate my materials, owing to the chaotic state of my knowledge of the indigenous forms. Long series of both insects and their galls from different parts and from different willows can alone mend matters; but how can they mend so long as our Entomologists do not take to the breeding of the saw-flies as easily as to that of the favourite *Lepidoptera*? The few species enumerated below do, therefore, only just help to show, how much there remains to be done; they are the only ones as yet cleared up out of a number of some thirty unnamed species!

33. *Nematus Saliceti*, Fallén, Dahlbom (Müller, E. M. Mag. vi. p. 29, economy) = *Vallisneri*, Hart. = *gallicola*, Westw. Steph.

Produces the rows of red, bean-shaped, spongy galls on *Salix fragilis*. The galls widely protrude on both sides of the leaf. In the above paper of mine I have called this species by its older name "*Saliceti*;" it is, however, better known as "*Vallisneri*" of Hartig, under which name an observation of mine on its oviposition under difficulties has since appeared in the E. M. Mag. viii. p. 109. It bears a whole string of names besides, which need not be discussed here. Bred.

34. *Nematus pedunculi*, Hartig (Müller, E. M. Mag. vi. p. 184, economy).

Produces the globular hairy pea-galls on the underside of the leaves of *Salix cinerea*. Bred.

35. *Cryptocampus medullarius*, Hartig (Degeer, ii. 2, 271; No. 24, tab. 39, fig. 1—11).

Sawflies, which I refer to this species, have been bred by Mr. Frederic Moore, from medullary swellings on the young twigs of stunted willows, occurring near the sea-shore at Scarborough.

36. *Cryptocampus angustus*, Hartig (Inchbald, E. M. Mag. i. p. 47, economy).

### CHALCIDIDÆ.

If we are badly off in the *Tenthredinidæ*, our knowledge of the gall-producing *Chalcididæ* is worse still. The economy of the genus *Isosoma* is very little known to me, notwithstanding the praiseworthy efforts of Mr. Moncreaff and Mr. J. W. H. Traill to supply me with materials. I therefore ask for help; our grass- and stem-feeding *Chalcididæ* should be better worked; we are sadly behind the work done by Walsh, in the United States, and Giraud, in Austria. I do not mean as regards the perfect states, because Mr. F. Walker is among us, but as regards their metamorphoses.

## CECIDOMYIDÆ.

Mr. Hardy has published in the *Scottish Gardener*, 1854, vol. iii. numerous observations on Gall-midges.\* Two years later, Mr. Francis Walker's "*Insecta Britannica—Diptera*," vol. iii. appeared, giving a list of Mr. Hardy's species, as well as an extensive enumeration of other Gall-midges, inhabiting or supposed to inhabit Britain. A compilation of this sort is very valuable as a guide of what to search for; but for faunistic purposes, it is without value, inasmuch as the author himself candidly declares, that "only a few of the British species have as yet been observed, and it is difficult to identify them with most of the published descriptions, and I am not able to refer to collections for specimens of them" (*loc. cit.* p. 73). Under these circumstances, the most prudent course to take seems to give only such species as have come under my own observation or that of friends, and to wait with the rest until they occur to other observers or myself. Most of Mr. Hardy's species also I shall leave out until I am able to compare his papers with the works of foreign Entomologists. In the perusal of the following list, it should be well borne in mind, that only gall-producing midges are mentioned, to the exclusion of such as live parasitically, or as inquilines in or under galls.

Schiner's arrangement, as given in his "*Diptera Austriaca*," is followed here. References are only quoted to the British literature, so far as it is accessible to me.

## CECIDOMYIA.

37. *rosaria*, Loew (*Hardy, Ann. of Nat. Hist.* vi. pp. 182 *et seq.* = *C. cinerarum*).

On several *Salices*.—"Rose-willow."

\* I have not been able to procure this volume, and should feel obliged to any friend in the North, who could get it for me at a fair price.

38. *taxi*, Inehbald, E. W. *Intelligencer*, 1861, 76 (Müller, E. M. Mag. vi. 61).  
On *Taxus baccata*.
39. *salicis*, Schranck (Müller, E. M. Mag. vi. 110 = *C. gallarum-salicis*, Hardy, *ut supra*, vi. 182).  
On *Salix cinerea*.
40. *persicariæ*, L. (Müller, *Zoologist*, S. S. 1869, p. 1705—1707, life-history).  
On *Polygonum persicaria* and *amphibium*.
41. *salicina*, Schranck (Müller, E. M. Mag. vi. 109).  
On *Salix alba*.
42. *terminalis*, Loew (Müller, E. M. Mag. vii. 89).  
On *Salix fragilis*.
43. *sisymbrii*, Schranck.  
On *Barbarea vulgaris* and *Nasturtium sylvestre*.
44. *brassicæ*, Winnertz.  
On *Brassica oleracea*.
45. *cratægi*, Winnertz.  
On *Cratægus coccinea* and *oxyacantha*.
46. *marginemtorquens*, Bremi (Müller, E. M. Mag. vi. p. 110).  
On *Salix viminalis*.
47. *veronicæ*, Bremi (Müller, E. M. Mag. vii. p. 39 = *Cec. chamædrys*, Inehbald, E. W. *Intelligencer*, 1860, vol. 8. p. 196).  
On *Veronica chamædrys*.
48. *galii*, Winnertz.  
On *Galium mollugo*.

49. *pyri*, Bouché (Müller, Gardener's Chronicle, 1870, No. 32, p. 1054, life-history).  
On *Pyrus communis*.
50. *bursaria*, Bremi.  
On *Glechoma hederacea*.
51. *urticæ*, Perris (Müller, E. M. Mag. vi. p. 137).  
On *Urtica dioica*.
52. *ulmaricæ*, Bremi (Kidd, E. M. Mag. iv. p. 233).  
On *Spiræa ulmaria*. In the middle of October last, Mr. R. G. Keeley, of Croydon, sent to me an exquisite little gall on *Spiræa filipendula*, found in his garden on a plant brought from the Croydon downs last spring. This gall has the same structure as the one on *ulmaria*, but the fly will have to be bred before it can be referred to *C. ulmaricæ*.
53. *millefolii*, Loew (Müller, E. M. Mag. vii. p. 39 = *C. achilleæ*, Incbald, E. W. Intelligencer, 1860, vol. viii. p. 195).  
On *Achillea millefolium*.
54. *galeobdolonis*, Winnertz.  
On *Galeobdolon luteum*.

## DIPLOSI.

55. *linariæ*, Winnertz.  
On *Linaria vulgaris*.
56. *loti*, Deg.  
On *Lotus corniculatus*.
57. *botularia*, Winnertz (Müller, Gardener's Chronicle, 1870, No. 53, p. 1731, life-history). Reprinted Entomologist, v. p. 248.  
On *Fraxinus excelsior*.

58. *helianthemi*, Hardy (Ann. of Nat. Hist. vi. p. 182).

On *Helianthemum vulgare*.

I have not seen this insect nor its production, but admit it here on Mr. Hardy's authority. Can any one oblige me by procuring specimens?

#### ASPHONDYLIA, Loew.

59. *sarothamni*, Loew.

On *Sarothamnus scoparius*.

60. *genistæ*, Loew.

On *Genista germanica*.

#### HORMOMYIA, Loew.

61. *fagi*, H.

On *Fagus sylvatica*. Smooth conical gall.

62. *juniperina*, L.

On *Juniperus communis*.

63. *capreæ*, Winnertz.

On *Salix caprea* et *aurita*.

64. *piligera*, Loew.

On *Fagus sylvatica*. Hairy tubular gall.

65. *floricola*, Winnertz (Müller, E. M. Mag. vii. p. 40).

Economy, see Inehbald, E. W. Intelligencer, 1860, p. 164.

On *Achillea ptarmica*.

66. *corni*, Gir.

On *Cornus sanguinea*. The merit of having first bred this species in England is due to that excellent observer, Mr. Henry Moncreaff, of Southsea. The gall consists of a truncated cone, thrust half-through the leaf, with an opening at the thinner end.

## LASIOPTERA, Meigen.

67. *rubi*, Schranck.

On *Rubus cæsius*.

I may here notice two more species of *Cecidomyidæ*, which I have bred from their galls, but which I cannot refer to any described species. I therefore have called them provisionally—

68. *C. campanulæ* (nov. spec.).

From axillary galls and the inflated seed-vessels of *Campanula rotundifolia*, sent to me by Mr. J. W. H. Traill, of Old Aberdeen. (See Proc. Ent. Soc. Lond. 1871, p. 8.)

69. *C. Pteridis* (nov. spec.).

From small rolls on the underside of the fronds of *Pteris aquilina*. (See Ent. M. Mag. viii. p. 99).

When I can get fresh materials, I hope to furnish accurate descriptions of these flies, and to refer them to their proper subgenera.

I consider the preceding list as a mere sample of what Britain really harbours in gall-producing midges. But this sample is all I can at present give for certain. Extensive materials for the life-histories of the species enumerated are in my hands, and so is more or less complete evidence of the existence in Britain of at least double the number here given, but I wish to breed the flies first before admitting them to the list.

## MYCETOPHILIDÆ.

## SCIARA.

70. *tilicola*, Loew, (*C. Tiliæ?* Walker, Dipt. Brit. iii. p. 130).

It produces oblong or rounded red and green, polythalamous galls on the young shoots and on the leaves of the



lime-tree. The lemon-coloured larva has the power of leaping.

### TRYPETIDÆ.

This is another family, of which, in this country, very few metamorphoses have been published, and I am unable to indicate as gall-makers any other species but the very abundant:

71. *Urophora cardui*, L. (Westwood, Gardener's Chronicle, 1847, No. 50, p. 815, fig.).

It produces the oblong or globular polythalamous excrescences of the stem of *Cirsium arvense*, which have the superficial look of a green, unripe gooseberry.

And secondly—

72. *Carphotracha guttularis*, Meigen.

Bred by F. J. Graham, from galls on the roots of *Achillea millefolium* (Curtis, Trans. Ent. Soc. Lond. 2nd ser. vol. iii. p. 46). I have never met with this species nor its gall.

Field naturalists should turn their attention to the many *Trypetidæ*, which disfigure the seed-heads of plants, and convert some of them into true galls.

### CURCULIONIDÆ.

73. *Mecinus collaris*, Germ. (Moncreaff, E. M. Mag. vii. p. 81).

On *Plantago maritima*.

74. *Mecinus pyraster*, Herbst (Moncreaff, E. M. Mag. vii. p. 81).

On *Plantago lanceolata*.

1872.

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75. *Gymnetron beccabungæ*, L.  
On *Veronica beccabunga*.
76. *Gymnetron linariæ*, Panz. (Kidd, E. M. Mag. viii.  
p. 108).  
On *Linaria vulgaris*.

77. *Gymnetron Campanulæ*, L.

I have lately bred this species from inflated seed-vessels of *Campanula rotundifolia*, inhabited by *Cec. Campanulæ* nov. spec., which Mr. J. W. H. Traill has kindly sent to me from Aberdeen.

It will be a very nice question for the Scottish Naturalist to find out, which is the first originator of these *Campanulæ* deformities,—the gall-midge or the gall-beetle, or both, or if one is simply the other's tenant!

78. *Ceuthorhynchus sulcicollis*, Gyll. (Westw. Gard. Chron. 1853, vol. v. p. 68, fig.; Curtis "Farm Insects," 1860, p. 132, fig.; Müller, E. M. Mag. vii. p. 36).  
*The common gall-beetle of the cabbage-plant.*

79. *Ceuthorhynchus contractus*, Marsham.

80. ,, *assimilis*, Paykull.

The two preceding produce galls on the roots of *Sinapis arvensis* (Kirby and Spence, Introd. 1828, i. p. 188). There must be more species of this genus which produce galls, but I cannot meet with any British notes on the subject. Other genera of *Curculionidæ* may also include gall-makers, but there is no evidence of this in my hands. The *Apionidæ* especially require investigation.

### LAMIADÆ.

81. *Saperda populnea*, L.

This Longicorn deposits its eggs into thin branches or sap-

lings of *Populus tremula*. A rounded or oblong swelling of the twig is the result, in which swelling the insect passes its metamorphosis.

### APHIDÆ.

#### 82. *Pemphigus bursarius*, L.

In the twisted and incrassated leaf-stalks of several poplars.

#### 83. *Schizoneura lanuginosa*, Hartig.

In the large galls of the size of a walnut or bigger, consisting of a modified bud or whole leaf on *Ulmus campestris* and *suberosa*.

#### 84. *Tetraneura ulmi*, L.

In pedunculated, fig-shaped, upright galls attached by their thin end to the upper side of the leaves of *Ulmus campestris* and *suberosa*.

For a summary of observations on the preceding two species the reader may consult Mr. R. M'Lachlan's paper in the Ent. M. Mag. iii. p. 157. The same volume contains, at p. 190, an interesting memorandum by Mr. M. C. Cooke on the contents of such galls. Some remarks of my own on the same subject may be found in the Zoologist, May, 1868, p. 1203.

#### 85. *Phylloxera vastatrix*, Planchon.

In knotty galls on the roots and open tubercles on the leaves of *Vitis vinifera*. The dread pest of the vineyards abroad and of the vines grown under glass in Britain. Numerous scattered notes on this species have been published by Prof. Westwood and other gentlemen in the Proc. Ent. Soc. Lond., and different issues of the Gardener's Chronicle.

86. *Adelges abietis*, L.

Produces the ananas-shaped green or pinkish large bud-gall on *Abies communis*.

87. *Adelges strobilobius*, Kalt. (Monographie der Pflanzenläuse, i. 203).

It is to this species that I would attribute the smaller yellow or brown cone-galls at the terminal shoots of the *Abies communis*; but observations are wanting on the subject. I have never met with intermediate forms.

88. *Adelges pini*?

Rennie says, in his "Insect Architecture," p. 347, 1857: One of the prettiest of these pseudo-galls with which we are acquainted, is produced on the Scotch fir (*Pinus sylvestris*) by the *Aphis pini*, which is one of the largest species of our indigenous *Aphides*. The production we allude to may be found during the summer months on the terminal shoots of this tree, in the form of a small cone, much like the fruit of the tree in miniature, but with this difference, that the fruit terminates in a point, whereas the pseudo-gall is nearly globular. Its colour also, instead of being green, is reddish; but it exhibits the tiled scales of the fruit cone. Rennie figures this gall. Can any one produce evidence that its maker is an *Aphis*? From its habits, it appears to be a true *Adelges*.

89. *Adelges laricis*, Vallot.

As regards this species, consult a summary by Professor Westwood of a paper by J. Curtis (Gardener's Chronicle, 1852, No. 37, p. 580). I have never met with this insect or its production, and am generally dissatisfied with the little knowledge I have of this group, but the present arrangement may help us to a better understanding.

## TINEIDÆ.

Mr. Stainton, with his usual kindness, has obliged me with the following memoranda:—

90. *Asychna æratella*, Zell.

Makes galls on *Polygonum aviculare*. The larva has never been found here, but the imago occurs, though rarely, with us. See Ent. Annual, 1856, pp. 57 and 125; and Intelligencer, vol. v., woodcut, p. 81, referred to at p. 82.

91. *Laverna decorella*, Steph.

Makes gall-like swellings on *Epilobium* stems. See Intelligencer, vol. ix. p. 179, and Ent. Annual, 1868, p. 152; also Mr. C. G. Barrett's paper in E. M. Mag. vol. i. p. 197.

Many of my friends and correspondents, far and near, may think that as their contributions do not appear in the foregoing pages they are forgotten. I can assure them such is not the case, for whatever faults of commission or omission there may be in this paper (and I have no doubt there are some), every item of information is registered as it reaches my hands, and will serve its turn when the time comes. I flatter myself that, with all its imperfections, the present sketch will serve as a convenient nucleus, to which every one may add his or her own contributions. If the searching gaze of our literary critics in the library, and the keen observing glances of our collectors in the field, should render its contents obsolete ere long, it will be a source of unmingled satisfaction to me, as the best proof that my attempt has borne its fruit. In the pursuit of the study of Galls and their Insects, there is ample room for the employment of every faculty, capacious or not; there is also a constant testing of some of the most interesting problems in animal and vege-

table biology ; there is besides that feeling akin to reverence, which has led a Swiss friend of mine to exclaim, "Diese wunderbaren Rundgestalten Falten tief Naturgewalten !"

EATON COTTAGE, SOUTH NORWOOD, S.E.

*November 6th, 1871.*

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P.S.—Since writing the introduction to the present paper, I have been delighted to see the beginning of a series of notes on "Scottish Galls" by Mr. J. W. H. Traill, in the "Scottish Naturalist," October, 1871, to which I shall revert on their completion.

## COLEOPTERA.

NEW BRITISH SPECIES, CORRECTIONS OF NOMENCLATURE, ETC., NOTICED SINCE THE PUBLICATION OF THE ENTOMOLOGIST'S ANNUAL, 1871.

BY E. C. RYE.

“*Vires acquirit eundo*” appears to be a safe motto, as yet, for the list of British beetles. This time, I have the pleasing task of recording 68 species new to it (as against the 37 of last year), of which 2 are certainly more than doubtful, and 3 at least of the rest will be received with more favour, if further specimens are taken. Allowing a further deduction for insects already known to us, but not accorded specific rank, &c., there is a net balance of about 60 for the year's work. These 68 species are to be attributed to exactly the same small number of observers as that mentioned in the last “Annual,”—nine only; viz., Dr. Sharp (38), myself (16), the Rev. A. Matthews (7), Mr. Bold (3), and Professor Westwood, the Rev. H. S. Gorham, and Messrs. Wollaston and E. A. Waterhouse (one each); the number 9 being made up by including Mr. G. R. Crotch, in whose privately circulated lithographed list of additions, &c., some 16 of Dr. Sharp's 38 species are included, and who must, therefore, not be forgotten. Of the 68, 14 have been described as new to science; 7 by Dr. Sharp, 5 by the Rev. A. Matthews, and one each by Mr. Bold and myself: and they comprise 8 genera absolutely new to us; *Eudectus*, *Zilora*, *Eusomus*, and *Urodon*, introduced by Dr. Sharp; *Polygraphus* and *Xylechinus* by myself; *Compsochilus* by Mr. Wollaston; and *Serropalpus* by Professor Westwood.

The following observations, likely to be of interest to British Coleopterists, and especially as regards the question of "resurrection," upon which so much energy has been expended by certain of their fellow students during the past year, have been made (amongst many others of a similar nature, but not peculiarly affecting our list) by our erudite countryman, Mr. G. R. Crotch, in von Harold's "Coleopterologische Hefte," vi, p. 95, *et seq.* The mark † is prefixed to such of them as are adopted by Dr. Sharp in his "Catalogue" hereafter noticed.

*Cnemidotus*, Illiger, was proposed by its author for the insects now referred to *Haliphus*; *H. fulvus* being his type, and *cæsus* not known to him. *Hydroporus picipes*, Fab., 1787, = *impressopunctatus*, Schall., 1783; *H. planus*, Fab., = *ater*, Forst., 1771; *H. morio*, Dej. Cat., *nec* Heer (= *melanocephalus*, Gyll., *nec* Steph.) is re-named †*atriceps*. *Trogus virens*, Müll., 1776 = *Roesellii*, Fuessly, 1775 [*Cybister*, Curtis, should be retained for the genus of this insect: there was a genus *Trogus* characterized in the *Ichneumonidae* by Panzer, in 1806, before Leach, 1817]. *Agabus abbreviatus*, Fab., = †*undulatus*, Schrank, 1776. *Helophorus æneipennis*, Thoms., = *obscurus*, Muls. *Bolitochara pulchra*, Grav., should be used for *lunulata*, Payk. (*nec* Linn.), *Leptusa apicalis*, Dej., for *analis*, Gyll. (*nec* Grav.), *Aleochara curtula*, Goeze, for *fuscipes*, Fab., *Oxytropa* †*spectabilis*, Märk., for *ruficornis*, Gyll. (*nec* Grav.), *O. cuniculina*, Er. for *umbrata*, Gyll. (*nec* Grav.), *Homalota depressa*, Gyll., for *brunnea*, Fab. (*nec* Payk.). *Myllæna gracilicornis*, Fairm., = *elongata*, Matth. *Tachinus dubius*, Gyll., should be used for *flavipes*, Fab. (*nec* Linn.); *Tachyporus nitidulus*, Fab., for the preoccupied *brunneus*, Fab.; *T. macropterus*, Steph., for *scitulus*, Er. (but Stephens's insect is *pusillus*, Grav.); *Conurus obscuripennis*,



Steph., for *lividus*, Er.; *Bolitobius apicalis*, Steph., for *exoletus*, Er.: *Quedius semiobscurus*, Er. (nec Marsh.) = *microps*, Grav.; *Q. nitipennis*, Steph., should be used for *attenuatus*, Gyll. (nec Grav.); *Q. cinctus*, Payk., for *impressus*, Panz.; *Ocypus æneocephalus*, De Geer (1774), for *cupreus*, Rossi; *O. ophthalmicus*, Scop. (1763), for *cyaneus*, Payk., *O. edentulus*, Block (1798), for *morio*, Grav.; *O. nitens*, Schr., for *similis*, Fab. (nec Payk.); *Philonthus chalceus*, Steph., for *succicola*, Thoms.; *P. cruentatus*, Gmel., for *bimustulatus*, Panz. (nec Linn.); *P. flavopterus*, Fourcr., for *fulvipes*, Fab. (nec Scop.). *Lathrobium brunipes*, Fab. (1792) = *punctatum*,\* Fourcr. (1785); *Cryptobium fracticorne*, Payk., = *glaberrimum*, Hbst. (1784); *Stilicus fragilis*, Grav., = *angustatus*, Fourcr.; *Sunius immaculatus*, Steph., should be used for *intermedius*, Er.; *Pæderus littoralis*, Grav., = *gregarius*, Scop.; *Stenus angustatus*, Steph., should be used for *buphthalmus*, Grav., not of Schrank, with whose species of that name the subsequent *Juno* of Fab. is identical; *S. oculatus*, Er., = †*similis* Hbst.; *S. speculator*, Lac., = *clavicornis*, Scop.; *Platystethus morsitans*, Payk., = †*arenarius*, Fourcr.; *Oxytelus depressus*, Gr., = †*tetracarinatus*, Block; *Lesteva macroelytron*, Fourcr. (*bicolor*, Fab.) = †*longoelitratus*, Goeze (1777). *Necrophorus mortuorum*, Fab. (1792), = *vespilloides*, Hbst. (1784); *Cis pyrrhocephalus*, Marsh., must stand for *setiger*, Mell., and *C. ruficornis*, Marsh., for *oblongus*, Mell.

Mr. Crotch has also published (Williams & Norgate) during the past year a Synopsis of all the *Coleoptera* of Europe (in the extended sense of that continent now in use among naturalists) described during the year 1868, and con-

\* If this be so, *L. punctatum*, Zetterstedt (1828), Sahlb., &c., will require renaming, and may be called *Zetterstedti*. E. C. R.

sisting of short Latin diagnoses, with occasional comparisons of allied species. It is unnecessary to point out the extreme value of such a work, especially if it be continued year by year, to the isolated student, whose means may not allow him to obtain the numerous works in which these descriptions are published.

Mr. Crotch has, moreover, with the view of alleviating the difficulties of modern synonymy, published (Cambridge, 1871) a very interesting list of all the *Geodephaga* and *Hydradephaga* described A.D. 1758—1821, referring them to their modern genera. In it, the law of priority has been strictly adhered to; and all species are re-named, whose names were inadmissible when first employed. The following extracts (some few of which have been noticed in the "Annual" for 1867) from it may specially interest British Coleopterists:—

*Blethisa multipunctata*, Linn., is referred to *Helobium*, Leach; *borealis*, Payk., being accepted as the exponent of *Blethisa*, Bonelli. *Leistus præcustus*, Fab., is used for *rufescens*, Fab. (1775), *nec* Scop. (1772). *Cychrus rostratus*, Linn., 1761, = *caraboides*, Linn., 1758. *Cymindis basalis*, Gyll., is adopted for the *vaporariorum* of our lists; *Dromius planatus*, Brahm (1790), for *agilis*, Fab. (1787), *nec* Müll. (1776). *D. 4-notatus*, Panz. (1801) = *spilotus*, Ill. (1798). *Panagæus 4-pustulatus*, Sturm, is accidentally quoted as a syn. of *crux-major*, Linn. *Loricera pilicornis*, Fab., 1775 = *cærulescens*, Linn., 1758. *Chlænius agrorum*, Ol., and the still prior *variegatus* of Fourcroy, being preoccupied, the species is named *Olivieri*; *C. holosericeus*, Fab., 1787, = *tristis*, Schall., 1783. *Licinus silphoides*, Fab. (1792), *nec* Rossi (1790), is re-named *Fabricii*; *Badister bipustulatus*, Fab. (1792), = *balteatus*, Schr. (1789); *B. humeralis*, Bon. (1813), = † *sodalis*, Duft. (1812). *Dichirotrichus pubescens*, Payk. (1798), *nec* Müll. (1776), is renamed

*Gustavii*. *Bradycellus fulvus*, Marsh. (1802), being preoccupied (Panzer, 1796), and *verbasci*, Duft., doubtful, *rufulus*, Dej., is adopted. *Ophonus nitidulus*, Steph., is adopted for *punctatulus*, Duft. (no reason appearing); *O. brevicollis*, Dej., = † *rufibarbis*, Fab.; *Harpalus honestus*, Duft., is retained instead of the *ignavus* of the same author; *H. aeneus*, Fab. (1775), being preoccupied (De G., 1774), and other prior names not available with certainty, † *Proteus*, Payk. (1790), is adopted; *H. pubescens*, Müll. (1776), is used for *ruficornis*, Fab. (1775), *nec* De G. (1774); *Acupalpus kiloniensis*, Gmel. (1788), for the preoccupied *dorsalis*, Fab., and for the proposed *Gyllenhalii*, Thoms. *Stenolophus vespertinus*, Panz. (1797), = *mixtus*, Hb. (1784). *Crenatus*, Duft., is used for *Pterostichus* (*Argutor*) *vernalis*, Panz. (*nec* Müll.); (*A.*) *longicollis*, Duft., for the preoccupied *inæqualis*, Marsh.; (*A.*) *strenuus*, Panz. (1797), = *exaratus* Naev. (1792): *P.* (*Omasus*) *melanarius*, Ill., stands; *vulgaris*, Linn., being considered non-determinable: *P.* (*Steropus*) *æthiops*, Panz. (1797), being preoccupied (Hb., 1784), is named *monticola*: *P.* (*Platysma*) *picimanus*, Duft., = *macrum* (? *macer*), Marsh. (1802); *parumpunctatus*, Germ. (1824), = *cristatus*, Duft. (1820); *P.* (*Abax*) *striola*, Fab. (1792), = *Frischii*, Bergst. (1778). *Zabrus piger*, Fourcr. (1785), = *tenebrioides*, Goeze (1777); *Amara* (*Cyrtonotus*) *spinipes*, Linn., being doubtful, *aulicus*, Panz., is employed; *A. trivialis*, Gyll. (1810), = *ænea*, De G. (1774); *eurynota*, Panz., is used for the preoccupied *acuminata*, Payk.; and *montivaga*, Sturm, for the erroneously referred *communis* of Fab.; *pratensis*, Sturm, for *ovata*, Fab. (*obsoleta*, Dej.), which is in a similar position; *Calathus fuscus*, Fab. (1792), = *ambiguus*, Payk. (1790); *crocopus*, Steph., is employed for the erroneously referred *flavipes* of Sturm, and *rotundicollis*, Dej., for *piceus*, Mar-

sham (*nec* Linn.); *Synuchus vivalis*, Ill., for the preoccupied *nivalis*, Panz.; *Anchomenus prasinus*, Thunb. (1784), = *dorsalis*, Pont. (1764); *angusticollis*, Fab. (1801), = † *juncus*, Scop. (1763); *parumpunctatus*, Fab. (1792), = *Mülleri*, Hbst. (1784); † *puellus*, Dej., is employed for *pelidnus*, Payk., 1798, *nec* Hb., 1784 (Paykull's types, 3 specimens, have been, if I remember rightly, referred to three different species, if not genera; so that, practically, his *pelidnus* is non-existent); *Olisthopus rotundicollis*, Marsh., is employed for *rotundatus*, Payk., and *Pogonus halophilus*, Nicol., for *chalceus*, Marsh., both preoccupied; *Trechus minutus*, Fab. (1792), = *4-striatus*, Schr. (1781), *minutus* being also preoccupied; *Bembidium 4-guttatum*, Fab. (1775), *nec* Pont. (1763), is renamed *antiquorum*; *B. † brunnipes*, Sturm, is used for the preoccupied *nitidulum*, Marsh.; *B. 4-pustulatum*, Dej. (*nec* Fab., 1781), *4-guttatum*, Ol. (*nec* Fab.), is renamed *Olivieri*; *Haliphus amœnus*, Ol., is used for *obliquus*, Panz. (1793), *nec* Fab. (1787); *H. lineatocollis*, Marsh. (1802), = *thoracicus*, Fourcr. (1785); *Cnemidotus cœsus*, Duft., is retained for *impressus*, Panz. (1793), *nec* Müll. (1776); *Hyphydrus ferrugineus*, Linn., is employed for the *ovatus* of the same author; *Hydroporus concinnus*, Steph., for *flavipes*, Ol. (1795), *nec* Fab. (1792); *H. granularis*, Linn. (1767), = *minimus*, Scop. (1763); *H. unistriatus*, Goeze (1778), = *parvulus*, Müll. (1776); *H. 4-lineatus*, Drap., is used for the erroneously referred *lineatus*, Fab.; *H. reticulatus*, Fab. (1792), = *versicolor*, Schall. (1783). *Noterus crassicornis*, Müll. (1776), = † *clavicornis*, De G. (1774); *N. sparsus*, Marsh. (1802), *semipunctatus*, Fab. (1792) = *capricornis*, Hbst. (1784); *Colymbetes † aberratus* Harold, is adopted for *adspersus*, Fab. (1801), *nec* Panz. (1797); *Ilybius fenestratus*, Fab. (1801), = *comma*, Müll. (1776); *I. fuliginosus*, Fab. (1792), = *foetidus*, Müll. (1776);

*I. 4-notatus*, Steph., is employed for the preoccupied *ater*, De G.; *Agabus didymus*, Ol. (1790), = *biocellatus*, Müll., 1776; *A. unguicularis*, Thoms., = *guttatus*, Ill. (1802), *nec* Payk. (1798), = *guttulus*, Schön. (1808), which stands; *A. agilis*, Fab. (1792), = *ruficollis*, Schall. (1783), *nec* De G. (1774), = *hæmorrhoidalis*, Fab. (1787), which stands; *A. bipunctatus*, Fab. (1787), = † *nebulosus*, Forst. (1771); *A. fontinalis*, Steph., = † *nitidus*, Fab.; *A. abbreviatus*, Fab. (1787), = † *undulatus*, Schr. (1776); *Dytiscus Frischii*, Bergst. (1778), is employed for the preoccupied *punctulatus*, Fab. (but *lateralimarginalis*, De G., 1774, seems eligible); *Hydaticus Hybneri*, Fab. (1787), = † *seminiger*, De G. (1774).

The following notes on synonymy affecting British species have also been published recently:—

Schaum's *Oxynoptilus* (Ins. Deutschl., i, 2, 1868) is identical with Motschoulsky's *Hydrovatus* (1853), according to Ballion, in Bull. Mosc., xlii, 219.

*Scydmaenus obscuricornis*, Motsch., = *punctipennis*, Steph. (not recognized as a species here), *S. exilis*, Schm., = *nanus*, Märk.; *S. hirticollis*, Ill., = *minutus*, Fab.; Motschoulsky, Bull. Mosc., xlii, 252.

*Gibbium scotias*, Fab., = *psylloides*, Czenpinski (1778); Gemminger, Col. Heft., vi, 110.

*Sphindus dubius*, Gyll., = *hispidus*, Payk. (*certe*); Thomson, Skand. Col., x, 43.

*Otiorhynchus septentrionis*, Hbst., = *scaber*, Linn., thus rendering a new name for *Trachyphlœus scaber*, auct., necessary, and *rostratus* is accordingly proposed for it; *Ceuthorhynchus sulcicollis*, Gyll., = *pleurostigma*, Marsham; *C. cyanipennis*, Gyll., = *sulcicollis*, Payk.; Thomson, Skand. Col., x, 174, 202.

M. Fauvel has published ("L'Abeille," vii, 136), amongst

others, the following notes on the synonymy of *Brachelytra*, affecting British species: *Homalota nitida*, var. *nitidiuscula*, Sharp, = *alpestris*, Heer, ex typ., nec Ktz., Scriba, Sharp in litt.; *H. obliquopunctata*, Wollast., = *pavens*, Er. (already pointed out in Ent. Mo. Mag. by Dr. Sharp); *H. aneicollis*, Sharp, = *Waterhousei*, Wollast. (in this, M. Fauvel is in error).

In Deyrolle's "Petites Nouvelles," 27, p. 108, M. Fauvel (as briefly noted in Ent. Ann., 1871) claims to have described *Actocharis Readingii*, Sharp (1 May, 1870) in 1869, under the name *marina*; but he does not state in what publication, or at what precise date. Having, for the purposes of the "Zoological Record" for the years 1869 and 1870, had occasion to carefully abstract all obtainable French and other Entomological literature during those years, and having failed to observe any such description or name, I have applied to M. Fauvel for more definite particulars as to his claim of priority; and that gentleman, after some interval, writes to me as follows:—"J'ai donné la description de cet *Actocharis marina* à la Société Linnéenne de Normandie, et cette description a été imprimée dans la séance de Novembre, 1869, de son Bulletin Annuel. Ce Bulletin n'a pas encore été envoyé en Angleterre, à cause des évènements de l'an passé et de cette année." Having supposed that the work mentioned would most probably be the medium employed by M. Fauvel, and knowing that the actual times of its publication are habitually much at variance with the dates borne by its several portions, I applied, during the above-mentioned interval, to M. de Marseul, as the best French authority, for information on this point; and, in September last, received his reply that the volume for 1868, bearing 1869 at the bottom of the title (which I have myself seen, and which certainly contains no description or name of *Actocharis*

*marina*), had only been sent to him, in France, on the first of the then current month, and that he was certain that the *following* volume was not then published, or even ready for publication. There seems, therefore, not the slightest doubt that Dr. Sharp's name, published beyond question in May, 1870, must have priority over M. Fauvel's, apparently contained in a volume which had not seen the light in September, 1871. It is much to be regretted, for M. Fauvel's sake, that there should be so long a delay in publishing the *Bulletins* of the Society to which he sends communications; but the events of the Franco-Prussian war, which broke out in the middle of the summer of 1870, could hardly have affected the publication of an article printed in November, 1869; and Dr. Sharp's description was in the hands of Dr. Laboulbène and other French Entomologists long before that war began. This question materially affects myself, as M. Fauvel has in a former year made a similar claim to priority for his *Calodera Bonnairi* over my *glabriventris*.

In Thomson's recently published "Opuscula Entomologica," many notes interesting to British Entomologists will be found,—as, indeed, is certain to be the case with all the writings of that author. Dr. Sharp (*Ent. Mo. Mag.*, vii, 204) has furnished a lucid analysis of the contents of the two first fasciculi of this work; and it may be not out of place if a short abstract of the 3rd and completing fasciculus be here given.

It was published in 1870, and contains the following articles. XVI, pp. 305—316: an account of the Swedish species of *Hylæus*, *Halictus*, *Colletes*, and *Rhophites* (Anthophilous *Hymenoptera*). Of these, 37 are enumerated, and the following are described as new; *Hylæus marginatus*, *H. clathratus*, and *Halictus abdominalis* (this latter evidently by accident, it being a well-known Panzerian sp.). XVII, pp. 316—321: an account of the Swedish species of

*Pediopsis*, Burm. (*Hemip. Homopt.*): 11 are enumerated, 3 (*P. brevicauda*, *P. planiscuta*, and *P. planicollis*) being treated as new. XVIII, pp. 322—340; contributions to the Swedish Insect-fauna. COLEOPTERA: differential characters for *Anchomenus uliginosus*, Er., and *A. assimilis*, Payk.; and for *Ophonus puncticollis* and *brevicollis*, with description of a new species, *O. rectangulus* (p. 323), allied to the former (which I fail to accord with a form of *puncticollis* long separated by Mr. G. R. Waterhouse and myself as probably specifically distinct. Thomson's insect seems to run *parallelus* very close, though he does not mention it). Descriptions of *Hydaticus lævipennis*, Thoms., ♀, *Hydroporus fuscipennis*, Schaum, *Gaurodytes (Agabus) neglectus*, Er., and *subtilis*, Er.; *Helophorus æneipennis*, Thoms., and another new species, *planicollis*, allied to it; *Stenus carbonarius*, Gyll., and *S. opacus*, Er. (now considered distinct by him), and a new species, *S. subglaber*, allied to *S. glabellus*, already separated by the author from the first of these; *Mycetodrepa (Oxypoda) lucens*, Muls.; *Aleochara rufipennis*, Er.; *Atheta (Homalota) Gyllenhali*, Thoms., ♂; *A. eremita*, Rye, and *Amischa (H.) cavifrons*, Sharp, recognized as Swedish; *Tachinus laticollis*, Grav., ♀; *Aphodius sulcatus*, Fab.; *Cis quadridens*, Mell.; *Monotoma 4-dentata*, and *M. parallela*, two new species, concerning which observations will be made further on; *Malachius marginellus*, Ol.; *Phaleria cadaverina*, Fab.; *Sitones brevicollis*, Schön.; *Anoplus depilis*, sp. n., allied to *plantaris* (smaller, with shorter rostrum, more strongly punctured thorax, with no medial elevated line, the interstices of the elytra not set with rows of white setæ, the scutellum longer, &c.); *Acalyptus fuscipes*, sp. n. (smaller than *A. carpini*, with narrower and less densely scaled elytra, which have more evidently punctured striæ, and darker legs); *Crypturgus hispidulus*, sp. n.; and *Claviger longicornis*,



Müll. HEMIPTERA: descriptions of *Lygæus trichopterus*, sp. n., and *Pseudophlœus Dalmanni*, Schill. xix, pp. 341—356: a general account of the external anatomy of *Coleoptera*, with two outline plates and a very copious explanatory table, which is, however, somewhat at variance with the figures. A general index to the 3 fasciculi completes the volume.

In Ent. Mo. Mag., vii, 228, I have called attention to the injustice proposed to be done by Dr. Kraatz (Berl. Ent. Zeits., 1870, 221 *et seq.*) to this author, in rejecting his specific names *puncticeps* and *pauciseta* for the insects hitherto known, by tradition solely, as *Pœcilus*, or *Pterostichus*, *cupreus* and *versicolor*, and which the acute Swede was the first to characterize and establish as distinct species;—the latter of them, indeed, having been never before allowed specific rank, but always vaguely considered as a variety of the former.

Admitting that it would have been better if Thomson had retained the Linnæan name for the larger of the two (which, however, he would not in strictness have been justified in doing, as the description would apply equally well to both), still, as he has *not* done so, it seems unjust and unreasonable to endeavour to set him aside, whilst admitting his correctness, as Dr. Kraatz does. But, if the scientific community were, from a pardonable regard for the memory of Linnæus, of unanimous opinion that Thomson's description of *puncticeps* should be taken only as a better elucidation of the Linnæan *cupreus*, which has always been recognized as a good species, though never sufficiently described, there still remains *pauciseta*, now proposed to be rejected, in favour of Sturm's *versicolor*, for which the *savans* have hitherto shown the irreverence of unanimously refusing it specific rank! If Sturm's exposition of this insect be *now* allowed to give it that rank, why was it not sufficient for that purpose before?

And how can it be proved that Linnæus's *cupreus* was not Sturm's species? Baron Chaudoir (L'Abeille, v, 220) considers that probably it *was*.

Thomson (Opusc. Ent., fasc. ii and iii) has determined and recorded *Homalota incognita*, and *H. canescens*, Sharp, from Sweden; my *Elater coccinatus* has been recorded (Ann. Soc. Ent. Fr., 4e. ser., 1871, Bull. lxiii) by M. Bedel as taken by himself and M. Grouvelle in oaks, in the forest of Fontainebleau; and, as will be seen from a subsequent notice, *Sitones ononidis*, Sharp, has also been recorded from France.

As regards British Coleopterists, certainly the most useful separate publication during the past year is Dr. Sharp's "Catalogue of British Coleoptera" (E. W. Janson, 28 Museum St.; July 1, 1871), which supplies a want for some time felt by all workers in this country, and which deserves a special analysis. Mr. Waterhouse's Catalogue having long ago fulfilled its original purpose of affording a reliable starting-point for future operations, there has been of late years nothing worthy of reference but the second edition of Mr. Crotch's Catalogue, to embody the very numerous additions now so constantly made to the list of the British Coleopterous Fauna. But the last-mentioned work is now upwards of five years old; and, owing to its want of authors' names, and to its arrangement being almost entirely at variance with that to which Entomologists in this country have been accustomed, has not been of so much general service as could have been desired.

Dr. Sharp's Catalogue, however, will be found satisfactory in both these respects (though authors' names are not supplied to the genera), and, apart from some orthographic discrepancies and other errors (corrected, as to these latter, for the most part in the work itself, and, as to the more important of

them, in Ent. Mo. Mag., viii, 84\*), leaves but little to be desired. The method of classification employed (that of families alone) has, however, the effect of suggesting a rather unequal balance in some cases (a small group like the *Phalacridæ*, for instance, becoming thereby the apparent equivalent of the *Staphylinidæ* or *Curculionidæ*), and of somewhat unduly straining some groups,—*e.g.*, the *Tenebrionidæ* being made to comprise *Cistela*.

It should also be observed that this Catalogue represents an entirely original scrutiny of our species by its author down to the end of the *Brachelytra*. The urgent need of a new list has caused the somewhat premature publication of it; or, otherwise, the whole body of the Catalogue would have been composed under similar trustworthy conditions. The remaining portion, therefore, after the *Brachelytra*, may be considered as not fairly expounding Dr. Sharp's views.

The total number of species enumerated is 3193,—a net increase of 112, in five years, upon the 3081 of Mr. Crotch's 2nd Edn.: but no accurate deduction can be drawn from these figures, as certain of the doubtful species in the latter work have been during that period cleared up, or are by Dr. Sharp purposely omitted.

From these 3193, some 40 may be deducted, as representing doubtfully indigenous species to which a place is still provisionally accorded, accidents in numbering (including that of the var. *scoticus* of *Acilius sulcatus*, numbered as a species, and not noticed in the corrections), and the *Stylopidæ*, which no one possesses, and concerning which great difference of opinion still exists. On adding to the remaining 3153, 6 species accidentally omitted (without reckoning others, pur-

\* While this notice is under the press, Dr. Sharp points out to me that *Synaptus filiformis*, Fab., still remains to be added to the list of omissa. E. C. R.

posely not counted by Dr. Sharp), and the 24 good species added since the publication of the Catalogue, we obtain the aggregate amount of 3183 *bonâ fide* British species of *Coleoptera*. And this last sum is, judging from our present rate of progression, and the number of novelties actually known to myself and others, but not yet satisfactorily determined, by no means to be taken as the limit of our Fauna.

Three genera new to British Catalogues are included in that of Dr. Sharp, viz., *Serropalpus*, *Eusomus*, and *Urodon*; but the former of these will not, in my opinion, be likely, upon the evidence adduced by its original recorder, to be received with general favour. The following genera, representing species already known in this country, are also adopted: *Brychius* (*Haliplus*, pars), *Liopterus* (*Agabus*, pars), *Microglossa* (*Haploglossa*, *Crataræa*), *Somatium* (*Oligota*, pars), *Cilea* (*Leucoparyphus*), *Megacronus* (*Bolitobius*, pars), *Plagiogonus*, *Heptaulacus*, and *Oxyomus* (*Aphodius*, pars), *Metæcus* (*Rhipiphorus*), *Nacerdes* (*Ischnomera*), and *Xylocleptes* (*Tomicus*, pars),—most of which are doubtless familiar to British Coleopterists. 24 species are also for the first time registered as British: these will be noticed in due course,—particulars of all but one of them having been published by Dr. Sharp in *Ent. Mo. Mag.*, viii, 83.

The following alterations in nomenclature, in addition to those marked † in the notices of Mr. Crotch's papers, are adopted by Dr. Sharp (those originated by him being separately noticed): *Pristonychus terricola*, Hbst., to *subcyaneus*, Ill. (but Herbst's species is dated 1784, Illiger's 1802, according to Mr. Crotch's "List," &c.); *Pterostichus melanarius*, Ill., to *vulgaris*, Linn. (which is, however, considered non-determinable by Mr. Crotch, *l. c.*); *P. orinomus*, Steph., to *vitreus*, Dej.; *Harpalus cribellum*, Steph., to *rufilabris*, Fab. (*rufibarbis*, Crotch, *l. c.*); *Acupalpus* (*Stenolophus*) *dorsalis*, Fab., to *Gyllenhalli*, Thoms. (*kiloniensis*, Gmel.,

is the earliest name for this species; Crotch, *l. c.*); *Bradycellus fulvus*, Marsh., to *verbasci*, Duft. (doubtful, Crotch, *l. c.*); *Bembidium pusillum*, Gyll., to *minimum*, Fab. (preoccupied, Crotch, *l. c.*); *Cnemidotus cæsus*, Duft., to *impessus*, Fab. (Panzer, Crotch, *l. c.*; this name seems preoccupied by Müller, 1776); *Noterus semipunctatus*, Fab. (1792), to *sparsus*, Marsh. (1802); *Hydroporus xanthopus*. Steph., to *litturatus*, Fab. (which is a syn. of *palustris*, Linn., Crotch, *l. c.*); *Liopterus (Agabus) agilis*, Fab., to *ruficollis*, Schall. (preoccupied by De Geer; Crotch, *l. c.*); *Quedius ruficollis*, Steph., to *nigriceps*, Ktz.; *Philonthus longicornis*, Steph., to *scybalarius*, Nordm.; the var. *rubidus*, Er., of *P. quisquiliarius*, Gyll., to *dimidiatus*, Sahlb. (not Er.); *Othius læviusculus*, Steph., to *punctipennis*, Lac.; *Scopæus sulcicollis*, Steph., to *minutus*, Er.; *Stenus buphthalmus*, Er., (not of Schrank, which is *Juno*, Fab., teste Crotch, Col. Heft., vi, p. 101; this, however, is not endorsed by Dr. Sharp, who rejects Schrank's name for the latter insect, and also *angustatus*, Steph., for Gravenhorst's insect, as proposed by Mr. Crotch, *l. c.*), to *foveiventris*, Fairm.; *S. opacus*, Er., to *carbonarius*, Gyll. (the two are specifically distinct, teste Thomson); *S. nigrutilus*, Er., (*nec* Gyll.), *crassus*, Steph., to *crassiventris*, Thoms.; *S. brunripes*, Steph., *laticollis*, Thoms., to *unicolor*, Er. (but the prior *unicolor* of Stephens should prevent this alteration); *S. bifoecolatus*, Er. (*nec* Gyll.), *foveicollis*, Ktz., *brevicollis*, Thoms., to *brevicornis*, Thoms. (the original orthography); *S. gonymelas*, Steph., to *subæneus*, Er.; *S. fulvicornis*, Steph., to *paganus*, Er.; *Proteinus ovalis*, Steph., to *brevicollis*, Er.; *Cerylon semistriatum*, Sharp (*nec* Perris) to *fagi*, Bris.; *Telephorus clypeatus*, Ill., to *hæmorrhoidalis*, Fab.; *Malthinus flaveolus*, Payk., to *punctatus*, Fourc.; *Pyrochroa rubens*, Fab., to *serraticornis*, Scop.; *Adimonia villæ*, Wat.

Cat. (? K $\ddot{u}$ nst.) to *celandica*, Boh.; *Aphthona euphorbiæ*, All., to *venustula*, Kutsch.; *A. atrocærulea*, All., to *cyarella* Redt.

The following points in connection with this Catalogue appear to me worthy of attention;—but it is not worth while to enumerate all the abandoned species, the omission of which, it may be remarked, is (with the exception of those specially added subsequently) not due to any oversight on the part of the author:—*Notiophilus 4-punctatus*, Dej., is considered a good species; *Carabus cancellatus*, Ill. (of which the Rev. W. Tylden has in his collection a specimen taken at Hythe by Mr. Duboulay) is omitted, though *auratus* and *convexus* are retained: *Harpalus griseus*, Panz., is considered a var. of *ruficornis*, Fab.; *diffinis*, Dej., is, however, not noticed in any way; *Haliphus varius*, Nicol., is retained; *Aleochara bilineata*, Gyll., is referred as a var. to *nitida*, Grav.; *Ocalea rivularis*, Mill., is omitted (Dr. Sharp informs me that it is in his opinion absolutely nothing but *castanea*, Er., = *picata*, W. C.; he has it from various parts of Europe, and no two examples are exactly alike in the form of the thorax. The only British examples of *rivularis* I have seen are several, all exactly alike, taken by Mr. G. R. Waterhouse near Hammersmith, during a flood, and one taken by myself at the same place); *Homalota fungivora*, Thoms., is considered a var. of *occulta*, Er.; *Myllæna infuscata* and *minima* are omitted, in consequence of a failure to satisfactorily determine their specific distinctions, when compared with a long series of *minuta*, Er.; the *Mycetoporus* from Inverness-shire originally brought forward by Dr. Sharp as *tenuis*, Muls., is now considered distinct from that insect, and queried as probably new; *Quedius semiobscurus*, Marsh., accidentally omitted from, and subsequently added to, the Catalogue, should certainly be *semicæneus*, Steph.,—the semi-

*obscurus* of Wat. Cat., deposed as a synonym of *rufipes*, Grav., being the *semiobscurus* of Marsham; *Philonthus carbonarius*, Gyll., reappears upon our list, and, though no note appears to that effect, is evidently intended to represent *tenuicornis*, Muls. (*punctiventris*, Wat. Cat., nec Ktz.); *P. rubripennis*, Steph., is considered a var. of *fulvipes*, Fab., *Sunius diversus*, Aubé, is presumably the insect intended by the *angustatus* of Rev. H. S. Gorham, whose *neglectus* is apparently the true *angustatus* of Payk.; *Stenus Rogeri*, Ktz., and *littoralis*, Thoms., are respectively recognized as vars. of *providus*, Er., and *crassiventris*, Thoms. (*nigritulus*, Wat. Cat.); *Silpha subrotundata*, Leach, is not considered a distinct species; both *Olibrus bicolor*, F., and *liquidus*, Er., are retained; *Meligethes distinctus*, Wat. Cat., is the same species as *M. palmatus*; *Læmophlœus pusillus*, Schön., is omitted (see notice of its capture in filberts in a wood near Sheffield by Mr. J. R. Hardy, in Ent. Mo. Mag., vii, 205); *Heterocerus rectus*, Wat., is omitted, being represented by *arenarius*, Kies. (both are in Mr. Crotch's Cat., 2nd Edn.) *Anthicus quisquiliarius*, Thoms., is sunk as a var. of *floralis*, L.; *Mordellistena humeralis*, L., *brunnea*, F., and *lateralis*, Ol., are considered distinct species; *Meloë decorus*, Br., is omitted; *Strophosomus fulvicornis*, Walton, is sunk as a syn. of *obesus*, Marsh.; the *Bagous petrosus* of Wat. Cat. is considered a syn. of *subcarinatus*, Gyll., but it should be referred to *limosus*, Gyll. (*laticollis*, Hbst.); *Anthonomus rubi*, var. *comari*, Crotch, is endorsed as a distinct species; *Ceuthorhynchus triangulum*, Märk. (*vicinus*, Bris.), is treated as a *Ceuthorhynchideus*, but my specimens, corroborated by M. Brisout himself, have 7 joints to the funiculus; *C. distinctus*, Bris., is properly sunk as a var. of *marginatus*, Payk.; *Ceuthorhynchideus minimus*, ascribed to me (although I have never seen or professed to see the insect, and have

merely published an extract from a private letter of Mr. Walton's, as being the only obtainable evidence upon this phantom beetle), still cumpers our lists; *Apion scrobicolle*, Gyll., in no one's possession, is retained, because the species was described from England, but *paucidum*, Germ., of which Mr. Waterhouse's original carded specimen, mentioned by Mr. Walton, is still extant in his cabinet, is omitted; both species of *Monohammus* are retained; *Coccinella impustulata*, Linn., and *Scymnus 4-lunulatus*, Ill., disappear;—but of the former I believe there is a genuine specimen in Mr. S. Stevens's collection, and of the latter, in addition to Mr. Waterhouse's original ambiguously British exponent, there is a fresh carded specimen in my own collection, from Kent, and of which Dr. Sharp was not aware.

Mr. Bold, who has, single-handed, so ably continued the good work commenced by Mr. Hardy and himself, has during the past year (Nat. Hist. Trans. North. & Durh., iv) published a Revision of the Coleoptera of the Catalogue of the Insects of Northumberland and Durham; which is, in fact, a purged, increased, and thoroughly worked-up 2nd Edition of that well known publication, now 20 years old. The recorded Coleopterous fauna of these two counties now appears to consist of 1527 species (a little less than half of those known to be British),—an increase of upwards of 400 on the original census. One new species is described, and two others not before recorded as British are brought forward in this Revision; these will be noticed in their proper places. *Phlæobius griseus* (Crotch, Cat. App.) is recorded as taken at Sunderland by Mr. Peacock; and *Bythinus glabricollis*, and one or two doubtful species, are still allowed to continue on the list.

Mr. James Hardy, whose engrossment upon other pursuits than Entomology has been so much lamented by all



workers in this country, has recently in the Proceedings of the Berwickshire Naturalist's Club (vol. vi, No. 11, p. 160 *et seq.*), under the modest title of Contributions to the Entomology of the Cheviot Hills, given a full account of the *Coleoptera* there observed by him, with precise localities, and many notes of interest relating to the different species. The same gentleman has also communicated to the Ent. Mo. Mag. (vii, p. 182 *et seq.*) a paper on the same subject. Of his observations, perhaps the following are most note-worthy:—the occurrence of *Sphærites glaber*, *Autalia puncticollis*, Sharp, and my *Oxyopoda rupicola*, in England; of *Mycetophagus multipunctatus* and *Triplax ænea* so far north; of *Lathridius nodifer*, commonly, among the dark glens of the Northumbrian hills; of the assemblage of great numbers of *Graptodera longicollis*, Allard (chiefly ♀), on bushes of heather; and the occurrence of many fresh examples of that lowland pest, *Sitones lineatus*, under stones at the top of Cheviot, nearly 3000 feet high.

Mr. Hardy, in the Proceedings of the same year, has given an account of the habits of *Haltica nemorum* (most probably this is *Phyllotreta undulata*) in the Border counties,—reproduced without acknowledgment in “Newman's Entomologist,” Sept., 1871, p. 385 *et seq.*

Dr. Sharp, in a paper in vol. i of the “Scottish Naturalist,” has enumerated and given an interesting account of the different species of *Coleoptera* exclusively confined to the Scotch fir in this country (40 in number), especially with reference to the knowledge of their larvæ. He also notes the vast number of species observed by himself as affecting the same tree in the pinals of the valley of the Guadarrana, in the centre of Spain.

Mr. E. A. Waterhouse has (Ent. Mo. Mag., vii, p. 15) published some interesting notes on good species of *Cole-*

*optera* found by himself near Ripon in an old bird's-nest in a beech tree; and his account is supplemented (*ibid.*, p. 64) by a reproduction by Mr. Douglas, from the *Stettin. Ent. Zeit.*, of Herr Cornelius's paper on the same method of collecting.

In the same publication, Mr. Holyoak gives particulars of the nocturnal habits of *Calosoma inquisitor* in Leicestershire; Mr. Morley records the incontinence of *Crepidodera ferruginea*, which he has observed transgressing the laws of coleopterous morality with its congeners, *C. rufipes* and *C. transversa*; Mr. Kidd notes the gall-making habits of the rare *Gymnetron linariæ* on *Linaria vulgaris*, at Brandon (detected by the astute Mr. Barrett); Dr. Buchanan White (a semi-converted Lepidopterist, from whom much is to be expected on his entire abjuration of his former creed) publishes a most interesting account of the *Coleoptera* found in the snow-fields of Benmuedhu, Braemar (amongst them being *Bryoporus rugipennis*, the *Mycetoporus* introduced as *tenuis* by Dr. Sharp, *Acidota crenata*, *Homalota eremita*, and *Arpedium*); Dr. Knaggs has drawn attention to the antics of jumping may-buds, produced by the movements of an enclosed Coleopterous larva (most probably that of *Anthonomus pedicularius*); Mr. Moncreaff, whose faculty of accurate observation of the habits of insects is, consequently, on a par with his great success as a collector, raises the question of double brooding in *Thyamis* during the year; Mr. J. Ray Hardy records the breeding of *Eros affinis* from a larva found by him five years ago; Mr. Hislop publishes some notes on the *Coleoptera* of Wiltshire, a county of the beetle-productions of which we know literally nothing; and the Rev. H. S. Gorham has commenced an enumeration of the good species occurring near Maidstone.

It may be of interest, also, to note the rearing at Halifax

of *Phlæotribus oleæ* from an ash tree imported from France, recorded by Prof. Westwood, Proc. Ent. Soc., 21 Nov., 1870. The species does not, however, seem very likely ever to be truly indigenous.

In "Newman's Entomologist," No. 91, p. 309, is an unsigned but presumably editorial note, concerning the common *Haltica (Podagrica) fuscicornis*, Linn., which, according to information and specimens obtained from Mr. H. Reeks of Newbury, is very destructive to leguminous plants, such as saint-foin, &c. As the *Leguminosæ* are already liable to the attacks of an undue number of Coleopterous enemies, such a newly developed habit in an insect hitherto exclusively living on *Malva* and *Althæa* would be more curious than satisfactory to the agriculturist; but it is tolerably evident that the usually astute editor has been for the moment led astray by his most interesting and practical discussion on the earliest synonymy of the species above quoted; and that the insects sent by Mr. Reeks are in all probability the equally common *Crepidodera rufipes*, Linn., readily distinguished, *oculo nudo*, by the deeply impressed fovea at the base of its thorax, and different build, and which is attached to *Orobis*, *Vicia*, and others of the *Leguminosæ*.

It may be as well, however, to corroborate the editor's proposition that the name *fuscicornis*, Linn., "must be adopted" for the *Podagrica*, by calling attention to the fact that it *has* been adopted by Illiger, Panzer, Gyllenbal, Stephens, Redtenbacher, Küster, Foudras, Allard, Kutschera and Thomson; also in the Ent. Heft., in the Catalogues of Schaum, Waterhouse, Grenier, De Marsoul, Stein, Crotch, and Sharp, the Stettin Catalogues, &c.,—in fact, by every authority. The insect has *not* become better known on the continent by the name of *rufipes* (which Fabricius promulgated, by the way, before Panzer), as the editor

states. And I presume that the "Marshall" quoted as using that name in this country is intended to represent Marsham.

Mr. S. Stevens has, in the same publication (No. 93, pp. 362—4), given a list of the *Coleoptera* taken by himself during a five weeks' journey in Ireland,—that little explored country, from which so much should be expected. This list (disfigured by orthographical errors and misprints, and with any value that it might have possessed diminished by the adoption of obsolete names and the disorder in which the species are placed) consists of universally distributed and common insects, with one exception, *Chlœnius holosericeus*, of which six specimens were found running in the sunshine, in a marshy place on the banks of Lough Derg, about six miles from Killaloe, at the end of May.

Of other captures of rare or interesting species since the last "Annual," the following seem note-worthy:—*Choleva colonoides*, *Scydmaenus rubicundus*, *Batrisus*, *Homalota validiuscula* (in numbers, in fungus), *H. elegantula*, Bris., *Actidium concolor*, Sharp, *Haplocnemus nigricornis*, *Atomaria diluta*, *Quedius scitus*, and a small colony of red *Q. fulgidus* (? *puncticollis*, Thoms.), near Ripon, and many of the type-form of *Aphodius plagiatus* at Deal (always in mud, like a *Heterocerus*), by Mr. E. A. Waterhouse. *Odontœus* at Cirencester, by Dr. McNab. *Lissodema Heyana* on Chat Moss, by Mr. Broadhurst. *Trichonyx subcicollis*, *Hydroporus neglectus*, and *Atomaria fimetarii* (the latter in fungus, in some numbers) at York, by Mr. H. Hutchinson. *Pselaphus dresdensis* in the same neighbourhood, by the Rev. W. Hey, and in Wiltshire, by Mr. Hislop. *Platytarsus setulosus* at Tonbridge, *Hydnobius punctatissimus*, and *Philonthus fuscus* (the latter in as great extremes of size as its congener *cephalotes*, and also varying much in colour) from

a stock-dove's nest, at Glanville's Wootton, by Mr. Wollaston. *Trogophlæus foveolatus* at Whitstable; *Atemeles paradoxus*, associated with *Myrmica lævinodis*, at Folkestone; *Ceuthorhynchus urticæ* again at Mickleham; *C. tarsalis* in profusion on *Sisymbrium*, at the old locality, near Erith; *Bruchus canus*, in some small quantity, off *Onobrychis sativa*, near Caterham; *Colydium*, *Synchita*, *Dasytes niger*, &c., in the New Forest; the long-sought *Phlæophagus spadix*, in quantity, along the Harwich coast, in old stumps on the sea-shore, saturated with salt water (*Phlæophagus* has evidently, a taste for full-flavoured food; the late Mr. A. Haward used to get *P. æneopiceus* in profusion in the wood of old damp wine casks); and *Emus hirtus*, under fresh cow-droppings at Brockenhurst, by Mr. Champion (who has also secured another example, taken by a Lepidopterist a year or two ago, near Chatham. *Dryops femorata* near Lancaster, by Mr. Ruspini; and near Bristol, by Mr. A. E. Hudd. *Apion astragali*, in some profusion, by Mr. G. R. Crotch, at Cherry Hinton chalk-pit, where a single specimen was found by Mr. Rippon. *Hydnobius Perrisii* near Gateshead, by the Rev. R. Kirwood. *Polydrosus flavipes* and *Omius pellucidus* in some numbers, near Maidstone, by the Rev. H. S. Gorham. *Aleochara ruficornis* in some small numbers, *Monotoma 4-foveolata*, *Atomaria impressa*, *Hydroporus obsoletus*, *Nitidula flexuosa*, the true *Plectroscelis Sahlbergi*, *Ocalea latipennis*, *Carcinops pumilio*, *Euplectus bicolor*, *Trimium brevipenne* and *T. brevicorne*, *Hydræna pygmæa*, *atricapilla* and *pulchella*, with many other good things too numerous to mention, and mostly in quantity, near Scarborough, by Mr. R. Lawson (probably the most successful collector of modern days); and *Elaphrus lapponicus*, *Amara alpina* and *Quenseli*, *Agabus Solieri*, *Bryoporus*

*rugipennis*, *Xantholinus lentus*, *Epuræa silacea*, *Dendrophagus crenatus* (many specimens; also larvæ, from which the perfect insects were reared), *Salpingus ater*, *Pyrochroa pectinicornis*, *Anobium nigrinum*, *Zeugophora Turneri*, *Brachonyx indigena*, *Cis punctulatus*, and other fine things, at Braemar, by Drs. Buchanan White and Sharp, and Mr. Hislop (besides many novelties to this country, both genera and species, and some new to science; showing how rich a country Scotland is). It may be noted, also, that a second specimen of *Baridius scolopaceus* (Frontisp., fig. 8) has been taken in its original British locality, the island of Sheppey; this was sent to Mr. Champion, and liberally presented by him to me. The species has of late years been taken in profusion by Dr. Grenier on the south coast of France, on *Chenopodium maritimum*, and another plant, an introduced exotic.

Having been taken during the past summer by Dr. Power to Esher, I was fortunate enough to take *Triarthron Märkelii* (subsequently again taken by Dr. Power), at this, its original locality. As forewarned by my introducer, I found this curious insect readily distinguishable by its excessive sluggishness in the net. Remembering old *Liodes* experiences at Rannoch, I carefully examined the black powdery fungus on fir stumps, and was rewarded by finding some half-dozen of the very rare *Sphindus dubius*, and many *Aspidophorus orbiculatus*, which was to be found in almost every batch of the fungus (these two species were afterwards also found, and, of course, in some numbers, by Dr. Power).

*Anisotoma obesa*, ♂ and ♀, a row of *A. nigrita* (whereof Dr. Power in expeditions both before and after my visit has secured a fine series from the same place), *Lathridius testaceus* (subsequently found also by Dr. Power), *Cryptophagus populi* (for which the precise spot was shown me by Dr.

Power, who had taken some few of it), and other good things also fell to my lot. During the past season, Dr. Power has also taken there *Oxylæmus variolosus*, *Anisotoma parvula*, *Scraptia*, and *Plectroscelis confusa*. The latter insect also occurred there to myself, very sparingly; but I have found it since, in October, in great profusion at Wimbledon, under circumstances that quite preclude the idea of its breeding on dwarf willow.

Of Dr. Power's other notable captures the following are the chief: *Ochthebius æneus*, *Anisoxya fuscula*, *Apion affine*, several *Dromius 4-signatus* (in apple trees), *Ceuthorhynchus setosus* (abundantly, on *Iberis amara*), the "*Helophorus nov. sp.*" of Dr. Sharp's Catalogue, and *Helophorus arvernicus* (not before recorded so far south in this country), at Horsell; a totally black form of *Micraspis*, in the proportion of one to about 2000 ordinary specimens, at Lee; *Bembidium fluviatile* on the banks of the Wye (a new locality); *Sitones cinerascens*, *Lema Erichsoni*, *Choleva longula*, *Phyllotreta sinuata* and *Stilicus similis* in plenty, and *Apion Gyllenhalli* in profusion, in Ireland; and, amongst other good things, no less than six species of *Agathidium* (viz., *nigrum*, *convexum*, *seminulum*, *marginatum*, *lævigatum*, and *varians*) at Highgate in one day.

On the whole, it seems that Scotland must still take the highest place in the estimation of British Coleopterists; and that of the English counties, Yorkshire (judging by the recent captures of Messrs. Lawson, Wilkinson, Waterhouse, Hutchinson and Hey) is likely for some time to be the most productive.

#### 1. HYDROPORUS DUFTSCHMIDTI.

*rufifrons*, Duft. (1805, *Dytiscus*); nec Müller (1776), nec Fab. (1792).

The above re-naming appears necessary.

2. *HYDROPORUS LONGICORNIS*, D. Sharp, Ent. Mo. Mag., vii, 205.  
*parallelus*, Sharp, *l. c.*, vi, 84 (1869), *nec* Aubé (1836).
3. *HYDROPORUS MELANOCEPHALUS*, Marsham, Ent. Brit., ii, 423 (1802, *Dytiscus*); Steph.  
*pubescens*, Gyll., Ins. Suec., i, 536 (1808).

Dr. Sharp points out the above necessary alterations in nomenclature.

4. *HYDROPORUS SCAPHIFORMIS*, D. Sharp, *l. c.*, vii, 205.  
*melanocephalus*, Gyll., *l. c.*, 537; Aubé, Thoms.; *nec* Marsham.

Dr. Sharp's proposed name for Gyllenhal's species seems anticipated by Mr. Crotch's *atriceps* (p. 24).

5. *ANACÆNA VARIABILIS*, Sharp, Ent. Mo. Mag., vi, 255 (April, 1870).  
*carinata*, Thoms., Opusc. Ent., fasc. ii, 126 (1870).

Dr. Sharp (Ent. Mo. Mag., vii, 204) has pointed at this synonymy.

6. *MICROGLOSSA MARGINALIS*, Grav., Mon. 161; Gyll., Ins. Suec., ii, 420 (*Aleochara*); Er., Gen. et Spec. Staph., 138 (*Homalota* ?); D. Sharp, Cat. Brit. Col., 1871.  
*rufipennis*, Ktz., Ins. Deutschl., ii, 81 (*Haploglossa*).

This is the species alluded to in my prefatal remarks, as being omitted by Dr. Sharp from his account in Ent. Mo. Mag., viii, 83, of the species first registered as British in his Catalogue. That gentleman so omitted it, being under the



impression that it had been already exhibited by Mr. Crotch at some meeting of the Entomological Society: but I have failed to discover any record of such exhibition.

Distinguished from *M. pulla*, Gyll., by its somewhat thicker and distinctly finer punctuation, and by the sides and hinder angles of the thorax, the elytra, (except near the scutellum and at the outer posterior angles,) apex of abdomen, ventral segments beneath, legs entirely, and antennæ at base, being rufo-testaceous.

Associated with *Formica cunicularia*, according to Kraatz.

7. *ALEOCHARA VILLOSA*, Mann., Brach., 67; Er., Gen. et Spec. Staph., 177; Kraatz, Ins. Deutschl., ii, 94; T. J. Bold, Cat. Ins. Northumb. and Durh. (Revision of Coleoptera), 1871, 114; Ent. Mo. Mag, vii, 275; D. Sharp, Ent. Mo. Mag., viii, 74.

Two specimens of an *Aleochara*, somewhat doubtfully referred as above, have been taken near Newcastle-on-Tyne (for one of which I am much indebted to Mr. Bold); and Dr. Sharp has also found the same species at Braemar.

As described, these insects differ from *A. lanuginosa* in having longer and thinner antennæ, of which the 2nd and 3rd joints are equal in length, and the 4th joint is longer than broad; in being flatter, more parallel, and much less shining, and with proportionately narrower thorax, and the elytra (which are distinctly and thickly punctured) not so distinctly sinuate at the outer angles. The punctuation of the abdomen differs from Kraatz's description in being only more delicately punctured than in *lanuginosa*, with the apical segment very evidently and tolerably closely punctured. The whole insect much resembles *A. grisea*, Ktz.

8. OXYPODA PECTITA, Sharp, Trans. Ent. Soc. Lond., May, 1871, 187 (described).

*umbrata*, Rye (*nec* Grav.).

This is the insect introduced by myself as *umbrata*, and closely allied to *cuniculina*, Er. (*brevicornis*, Wat. Cat.). I have in vain sent examples of it and of *cuniculina*, pointing out their differences, to Dr. Kraatz and M. Fauvel; each of whom has returned the two insects as conspecific, i. e., as *cuniculina*, Er. But there has, nevertheless, been not a shadow of doubt in my own mind as to the perfect distinctness of the two; and it is satisfactory to find that Dr. Sharp has come to a similar conclusion.

Dr. Sharp omits all mention of *cuniculina*, Er., from his Catalogue, adopting the opinion that Erichson described "the true *umbrata*, under the name of *cuniculina*;" from which it is, of course, to be inferred that in his opinion *cuniculina*, Er., is to sink as a syn. of *umbrata*, Grav., (the earliest describer of a species by that name). Mr. Crotch, however, in Col. Hest., vi, as before remarked, follows the opinion that Gravenhorst's and Gyllenhal's species named *umbrata* are distinct, and that it is the latter author's insect which Erichson described as *cuniculina*; in which case Erichson's name would stand (*pace brevicornis*) for our common insect.

Compared with that common species, *O. pectita* is of a less pisciform build, being narrower and more parallel, with the thorax especially narrower and having an obsolete but always more or less distinct central longitudinal channel, the abdomen not so pointed at the extremity, and the thorax and elytra not so finely punctured. The antennæ, also, are distinctly longer; the sub-apical joints not being so transverse, nor the apical joints so conspicuously larger than the rest, as

in the common species. I find this insect somewhat rarely, in hay-stack refuse, in the London district.

9. OXYPODA EDINENSIS, Sharp, *l. c.*, 188 (described).

About the size of *O. lentula*, Er., but more shining, lighter in colour, with shorter elytra, and narrower head.

A series of this species was captured some years ago, near Edinburgh, by Drs. Sharp and M'Nab. Mr. Crotch has sent it to some of the continental Entomologists, but it has not been identified.

I am indebted to Dr. Sharp for a type of it.

10. OXYPODA VERECUNDA, Sharp, *l. c.*, 189 (described).

Most nearly allied to the *exoleta* of our collections. Not common, but taken by Dr. Sharp (and myself) near London, and in the Fens.

11. OXYPODA EXIGUA, Er., Wat. Cat.; D. Sharp, *l. c.*, 190.

Dr. Sharp records Dr. Kraatz's opinion that the specimen named *investigatorum*, Ktz., for me by M. Fauvel (Ent. Ann., 1870, 54), and subsequently forwarded by me to Dr. Kraatz, is *not* his species of that name; also his own opinion that it is not improbably the true *exigua* of Erichson.

12. OXYPODA RECONDITA, Kraatz, Ins. Deutschl., ii, 182;  
D. Sharp, *l. c.*, 190.

*lucens*, Wat. Cat.; ? Mulsant.

Dr. Sharp notes the above recent identification by Mr. Crotch (in whose Cat., 2nd Edn., the two names stand separated by three other species); and considers that our insect agrees better with Kraatz's description than Mulsant's. It fits

neither, accurately; and was originally identified as *lucens* by a Parisian authority, for Mr. Morris Young of Paisley.

13. OXYPODA WATERHOUSEI, Rye; D. Sharp, *l. c.*, 190.  
*nigro-fusca*, Waterh.,  *nec* Steph.

To Dr. Sharp's remarks should also be added that Mr. Waterhouse himself, in the synonymy of his Catalogue, has recognized and identified Stephens's *nigro-fusca*.

14. OXYPODA MUTATA, Sharp, *l. c.*, 191.  
*riparia*, Fairm. (1859),  *nec* Thoms. (1855).

Dr. Sharp thus re-names the insect occasionally taken in dead leaves at Shirley, readily known from our other small *Oxypodæ* by its almost "engine-turned" punctuation, and the rounded projection in the middle of the basal margin of its thorax.

15. OXYPODA BRACHYPTERA, Steph., Ill. Brit. Ent., v.,  
128 (*Aleochara*); Wat. Cat.; D. Sharp, *l. c.*, 191  
(redescribed).  
*? forticornis*, Fairm.

Dr. Sharp recognizes and redescribes Stephens's insect above named, noting that it must be very close to *ferruginea*, Er., over which, even if identical with it, it should have priority. There appears to be little doubt, as Dr. Sharp states, that *forticornis*, Fairm., should also be referred to this species, though referred to a very different one by De Marseul and Gemminger and von Harold. The insect originally brought forward as *O. misella*, Ktz., and stated by M. Fauvel to be *ferruginea*, Er. (Ent. Ann. 1870, 56), has been sent by me to Dr. Kratz, who has returned it as apparently his *misella*.

As there is in any case no doubt of the validity of

Stephens's species, I have the less scruple in proposing the name *Kraatzii* for the long subsequently described *brachyptera* of Kraatz, which is perfectly distinct from it.

16. OXYPODA TARDA, Sharp, *l. c.*, 192 (described).

Taken in the salt marshes near Dumfries.

Closely allied to *O. brachyptera*, Steph., but larger, darker in colour, with the antennæ scarcely so large, for the size of the insect, the elytra a little longer, and the base of the abdomen not paler than the middle. The thorax is sometimes obscurely ferruginous, at others nearly black.

17. HOMALOTA AQUATICA, Thomson.

*subænea*, Sharp.

Dr. Sharp gives the above synonymy in his Catalogue. The identity of the two species is certified by Thomson himself, in *Opusc. Entom.*, fasc. ii, p. 130; and was, in fact, suggested by Dr. Sharp when describing his insect.

18. GYROPHÆNA, n. sp. (?); T. J. Bold, *Cat. Ins. North. and Durh.* (Revision of *Coleoptera*), 1871, 114.

*lucidula*, *Trans. Tynes. Nat. Field Cl.*, v, 54, *nec* Er.

Briefly referred to, as a probably new species, near (but smaller than) *nana*, found at North Seaton, in Agarics.

19. GYROPHÆNA POWERI, Crotch.

*puncticollis*, Thomson, *Skand. Col.*, ix, 232; D. Sharp, *Cat. Brit. Col.*

As the description of Mr. Crotch's species was published in May, 1867, and the 9th vol. of Thomson's *Skand. Col.* is dated simply 1867, some further evidence seems necessary before depositing Mr. Crotch's name; as the mere year's date

should evidently in equity be taken as meaning the last day of it.

20. MYLLENA KRAATZI, D. Sharp, Cat. Brit. Col., 1871, 10.

*elongata*, Kr., nec Matthews.

*glauca*, Fauvel, Rye (Ent. Ann. 1870, p. 79), nec Aubé.

Dr. Sharp has made the above necessary change in the name of Kraatz's species, to which the insect introduced by myself, on the authority of M. Fauvel, as *M. glauca*, Aubé, must evidently be referred,—Aubé's species appearing to be synonymous with the prior *elongata* of Matthews, and not, as stated by M. Fauvel in "L'Abeille," vi, 150, with *elongata* of Kraatz.

*M. Kraatzi* occurs, in addition to the localities already published for it by me, on Chat Moss and near Scarborough.

21. TACHYPORUS PALLIDUS, D. Sharp, Cat. Brit. Col., 1871, 10.

*tersus*, Wat. Cat., nec Er.

Dr. Sharp has named as above the insect referred to in Ent. Ann., 1871, p. 32.

22. QUEDIUS BREVICORNIS, Thoms., Skand. Col., ii, 163; *ib.*, ix, 163; E. A. Waterhouse, Ent. Mo. Mag., viii, 14.

Mr. Waterhouse records my opinion that some specimens taken by him in and about an old bird's nest in a prostrate beech-tree in Studley Park, Yorkshire, should be referred to the above species, which has already been in our lists, on

the authority of insects now believed to be *Q. puncticollis*, Thoms., from which these Yorkshire insects seem quite distinct.

For notes on this and the allied spp., see Ent. Ann. 1869, pp. 26—29.

### 23. PHILONTHUS XANTHOLOMA, Grav.

♂ var. *variolosus*, D. Sharp, Ent. M. Mag., vii, 181.

Dr. Sharp names as above a highly developed male form of the common sea-weed *Philonthus*, found rarely by him on the coast in England and Scotland, and to which he refers the Berwick specimens referred to by Kraatz in Ins. Deutschl., ii, 596, and the figure of *P. xantholoma* in Du Val's "Genera." This form is distinguished by its head being usually much exaggerated in size (as is frequently the case in *cephalotes*, *fuscus*, *splendens*, *puella*, and others of its genus), with a proportionate increase in the degree of its punctuation, and of the width of the front part of its thorax for its reception (as is ♂ *Læmophlæus*, &c.), causing the posterior portion to appear more narrowed, and by the under side of its abdomen (or "hind-body," as Dr. Sharp more correctly terms it) being sparingly and coarsely punctured. *P. xantholoma*, as Dr. Sharp points out, thus appears to present the striking peculiarity of having two distinct forms of its male sex; one having solely the ordinary sexual mark of abdominal emarginations, the other having in addition a more widely and strongly punctured abdomen beneath. Kraatz notes that the punctuation of the underside is much less close in the male, as compared with the female of this species. Sexual variations in punctuation on the upper surface are exceedingly common, and are generally considered to be modifications of structure tending to facilitate the successful union of the sexes, especially in aquatic species,

—the females presenting a less glabrous surface. But here the *males* differ *inter se*: and it seems to me that Dr. Sharp's observation of this form is of a much more interesting character than at first appears.

24. *LATHROBIUM ATRIPALPE*, Scriba, Stettin. Ent. Zeits., 1859, 415; D. Sharp, Cat. Brit. Col.; Ent. M. Mag., viii, 83.

Taken by Dr. Sharp at Edinburgh, and also, as he believes, by Mr. Crotch.

*L. atripalpe* is stated by its describer to be very like *L. punctatum*, Zett., but somewhat narrower and more cylindrical, with a smaller head, a shorter, proportionately broader, and somewhat more thickly and finely punctured thorax, the apical joint of the palpi black, the antennæ and legs somewhat darker, and the 7th abdominal segment of the male not thickened in the middle beneath, but more deeply emarginate than in the male of *punctatum*.

*L. punctatum* is erroneously referred in Wat. Cat. to Nordman; and Sahlberg, who was the second to describe it, wrongly quotes Zetterstedt's name as merely MS. The insect was described in the Fauna Ins. Lapp., 1828; Sahlberg's Ins. Fenn. being published in 1834.

25. *LITHOCHARIS DILUTA*, Er., Col. March., i, 514; Gen. et Spec. Staph., 612; Ktz., Ins. Deutschl., iii, 712; D. Sharp, Cat. Brit. Col.; Ent. M. Mag., viii, 83.

A male individual of this species is recorded by Dr. Sharp, taken on the banks of the Cairn, near Dumfries, some two years since.

This species appears to be excessively rare, and its male has hitherto escaped observation. The insect appears to be distinctly broader and flatter than its allies, *L. fuscula* and



*L. brunnea*, with the 3rd joint of the antennæ distinctly longer than the 2nd, the punctuation of the head and thorax exceedingly fine and close, and that of the elytra very thick and fine, and slightly rugulose.

## 26. STENUS ANNULATUS, Crotch.

M. Fauvel's opinion (Ent. Ann., 1870, p. 85) that this species is synonymous with *aceris*, Lacord., is evidently incorrect. In Boisduval and Lacordaire's "Faune Entomologique des environs de Paris," i, p. 446, that insect is described as having the "*pattes—d'un testacé pâle:*" this cannot possibly apply to Mr. Crotch's species, of which the broad annulation of the knees with black is one of the most striking characters.

## 27. OXYTELUS FULVIPES, Er. Col. March., i, 590; Gen. et Spec. Staph., 787; Redt., Fauna Austr., 2nd ed., 232; Ktz., Ins. Deutschl., ii, 852; Rev. H. S. Gorham, Proc. Ent. Soc. Lond., 6 Feb. 1871; Ent. Mo. Mag., vii, 239.

Taken by Mr. Gorham at Needwood, near Burton-on-Trent.

In the same section of the genus as *O. rugosus*, having the sides of its thorax crenulate (though very obsoletely so), this species may readily be distinguished from that common insect by its rather less size, shining black colour, shining vertex, and entirely testaceous legs. In fact, it superficially somewhat more suggests a very dark specimen of *O. sculptus*, Grav., in which, apart from other characters, the sides of the thorax are perfectly smooth. It appears to frequent fallen leaves.

I am indebted to Mr. Gorham for one of the very limited number of specimens taken by him.

28. OXYTELUS FAIRMAIREI, Pandellé, Gren., Mat., &c. Cah. ii (July, 1867), 172; D. Sharp, Cat. Brit. Col.; Ent. M. Mag., viii, 83.  
*transversalis*, Czwalina, Berl. Ent. Zeit., xiv, 419;  
 Fauvel, *sec. typ.*

Found very sparingly by Dr. Sharp in several localities, and stated by him to be, no doubt, passed over as *O. depressus* by collectors.

Dr. Sharp informs me that in *O. Fairmairei* the anterior tibiæ are excavated at the apex; a character not noticed by M. Pandellé, from whom he has received types exactly agreeing with his insect. The insect was originally recorded from the Pyrenees.

29. TROGOPHLÆUS BILINEATUS, Stephens, Ill. Mand., v, 324, 1832 (*Carpalimus*); *nec* Er., Kr.  
*riparius*, Lacord., Faune Ent. Par., 467 (1835);  
 Er., Kr.

30. TROGOPHLÆUS ERICHSONI, D. Sharp, Ent. M. Mag., vii, 182.  
*bilineatus*, Er., Kr., *nec* Steph.  
*obscurus*, v. Harold, *nec* Steph.

Dr. Sharp has (*l. c.*) made the above necessary corrections in nomenclature.

31. THINOBIUS MAJOR, Ktz., Ins. Deutschl., ii. 883;  
 D. Sharp, Cat. Brit. Col.; Ent. M. Mag., viii, 83.

“Taken by Mr. Crotch on the shores of Loch Rannoch.” Two examples only were known to the describer of this, the largest of the yet known species of its genus. It is twice the length of *T. longipennis*, black, sub-opaque, with brown elytra, and brownish-testaceous antennæ and legs. The head

is large, transverse-quadrate, with the eyes smaller and placed more in front than in *longipennis*; the emargination of the hinder apex of the elytra, also, is less strong than in that species.

32. *COMPSOCHILUS PALPALIS*, Er., Col. March., i, 608; Gen. et Spec. Staph., 818 (*Acrognathus*); Kraatz, Ins. Deutschl., ii, 896; T. V. Wollaston, Ent. Mo. Mag., viii, 37.

Readily distinguished from its sole ally, *Acrognathus*, by its much smaller size ( $1\frac{3}{4}$  lin. Engl.).

The genus, new to our lists, was established by Kraatz (*l.c.*, 895) for this and three other European species, on account of their labial palpi having the second joint twice the length of the 3rd, their ligula being tri-sinuate at the apex, with sub-connate paraglossæ, and the five apical joints of their antennæ being incrassate. *C. palpalis* is testaceous, rather shining, with the breast, forehead, and abdomen pitchy before the apex, and the elytra strongly and regularly punctate-striate. Its habitat appears to be wet dead leaves.

A single specimen was taken by Mr. Wollaston during the early part of last summer, by sweeping on the sides of a ditch near Tonbridge. Further efforts to obtain more examples by that gentleman and Dr. Power were unsuccessful.

33. *DELEASTER DICHROUS*, Grav.

var. *Leachii*, Curtis (*Lesteva*); E. C. Rye, Ent. Mo. Mag., viii, 15.

*adustus*, Bielz, Küst. Käf. Eur., vii, 48, 1846.

? *Erichsonii*, Hochh., 1851.

I have recorded the occurrence at Scarborough of the form of this insect in which the elytra are infusate at the

apex, and to which, and not to the Southern-England unicolorous type-form, Curtis's species is to be referred. Dr. Sharp some time ago also directed my attention to it from Scotland. I have never seen it from the South of England.

34. *LESTIVA MUSCORUM*, Duval, *Glanures entom.*, 1859, Cah. i, 37; D. Sharp, *Cat. Brit. Col.*; *Ent. Mo. Mag.*, viii, 83.

Taken by Dr. Sharp and myself sparingly, both in Scotland and England. My own attention was first drawn to this insect many years ago by Mr. J. E. Somerville of Glasgow.

Compared with *L. punctata*, Er., this species is usually larger, and especially longer; its antennæ are longer, the 3rd joint being conspicuously so; its head is not so closely applied to the thorax, and is more deeply and irregularly foveated, with the interstices of the punctures, especially behind, wider and more shining; the thorax is not transverse, and its sides are not rounded off evenly towards the posterior contraction, but suddenly narrowed about the middle, with an evident lateral impression at the point of contraction; its punctuation, also, is coarser and not so close, and there are more evident traces of dorsal impressions, and the elytra are longer.

35. *OLOPHRUM CONSIMILE*, Gyll. (*Homalium*); Er.; Kraatz, *Ins. Deutsch.*, ii, 941; D. Sharp, *Ent. Mo. Mag.*, viii, 73.

A single specimen of this insect was taken in moss by Dr. Buchanan White at Braemer in June last. Its narrower build, its thorax being sinuate at the sides behind the middle,

and longer elytra, readily distinguish it from our other two recorded species. It seems especial boreal in distribution.

36. *EUDECTUS WHITEI*, Sharp, Ent. Mo. Mag., viii, 73  
(described).

*An E. Giraudi* var. ? (*teste auct.*).

A single example of this apparently new species was found by Dr. Sharp in June last, under a stone on the summit of Ben-a-Bhuird, Braemar.

The genus *Eudectus*, Redt., new to our lists, can only be compared with *Coryphium*, of the British genera of *Homalides*, from which it appears to be separated on exceedingly slight grounds. The strongly angulated sides of the prothorax of both *E. Giraudi*, Redt., and the above described species (which apparently only differs from it in being intensely black, instead of reddish-brown) will at once distinguish them from *C. angusticolle*, the only British species which it resembles. *E. Giraudi* appears to be excessively rare.

37. *SCYDMÆNUS CARINATUS*, Mulsant et Rey, Opusc. Entom., 1861, 67-9; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

British examples of this species have been determined for Mr. Crotch by M. de Sauley. I have for some time had an individual, taken by myself at Shirley, which I have referred to this insect.

It was originally recorded by Mulsant as occurring in October, under stones, in company with *Formica brunnea*, Latr., at Avenas, in the Beaujolais mountains; and is described as very near *S. elongatulus* and *rubicundus*, differing from both in its smaller size, its shorter antennæ, which are more strongly and suddenly incrassated at the apex,

with the intermediate joints less slender and less cylindrical, its less convex elytra, of which the shoulders are more projecting, and its better defined basal thoracic keel, which is more prolonged toward the front.

38. *SCYDMÆNUS RUFUS*, Müll. et Kunze, Mon. d. Amiensenk., 10, f. 2; Er., Col. March., i, 262; Thomson, Skand. Col., iv, 91 (*Cholerus*); E. C. Eye, l. c., vii, 273.

A single example of this interesting addition to our lists was found by Mr. G. C. Champion in rotten wood in Richmond Park, in March last.

Its entirely clear rufo-testaceous colour, very short oval elytra and almost globose thorax, neither of which are foveolate, readily distinguish it from all our recorded species. The allied *S. Hellwigii* (which is not unlikely to occur here, as it is found in France, Sweden and Germany) is rather larger than *S. rufus*, with longer prothorax and elytra, and the head of its male deeply excavated behind. Those who do not admit *Cholerus*, usually consider these two species to be associated with *tarsatus* in the sub-genus *Eumicrus*, Cast., distinguished by the apical joint of the maxillary palpi being merged in the sub-apical, instead of slender and distinct.

39. *PRTLIIUM CALEDONICUM*, Sharp, Ent. Mo. Mag., viii, 73 (described).

Found by Drs. Sharp and Buchanan White in numbers, under the bark of a dead Scotch fir at Braemar, in June last.

This insect appears to connect the abnormal *P. croaticum*, Hampe, with *P. Spencii* and its allies; its thorax being much broader than long, with the sides rounded in front, and

much narrowed behind, whilst its punctuation is dense and strong, and its pubescence conspicuous.

40. *PTENIDIUM KRAATZII*, Matthews, Ent. Mo. Mag., viii, 152 (diagnosis).

Differs from *P. formicetorum* in its longer and narrower shape, smaller size, and much deeper sculpture, especially on the head and thorax.

Mr. Matthews has two examples of this insect, taken by the late Mr. Foxcroft in Scotland.

41. *PTENIDIUM ATOMAROIDES*, Mots., Bull. Soc. Imp. Nat. Mosc., 1868, 190 (*atamaroides*); Rev. A. Matthews, *l. c.*

Readily distinguishable from *P. evanescens* by the smaller size of its head and thorax, and much longer and broader elytra.

Taken by Mr. Crotch (near Brandon, in Suffolk, as Mr. Matthews believes). Motschoulsky records it from Madeira, Catarro, and Russian Georgia.

42. *TRICHOPTERYX FUSCULA*, Matthews, *l. c.* (diagnosis).

Short, quadrate, covered with long brown hairs. Differs from *T. brevis* in its parallel form and long slender antennæ.

Taken by Mr. Matthews near Gumley.

43. *TRICHOPTERYX LONGULA*, Matthews, *l. c.* (diagnosis).

Differs from *T. picicornis* in its shorter and narrower thorax, longer and more slender antennæ, and closer and finer sculpture.

Taken by Mr. Matthews at Leicestershire, and by Mr. Wollaston near Tonbridge.

44. *TRICHOPTERYX RIVULARIS*, Allibert, Guér. Rev. Zool., 1844, vii, 133; Rev. A. Matthews, *l. c.*

Mr. Matthews has decided upon separating this from *T. Montandonii*, Allib., from which it differs in its more elongate form, and longer thorax, its elytra being more contracted at their apex, and the disposition of its sculpture; and states that it is not uncommon in this country.

45. *TRICHOPTERYX EDITHIA*, Matthews, *l. c.* (described).

Elongate, convex, griseous-brown, covered with long silky pale hairs; antennæ and legs long, slender, bright yellow; thorax covered with small tubercles irregularly arranged, with shining and deeply reticulate interstices; elytra deeply asperate in close wavy rows.

Taken by Mrs. Wollaston near Tonbridge.

46. *TRICHOPTERYX CANTIANA*, Matthews, *l. c.*, 153 (diagnosis).

Differs from *T. lata* in its thorax being much less dilated at the sides, its shorter, more robust, and entirely black antennæ, its deep black colour, and very short pubescence.

Several specimens taken by Mr. and Mrs. Wollaston at Tonbridge.

47. *ORTHOOPERUS ATOMARIUS*, Heer, Faun. Col. Helv. 433 (*Pitophilus*); Duval, Gen. Col., 236; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

Found abundantly by Mr. Crotch at Devizes.

The exceedingly small size ( $\frac{1}{4}$  line) of this pallid testaceous, very delicately punctulated species, readily distinguishes it from our other *Orthoperi*.



48. *AGATHIDIUM CONFUSUM*, Ch. Bris., Gren. Cat. et Mat., &c., Aug. 1863, 9.  
*clypeatum*, Sharp (Nov. 1865); Ent. Ann., 1866, 79.

Dr. Sharp (Cat. Brit. Col.) gives the above synonymy for the *A. mandibulare* of Wat. Cat. (*nec* Sturm).

- 49.? *ANISOTOMA GRANDIS*, Fairm. et Lab., Faune Ent. Franç., i, 316; E. C. Rye, *l. c.*, vii, 180.

I have recorded this species, with some doubt, on the authority of three specimens taken by myself by sweeping at Mickleham, in 1863, and of another example, in Mr. O. Janson's collection, taken near Highgate.

The most typical of my insects, a ♀, seems to differ from *A. cinnamomea* in its rather lesser size and convexity, in its entirely rufous antennæ, of which the club is not quite so large or compact, with the 2nd joint not quite so small or transverse; in its thorax, when viewed from the front, not being so contracted behind, and with its anterior contraction less abrupt, more rounded, and beginning above the middle, and its anterior angles much less evident, and rounded off; and in the interstices of its elytra being evidently punctured. Its posterior femora are distinctly angulated beneath.

The males have their hind femora flattened and terminated by a very slight angular point, with no vestige of other denticulation, and their hind tibiæ very slightly curved.

- 50.? *ANISOTOMA OBLONGA*, Erichson, Ins. Deutschl., iii, 53, note; E. C. Rye, *l. c.*

Dr. Kraatz has returned to me, as probably the *Anisotoma oblonga* of Erichson, an insect given to me by its captor, Mr. J. T. Harris of Burton-on-Trent; and I possess a second specimen, beaten off broom in a wood near York by Mr. H. 1872.

Hutchinson. Both of those appear (as are these referred to by Erichson) to be females: compared with *cinnamomea*, they are rather smaller, distinctly less oblong and more ovate, with the antennæ shorter and entirely rufo-testaceous, the sides of the thorax less abruptly contracted in front, and with more rounded anterior angles, the elytra shorter and wider, with the punctures of the striæ stronger and of the interstices more evident, the larger punctures in the alternate interstices being larger and more numerous, and the legs shorter.

Compared with the ♀ of the species last above recorded, they are broader and shorter, with the antennal club not quite so strong, and with its second joint shorter and more transverse, and the three joints preceding the club more transverse, the punctures of the striæ and larger interstitial punctures stronger, and the posterior femora rounded beneath at the apex.

51. *ANISOTOMA SCITA*, Er., Ins. Deutschl., iii, 70; Ktz., Stettin. Ent. Zeit., xiii, 379; E. C. Rye, *l. c.*, viii, 158.

I have recorded as above, with some slight reserve, an insect taken in flood-refuse near York by Mr. H. Hutchinson, and now in my collection; also some further specimens taken in Scotland by Dr. Sharp and referred by him likewise to *A. scita*, with tolerable certainty, and for one of which I am indebted to him.

It can, apparently, only be confounded with *A. dubia*, from which its tibiæ being less dilated at the apex, its thorax being widest at or very near the base (instead of nearer the middle), and thence narrowed to the front, with a much more shallow emargination for the reception of the head, should serve to distinguish it.

Erichson likens it chiefly to *A. calcarata*, from which it

may be readily known by the comparatively larger apical joint of its antennæ, the straight base of its thorax, the rounded apex of its posterior femora beneath in both sexes, and its less oblong form.

52. PHALACRUS BRUNNIPES, Ch. Brisout, Gren. Cat. et Mat., &c., 1863, 45; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

Dr. Sharp records what he supposes to be this species from Chatham and Lymington. I, also, refer to it with some doubt an individual in my own collection from Lee-pit; and others observed by me among some of Mr. Champion's insects.

*P. brunnipes* is likened by its describer to *P. substriatus*, from which it appears to differ in its lighter-coloured antennæ and legs, its more elongate form, the more elongate club of its antennæ, and the more obsolete and punctured striæ of its elytra. These differences (except the first) are exhibited tolerably satisfactorily in my insect; which, however, would seem to me more closely allied to *P. corruscus*, from very small individuals of which its shorter form, the broader and somewhat shorter club of its antennæ, and the striæ of its elytra being (however delicately) punctured, will serve to distinguish it.

53. MELIGETHES PICTUS (Frontisp., fig. 7), Rye, *l. c.*, viii, 74, described.

Taken in some numbers by Mr. T. Wilkinson and Mr. R. Lawson, chiefly on *Helianthemum vulgare*, near Scarborough.

This species is conspicuous from its elytra being each ornamented on the disc with a more or less sharply defined red stain, varying in size from an oblong streak to a blotch occu-

pying more than half the elytron, and from its long and slender tarsi. It is shining black in colour, with yellowish pubescence and rufo-testaceous antennæ and legs, of which the femora and the outer edges of the middle and posterior tibiæ are pitchy. In size and punctuation it resembles medium individuals of *brunnicornis*, Sturm; but its claws are denticulate at the base, so that it can only be allied to *solidus*, Ill., and any comparison with *M. discoideus*, Er., is unnecessary. The outer teeth of its anterior tibiæ are more even and gradually increased, sharper, and rather less stout than in *solidus*.

54. **PEDIACUS DEPRESSUS** (Frontisp., fig. 2), Hbst.; Er., Ins. Deutschl., iii, 311; E. C. Rye, *l. c.*, vii, 205.

Distinguishable at once from *P. dermestoides* by its lighter colour, more shining appearance, narrower shape, longer thorax (of which the lateral teeth are more pronounced, and the 4th or posterior denticle is situated considerably above, instead of actually at, the hinder angle), more evident and less close punctuation, more evident frontal depression, stouter legs and longer antennæ, of which the 3rd joint is especially longer in proportion.

Eight specimens of this most interesting and curious species have been taken during July and August, 1870, by Mr. J. Ray Hardy, of Hulme, out of chinks of very rotten oak, in a yellowish, minute, dusky fungus, like mould, near Knutsford Park and Stretford, Cheshire. Also taken sparingly, among British stores, on board a yacht at Dartmouth, by Mr. Wollaston in the same year.

55. **CRYPTOPHAGUS SCHMIDTII**, Sturm; Er., Ins. Deutschl., iii, 350; E. C. Rye, *l. c.*, vii, 206, 229.

Distinguished from *C. setulosus* by its rather larger size, and less broad build, the less transverse sub-apical joints of

its antennal club, the lesser development of its thoracic anterior callosity and lateral denticle, and the non-disposition of the punctures of its elytra to run in striæ. It is compared with *C. lycoperdi* by Erichson; from which its longer antennæ, posteriorly more contracted elytra, toothless, obtuse, flattened anterior thoracic angle, and anterior tibiæ not being produced into a sharp tooth externally at the apex, will readily separate it.

A single specimen was taken by Mr. G. C. Champion in August, 1870, in stack refuse, at Wicken Fen. Another example, subsequently received from the same locality, has been liberally presented to me by him. Mr. E. W. Janson appears also to have taken this species some years ago; most probably at Whittlesea.

56. *CRYPTOPHAGUS PUNCTIPENNIS*, Ch. Brisout, Gren., Cat. et Mat., &c., 1863, 63; D. Sharp, Ent. Mo. Mag., viii, 158.

Dr. Sharp records this species from the Cambridge fens, and the Braid Hills, Edinburgh, in each case taken in a straw shed, a locality agreeing with that mentioned by M. Brisout.

I have some time ago determined it from specimens in my own collection, but refrained from bringing it forward, until I had the benefit of its describer's opinion upon certain quasi-intermediate forms between it and *C. pilosus*, from which species *C. punctipennis* may be known by its more oval elytra, of which the pubescence is longer, and the punctuation coarser and not so close, especially at the base.

57. *CRYPTOPHAGUS PARALLELUS*, Ch. Brisout, *l. c.*, 65; D. Sharp, *l. c.*

This species comes rather close to small examples of *dentatus*, but is readily distinguishable by its narrower and

much more elongate form, its thoracic lateral denticle being situated at or a little after the middle of the side, and the much finer and closer punctuation of its elytra.

Taken some years ago at Rannoch by Dr. Sharp and Mr. Crotch (also by the former in Scotch fir at the Escorial, in Spain), and corroborated by M. Brisout.

58. *ATOMARIA BADIA*, Erichson, Ins. Deutschl., iii, 381 ;  
D. Sharp, Ent. Mo. Mag., viii, 74.

Dr. Sharp records a single specimen of this insect, beaten by himself from Scotch fir at Braemar, in June last; noting that it does not at all agree with Sturm's figure, but fits Erichson's description accurately.

I have myself some time ago determined as *A. badia* a specimen taken by Dr. Power at Esher, in July, 1868, but have not brought it forward, as I wished to have a continental opinion upon it before so doing.

*A. badia* is allied to *elongatula*, Er., but is rufo-ferruginous in colour, with a transverse depression at the base of the thorax, and broader and somewhat more strongly punctured elytra.

59. *ATOMARIA ATRA*, Hbst., Natursyst., Käf., v, 15, T. 45,  
f. 5 (*Kateretes*); Er., Ins. Deutschl., iii, 392 ;  
E. C. Rye, *l. c.*, viii, 135.

A single specimen, which I have referred to this long sought species, was sent to me by Mr. Wollaston; it was taken during the past summer by Miss E. Shepherd, in a copse on the side of the meadow, near Leigh.

*A. atra* is apparently most closely allied to *fuscata*, but is darker in colour (its type being deep black), with a longer, more convex, and more laterally rounded thorax, and wider

and stronger punctuation on the elytra, which are more acuminate behind in outline.

There appears to be considerable doubt on the continent with regard to *A. atra*.

60. *MONOTOMA 4-DENTATA*, Thoms., Opusc. Ent., 333;  
E. C. Rye, *l. c.*, viii, 160.

The differential characters given for this insect by Thomson, as pointed out in the above reference, seem to leave little room for doubting that it is the prior described *brevicollis* of Aubé.

61. *MONOTOMA PARALLELA*, Thoms., *l. c.*, 334.

Thomson, who does not mention *quadricollis*, Aubé, compares his insect with *picipes*, stating it to be smaller and narrower, with hardly foveolated forehead, longer thorax, which is scarcely at all wider behind than in front, and has the disc more delicately scabrous, and very shallow basal foveolæ, and elytra scarcely wider than the thorax but longer in proportion, with parallel sides, more delicately punctate-scabrous, with the interstices scarcely rugulose. These characters so accurately fit Aubé's species, that there is little doubt of the two being identical. The points of difference mentioned by Thomson between his *parallela* and *M. longicollis* also tend to the same conclusion.

62. *CORTICARIA OBSCURA*, Ch. Brisout, Grenier, Cat. et  
Mat., &c., 1863, 73; E. C. Rye, *l. c.*, vii, 274.

Taken by Mr. Champion and myself in the early spring of the past year under dry bark in Richmond Park. Also in Dr. Power's collection.

The insects which I have (with some slight reservation, on account of discrepancy in colour) referred as above, are

most nearly allied to *C. serrata*, from which they differ in their rather larger size, flatter and less oval build, larger antennal club, laterally less rounded thorax (whereof the denticulations are finer behind, and the punctuation is not quite so close), and less evidently pubescent but more finely punctured elytra, the interstitial rows and the striæ themselves being equally delicate, and so close that the surface seems very delicately transversely sub-strigose.

63. *SYNCALYPTA HIRSUTA*, Sharp, Ent. Mo. Mag., viii, 151  
(described).

Closely allied to *S. setigera*, Ill., but with much coarser punctuation to the thorax, lighter-coloured antennæ and legs, lighter-coloured, longer, thinner and less clubbed setæ, and the depressed scale-like hairs on the thorax much longer.

I have found this species in small numbers at the roots of *Plantago* at Seaford; and expect it will represent *setigera* in most collections, as the true species of that name appears to have occurred as yet only in the north.

64. *GEOTRUPES STERCORARIUS*, Linn., *nec* Er.  
*putridarius*, Esch., Er.

65. *GEOTRUPES MESOLEIUS*, Thomson, Skand. Col., x, 330;  
E. C. Rye, *l. c.*, viii, 107.  
*stercorarius*, Er., *nec* Linn.

If Thomson be right in considering the insect with simply sinuate mandibles as the true *stercorarius*, the adoption of his proposed name for the other and equally common species, with bi-sinuate mandibles, seems imperative.

I have, *l. c.*, reproduced the diagnostic characters of both insects.



66. GEOTRUPES (STERNOTRUPES, Jekel) PYRENÆUS, Charpentier, Horæ Entomologicæ, 208; D. Sharp, Ent. Mo. Mag., viii, 10.

*vernalis*, Steph., nec Linn.

*politus*, Muls.

var. *corruscans*, Chev.

? var. *splendens*, Zieg.

Dr. Sharp has pointed out the identity of the Stephensian *vernalis*, of which the thorax is only visibly punctured at the sides, with Charpentier's species above named; giving also the above synonymy. He also gives the following additional characters for *G. pyrenæus*, as compared with *vernalis*, Linn.: it is much more brilliant, smooth and shining; it is narrower in proportion to its length; its abdomen is impunctate and shining in the middle beneath; the hinder angles of its thorax are less obtuse and rounded; and in the ♂ the teeth on the under side of the anterior tibiæ are 5, or perhaps 6, instead of at least 8.

Dr. Sharp also (*l. c.*, 9) gives copious synonymy for *G. vernalis*, Linn., of which, however, the already known synonym of *lævis*, Steph., is the only one affecting British coleopterists.

*G. pyrenæus* seems less widely distributed and more local than *vernalis*. It occurs in England but not in Scotland; whereas *vernalis* is found in both countries, *G. pyrenæus* is abundant on Wimbledon Common in autumn and spring; and I have also found *vernalis* in that locality.

For general observations on these insects, cf. Ent. Mo. Mag., iii, 215. Stephens appears to have been the first in this country to recognize the two as species; but, even if he had not attributed the wrong one to *vernalis*, Linn., Charpentier's species would have had priority by about five years.

67. *THROSCUS CARINIFRONS*, Bonvouloir, Ess. mon. Throsc., 20; Thoms., Skand. Col., x, 91; E. C. Rye, *l. c.*, viii. 135; E. W. Janson, Proc. Ent. Soc., 6 Nov., 1871.

*elateroides*, Redt., Fauna Austr., ed. 2, 403 (*Trixacus*), nec Heer; Bethe, Stettin. Ent. Zeit., xxxi, 328.

I have recorded this species on the authority of two examples, ♂ and ♀ (of which one is now, thanks to the generosity of its captor, in my cabinet), found by Mr. Wollaston in August last on a fence at Dry Hill, Tonbridge. It appears, also, that the Rev. A. Matthews has for some time possessed this species, taken by himself at Chiselhurst, and determined and recorded by Mr. Janson immediately after the publication of my notice.

*T. carinifrons* somewhat resembles *T. dermestoides*, from which it structurally varies in the two frontal keels of its head being more distinct, and extended backwards to the prothorax; in its eyes being divided considerably beyond the middle by a narrow horny plate; in its thorax being, in the , at least, flatter, and very evidently and suddenly sinuously contracted towards the front from the lower third; and in its more acuminate elytra, of which the striæ are more delicately impressed, and the interstitial punctures are rather clearer, the surface being not so coarsely granulated.

Redtenbacher states his insect to be very common on *Parietaria officinalis* at Vienna.

68. *AGRIOTES SORDIDUS*, Illiger, Mag. für Insectenkunde, vi (1807), 7; Candèze, Elat., iv, 391; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

*rufipalpis*, Brullé.

A carded specimen, taken long since by Mr. Wollaston at

Southend, is in Mr. Crotch's collection. Dr. Sharp adds that the species should be found, if looked for, on our Southern coasts. It appears hitherto to have been considered as confined to the basin of the Mediterranean, and to occur chiefly in Spain; and is intermediate between certain forms of *sputator* and *ustulatus*, being more depressed than the former, and more massive, larger, and more opaque than the latter; it is also more punctured than either of them, with the posterior coxæ more strongly dilated internally, and the prothorax more elongate.

69. *PTINUS SUBPILOSUS*, Müll. (? Sturm, Ins. Deutschl., xii, 32; Boieldieu, Mon. Ptin., Ann. Soc. Ent. Fr., sér. 3, 644; Thoms., Skand. Col., x, 333); D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

Obtained by Dr. Sharp from Mr. Crotch with no locality; also purchased by him years ago from Mr. Brewer. I, also, obtained some few specimens of this insect from Mr. Brewer, who took them, I believe, in Tilgate Forest, associated with ants.

Mr. Brewer's specimens are about the size of small examples of *P. fur*, from which they can be at once known by the much longer setæ and coarser punctuation of their elytra, the absence of the white tuft of hairs that fringes the base of the thoracic medial furrow, which is not shining at the bottom, &c.

70. *CIS ELONGATULUS*, Gyll., Ins. Suec., iv, 627; Mellié, Ann. Soc. Ent. Fr., 1848, 274; Redt., Fauna Austr., 2nd ed., 573; Thoms., Skand. Col., v, 182 (*Hadraule*); D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

"Mr. Crotch considers he has Scotch examples of this species." It appears to be of the size of the largest *C. festivus*, linear-elongate, more depressed than its allies, somewhat

shining, brownish-black, with red antennæ and legs, the prothorax exceedingly delicately punctured, and the elytra rather regularly and strongly punctate-striate, with the interstices almost regularly set with short hairs. It appears to be universally very rare.

71. *SERROPALPUS STRIATUS*, Hellenius, Vetensk. Akad. nya Handl., 1786, vii, 310; Gyll., Ins. Suec., ii, 515; Redt., Fauna Austr., 631; Muls., Hist. Nat. Col. de France, Barbipalpes, 83; Bach, Käfer-F., iii, 241; Thoms., Skand. Col., vi, 315; J. O. Westwood, Proc. Ent. Soc. Lond., 1867, cvi; D. Sharp, Cat. Brit. Col., 1871, 26.

? *Vaudoueri*, Latr.; J. O. Westwood, Zool., 1844, 701; Ent. Ann. 1855, 132 (*Vaudouerii*).

Professor Westwood, at a meeting of the Entomological Society held on 2nd December, 1867, exhibited an individual of the above species, taken in Leicestershire, and stated to be the same as that recorded in the "Zoologist" above quoted. I accidentally omitted to include in the "Annual" for 1869 (that for 1868 being in the press at the time of the exhibition above referred to) this fresh identification of an already registered insect, which no one until now has considered worthy of a place in our catalogues, considering the want of certainty as to its species and the doubtful evidence upon which it was originally proposed to be treated as indigenous. The record in the "Zoologist" states that Mr. Westwood "had been favoured by Mr. I. Plant, of Leicester, with a specimen of the genus *Serropalpus*, which was captured by his brother in the warehouse of Messrs. Harris and Sons, hosiers, in a bundle of hose,\* which a countryman had just brought from

\* There is, of course, no doubt that truly indigenous species often occur in the most unexpected localities; and this capture reminds me that during the past autumn a specimen (dead, of course) of *Sibynus*

the neighbourhood of Loughborough, situated near Charnwood-forest, from the vicinity to which Mr. Plant concluded it was to be found on the oaks in the forest." Some further observations, entirely of a hypothetical nature, relative to Mr. Westwood's own suggestion that this insect was of continental origin, need not be here reproduced. On such want of evidence as this, it was manifestly impossible for any one compiling a catalogue of British Coleoptera to include *Serrupalpus* as truly indigenous. Had any one been so inclined, there is nothing in Mr. Westwood's original notice to point to any particular *species*, except a somewhat unintelligible remark that the longitudinal impressions on its elytra are the cause of its specific name, and a statement that there is a species in Dejean's Catalogue named *S. Vaudoueri*,† Latr., from the west of France, apparently undescribed, "which may possibly be our insect." At the present time, after a lapse of 30 years, without a second specimen of so exceedingly conspicuous an insect being found, it seems additionally unreasonable to consider the species as truly British, upon the evidence as yet adduced; although there would seem a great probability of its occurring in this country, as it is found in Prussia, Bavaria, Austria, Sweden and France (ascribed to an author unknown to me, named "Hellwing," in Grenier's Catalogue). It would not, however, be likely to be found in an oak district, as it seems to live exclusively in the old dry wood of firs and pines. Gyllenhal notes its being found *primitus* was found in the extreme inside corner of a little stocking belonging to one of my children, which had just passed through the ordeal of the wash-tub! The child is a baby in arms; and I should be much surprised to meet with the *Sibynes* at Putney, even in a natural locality for it. E. C. R.

† Mulsant has, since the publication of Mr. Westwood's notice, described a species from France, Germany and Bône, under the name *Vaudoueri*; this, however, is a true *Phlæcotrya*. E. C. R.

by himself in June, in felled fir-trunks, under the bark, emerging from cylindrical burrows, that almost reached the centre of the tree. As Mulsant states "Quelquefois elle éclot dans les villes, au sein des arbres (sapins) qui y sont transportés," it seems not at all improbable that, if any part of the warehouse in which the Leicester insect was found were built of Norway pine, the mystery of its appearance is readily capable of explanation.

*Serropalpus* is closely allied to *Phlæotrya* and *Zilora*, and is distinguished by its maxillary palpi being very large, with their 2nd joint triangular, the 3rd very short and internally hamate, and the apical very large and lunate. Its antennæ are filiform, and as long as half the body in the ♂. The sole known species of the genus, as now restricted, is very variable in size, but apparently always larger than ordinary specimens of *Phlæotrya rufipes*; it is elongate, linear, convex, narrow behind, opaque, very finely rugose-punctate, and brown in colour, with silky pubescence. Its elytra are obsoletely striated, and its thorax has the postero-lateral margins sharp and compressed, and the hinder angles acuminate.

*Barbatus*, Schaller, is given as a synonym of *striatus* by De Marseul, Redtenbacher refers that name only to Fabricius and Duftschmidt; but if Schaller be the real author of it, I do not understand why his name is not adopted, as it must have been published in his "Neue Insecten beschrieben," in the Schrift. naturf. Gesellsch. Halle, 1783, i, p. 217 *et seq.*, three years prior to Hellenius's work.

72. ZILORA FERRUGINEA (Frontisp., fig. 1), Paykull, Fauna Suec., i, 250; Redt., Fauna Austr., ed. 2, 629 (*Xylita*); Gyll., Ins. Suec., ii, 521 (*Dirœa*); Muls., Hist. Nat. Col. de Fr., Barbipalpes, 85;

Thoms., Skand. Col., vi, 322; D. Sharp, Ent. Mo. Mag., viii, 74.

*Helops sericeus*, Sturm, Ins., ii, 261, T. 51.

Taken at Braemar, in June last, under bark of Scotch fir, very sparingly, by Drs. Sharp and Buchanan White, to the latter of whom I am indebted for a specimen of this most interesting addition to our list.

Mulsant's *Zilora*, a genus new to our lists, is closely allied to *Dircæa*, from which it differs in its coarser punctuation, in the 3rd joint of its antennæ being shorter and narrower than the 4th, its smaller, narrower, laterally acutely margined and basally impressed thorax, its more separated intermediate coxæ, and its shorter tarsi. *Z. ferruginea*, the sole known species, has more the superficial appearance of a discoloured ♀ *Conopalpus Vigorsii* than of any other of its British allies. It is about the same size as that insect, and is ferruginous in colour, with the elytra more or less dark (the shoulders alone being sometimes paler), and is clothed with rather long pubescence.

73. *EUSOMUS OVULUM*, (? Illig.) Germ., Ins. Spec., i, 459; Faun. Ins. Eur., xi, 15; (Boh.) Schön., Gen. et Spec. Curc., v, 938; Redt., Fauna Austr., 2nd ed., 701; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

“Taken by Mr. Edleston, at Grange.”

The genus *Eusomus*, Germ., new to our lists, is intermediate in position among the *Brachyderidæ* between *Sciaphilus* and *Barypithes* or *Sitones*: it has somewhat the *facies* of *Polydrosus*, from which its dentate femora, apterous condition, very convex ovate elytra, short scrobes, emarginate rostrum, &c., at once distinguish it. The type species, *E. ovulum*, is about the size of *P. sericeus*, clothed

with yellowish-green, slightly metallic, round scales, with the funiculus reddish-brown, and the broad, flat interstices of the elytra sometimes alternately more yellow than the rest. It seems to live among grass, and to be very common at Vienna. The genus is almost peculiarly South-European, and its extension from the Caucasus, Crimea, Hungary, Crete and Algiers to the north-west coast of Britain is, indeed, interesting.

74. *SITONES ONONIDIS*, Sharp (Nov., 1865); Bedel, Ann. Soc. Ent. Fr., 4e. sér., 1871, Bull. lxiii.  
*guttulatus*, Chevrolat, *ibid.*, lii.

M. Chevrolat appears to have detected the identity of this insect with Dr. Sharp's species, when correcting the proofs of his article. It has been considered to be *meliloti* by a French authority! M. Bedel records its capture on *Ononis repens* in the Departement de L'Orne.

75. *SITONES BREVICOLLIS*, Schönh., Gen. et Spec. Curc., ii, 114; Allard, Ann. Soc. Ent. Fr., 4e sér., xiv, 350 (*tibialis*, var. b); Berl. Ent. Zeit., xiii, 321; Thomson, Skand. Col., vii, 100 (*tibialis*, var. d, ♀); Opusc. Ent., iii, 336; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

Allard, who, after some hesitation reunited the *tibialis*, *striatellus*, *ambiguus*, and *brevicollis* of Schönherr as varieties of one species, now considers that (with the exception of the 2nd of them) they are specifically distinct. Thomson originally considered *brevicollis* as the ♀ of *ambiguus*, both of them forming his var. d of *tibialis*: but he also now allows *brevicollis* specific rank.

Thomson's exhaustive characters for *S. brevicollis*, as compared with *tibialis*, are its less size, its rostrum being



sub-angustate at the apex, and with the medial furrow more distinct in front; its antennæ being black, with the scape paler at the base; its sub-transverse, shorter thorax, of which the sides are slightly rounded; its elytra being more convex on the back behind, and wider, sparingly clothed with smaller shining scales (the margins, suture, and two dorsal vittæ being more densely clothed with paler scales), with the punctuation of the striæ more evident, and the short setæ brown (not alternately light), and more dense, especially behind.

Dr. Sharp notes that it is not uncommon in the south. Allard appears to have only observed it from Austria, in Javet's collection. Thomson records it as rather rare, in woody districts. I have only a single specimen, which exhibits the most important of the characters above specified.

76. *PISSODES PINIPHILUS*, Herbst, *Natursyst.*, Käf., vii, 24 (*Curculio*); Gyll., *Ins. Suec.*, iii, 70 (*Rhynchænus*); Schön., *Gen. et Spec. Curc.*, iii. 262; Thoms., *Skand. Col.*, vii, 222; T. J. Bold, *Ent. Mo. Mag.*, vii, 275.

Mr. Bold records the capture by the Rev. R. Kirwood, at Sunderland, of two specimens of the above-mentioned insect, probably imported in timber-laden ships from the north of Europe.

The species might, however, be found in this country, as it occurs in Sweden, France, Germany, and Finland.

It resembles small examples of *P. notatus*, from which it may be known by the 1st fascia of its elytra being obsolete, and the 2nd nearer the middle than in that species; whilst the punctures on its thorax are wider apart, and not confluent.

Mr. Bold (Cat. Ins. North. and Durh., Rev. of Col., 1871, p. 91) mentions having seen another species of *Pissodes* at Newcastle, which had come with pit-props from Norway. This was *P. Gyllenhali*, Schön., found in a wood-yard, and exhibited with pride by a collier as "the Norway wood-louse"!

77. *BAGÖUS NIGRITARSIS*, Thoms., Skand. Col., vii, 190;  
D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.  
*lutulentus*, var. b., Gyll. (*Rhynchænus*).

"Cambridge," Mr. Crotch.

According to Thomson, this insect is very like *lutulentus*, but may be distinguished by its rather shorter thorax, which is sub-dilate at the sides and narrowed at the base, with rather obtuse posterior angles, and the disc more strongly and sub-rugosely punctate; the alternate striæ of its elytra being less conspicuously elevated; its antennæ and tarsi black, the 2nd joint of the former being almost transverse; and its rostrum punctured at the apex.

78. *ORCHESTES SPARSUS*, (? Gyll.) Fabræus, in Schön. Gen. et Spec. Curc., vii, 375; H. Brisout, Ann. Soc. Ent. Fr., 4e sér., 273; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag. viii, 83.

*melanarius*, Kies., Ann. Soc. Fr., 1851, 645.

In Dr. Power's Collection (taken in July, 1866, near Surbiton); confirmed by M. Brisout.

*O. sparsus* is in the same section as (and rather smaller than) *ilicis*; covered with black hairs, rather long and erect on the thorax, and depressed on the elytra, which are obsoletely banded with white tomentosity, and have a fulvous sub-quadrangular spot behind the scutellum: its posterior femora are obsoletely denticulated.

It appears to frequent birch, and sometimes oak, and to be found in Algeria, Spain, and the south of France, being rare near Paris.

79. TYCHIUS PYGMÆUS, Brisout.

*brevicornis*, Waterhouse.

Dr. Sharp, in his Catalogue, gives Mr. Waterhouse's species precedence: but, as it was published in May, 1862, and M. Brisout's in 1860, and I am not aware of any prior described species named *pygmæus*, there would seem no reason for refusing priority to M. Brisout.

The insect has been found by Dr. Power abundantly at Weybridge, during the past summer.

80. CEUTHORHYNCH(IDE)US CROTCHI, Ch. Brisout, "L'Abeyille," v (1869), 437; E. C. Rye, *l. c.*, viii, 159.

Described from England only, I do not know why this species has hitherto escaped record in this country. It is apparently very like *versicolor*, Ch. Bris. (*quercicola*, Wat. Cat.), but distinguishable therefrom by its more depressed prothorax, of which the anterior margin is less reflexed, and by its testaceous tarsi, of which the claws are smaller.

81. CEUTHORHYNCHIDEUS PULVINATUS, (Gyll.) Schön., Gen. et Spec. Curc., iv, 494; Redt., Fauna Austr., Ed. 2, 800; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 83.

In Dr. Power's collection (taken in August, 1867, at Hastings); confirmed by M. Brisout.

Thomson (Skand. Col., vii, 256), whose views are usually the reverse of synthetical, considers this insect to be a variety

of his *cochleariæ* (= *pyrrhorhynchus*), more densely clothed with scales on the upper surface.

82. *CEUTHORHYNCHUS ROTUNDATUS*, Ch. Bris., *l. c.*, 452; D. Sharp, *Cat. Brit. Col.*; *Ent. Mo. Mag.*, viii, 83.

Taken by Mr. Crotch near London, and confirmed by M. Brisout, who describes it as near *punctiger*, but of shorter form, and greater convexity, with relatively wider striæ, and its pygidium not deeply excised.

83. *BARIS CHLORIZANS*, Germ., *Ins. Spec.*, i, 201; (Gyll.) Schön., *Gen. et Spec. Curc.*, viii, 163; Redt. *Fauna Austr.*, Ed. 2, 785; H. Brisout, *Mon. Barid.*, *Ann. Soc. Ent. Fr.*, 4e sér., 1870, 313; D. Sharp, *Cat. Brit. Col.*; *Ent. Mo. Mag.*, viii, 83.

Taken by Mr. Sidebotham, at Devizes.

Rather smaller than *abrotani* (*pivicornis*), with shorter elytra, of which the humeral angles are more prominent, and the striæ finely punctured, their interstices also having a very fine and indistinct row of punctures.

84. *RHYNCOLUS GRACILIS*, Rosenhauer, *Thiere Andalus.*, 300; D. Sharp, *Cat. Brit. Col.*; *Ent. Mo. Mag.*, viii, 84.

*filum*, Muls., *Opusc. Ent.*, 1859, 42.

*angustus*, Fairm., *Ann. Soc. Ent. Fr.*, 1859, 164.

In Mr. Crotch's collection; taken by the late Rev. Hamlet Clark at Esher.

The insect has apparently been hitherto only recorded from the south of Europe, Italy, and Algiers.

85. *MAGDALINUS HEYDENI*, Desbrochers des Loges, Mon. des Magdal. d'Eur. (L'Abeille, vii), 21; D. Sharp, Scottish Naturalist, i, 40; Cat. Brit. Col., 1871; Ent. Mo. Mag., viii, 84.

Dr. Sharp, in expressing some doubt as to the true *M. duplicatus*, Germ., having as yet been taken in this country, notes that M. des Loges has stated that he possesses a specimen from England of his recently described *M. Heydeni*, which has also occurred near Frankfort-o.-M. in July, on birch (its larva attacking the wood and bark of young pines), in Sweden, and Switzerland. No differential diagnostic characters for it are given by M. des Loges, who places it at some little distance from *duplicatus*, from which its more ovate shape, darker colour (black, with obscurely blue elytra; sometimes all black), smooth head, more robust rostrum, sub-quadrate, coarsely punctured thorax, and wider elytral striæ, will serve to distinguish it.

86. *APION ANNULIPES*, Wencker, Monogr. des Apionides, 37 ("L'Abeille," i, 145); E. C. Rye, *l. c.*, viii, 159.

Two ♀ specimens of this insect were taken by Mr. Champion and myself at Mickleham, in October last. They differ from the same sex of their close ally, *flavimanum*, Gyll., in their entirely black and very much stouter legs and wider tarsi, brilliant and very finely punctulated rostrum, rather shorter prothorax, of which the punctuation is not so close, and the less dull interstices of their elytra.

The ♂ appears to have the antennæ testaceous, except the club, all the tibiæ marked with testaceous before the base, and the femora, especially the anterior, exceedingly robust.

87. *HYLURGUS MINOR*, Hartig, in forstlichen &c. Conversations-Lexikon, 1834, 413; Ratzeb., Forstins., Käf., 177, T. vii, f. 2 (*Hylesinus*); Thomson, Skand. Col., vii, 355; D. Sharp, Ent. Mo. Mag., viii, 74.

Taken by Drs. Sharp and Buchanan White at Braemar in June last.

Very closely allied to *H. piniperda*, but usually somewhat smaller, and with brown elytra, which are more delicately punctate-striate, with the interstices more closely punctulate, and the *second* interstice set with roughened elevated tubercles like the rest; the 1st denticle on the exterior of the hinder tibiæ is placed in the middle of the tibia, and the 2nd is far removed from the apex.

88. *CISSOPHAGUS HEDERÆ*, Schmidt, Ent. fragm., Stettin. Ent. Zeit., iv, 108; Redt., Fauna Austr., Ed. 2, 826 (*Hylastes*); Chapuis, Synopsis des Scolytides, 34 (*Kissophagus*); E. C. Rye, *l. c.*, viii, 107.

*Hylurgus pilosus*, Wat. Cat.; Chapman, Ent. Mo. Mag., v, 199, *nec* Ratz.

The above correction in the nomenclature of a somewhat rare British insect speaks for itself.

Chapuis has formed the genus *Cissophagus* to contain this species, distinguished by the 6-jointed funiculus of its antennæ, the distinctly bi-lobed 3rd joint of its tarsi, and by its mentum being rotundate-ovate at the base. Schmidt evidently counted the scape as part of the funiculus, when terming the latter 7-jointed.

89. *XYLECHINUS PILOSUS*, Ratzeb., Forstins., Käf., 178, T. vii, f. 4; Redt., Fauna Austr., Ed. 2, 827 (*Hylurgus*); Bach, Käfer-f., ii, 144 (*Dendroctonus*);

Thoms., Sk. Col., vii, 353 (*Phlæophthorus*); Chapuis, *l. c.*, 36; E. C. Rye, *l. c.*, viii., 107; *nec* Wat. Cat.

A few examples of this species, not previously recorded correctly as British, were taken during the past autumn by Mr. R. Lawson, near Scarborough, under fir bark; and I am indebted to that gentlemen for the only exponents that I have seen of it.

*Xylechinus*, separated from *Carphoborus* by Chapuis for the reception of this insect alone, has a 5-jointed funiculus, the 3rd joint of the tarsi simply cordate, and the mentum cordiform.

*X. pilosus* has the suture of its elytra more or less evidently clothed with greyish pubescence: superficially, it somewhat resembles *Hylastes obscurus*, and, more closely, *Polygraphus pubescens*; from both of which its generic characters will amply distinguish it at once. Compared with the old *pilosus* of our Catalogues (*hederæ*, Schmidt), apart from its 5-jointed funiculus and not bi-lobed 3rd tarsal joint, it is darker, more elongate, with a longer and narrower thorax, on which the squamiform pubescence forms an evident dorsal ridge, the elytra less abruptly rounded behind, with the punctures of the striæ less clearly defined, and the interstitial setæ not so stout or long, the anterior tibiæ more triangularly dilated, and with only 2 or 3 teeth at the apex, the antennæ stouter and shorter, &c.

90. POLYGRAPHUS PUBESCENS, Fab., S. E., ii, 394 (*Hylesinus*); Erichson, Wieg. Archiv., 1836, i, 57; Redt., Fauna Austr., Ed. 2, 829; Thoms., Skand. Col., vii, 356; E. C. Rye, *l. c.*, viii, 82.

*Dermestes polygraphus*, Linn., Faun. Suec. 420.

*Eccoptogaster polygraphus*, Gyll., Ins. Suec., 14, 349.

*Hylesinus polygraphus*, Ratz., Forstins., Käf., 182,  
T. vii, f. 12.

A few specimens of this interesting wood-feeder, belonging to a genus new to our lists, were taken at the end of last summer, under fir bark near Scarborough, by Mr. R. Lawson, to whose accustomed liberality I am indebted for the insect.

The genus *Polygraphus*, Er., is readily separable from the other *Hylesinides* by each of its eyes being almost entirely divided into two parts, through an encroachment of the canthus; by the 3rd joint of its tarsi not being wider than the 2nd; and by the non-articulate club of its antennæ, which is very large, flattened, and ovate, and considerably longer than the funiculus, which is only 4-jointed. Chapuis, *l. c.*, forms a sub-tribe, *Polygraphidæ*, expressly for its reception.

The insect can be superficially compared with *Hylastes obscurus*, Marsh., which it somewhat resembles in size, build, and colour, but from which its delicately and confusedly granulose-punctate (not striate) elytra, clothed with scanty scale-like pubescence and very short setæ, and its anterior tibiæ being dilated in a much less degree and less abruptly, and being only slightly denticulate-serrate on the outer edge, will readily distinguish it.

91. *CRYPHALUS GRANULATUS*, Ratz., Forstins., Käf., 164,  
T. xiii, f. 19; Redt., Fauna Austr., Ed. 2, 832;  
D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii,  
84.

In Dr. Power's collection (taken in June, 1867, near Surbiton); confirmed by Herr Eichhoff.

It is very like *C. binodulus*, but considerably larger, with the funiculus and legs partially yellow, and the striæ of the elytra distinctly punctured near the suture.



92. *URODON RUFIPES*, Fab., S. E., ii, 401 (*Bruchus*); (Gyll.) Schön., Gen. et Spec. Curc., v, 142; Redt., Fauna Austr., Ed. 2, 673; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 84.

“Taken by Mr. Plant, at Leicester.”

The genus *Urodon*, Schön. (new to the British lists), the connecting link between the *Bruchidæ* and *Anthribidæ*, has the antennæ inserted at the sides of the very short, broad rostrum, with three distinctly larger apical joints; the eyes round, the scutellum rounded, the elytra not striate, and only slightly longer than broad, the femora un-toothed, the tibiæ slender and not mucronate at the apex, the posterior coxæ close together, &c.

*U. rufipes*, which seems to frequent the flowers of *Reseda*, is recorded from the south of France, Austria, Spain and Algiers: it is about the size of average *Bruchus loti*; black, thickly clothed with grey pubescence, with reddish-yellow antennæ and legs, and the hinder femora blackish at the apex.

93. *THYAMIS RUTILA*, Illig.; Allard, Mon. Alt. (L'Abeille, iii, 403), 235; E. C. Rye, *l. c.*, vii, 206.

Distinguished from *T. jacobææ*, Waterh. (*tabida*, auct., nec Fab.) by its deeper red colour, and its much stronger and more evident punctuation, which on the elytra is disposed in striæ near the base.

This species has already been in some British catalogues; but the specimens on which it was introduced are (as I have satisfied myself by inspection) merely red individuals of the common insect above mentioned. Mr. Moncreaff, however, has taken several examples of the true *rutila*, near Southsea. Allard mentions *Scrophularia aquatica* as its food-plant.

94. *THYAMIS AGILIS*, Rye, *l. c.*, v, 133 (1868); *ibid.*, viii, 160.

The capture by the Rev. H. S. Gorham and Dr. Power at Bearsted, near Maidstone, in May last, of some further examples of this species, has made its food-plant, *Scrophularia aquatica*, known to us, and has also rendered an addition to the original description necessary.

Two other examples, of the type form, have also been taken by Mr. Gorham, during the past summer, near Staple, Kent.

The most fully coloured of these Maidstone specimens is entirely black beneath, with the head, scutellum and hind femora (except at the base internally) black, the suture narrowly edged with black at the base and apex, and broadly in the middle, and an indeterminate pitchy lateral elytral patch. This strongly marked form seems distinct from *lateralis*, Ill. (which seems confined to *Verbascum*), in the much lesser spurs of its posterior tibiæ, its less prominent humeral callus, the non-disposition of its elytral punctuation in striæ in the upper half, its lighter coloured thorax, &c.

95. *THYAMIS CERINA*, Foudras; Allard, *l. c.*, 154; E. C. Rye, *l. c.*, 207.

Rather smaller than *T. ballotæ*, which it considerably resembles, and from which it differs in being ferruginous-red beneath, instead of black, and in having the punctuation of its elytra confused (instead of being disposed in tolerably distinct striæ near the base), and not quite so strong.

Taken by myself in the London district; I believe, at Mickleham.

96. *THYAMIS FOUDRASI*, G. R. Crotch, Cat. Brit. Col., Ed. 2, 1866; D. Sharp, Cat. Brit. Col., 1871.  
*atricapilla*, Wat. Cat., Redtenb., Allard (1860), *nec* Dufts. (= *melanocephala*, Gyll.)

M. Allard, in his latest work, Mon. Alt. ("L'Abeille," iii, 1866, 385), 217, follows Foudras, Kutschera, and Crotch (Cat. Brit. Col., Ed. 1) in adopting *piciceps*, Steph., for this insect, which name, following Wat. Cat., he erroneously quotes as *picipes*.

The above proposed change, which has hitherto accidentally escaped record, is presumably owing to the fact of Stephens's *piciceps* being palpably *melanocephala*, Gyll.,—as is, indeed, noticed in the synonymy of Wat. Cat.

97. *CASSIDA CHLORIS*, Suffrian, Stettin. Ent. Zeit., v, 188; Boheman, Mon. Cassid., i, 384; Redt., Fauna Austr., Ed. 2, 955; D. Sharp, Cat. Brit. Col.; Ent. Mo. Mag., viii, 84.

Specimens of a *Cassida* taken by Dr. Sharp and Mr. Lennon in the Dumfries district, are different from our other species, and are, in Dr. Sharp's opinion, perhaps to be referred as above.

*C. chloris* appears to be allied to *sanguinolenta*, but to be ovate, with the hinder angles of the thorax acuminate, and its basal portion with metallic lustre, and the base of the elytra blood-red, with metallic elevations.

98. *SCYMNUS LIVIDUS*, Bold, Cat. Ins. Northumb. and Durh. (Revision of *Coleoptera*), 1871, 109 (described).

A single specimen, found on the sea-banks, near Hartley,

in April, is described by Mr. Bold as smaller, more oval, much more finely and evenly punctured than *S. discoideus*, to small and pale examples of which it bears a superficial resemblance. It is livid testaceous in colour, with the thorax and suture obscurely fuscous, and the head and claws black.

10, LOWER PARK FIELD, PUTNEY, LONDON, S.W.

27th November, 1871.

## HYMENOPTERA.

NOTES ON THE ACULEATE HYMENOPTERA OF SOUTH  
DEVON, &c.

BY FREDERICK SMITH.

SIX years ago, I ventured to suggest that "If the coasts of Devon were thoroughly investigated the task would amply repay the Hymenopterist who undertook such a tempting excursion." In 1869, during the month of August, I collected over a considerable part of the country between Lynmouth and Woolacombe Sands in North Devon; and in the Annual of 1870, I gave a list of the Hymenoptera taken in that district; a few species of rarity are to be found in that list, but none of them were taken in abundance.

During the past season I visited, for the first time, a portion of the coast of South Devon; my collecting there amply proves the correctness of the prognostication that I made in 1866.

I took up my quarters, during the month of August last, at Sidmouth; my explorations extended, in an easterly direction, as far as Seaton; Hymenoptera are not very abundant in that direction, with the exception of one or two common species; *Andrena fulvicrus* is however extremely abundant, large colonies of this bee were met with in banks, and on the slopes of the cliffs; but after most careful attention, I was unable to detect any of the cuckoo-bees parasitic upon it. *Colletes fodiens* was found plentifully frequenting the yarrow

(*Achillea millefolium*). Two bees of great rarity were taken on this line of coast, about two miles from Sidmouth, a single example of each; one being *Nomada armata*, of which only a dozen specimens are to be found in the united collections of Hymenoptera with which I am unacquainted; the other was *Stelis octomaculata* (Frontispiece, fig. 3). Of this extremely rare bee, two examples are in the collection of the late Mr. Walcott of Bristol, and two in my own, one a male; the latter I bred from a nest of *Osmia leucomelana* constructed in a bramble stick from Hampshire, obtained upwards of twenty years ago; the *Osmia* I failed to obtain at Sidmouth.

The cliffs to the east of Sidmouth appear to be the best locality in the neighbourhood for Lepidoptera; I mention this for the information of others who direct their attention to that order; and I do so, not as the result of my own observation alone, but as the result of the experience of two gentlemen who were collecting around Sidmouth last August. About two miles and a-half east of the town, is a gap in the cliffs; it is situated at the bottom of a valley, and has on its eastern side a rippling stream that runs down on to the beach; in this gap we found the Lulworth Skipper, *Pamphila Actæon*; numerous specimens of which were taken by the gentlemen alluded to above; *Thecla betulæ* also occurs here, and I may observe, that around Sidmouth I observed several of the commoner species of butterflies, in numbers greatly exceeding anything of which I had even imagined the possibility of their occurrence.

Leaving the beautiful line of coast between Sidmouth and Seaton, the lovely valleys, and the splendid views from Salcombe Hill, the Hymenopterist will do well to direct his steps towards High Peak on the west of the town; having reached that elevation, he will be glad to rest himself and to

gaze upon some of the loveliest landscape scenery in Devonshire. High Peak, and the open commons in the neighbourhood, are, according to my experience, some of the richest localities for Hymenopterous treasures; the following enumeration of species will serve to prove the truth of this observation.

*Formica cunicularia* is a common species on High Peak; *Methoca ichneumonoides* is also found there. One of the most local of our British bees, *Saropoda bimaculata*, is found here in immense profusion; I have seen it in great numbers in Sandown Bay, Isle of Wight; but, along the whole line of coast between High Peak, and Flag-staff Hill beyond Budleigh Salterton, it occurred by thousands; its shrill piping is heard all the day long.

Of fossorial Hymenoptera I may note the occurrence of *Pompilus rufipes*, not however common during August; these insects would probably be found in greater numbers during September. *Pompilus fuscus* I mention only because I captured a single specimen having the posterior femora red; I do not know of its having occurred in this form of variety previously in Great Britain; from the northern parts of Europe I have seen many such examples. *Cerceris labiata* is a common species here, and also near Budleigh, as is also *Cerceris arenaria*. The rare, or certainly extremely local insect, *Astata boops*, was only taken at Budleigh Salterton, on the top of Flag-staff Hill; but it was not in great abundance. The capture of a species, new to the British fauna, is a circumstance that seldom falls to my lot, but I was not greatly surprised when it occurred; I should have been quite as much astonished if my visit to South Devon had not been accompanied by such a result; the capture was limited, I regret to have to record, to a single specimen of the male—the species being the *Aporus femoralis*

of Van der Linden. This species has been regarded, by some authors, as being only a variety of *Aporus unicolor*; Van der Linden himself does not point out any other difference than colour, but I can detect a structural difference, and on this I uphold the species as good; the specific distinction is pointed out in the description given hereafter.

Of *Vespidæ*, the only rarity met with, was *Odynerus trifasciatus*. The *Anthophila* were not numerous in species; about twelve belonging to the genus *Halictus* occurred, all being those of general distribution. Of the genus *Andrena* several rare species were taken, all being found on High Peak; *Andrena pilipes* was found plentifully; I can only imagine this circumstance attributable to the elevated situation in which they appeared, it being 500 feet above sea level; these bees were in the finest possible condition; this appeared strange, as I had taken numerous examples, worn and faded, early in July at Southend, where the bee was certainly gone for the season, in the month of August;—these remarks will equally apply to the capture of a series of fine specimens of *Andrena thoracica*.

A single specimen of an *Andrena* was taken, which at the time of its capture I without hesitation considered to be a new species,—I hunted however in vain for others; and although it differs so greatly in the colour of its pubescence from *Andrena pilipes*, I am now inclined to think, may be an abnormal example of that species; I never, however, among the hundreds of specimens I have seen of that bee, ever observed any variation except in the occasional deeper tint of the wings; I shall provisionally name and describe it, leaving its specific value to be determined hereafter.

*Andrena rosæ* has always hitherto been accounted a rare species; at High Peak it was very plentiful, frequenting the flowers of the bramble. I have also to record the capture of



a fine species of *Andrena*, made for the first time, the insect being *A. vitrea*; there was a series of specimens of this bee in the collection of the late Mr. T. Desvignes, formerly that of Mr. E. Shuckard; one of these he presented to myself; when the collection was sold, it was purchased by Mr. Walcott of Bristol; unfortunately, the entire collection perished in its transit from London; the single example, presented to my collection, becoming unique. I have now obtained a series of thirty-two specimens, three being males; that sex was previously unknown. Two or three other scarce species of *Andrena* occur in the same locality; *Andrena denticulata* and *A. dorsata*, both being found there.

Several of the scarcer species of *Apidæ* are found at High Peak, and Budleigh Salterton; at the former locality may be mentioned, *Stelisphæoptera* and *S. aterrima*, also *Nomada armata*; at the latter place, *Panurgus calcaratus*, *Osmia spinulosa* and *Nomada armata*; *Apis ligustica* was also observed there.

I give a complete list of the Hymenoptera taken; its use whenever the insect Fauna of Devonshire is compiled may probably be appreciated.

The past season has certainly been productive of several of our rarer *Aculeata*; Mr. Rothney was fortunate in securing during a short visit to the Isle of Wight, in July last, several of the scarcer species; he furnished a list from which I extract the following:—*Methoca ichneumonoïdes*, four specimens of the female; *Mutilla ephippium* and *Myrmosa melanocephala*, both insects in some numbers; *Astata boops* at Black Gang Chine. *Aporus bicolor*, four males and three females; this capture is one of the most important that has occurred, no one had previously captured the male in this country; the insect was not known to Shuckard, and consequently is not described in his excellent Essay on the Fossils  
1872.

social Hymenoptera; the species he describes under the name of *Aporus* belongs to a distinct genus, *Evagethes* of St. Fargeau; *Aporus* was captured in the vicinity of Ventnor; *Tachytes unicolor* occurred in the same locality: I have hitherto considered this an extremely rare insect, Mr. Rothney took seven specimens. One of the rarest species belonging to the *Pompilidæ*, *Agenia variegata*, was taken at Steep Hill near Ventnor.

To the Hymenopterous Fauna of the Isle of Wight, published in 1860, Mr. Rothney has added the species of *Pompilus* already named and also *P. agilis*; of bees, the additions are, *Andrena Hattorfiana*, the finest of our indigenous species; *A. thoracica* and *A. pilipes*. *Megachile argentata*, found at Ventnor, is an important addition; also *Nomada armata*, the parasite of *Andrena Hattorfiana*.

No addition has been made to the *Formicidæ*, but one or two captures of interest may be noticed: Mr. Lawson of Scarborough took several specimens of *Stenammina* (*Myrmica*) *Westwoodii* in his own neighbourhood. On the first of May I took the same insect in some numbers in nests of the wood-ant, *Formica rufa*; this species of *Stenammina* has not been observed to construct its own nest, it appears to be a constant guest-species.

At Eastbourne, in the month of June, I observed a new phase, new at least to myself, in the habit of *Tetramorium* (*Myrmica*) *cæspitum*, I found numerous colonies under stones; many of the channels of the nest were at that time filled with pupæ of the males and females;—this species, according to my observations, usually constructs its nest in sheltered situations, such as hollows in the ground overhung with herbage, and small cavities in banks; it is by no means common.

*Tiphia minuta* was found at Eastbourne near the Con-

valescent Home, as were also *Sapyga punctata*, *Osmia xanthomelana* and *O. aurulenta*; the latter were observed entering their nests, the burrows being made in a loamy bank in a chalk-pit; the bees were so numerous that at least twenty could be captured by one sweep of a net, I never saw this species in such abundance before; this occurred in the last week in June.

On the first of July the rare *Osmia leucomelana* was taken at Weybridge, and also three or four specimens of *Elampus Panzeri*; this is one of the rarest species of *Chrysididæ*, but has been several times taken by myself and others at this locality.

When at Sidmouth, in the month of August, I collected some hundreds of the oak-galls of *Cynips lignicola*, taking care to observe that none of the insects had previously escaped; on my arrival, at the beginning of the month, I observed that the galls were soft and pulpy; from time to time I watched them on the oaks and deferred gathering them until they were more matured; at the end of the month, having gathered them, I found the flies beginning to escape from the galls which were kept in nets; not a single male has been obtained out of several hundreds of galls. I have now bred, during the last ten years, many thousands of *Cynips lignicola*, and I believe that if this species ever evolves a male, it must be at intervals of years. Mr. Walsh obtained males from the American gall-fly, *Cynips spongifica*; and he tells us, that "out of thousands of galls collected before the month of June, that about the fore-part, or by the middle of June, both male and female gall-flies eat their way out of a certain number, about a fourth part. The remaining larvæ lay dormant for more than two months, when they changed into the pupa state, and subsequently about October eat their way out in the form of gall-flies;

these autumnal flies all were females, with not a single male among them." This is not the history of our *Cynips lignicola*; the galls which I collected in August, and none were ready for gathering earlier, began to produce flies towards the end of the month; flies continued to be developed during September and October, even a few early in November, all being females; the proportion from which flies were produced being rather more than half of the whole. Those which do not produce flies the first year have, on all former occasions, eat their way out during April and May of the following year; such has been my experience of the flies produced from the monothalamous galls of *Cynips lignicola*; and with regard to the polythalamous galls of *Cynips radicis*, I have reared thousands of the females only.

I have already observed that no addition has been made to the species of our British *Formicidæ*, but I cannot pass by, without notice, what on its first announcement appeared to be a grand addition: a black woodpecker was supposed to have been shot at Wytham near Oxford, in whose crop was found a large number of specimens of *Formica herculeana*; among these were perfect examples of males, females, and of large and small workers; the bird had been an experienced collector. Subsequent investigation of the evidence respecting the place of capture, together with the ascertained fact of several black woodpeckers having been exposed for sale in Leadenhall Market in London, have quite dispelled the first glad tidings which we fondly hoped would have proved tidings of the capture of the long looked for species that has been incorporated in some of the earlier lists of British *Formicidæ*; but this, like the announcement of the capture of the fine continental species, *Formica pubescens*, supposed to have occurred in Scotland, has proved a fallacy; the date of the birds having been shot, October 24th or 25th, and the fact of the

winged ants being found in the crop of the bird, long after the males and females have left the nests of our British ants, was suspicious, and first raised doubts in my mind. Whence then did the bird procure all the sexes? if in Norway, how long would the bird preserve in ice?

Of the rare species of *Chrysididæ*, I have mentioned the capture of *Elampus Panzeri*, and I have since ascertained that the almost equally rare *Hedychrum rosæ* was taken plentifully on Shirley Common on the 7th of August by Mr. G. A. James Rothney; about the same time I took it near Budleigh Salterton.

The impression that I gather from Entomologists generally is, that the past year has not been a very productive one of Entomological rarities, or of great and valuable additions to our insect fauna: to the Coleoptera I expect the most important additions have been made; to the Hymenoptera, more in the way of rarities has been discovered than has accrued for some years past, and also one or two interesting additions to our list have been made. Judging from what I have succeeded in doing in South Devon this season, and in North Devon during my visits of two former years, I become more and more sanguine of the richness of the Hymenopterous richness of the Fauna of that county. The area over which Dr. Leach is believed to have worked, the country between Bolt Head and Kingsbridge, has not been recently investigated; I trust this ground will not long remain unexplored. If time and health are granted me, I still hope myself to visit other portions of that beautiful part of the country, extending along the coast of South Devon.

The following list of the species of Hymenoptera collected along a line of coast, not exceeding fourteen miles, will add considerably to the recorded species of *Aculeata* found in

Devonshire, and may prove useful whenever the insect Fauna of that county is compiled.

*List of Hymenoptera captured in South Devon.*

- Hedychrum ardens.* Salcombe Hill.  
*roseum.* Budleigh.  
*cærulea.* High Peak.  
*Chrysis bidentata.* High Peak.  
*ignita.* High Peak, &c.  
*cyanea.* High Peak, &c.  
*Formica rufa.* Budleigh.  
*cunicularia.* High Peak.  
*fusca.* Generally.  
*aliena.* High Peak.  
*nigra.* Generally.  
*flava.* Generally.  
*Myrmica ruginodis.* Generally.  
*scabrinodis.* Generally.  
*lævinodis.* Generally.

FOSSORES.

- Methoca ichneumonoides.* High Peak.  
*Pompilus fuscus.* High Peak.  
*rufipes.* High Peak.  
*exaltatus.* High Peak.  
*gibbus.* High Peak, &c.  
*Aporus femoralis.* High Peak.  
*Ammophila sabulosa.* High Peak.  
*viatica.* High Peak.  
*Tachytes pompiliformis.* High Peak, &c.  
*Astata boops.* Budleigh.  
*Trypoxylon figulus.* High Peak, &c.  
*clavicerum.* High Peak.  
*Crabro cribrarius.* High Peak, &c.  
*cephalotes.* High Peak, &c.  
*vagabundus.* High Peak.  
*obliquus.* High Peak.

- Crabro podagricus.* High Peak.  
*Oxybelus uniglumis.* High Peak,  
 &c.  
*Diodontus minutus.* High Peak.  
*cornigera.* High Peak.  
*Cemonus unicolor.* High Peak, &c.  
*Cerceris arenaria.* High Peak, &c.  
*labiata.* High Peak, &c.

VESPIDÆ.

- Odynerus parietum.* High Peak, &c.  
*trimarginatus.* Budleigh.  
*Vespa sylvestris.* Salcombe Hill,  
 &c.  
*germanica.* Salcombe Hill,  
 &c.  
*vulgaris.* Salcombe Hill, &c.

ANTHOPHILA.

ANDRENIDÆ.

- Colletes fodiens.* Budleigh.  
*succincta.* High Peak.  
*Daviesana.* High Peak.  
*Prosopis hyalinata.* Salcombe Hill.  
*rupestris.* Branscombe, &c.  
*Sphecodes gibbus.* Budleigh, &c.  
*rufiventris.* Budleigh, &c.  
*Halictus rubicundus.* High Peak,  
 &c.  
*4-notatus.* High Peak.  
*leucozonius.* High Peak,  
 &c.  
*cylindricus.* High Peak,  
 &c.

*Halictus nitidiusculus*. High Peak,  
 &c.  
*tumulorum*. High Peak,  
 &c.  
*Smeathmanellus*. High  
 Peak, &c.  
*villosulus*. High Peak, &c.  
*morio*. High Peak, &c.  
*minutus*. High Peak, &c.  
*Andrena pilipes*. High Peak.  
*thoracica*. High Peak.  
*vitrea*. High Peak.  
*nigro-ænea*. High Peak.  
*rosæ*. High Peak.  
*denticulata*. High Peak.  
*fulvicrus*. Salcombe Hill.  
*parvula*. Salcombe Hill,  
 &c.  
*Afzeliella*. Salcombe Hill,  
 &c.  
*xanthura*. Salcombe Hill.

#### APIDÆ.

*Panurgus Banksianus*. High Peak.  
*calcaratus*. Budleigh.  
*Nomada armata*. Salcombe Hill.  
*Fabriciana*. High Peak.  
*solidaginis*. Salcombe.  
*germanica*. Salcombe.

*Nomada lineola*. Budleigh.  
*succincta*. Budleigh.  
*Epeolus variegatus*. Budleigh.  
*Stelis aterrima*. High Peak.  
*phæoptera*. High Peak.  
*octopunctata*. Salcombe Hill.  
*Cœlixys simplex*. High Peak.  
*umbrina*. High Peak.  
*rufescens*. Budleigh.  
*Megachile maritima*. Budleigh.  
*centuncularis*. Budleigh,  
 &c.  
*Anthidium manicatum*. Sidmouth.  
*Osmia aurulenta*. High Peak.  
*fulviventris*. High Peak, &c.  
*spinulosa*. High Peak.  
*Saropoda bimaculata*. High Peak,  
 &c.  
*Apathus rupestris*. High Peak.  
*vestalis*. High Peak.  
*Bombus muscorum*. High Peak.  
*sylvarum*. High Peak.  
*pratorum*. High Peak.  
*lapidarius*. High Peak, &c.  
*terrestris*. High Peak, &c.  
*lucorum*. High Peak, &c.  
*subterraneus*. High Peak.  
*Apis mellifica*. High Peak, &c.  
*ligustica*. High Peak.

#### NEW SPECIES.

*Prosopis rupestris*.—Length  $2\frac{1}{4}$  lines. Black: the head and thorax semi-opaque; the abdomen shining; the basal segment impunctate and very glossy, the other segments very delicately punctured, only observable when highly magnified. The head, when viewed in front, short and rounded; the antennæ black, with a faint nigro-piceous tinge

on the flagellum beneath; a short pale yellowish-white parallel line on each side of the face, not running higher than the insertion of the antennæ. Thorax: a spot on the tegulæ in front, another on the tubercles, of a pale yellowish-white; the base of the posterior tibiæ yellowish-white; the wings subhyaline, the nervures black; the first recurrent nervure uniting with the first transverso-medial nervure; the second recurrent entering the second submarginal cell very near its apex. The metathorax abruptly truncate; a triangular enclosed space at its base coarsely rugose with longitudinal furrows.

There are three small species of these black bees, undistinguishable at first sight; on close examination they are found to be distinct species—namely, *P. hyalinata*, *P. perforator* and *P. rupestris*. They may be separated by the following distinctions: the face of *P. hyalinata* is comparatively oblong-triangular, the flagellum of the antennæ being pale fulvous beneath;—the spot on each side of the face, in the females, being of an elongate triangular shape. *P. rupestris* is most closely allied to *P. hyalinata*, but its face is shorter and rounder, the spots on the face are oblong and parallel ones, and the flagellum beneath almost black. *P. perforator* is smaller than either of the foregoing, which agree as to size; the face is quite as broad as long, and round; the spots on the face resemble those of *P. perforator*, but the enclosed space at the base of the metathorax is much less coarsely sculptured.

The species of this genus are difficult to separate; the possession of a good series is absolutely necessary in order to distinguish the specific distinctions with facility.

*Aporus femoralis*, Van der Lind.

Male. Length  $3\frac{1}{4}$  lines. Black: head a little wider than the



thorax, subrotund, very convex in front; antennæ shorter than the thorax, not reaching beyond the insertion of the wings and more incrassate than in the genus *Pompilus*; the tips of the mandibles rufo-piceous and bidentate. Thorax as long as the abdomen, the disk very convex; the metathorax with a central longitudinal channel, which extends to the verge of the posterior inclination; the sides and the apical portion covered with silvery pile; the anterior wings with a dark fuscous cloud at their apex beyond the second submarginal cell; the posterior femora compressed; ferruginous within. Abdomen: the base covered with silvery pile.

This insect may eventually prove to be a variety of the male of *A. unicolor*, but until the other sex is found in the locality where the female occurred this cannot be satisfactorily determined. *A. femoralis* differs in having the metathorax less inclined above, in having the legs less spinose, and in having the posterior femora red within.

Taken on the summit of High Peak near Sidmouth.

#### *Andrena vitrea.*

Female. Length 6 lines. Black: the pubescence on the face fuscous, brightest at the sides of the clypeus, that on the cheeks, the fringe behind the vertex is pale fulvous; the thorax is clothed with a similar pubescence, being palest at the sides of the metathorax and beneath; the wings hyaline and iridescent, the nervures pale ferruginous; the tegulæ nigro-piceous; the posterior tibiæ have a clothing of bright pale-fulvous pubescence; the floccus on the coxæ very pale fulvous. Abdomen ovate, the segments thinly fringed with pale pubescence; the apical fimbria dark fuscous.

Male. Length 4—5 lines. The colour and pubescence on the head and thorax as in the female, but on the face it is somewhat darker, inclining to black; wings as in the female;

the pubescence on the legs paler than in the female. The disk of the thorax in both sexes is strongly punctured.

Taken on High Peak on the flowers of the bramble; the male not previously known.

*Andrena prætexta* (new species).

Female. Length  $6\frac{1}{2}$  lines. Black: the pubescence on the head black, except that on the clypeus, which is reddish-brown; the flagellum of the antennæ obscure rufo-piceous beneath. Thorax: clothed above with dark fuscous pubescence, at the sides of the metathorax it is paler; wings subhyaline, with a fuscous cloud beyond the third sub-marginal cell; the nervures pale ferruginous; the apical joints of the tarsi ferruginous, the legs with a fulvous pubescence; the posterior tibiæ with pale fulvous pubescence; beneath it is silvery, as is also the floccus on the posterior coxæ. Abdomen ovate and shining, the apical fimbria pale fulvous.

This bee was taken in company with *A. pilipes*, and as I only took one example, I think it possible, notwithstanding the colour of the pubescence, that it may be an extreme variety of *A. pilipes*. In some respects it otherwise differs from that insect; the abdomen is shorter, and the punctuation of the thorax is finer and closer; the neuration of the wings is the same, but the nervures are paler than in any specimen I have seen of *A. pilipes*, and I have seen some hundreds; the bright anal fimbria is also a strong specific character. Future captures of the insect may determine its claim to specific distinction. I describe and name it provisionally under the circumstances mentioned.

## LEPIDOPTERA.


 NOTES ON NEW AND RARE BRITISH LEPIDOPTERA  
 (EXCEPTING TINEINA) IN 1871.

BY H. GUARD KNAGGS, M.D., F.L.S.

AGAIN the festive season at which it is customary to pay off scores, to bury animosities, to entertain, to be entertained, to spin yarns, and, in fact, to do everything in our power to add to the happiness and comfort of everybody (including ourselves), is drawing near; and the warmth within and the cold without remind me that it is high time this little contribution to the "Annual" should be got in readiness for publication. The task is the more agreeable in that the collector's harvest has been an unusually bountiful one.

It will, perhaps, be best to begin with the weather; and it may be worth while, in connection with this interesting topic, to mention that, owing to the mild autumn of 1870, imagos of *Smerinthus populi* and larvæ of *Pieris brassicæ* might be had pretty well up to Christmas. Then, taking things in a general way, the season was forward in some places and backward in others, as it generally is; the spring and hibernated *Noctuæ* put in a very decent appearance, and as for spring caterpillars, they abounded in certain districts in the shape of *P. chrysoorrhœa* and *B. neustria*. The spring months were less productive in the north; though Scotland in the season produced its share.

Next to the weather some papers of exceptional merit require special recognition. Dr. Jordan's paper on the origin of British *Lepidoptera* gives us an idea as to how it was we ever got any Lepidopterous Fauna at all. Mr. Barrett, assisted by Mr. Buckler, has made clear a good deal more than we were previously acquainted with concerning the economy of certain *Pterophoridae*. And whilst the great American Entomologist, Mr. Scudder of Boston, U.S.A., has sent us a ray of light across the broad Atlantic on the embryonic larvæ of butterflies, our own Mr. Hellins has from time to time been adding to our store of knowledge, respecting the egg state, facts which ought to stimulate us to an attentive study of these wonderful objects. Then a curious discussion (accompanied by practical experiments) upon the manufacture of varieties by means of anyline dyes fixed by carbonate of soda, and also by other means, has engrossed the attention of some of the members of the Entomological Society; and, thanks to my remark in last year's Annual, *Hylophila prasinana* has "made a noise" at last. And when we take into consideration that not only has a new automaton moth-trap been invented, but that our British flies are actually taking to the Yankee notion, everybody must admit that progress has been made.

On reckoning up the captures of rarities the sum total is a very respectable one; the scarcer butterflies have all shown up—*Antiopa* at Sevenoaks and near Norwich; *Ladona* at Ipswich; *Daplidice* at Folkestone, Sandgate, St. Margaret's and Brighton, and *Acis* in South Wales. Of *Sphinges* the most important capture of the season has been that of *Deilephila euphorbiæ*, which was re-discovered last August by Mr. Walter P. Weston at rest in a private garden near Southampton; as for *D. galii* and *S. convolvuli*, a few

examples have occurred, the former in the larval state. Among the *Bombyces* and *Pseudo-bombyces* the most notable captures are *Nola strigula*, which has been extraordinarily abundant in the New Forest during the past season; and *Deiopeia pulchella*, which has appeared in numbers previously unheard of in this country—at least a couple of score must have been added to our collections!! How are we to account for rarities thus starting forth in comparative profusion and then either suddenly or gradually disappearing? At one time it is an *embarras de Sterrha sacraria* which takes us by surprise, at another an abundance of some ordinarily rare *Deilephila* “astonishes our weak nerves,” and so on. Now *pulchella* is all the fashion; *floreat Deiopeia*.

The following *Noctuæ*, too, are worth mention. *Acronycta alni*, of which about a dozen have been captured, chiefly in the larval state, in various parts of the country both north and south; *Leucania putrescens* at Teignmouth as usual, *L. albipuncta* at Folkestone, at Canterbury and near Exeter, and three *L. vitellina*, previously unrecorded, taken at Torquay respectively in the autumns of 1868, '69 and '70,—one at Arbutus, two at ivy-bloom.

*Tapinostola elymi* has been bred from larvæ taken at Cleethorpes, *X. conspicillaris* has occurred at Malvern Link, *Pachetra leucophæa* at Gravesend, and *Triphæna orbona* (*subsequa*) has been wonderfully abundant; more especially in the New Forest; *Noctua sobrina* has been captured in Perthshire by several collectors, *Glæa erythrocephala* also at sugar at Darenth and elsewhere; *Dianthæcia irregularis* has been bred; of *Crymodes exulis* three more have been secured to make up the dozen; *Xylina conformis* has been bred, and a few examples of *Heliothis armigera* have been secured chiefly in the south, and its congener, *H. peltigera*, has occurred at Glanville's Wootton.

*Plusia ni* has been recorded from Penzance and *interrogationis*, above all things, from Battle (I should much like to see the specimen). To wind up the *Noctuæ*, *Catocala Fraxini* has again occurred in the Regent's Park, this time among the *feræ naturæ*, and also in Hampshire. As for "the Crimsons," as they are called, they have been quite at a discount in the New Forest.

Among the *Geometræ* a fourth example of *Aplasta ononaria* has been captured at Folkestone, *Cidaria reticulata* has been taken at Rannoch, *Sterrha sacraria* (but only one) at Shirley, *Eup. togata* in Rosherville Gardens ("a fine place for collecting"), and *Acidalia strigaria* and *Lythria purpuraria* not far from the last-named locality—by water. Besides these we have *M. alternata* and *Eup. irriguata* at Glanville's Wootton and *Acidalia circellata?* in Blean Woods, but this last requires verifying.

As for varieties, I am informed on the best authority that they never were so numerous or fine. Two very striking barred vars. of *Argynnis Aglaia* have occurred, *Gonepteryx Rhamni* has been taken at large with the costal margins of its wings more or less unequally suffused with crimson, a richly clouded *Euperia fulvago* has been secured near London, *Rumia cratægata* has also been taken at large with the apical portion of one of its wings brown, and *Cidaria suffumaria* of a beautiful creamy-white colour, with the basal blotch and median broad band darker than usual and the hind-wings creamy at their outer half. Then at the annual meeting of the Haggerstone Entomological Society, at which I spent a most pleasant evening, a number of varieties were exhibited of which a rayed *Thecla pruni*, an extraordinary fritillary and a curious pale (almost albino) example of *L. quercifolia* most attracted my attention. To crown all, my friend Mr. Bond has shown me a marvellous

*Chærocampa elpenor* of a smoky-brown colour with a tolerable-sized hyaline patch in the middle of each fore-wing, altogether giving one the idea of a hybrid between that species and *Macroglossa fuciformis*!

Of monstrosities the most striking has been the imago of *Vanessa Atalanta* bearing the larval head.

Lastly, before proceeding to the novelties it is necessary to draw attention to two Scotch forms which have lately attracted some notice. The one is undoubtedly a dark race of *Thera juniperata*, with which most of our readers are, doubtless, by this time acquainted; the other requires a separate paragraph.

Re Scotch var. of *AGROTIS COMES*, *Hüb.* (*TRIPHÆNA ORBONA* of our old lists).

Through the liberality of Mr. Geo. Norman, of Forres, this handsome form has been reared from the egg in some numbers during the past season. In a long series bred by Mr. Henry Bartlett, from eggs received by Mr. Howard Vaughan, an amount of variation, ranging from the typical *comes* to the *consequa* of Curtis, is observable; and this, taken in connection with the fact that no appreciable difference is to be detected in the larval state, should surely decide the matter of their identity.

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## NEW BRITISH SPECIES IN 1871.

The following, including a Sphinx, a Bombyx, two Noctuæ, a stout-bodied Geometer, a Crambus, a Pempelia, and two Tortrices, comprise our list of novelties:—

1. *Zygæna exulans*, Hochenwarth (*Ent. Mo. Mag.* viii., p. 68).

2. *Callimorpha hera*, Linné (Ent. Mo. Mag. viii., p. 87).
3. *Tæniocampa gothicina*, Herrich-Schäffer (Ent. Mo. Mag. viii., p. 39).
4. *Agrotis helvetina*, Boisduval (Ent. Mo. Mag. viii., January, 1872).
5. *Biston lapponarius*, Boisduval (Ent. Mo. Mag. vii., p. 282).
6. *Crambus alpinellus*, Hübner (Ent. Mo. Mag. viii., p. 110).
7. *Pempelia albariella*, Zeller (Ent. Mo. Mag. viii., p. 163).
8. *Penthina metallicana*, Hübner (Ent. Mo. Mag. viii., p. 255).
9. *Phoxopteryx paludana*, Barrett (Ent. Mo. Mag. viii., p. 134).

ZYGÆNA EXULANS, Hochenwarth (Ent. Mo. Mag. viii., p. 68), (Fig. 6).

On the 17th July last Dr. Buchanan White, in company with Mr. J. W. H. Traill, made this grand addition to our lists. These gentlemen secured several examples on a hill in Braemar, at an altitude of between two and three thousand feet above the level of the sea.

From *Z. pilosellæ*, Esp. (= *Minos* and *nubigena* of our cabinets), *exulans* is at once separated by the fact of its being 5-spotted; to distinguish it from the rest of our British species it is only necessary to say that it is sub-diaphanous.

It has been stated by some one, I am unaware by whom, that Dr. White's insect is the form *vanadis* of Dalman, but this is not the case, for *vanadis* is "*parcissime squamata albo*



*non mixta*," whereas the female, at any rate, of Dr. White's insect is pretty liberally supplied with ochreous scales; as Dr. White remarks, it appears to be intermediate between the two, the female partaking more of the character of *exulans*, the male of *vanadis*.

Dr. White has kindly placed at my disposal some further notes respecting the subject of his discovery. He says: "The locality for *exulans* in Braemar is an ancient shore of the glacial sea, and the same agencies that deposited there various boulders and arctic plants, probably, at the same time, brought the *Zygæna*. The insect is extremely local in its habits, for not a specimen was to be found except in one grassy and rushy place about 200 yards long and 50 yards broad; in this spot the moths were not uncommon, flying about in the sunshine, sitting on the flowers of *Gnaphalium dioicum*, or hanging, *in cop.*, on to the stems of grass. Females were much scarcer than males, and frequently had defective wings. The other Lepidoptera frequenting the same place were *Crambus furcatellus*, *Sericoris irriguana* and *Cænonympha Tiphon*, var. *Laidion*. No other species of *Zygæna* is to be found in Braemar, so far as I am aware; in fact, I have never seen any other species of the genus on any of the Highland hills, since, though all the British species (save the typical *Minos*) occur in Scotland, they only inhabit the maritime districts."

"The larva of *Z. exulans* is polyphagous, preferring however, I believe, *Erica* and *Vaccinium*. Some larvæ which I had, fed up readily, however, on *Triticum repens* and *Polygonum aviculare*, plants that do not occur within some miles of the station for *exulans*. I found cocoons attached to various plants, *Erica*, grasses, *Carex rigida*, &c. The habitat of *exulans* in Braemar is probably covered with snow from November to April each season."

CALLIMORPHA HERA, Linné (Ent. Mo. Mag. viii., p. 87).

Mr. D'Orville of Alphington thus records his first acquaintance with this handsome species, which is too well known to need any description.

“On the 14th instant (August, 1871), about 9 P.M., when taking my usual evening round to my sugared trees and plants, my attention was suddenly arrested by the sight of something brightly coloured, like a bright purple and yellow-striped petal of a tulip, lying flat on a sugared corymb of *Tanacetum vulgare*; and bringing my bull's eye to bear upon it, it suddenly, to my dismay, moved and took wing; in an instant, however, my net was ready, and the beautiful creature became my prisoner.”

There can be no doubt but that *Hera* ought to have been admitted to our lists long ago, for many well authenticated captures of it must have been made. I could say a good deal in the way of *pro* and *con* in the matter, but think it better to refrain from doing so.

TENIOCAMPA GOTHICINA, H.-S. (Ent. Mo. Mag. vol. vii., p. 39).

Mr. George Norman, of Forres, records the occurrence in Morayshire, at sallow bloom, in the early spring, of this somewhat doubtful species. M. Guenée, it is true, gives it as distinct from *T. gothica*, but admits that he has never seen a specimen. Dr. Herrich-Schäffer, of course, considers it a good species, but Dr. Staudinger sinks it as a variety of *T. gothica*, Lin., whether rightly or not I cannot say.

*Gothicina* differs from *gothica* in wanting the black marking between the stigmata, in having the stigmata delicately outlined with yellow, and also in being paler in colour than *gothica*.

The species or form occurs in Finland and in Lapland; in the former locality Dr. Staudinger considers it a variety, in the latter an aberration,—he thus summarily diagnoses it as a variety of *gothica*, “*minor, magis unicolor.*”

AGROTIS HELVETINA, *Boisduval* (Ent. Mo. Mag. viii.,  
January, 1872).

On the 16th of November I received from Mr. George W. Taylor of Derby a strange looking *Noctua*, quite unlike any known British species. Mr. Taylor informed me that in July, 1870, he had captured this specimen (a ♀) as it was flying along a hedge, and that about the same time his cousin had secured two more examples of the unknown. He had since vainly endeavoured to get the insect named, and at last, in despair I suppose, forwarded it to me. Unfortunately the only specimen of *helvetina* to which I had access for purposes of comparison was a male, and this differed from Mr. Taylor's insect both in the form of the fore-wings and length of the antennæ; so that after taking a description of it I at once returned it with the request that a male might be forwarded in the event of either of his cousin's captures proving to be of that sex. Most obligingly the male came safely to hand, and settled the question by showing that his antennæ were not too long, and that the apices of his fore-wings were of the requisite acuteness—in short, left no doubt whatever in my mind as to its proper place in nature.

*Agrotis helvetina* expands a good inch and three quarters. The fore-wing is of an unicolorous reddish-ochreous drab, approaching pale dull fawn-colour, with a peculiar silky or satiny texture and lustre, which at once arrests the attention, particularly by gas light; the reniform stigma is faintly indicated and tinted, at the side towards the apical margin, with leaden colour—except that, when examined at certain angles,

the elbowed line is faintly discernible; there are no other markings. The hind-wings are silky fuscous-whitish, with a barely discernible lunule. The cilia of all the wings ochreous-drab. Antennæ long and setaceous. Thorax and abdomen of the same colour as the fore-wings, the anal segments being slightly more ochreous.

Under-surface of fore-wings fuscous, tinged with fawn-colour, and shining, more fawn-coloured along the costa; beyond the middle are three faint costal marks, and another near the apex; the wings are margined with darker fuscous, and the cilia are paler. Hind-wing shining whitish-fuscous, fawn-coloured towards the costa, with a dusky lunule faintly marked; at a little distance from, and parallel with, the hind-margin is a dusky transverse shade. Cilia as in fore-wing. Legs fawn-coloured, under-surface of thorax woolly in appearance, and of a pale ochreous colour. Tongue reddish-brown, split up for half its length into six, in the specimen before me. Eyes dull black.

Female similar, but broader in the fore-wings, which are also more vertical at the apical margin; the antennæ are longer and the tip of the palpi more naked.

The great character of *helvetina* would seem to be the absence of any character, but the peculiar silky lustre is very striking.

*Helvetina* is a rare species abroad. It has occurred in Germany, France, Switzerland, Piedmont and on the Alps. The larva is unknown.

BISTON LAPPONARIUS, *Bdv.* (Ent. Mo. Mag. vol. vii., p. 282).

A single example of this handsome and striking geometer was captured by Mr. Warrington in Perthshire, whilst collecting in the employ of Mr. E. G. Meek. The specimen,

a male in splendid condition, is now in the collection of Mr. Edwin Roper Curzon.

*B. lapponarius* is closely allied to *B. pomonarius*, Hübn., and has been by some authors looked upon as a Northern and Alpine form of that species, notwithstanding the following important distinguishing characters. In the first place the wings are rounder, more transparent, with conspicuously blacker markings, the lines are very differently disposed and less distinctly defined, and the cilia tolerably uniform in colour, not chequered as in *pomonarius*. The thorax differs in having orange scales rather than white ones mixed up with the fur. And, again, a bright orange line runs longitudinally along the dorsum of the abdomen of *lapponarius*. The legs also are black, without any white annulations.

The female is almost black, with a few white scales intermingled.

*Lapponarius* has hitherto occurred only in Lapland, and the Grisons in Switzerland. It is a very rare species.

Its congener, *B. pomonarius*, has a wider range of distribution,—Germany, North, East, West, and central France, Sweden, Finland, Livonia, Lapland, &c., being enumerated as its localities. It cannot be so scarce as M. Guenée would lead us to believe, since its selling price is about five pence.

Duponchel, and also Lefèbvre, were aware of the existence of these two allied species, but both mistook *lapponarius* for a supposed *pomonarius* of Linné (whereas Linné never described such a species); Duponchel, under this erroneous impression, renamed the true *pomonarius* of Hübner, and left unnamed the species to which in 1840 Boisduval applied the name *lapponarius*.

*Pomonarius* was figured as British by Albin more than 150 years ago, but the insect has never since been detected in this country.

CRAMBUS ALPINELLUS, *Hüb.* (Ent. Mo. Mag. vol. viii., p. 110). (Fig. 4.)

To Mr. Moncreaff of Southsea we are indebted for the addition to our lists of this very distinct *Crambus*. Fortunately Mr. Moncreaff secured several examples, one of which he kindly forwarded to my friend Mr. Howard Vaughan, who was not long in identifying the species to which it pertained. Mr. Vaughan afterwards compared it with continental examples in my own collection, with which it agreed perfectly, and Zeller's description having then been consulted for the sake of satisfaction, the matter was settled.

*Crambus alpinellus*, though considerably larger than our little *Cr. cerussellus*, is more nearly allied to that pigmy than to any other British species. The description in Zeller's pamphlet on the *Crambidæ* and *Chilonidæ* runs as follows: "*Alis anticis cinereo-fuscis, vitta media alba medium ramum in dorsum emittente, post medium oblique dissecta, ultra strigam posticum ter fractum producta.*"

To my fancy the shape of the fore-wings, with their produced apices ("Phoxopterygiform" as I have termed it), appears a still more striking character.

Zeller goes on to say that the insect inhabits sandy grassy spots, especially among pine forests, in Germany and Hungary, and that its time of appearance is July and August. Also that it is never found in Alpine districts—hence, I presume, its name. According to Staudinger it also occurs in Switzerland and Livonia.

PEMPELIA ALBARIELLA, Zeller (Ent. Mo. Mag. viii., p. 163).

*Pempelia albariella*, Zeller (Isis, 1846, p. 785). *Phycis Davisellus*, Newman (Entom. December, 1871, p. 449).

To Mr. W. E. Davis we are indebted for the addition of

this extremely interesting *Pempelia* to our lists. On the 29th of July last Mr. Davis spent an hour on the Isle of Wight. Fortunately, the weather was so inclement that Mr. Davis was obliged to take shelter, and, thus deprived of his collecting, or what is commonly considered collecting, had nothing left to him but to "look about." Now this same "looking about" is (as I have endeavoured to impress upon the young collector in the pages of my Guide) one of the most successful methods of collecting. Whilst so engaged, this grand new *Pempelia* was discovered. Another advantage of the rough weather was, that Mr. Davis could not well stray from the spot where he had made his discovery ("*the grand secret of successful collecting*"), and the consequence was that by the time the approaching departure of the boat warned him to hurry off, he had secured fifteen specimens of this fine new British *Pempelia*. Let us hope that others will profit by so valuable a lesson and take it to heart. *Ex uno disce omnes.*

*Pempelia albariella* is a very local insect abroad, its only recorded habitats being Hungary and "Amasia and Tokat."

A full description of *Pempelia albariella* will be found in the Entomologist's Monthly Magazine, vol. viii., p. 163.

PENTHINA METALLICANA, Hb. (*Sericoris irriguana*, H.-S.)

Ent. Mo. Mag. vol. viii., p. 255.

In the Entomologist's Monthly Magazine (vol. viii., p. 255), Mr. N. Cooke of Liscard thus introduces a new *Tortrix*: "On the 3rd of July, 1870, I took several specimens of a *Tortrix* which I found in abundance on Craig Maige, a lofty mountain near the foot of Loch Laggan in the county of Inverness. They flew up at every step on a ridge about 3,000 feet above the sea. Last autumn I sent five specimens to Mr. Doubleday, and he pronounced them to be

varieties of *Sericoris irriguana* of Herrich-Schäffer. It is very similar to *Daleana*, but smaller, and the anterior wings are more pointed; all the specimens I took are males. Several able Entomologists have seen my specimens, and are of opinion that the species is distinct from *Daleana*, though Mr. Doubleday thought it possible that the latter was only a variety of *irriguana*."

In a previous note (at p. 113, Ent. Mo. Mag.) Mr. Warrington records the fact of his having captured *irriguana* at Rannoch, but makes no comment on the occurrence. Dr. White, also, has taken the species in his locality for *Z. exulans*.

I have seen some of these specimens and consider them distinct from our *Daleana*, which by-the-by is omitted in Staudinger's Catalogue. *Irriguana*, H.-S., is itself a variety of *Penthina metallicana*, Hb., according to Staudinger; and curiously enough, among several other localities, Scotland is given for *metallicana*, while its variety, *irriguana*, seems to be confined to Alpine and Polar Norway, the central Alps of Europe, and the mountains of Altai (in Western Siberia).

PHOXOPTERYX PALUDANA, *Barrett* (Ent. Mo. Mag. viii., p. 134). (Fig. 5.)

For the discovery and description of this pretty little new *Phoxopteryx* we are indebted to our old friend Mr. Barrett, who carefully points out its distinctive characters in "The Entomologist's Monthly Magazine."

*Ph. paludana* is allied to *Ph. Lundana*, but its wings are longer and narrower, and the dorsal blotch is much flatter and more angulated, the fascia distinct and more acutely angulated and the space beyond it pale.

No doubt the artist will assist our readers in forming



a more accurate idea of these differences than any word-painting of mine can convey.

Mr. Barrett met with *paludana* on several occasions flying, just before dusk, among the shortest of the rank herbage at Ranworth Fen in June and again in August.

Mr. Bond possesses specimens of this insects taken in Cambridgeshire.

KENTISH TOWN,

*December 4th.*

## LEPIDOPTERA.



NEW BRITISH TINEINA IN 1871.

BY H. T. STANTON, F.R.S.

THE novelties I have to announce this year are a new species of *Incurvaria*, which was at first supposed by its captor to be *tenuicornis*, Sta., and may perhaps have been previously overlooked by collectors under the idea that it was that species, and a well-known Continental species of *Gelechia* (*Lita*).

A most interesting discovery made by Mr. Hodgkinson was the larva of *Eidophasia Messingiella* (E. M. M. vol. viii., p. 71), feeding the beginning of May on the leaves of *Cardamine amara*.

## INCURVARIA CANARIELLA, n. sp.

Esp. al. 6 lin. Head and face canary-yellow. Antennæ slightly pubescent in the male, slender towards the tip. Anterior wings unicolorous greyish-fuscous, rather glossy, sometimes with a yellowish tinge on the extreme costal edge beyond the middle; cilia concolorous with the wings. Posterior wings dull grey, with the cilia rather paler.

This differs essentially from *Incurvaria tenuicornis* in the form of the anterior wings, *Tenuicornis* resembling in that respect a female *Muscalella*, but *Canariella* has the anterior wings shorter and blunter than the male of *Muscalella*. The same blunt form of wing will also distinguish *Canariella* from *Talceporia* (?) *pubicornis*.

I am indebted to the Rev. R. P. Murray, of Mount

Murray, Isle of Man, for a series of this insect; he took them the beginning of June amongst *Rosa spinosissima* in the Isle of Man. I had thought it might possibly have been the Continental *Incurvaria argillella*, Zell. (one of the numerous unicolorous species with which I am personally unacquainted); but Dr. Staudinger thinks it an undescribed species, and adds that "it has been taken freely in Germany by one of his friends, exclusively amongst *Rosa spinosissima*."

The Rev. R. P. Murray says that he found "the species very easy to disturb, but its flight was very short, rarely so much as a yard, and that they were very quiet when boxed."

GELECHIA (LITA) STRELITZIELLA, Herrich-Schäffer.

Exp. al.  $6\frac{1}{2}$  lin.

Best recognized by the somewhat marbled appearance of the elongate grey anterior wings. In colouring and in intensity of marking it varies very considerably. The most characteristic markings are a short dark oblique streak from the costa, edged anteriorly with pale grey, two black spots on the disc, in a line separated by a blotch of pale grey, and a pale angulated fascia formed by the union of two pale opposite spots beyond the middle; the apical margins are also spotted with pale grey.

The Rev. E. N. Bloomfield met with two specimens of this insect at Lowestoft, July 28th, 1871, beating them from Marram (*Ammophila arundinacea*).

I have Continental specimens from Glogau, Meseritz and Stettin, captured between the end of May and the end of June. I once had a specimen sent from Holland for determination. The habit of the larva has not yet been discovered.

LEPIDOPTERA.



NOTE ON THE REDISCOVERY OF THE LARVA OF *ANTISPILA*  
*RIVILLEI*, AFTER A LAPSE OF 120 YEARS.

By H. T. STANTON, F.R.S.

HAVING for the last fifteen years incessantly urged those collecting in the south of Europe to search for the *Antispila* of the vine, described in the year 1750, I am happy to say that it has now been detected.

The larvæ were found in a vineyard at Massa di Carrara, in Italy, the first week in October last, by the Hon. Beatrice de Grey, by whose keen sight for insects her brother, Lord Walsingham, has often benefited.

In all probability this *Antispila* is double-brooded; the original specimens were found as full-fed larvæ at the end of July, as fully detailed in the "Tineina of Southern Europe," pp. 310—319.

A LIST OF THE SPECIES OF COLEOPTERA  
RECORDED AS NEW TO BRITAIN IN  
THE ENTOMOLOGIST'S ANNUALS, 1855—  
72; WITH THE MORE IMPORTANT COR-  
RECTIONS IN NOMENCLATURE, &c.

BY E. C. RYE.

HAVING frequently consulted with advantage Mr. Kirby's concise Index (Ent. Ann., 1862, pp. 11—20) to the names of the *Coleoptera* recorded as new to Britain in the Annuals for 1856—61, it has occurred to me that a more amplified list, on a somewhat similar basis, including the numerous species chronicled in the "Annual" for 1855 (omitted from Mr. Kirby's Index, but especially interesting as comprising the species registered from 1840 to 1854, both inclusive,—a period when there was so much scope for the describing Entomologist), and extending to the present day, could hardly fail to be of considerable use to my fellow workers and myself; and this list I am now enabled to publish, through the kindness of our Editor, who has himself recently treated the *Lepidoptera* in the same way.

Before making a few necessary remarks upon the construction, &c. of this list, it may be as well here to briefly note such other portions of the Entomologist's Annuals hitherto published as are of interest to Coleopterists.

First, and most useful, are the "Notes on the Collecting and Preserving of *Coleoptera*," by Mr. T. V. Wollaston ("Annual" for 1855, pp. 101—109), which probably incited

many others besides myself to commence the study of that order.

Mr. Janson's introductory remarks, in the same "Annual" (pp. 110—115), upon the various sources from which he compiled the first and most laborious of all the "Annual" lists, are still noteworthy. The same gentleman's "Observations on the Myrmecophilous *Coleoptera*, or Ants'-nest Beetles of Britain" (1857, pp. 85—96), introducing those highly interesting insects to the majority of English students and collectors, with the supplementary "Notes" on the same subject (1858, pp. 78—84; containing the celebrated Philippic against ravagers), are, and are still likely to be, of the greatest assistance to beginners.

Notes on British *Geodephaga*, with descriptions of new species (avowedly supplementary to the "Geodephaga Britannica"), are given by the late Rev. J. F. Dawson in the Annuals for 1856 (pp. 65—81), 1857 (pp. 61—68), and 1858 (pp. 47—61); and are indispensable to those who (like most beginners) are peculiarly attached to that group. In the latter of these articles, are contained some interesting remarks relative to the Stephensian species, in connection with the expressed views of M. Jacquelin-Duval and the late Dr. H. Schaum. Partly in answer to these remarks, but more especially criticizing the nomenclature of the British *Carabidæ*, as established in Mr. Waterhouse's Catalogue, Dr. Schaum's observations will be found in the "Annual" for 1860 (pp. 119—125). And Mr. Janson has published some general strictures on this Catalogue, also relative to the Stephensian species, in the "Annual" for 1859 (pp. 118—120).

Remarks upon the first edition of Mr. G. R. Crotch's Catalogue, with a list of the species new to Britain therein contained, &c., are to be found in the "Annual" for 1864

(pp. 73—84); and upon the 2nd edition of the same work in that for 1867 (pp. 44—46; see also pp. 101—126 for changes in nomenclature, chiefly proposed by that gentleman).

A list of species not then recognized here as British, but attributed to this country by M. de Marseul, is given in the "Annual" for 1866 (pp. 53—58): and it may be observed that several of these have now been authentically recorded as British.

Remarks on current literature relating to *Coleoptera*, and records of the captures of rare species, will be found in the introductory portions of the articles on that order in all the "Annuals" from 1863 inclusive.

The following is an alphabetical list of the 53 species figured in the different "Annuals" to the present time:—

|                                                                    |    |    |    |    |      |
|--------------------------------------------------------------------|----|----|----|----|------|
| <i>Aerognatha mandibularis</i>                                     | .. | .. | .. | .. | 1860 |
| <i>Acylophorus glabricollis</i>                                    | .. | .. | .. | .. | 1865 |
| <i>Adelops Wollastoni</i>                                          | .. | .. | .. | .. | 1857 |
| <i>Agathidium rhinocercs</i>                                       | .. | .. | .. | .. | 1866 |
| <i>Anisotoma silesiaca</i>                                         | .. | .. | .. | .. | 1867 |
| <i>Athous undulatus</i>                                            | .. | .. | .. | .. | 1865 |
| <i>Bagous inceratus</i>                                            | .. | .. | .. | .. | 1870 |
| <i>Baridius scolopaceus</i>                                        | .. | .. | .. | .. | 1872 |
| <i>Barypithes pellucidus</i>                                       | .. | .. | .. | .. | 1869 |
| <i>Bembidium 4-pustulatum</i>                                      | .. | .. | .. | .. | 1871 |
| <i>Brachonyx indigena</i>                                          | .. | .. | .. | .. | 1861 |
| <i>Brontes planatus</i>                                            | .. | .. | .. | .. | 1868 |
| <i>Cathormiocerus socius</i>                                       | .. | .. | .. | .. | 1869 |
| <i>Ceuthorhynchus arcuatus</i>                                     | .. | .. | .. | .. | 1870 |
| <i>Crepidodera atropæ</i>                                          | .. | .. | .. | .. | 1861 |
| <i>Cryphalus binodulus</i>                                         | .. | .. | .. | .. | 1857 |
| <i>Cryptocephalus 10-punctatus</i> , ♂, ♀, and var. <i>bothni-</i> |    |    |    |    |      |
| <i>cus</i>                                                         | .. | .. | .. | .. | 1866 |
| <i>imperialis</i>                                                  | .. | .. | .. | .. | 1859 |
| <i>Cryptohypnus sabulicola</i>                                     | .. | .. | .. | .. | 1869 |
| <i>Cryptophagus Waterhousei</i>                                    | .. | .. | .. | .. | 1867 |

|                                         |    |    |    |    |    |              |
|-----------------------------------------|----|----|----|----|----|--------------|
| <i>Dorcatoma flavicornis</i>            | .. | .. | .. | .. | .. | 1858         |
| <i>Endophlæus spinulosus</i>            | .. | .. | .. | .. | .. | 1864         |
| <i>Eros affinis</i>                     | .. | .. | .. | .. | .. | 1868         |
| <i>Euryusa Kirbii</i>                   | .. | .. | .. | .. | .. | 1858         |
| <i>Hallomenus humeralis</i>             | .. | .. | .. | .. | .. | 1859         |
| <i>Harpalus sercus</i>                  | .. | .. | .. | .. | .. | „            |
| <i>Heterius sesquicornis</i>            | .. | .. | .. | .. | .. | 1857         |
| <i>Hydroporus halensis</i>              | .. | .. | .. | .. | .. | 1865         |
| <i>minutissimus</i>                     | .. | .. | .. | .. | .. | 1871         |
| <i>Lathrobium angusticolle</i>          | .. | .. | .. | .. | .. | 1855         |
| <i>Lepyryus binotatus</i>               | .. | .. | .. | .. | .. | 1870         |
| <i>Macronychus 4-tuberculatus</i>       | .. | .. | .. | .. | .. | 1867         |
| <i>Meligothes pictus</i>                | .. | .. | .. | .. | .. | 1872         |
| <i>Mycetophagus fulvicollis</i>         | .. | .. | .. | .. | .. | 1870         |
| <i>Oxytelmus cylindricus</i>            | .. | .. | .. | .. | .. | 1857         |
| <i>Pediacus depressus</i>               | .. | .. | .. | .. | .. | 1872         |
| <i>Pentarthrum Huttoni</i>              | .. | .. | .. | .. | .. | 1859         |
| <i>Philonthus cicatricosus</i>          | .. | .. | .. | .. | .. | 1871         |
| <i>Phosphænus hemipterus</i>            | .. | .. | .. | .. | .. | 1869         |
| <i>Polyphylla Fullo</i>                 | .. | .. | .. | .. | .. | 1868 (cover) |
| <i>Ptinella limbata</i>                 | .. | .. | .. | .. | .. | 1861         |
| <i>Proteus</i>                          | .. | .. | .. | .. | .. | 1863         |
| <i>Pytho depressus</i>                  | .. | .. | .. | .. | .. | 1855         |
| <i>Rhyncolus truncorum</i>              | .. | .. | .. | .. | .. | 1858         |
| <i>Symbiotes latus</i>                  | .. | .. | .. | .. | .. | 1860         |
| <i>Tachys Fockii</i>                    | .. | .. | .. | .. | .. | 1865         |
| <i>Tapinotus sellatus</i>               | .. | .. | .. | .. | .. | 1871 (cover) |
| <i>Telephorus Darwinianus</i> , ♀ and ♂ | .. | .. | .. | .. | .. | 1867         |
| <i>Trichonyx sulcicollis</i>            | .. | .. | .. | .. | .. | 1863         |
| <i>Tropideres sepicola</i>              | .. | .. | .. | .. | .. | 1860         |
| <i>Xyleborus dispar</i> , ♀ and ♂       | .. | .. | .. | .. | .. | 1868         |
| <i>Zeugophora Turneri</i>               | .. | .. | .. | .. | .. | 1864         |
| <i>Zilora ferruginea</i>                | .. | .. | .. | .. | .. | 1872         |

These points of interest having been noted, I will briefly refer to the list now brought forward. In it, *only* such species as have been recorded as new to British Catalogues during the period above mentioned, are printed in capitals, and have a



number prefixed. Such of these as are distinguished by the mark † represent the addition of a new genus: and the prefixed \* implies either that the species is not recognized as truly indigenous or otherwise, or is referred to some other species recorded before or in this list. Where only an author's name occurs after the name of the insect, the record of an original description is meant to be conveyed: in other cases, the second name is that of the *recorder* in this country (not necessarily the *discoverer*, or the first to name the species correctly); and the date following is that of the *Annual* (not of the *year*) in which the species is recorded,—the remaining figures referring to the page of that *Annual*. If the name of the original describer be within brackets, an erroneous identification is implied; and, where a species has been first incorrectly and subsequently correctly brought forward, the whole of the incorrect record is within brackets. Alterations in nomenclature, and other points of interest, whether by the original or any subsequent observer, are added after the first record. I have in nearly every instance adopted the exact names recorded, but have been compelled in some few instances to correct evidently accidental errors, and in others to add, for the sake of uniformity, the generic name employed in the Catalogue hereafter mentioned.

The other notices, not numbered, and of which the first two words are printed in italics, refer to changes in nomenclature, &c., relating to species recorded before the term to which this list applies: but I have not thought it necessary to incorporate in it all of the very numerous changes mentioned in the introduction to the article on *Coleoptera* in the present "Annual."

As Dr. Sharp's Catalogue is the only one that comprises all our now known species, I have followed the arrangement therein adopted; but, for greater convenience of reference,

have employed certain conventional groups (according to that arrangement, often absolutely incorrect) not used by that gentleman. The species, therefore, that are marked \* will not be found under their recorded names in (and in many cases are purposely excluded altogether from) that Catalogue; but to nearly all of such, remarks have been added, sufficiently explaining their rejection.

It will be observed, that 1297 species are enumerated as recorded from 1840 to the present time; from which number 198 must be deducted, as not now recognized, leaving a net total of 1099. I observe in the "Annual" for 1855, that 330 species are considered as having been discovered during the then preceding 15 years, at the rate of 22 per annum; and also that a corresponding increase for the then following 15 years is prognosticated. But 100 of the 330 are reckoned, though stated not to have been then recorded; and it seems to me that only the 227 species enumerated in that "Annual" can properly be taken into account; and from them 64 must be deducted, as not now recognized, or as before recorded under other names. This leaves 163 species, being a little less than 11 for every one of the 15 preceding years. Deducting, again, these 163 good species from the 1099 above mentioned, there remain 936 to represent the 17 succeeding "Annuals" (inclusive of the present); and this gives an average of rather more than 55 per year!—showing how much more than justified were the anticipations of 1855.

The new genera brought forward during the whole of this period are 64 in number.

## GEODEPHAGA.

*Cicindela campestris*, Linn., var. *funnebris*, St. (*nec nigrita*, Dej.); G. R. Crotch, 1867, 101.

*Cicindela hybrida* and *C. maritima*, discussed as species: J. F. Dawson, 1858, 47: H. Schaum, 1860, 119: G. R. Crotch, 1867, 102.

*Notiophilus palustris*, Dufts., considered a "sub-species" of *N. aquaticus*, Linn., and *N. 4-punctatus*, Dej., of *biguttatus*, Fab.; G. R. Crotch, 1867, 103.

1. NOTIOPHILUS SUBSTRIATUS, Waterhouse; 1859, 121: *punctulatus*, Wesm., should be used, H. Schaum, 1860, 120: the latter = *geminatus*, Dej., var.; G. R. Crotch, 1867, 104: *substriatus* to be retained; G. R. Crotch, *ibid.*
- \*2. CARABUS ANGLICUS, Mots.; E. C. Rye, 1870, 41: probably = *arvensis*.
- \*3. NEBRIA NIVALIS (Payk.); E. W. Janson, 1859, 143: = *Gyllenhalii*, Sch., var.
4. DYSCHIRIUS OBSCURUS, Gyll.; J. F. Dawson, 1855, 116: 1858, 51.
5. DYSCHIRIUS IMPUNCTIPENNIS, Daws.; 1855, 116: 1856, 71; 1858, 49: H. Schaum, 1860, 120.  
*Dyschirius inermis*, Curt., = *nitidus*, Dej.; J. F. Dawson, 1858, 49.
6. DYSCHIRIUS ELONGATULUS, Dawson; 1856, 72: = *politus*, Dej.; H. Schaum, 1860, 120 (in error): ? = *extensus*, Putz.; E. C. Rye, 1863, 66; 1864, 32: this opinion corroborated, *id.*, 1866, 58.
7. DYSCHIRIUS JEJUNUS, Daws.; 1855, 116: ? = *angustatus*, Ahr., H. Schaum, 1860, 120: Schaum's opinion confirmed; E. C. Rye, 1863, 67.
8. BRACHINUS EXPLODENS, Dufts.; E. C. Rye, 1866, 58 (*glabratus*, Power), and var. ? *glabratus*, Dej.  
*Drypta dentata*, Rossi, to be used for *emarginata*, F.; H. Schaum, 1860, 119: the latter name to stand; G. R. Crotch, 1867, 102.  
*Polystichus vittatus*, Brullé, to be used for *fasciolatus*, Rossi: H. Schaum, 1860, 119.
- \*†9. ZUPHIUM OLENS, Fab.; J. F. Dawson, 1858, 49: not indigenous.

- Dromius unipunctatus*, Germ., = *monostigma*, Leach, which stands; G. R. Crotch, 1867, 102.
- Dromius fenestratus*, Fab., not British; J. F. Dawson, 1858, 48.
10. DROMIUS MERIDIONALIS, Dej.; H. Schaum, 1860, 119 (synonymy given).
11. DROMIUS OBLITUS, Boield.; G. R. Crotch, 1864, 78; 1865, 45.  
*Dromius glabratus*, Dufts., & *D. maurus*, Sturm; J. F. Dawson, 1858, 48: the latter not truly British; E. C. Rye, 1863, 66.
- \*12. ?LEBIA CHRYSOCEPHALA, Mots.; E. C. Rye, 1869, 10: ? = *chlorocephala*, var.  
*Cymindis (Tarus) basalis*, Gyll., to be used for the *vaporariorum* of our lists; G. R. Crotch, 1867, 103: 1872, 26.
13. CHLÆNIUS SCHRANKII, Dufts.; J. F. Dawson, 1858, 51.  
*Chlænius agrorum*, Ol., being preoccupied, is renamed *Olivieri*; G. R. Crotch, 1872, 26.
- \*14. CHLÆNIUS MAILLEI, Sol.; J. F. Dawson, 1857, 61: not indigenous.  
*Lieinus silphoides*, Fab., *nee* Rossi, is renamed *Fabricii*; G. R. Crotch, 1872, 26.
- \*15. CALATHUS NUBIGENA, Halid.; J. F. Dawson, 1855, 116; 1858, 52: = *melanocephalus*, var., H. Schaum, 160, 121.  
*Calathus mollis*, Marsh., = *melanocephalus*, Linn., var.; G. R. Crotch, 1867, 104.  
*Calathus rotundicollis*, Dej., to stand for *C. piceus*, Marsh., *nee* Linn.; G. R. Crotch, 1867, 104; 1872, 27.  
*Taphria (Synuchus) rivalis*, Ill., to stand for *nivalis*, Panz., *nee* Payk.; G. R. Crotch, 1867, 104; 1872, 27.  
*Anchomenus junceus*, Scop., the older name, adopted by Dawson for *angusticollis*, Fab., to be used, in spite of Schaum's opinion (1860, 122); G. R. Crotch, 1867, 104; 1872, 28.  
*Anchomenus pallipes*, Daws., = *albipes*, Fab.; H. Schaum, 1860, 122.  
*Anchomenus fulgens*, Daws., = *ericeti*, Panz.; J. F. Dawson, 1857, 64.
16. ANCHOMENUS (AGONUM) ELONGATUS, Dej.; J. F. Dawson, 1857, 62: = *Anchomenus gracilipes*, Dufts.; E. W. Janson, 1860, 98.  
*Anchomenus mæstus*, *viduus*, and *emarginatus* discussed as species: 1869, 10.
17. ANCHOMENUS VERSUTUS, Sturm; E. C. Rye, 1860, 98: var. *lugubris*, Dufts.; *id.*, 1871, 26.

18. ANCHOMENUS ATRATUS, Duft. ; J. F. Dawson, 1855, 116; 1858, 53: = *atratus*, Fairm., *nee* Duft., and has been named *pusillus* by H. Schaum, 1860, 123: G. R. Crotch, 1867, 105.
19. ? ANCHOMENUS PUELLUS, Dej. ; G. R. Crotch, 1867, 105 (*pelidnus*, Daws., = *Thoreyi*, Dej. ; G. R. Crotch, *ibid.*).
20. ANCHOMENUS QUADRIPUNCTATUS, De G. ; Hardy & Bold, 1855, 116: unique, after 20 years interval.  
*Pæcilus versicolor*, Wat. Cat. = *cupreus*, var. ; H. Schaum, 1860, 123.
- \*21. PTEROSTICHUS PUNCTICEPS, Thoms. ; G. R. Crotch, 1869, 13 (the *cupreus* of Wat. Cat.) : Kraatz's proposed non-recognition of Thomson's species discussed; 1872, 33.
- \*22. PTEROSTICHUS PAUCISETA, Thoms. ; G. R. Crotch, 1869, 13 (the *versicolor* of Wat. Cat.) : see preceding species.  
*Pterostichus orinomus*, Steph., = *vitreus*, Dej., G. R. Crotch, 1867, 105.  
*Pterostichus æthiops*, Panz., *nee* Hb., is renamed *monticola* : G. R. Crotch, 1872, 27.  
*Pterostichus (Argutor) erythropus*, Marsh., = *strenuus*, Panz. ; *P. (A.) pullus*, Gyll. (*strenuus*, Daws.) = *diligens*, Sturm ; H. Schaum, 1860, 123.
23. AMARA ALPINA, Fab. ; T. Blackburn, 1867, 56.  
(*Amara*) *Curtonotus spinipes*, Daws., Wat. Cat., *nee* Linn. (= *Scarites*), = *aulicus*, Ill., which must be used: H. Schaum, 1860, 123; G. R. Crotch, 1872, 27.
24. AMARA INGENUA (? Duft.) ; J. F. Dawson, 1855, 116; 1858, 53: almost certainly = *fusca*, Dej.
25. AMARA FUSCA, Dej. ; D. Sharp, 1870, 42.
26. AMARA INFIMA, Duft. ; J. F. Dawson, 1857, 64.
27. AMARA RUFOCINCTA, Sahlb. ; J. F. Dawson, 1857, 65; 1858, 53: the *A. brunnea* of Steph., Daws., Wat. Cat., *nee* Gyll. ; E. C. Rye, 1864, 32.
28. AMARA QUENSELI, Schön. ; R. Hislop, 1871, 26.  
*Amara acuminata*, Payk., = *eurynota*, Panz. ; G. R. Crotch, 1867, 105; 1872, 27.
29. AMARA CURTA, Dej. ; J. F. Dawson, 1855, 116; 1858, 53.  
*Amara vulgaris* (? Daws.), Wat. Cat., *nee* Linn., = *lunicollis*, Schiödte; H. Schaum, 1860, 123.  
*Amara obsoleta*, Dej., *nee* Duft., cannot stand, and *ovata*, F., *nee* Payk., cannot be used; G. R. Crotch, 1867, 106: *pratensis*, Sturm, to stand; *id.*, 1872, 27.

- \*30. *AMARA SEPTENTRIONALIS*, Curt.; E. W. Janson, 1855, 116: = *plebeia*, Gyll., ♂; J. F. Dawson, 1856, 76.
- \*31. *AMARA AGILIS*, Rylands; E. W. Janson, 1855, 117.
- \*32. *AMARA PUNCTICOLLIS*, Rylands; E. W. Janson, 1855, 117.
- \*33. *AMARA DALII*, Rylands; E. W. Janson, 1855, 117. This and the two preceding species belong to "recognized" (but not otherwise identified) species; J. F. Dawson, 1856, 76.
- \*†34. *TANYSTOMA JAGGERI*, Mann.; S. Stevens, 1855, 117: not indigenous.  
*Dichirotrichus pubescens*, Payk., *nee* Müll., is renamed *Gustavii*; G. R. Crotch, 1872, 26.  
*Harpalus atricornis*, Steph., Daws., = *Anisodactylus binotatus*; H. Schaum, 1860, 124.  
*Harpalus stictus*, Steph., Wat. Cat., = *obscurus*, Fab. (*monticola*, Dej.), *nee* Dej.; E. C. Rye, 1863, 68: cf. also Schaum, 1860, 124: *monticola*, Dej., to stand, *obscurus* being preoccupied by Hbst.; G. R. Crotch, 1867, 106.  
*Harpalus obscurus*, Dej., Daws., *nee* Fab., = *rotundicollis*, Fairm.; H. Schaum, 1860, 124.
- \*35. *HARPALUS DIFFINIS*, Dej.; E. W. Janson, 1863, 67; E. C. Rye, 1867, 106: stands in the same relation to *rotundicollis*, Fairm., as *griseus* to *ruficornis*.
36. *HARPALUS CORDATUS*, Duft.; J. F. Dawson, 1855, 117; 1856, 77.
37. *HARPALUS RUPICOLA*, Sturm; J. F. Dawson, 1855, 117; 1856, 78.  
*Harpalus cribellum*, Steph., not to stand, from confusion with *puncticollis*; H. Schaum, 1860, 124.
38. *HARPALUS PARALLELUS*, Dej.; E. W. Janson, 1863, 68.
- \*39. *HARPALUS GRISEUS*, Panz., E. C. Rye, 1863, 68: = *ruficornis*, Fab., *var.*; D. Sharp, 1872, 38.
- \*40. *HARPALUS CALCEATUS*, Duft.; J. F. Dawson, 1857, 66.  
*Harpalus cuniculinus*, Duft. (? Daws.), = *honestus*: H. Schaum, 1860, 124.
41. *HARPALUS SULPHURIPES*, Germ.; J. F. Dawson, 1855, 117.  
*Harpalus consentaneus*, Dej., to be used in preference to the prior *attenuatus*, Steph.; G. R. Crotch, 1867, 106.  
*Harpalus fulripes*, Fab., = *latus*, Linn.; H. Schaum, 1860, 124.

42. HARPALUS *Wollastoni*, Daws.; 1855, 117: = *litigiosus*, Dej.; J. F. Dawson, 1856, 78; 1858, 53: = *tenebrosus*, Dej., Dawson's last reference being wrong, H. Schaum, 1860, 124.
43. HARPALUS MELANCHOLICUS, Dej.; J. F. Dawson, 1855, 117; 1858, 53.  
*Harpalus lentus*, Sturm, = *flavicornis*, Dej., *nec tardus*; H. Schaum, 1860, 124.  
*Harpalus caspius*, Steven, to stand for *depressus*, Dufts.; H. Schaum, 1860, 124.
44. HARPALUS SERVUS, Dufts.; E. W. Janson, 1859, 122.  
*Harpalus picipennis*, Dufts., to stand for *vernalis*, Fab., *nec* Panz.; H. Schaum, 1860, 124.
45. STENOLOPHUS ELEGANS, Dej.; J. F. Dawson, 1855, 117; 1856, 79.
46. ACUPALPUS (S.) FLAVICOLLIS, Sturm; J. F. Dawson, 1855, 118.
47. ACUPALPUS (S.) BRUNNIPES, Sturm; D. Sharp, 1865, 45.
48. ACUPALPUS (S.) DERELICTUS, Daws.; 1855, 118: = *dorsalis*, var.; H. Schaum, 1868, 125: this opinion not correct; E. C. Rye, 1863, 69; 1866, 60.
49. ACUPALPUS (S.) EXIGUUS, Dej.; J. F. Dawson, 1855, 118: = *luridus*, Dej., var.; H. Schaum, 1860, 125.
50. BRADYCELLUS COGNATUS, Gyll.; J. F. Dawson, 1855, 118.
51. BRADYCELLUS DISTINCTUS, Dej. (= *fulvus*, Dawson, *pars*); H. Schaum, 1860, 125.
52. BRADYCELLUS RUFULUS, Dej. (= *fulvus*, Dawson, *pars*); H. Schaum, 1860, 125; G. R. Crotch, 1867, 107; 1872, 27: *verbasci*, Sharp, Cat.
53. BRADYCELLUS HARPALINUS, Dej.; (E. C. Rye, Ent. W. Int. 26 May, 1860) E. W. Janson, 1861, 59.
54. ?PATROBUS LAPPONICUS, Chaudoir; E. W. Janson, 1859, 144: = *claripes*, Thoms.; E. W. Janson, 1863, 67: = *assimilis*, Chaud.; G. R. Crotch, Cat. ed. 1.
- \*55. ?PATROBUS RUBRIPENNIS, Thoms.; G. R. Crotch, 1864, 78: = *septentrionis*, Dej., var.; E. C. Rye, *ibid.*
56. TRECHUS OBTUSUS, Er.; G. R. Waterhouse, 1864, 33.
57. TRECHUS INCILIS, Daws.; 1855, 118; 1856, 79: = *ricularis*, Gyll.; H. Schaum, 1860, 125.
58. AEPUS ROBINII, Laboulb.; T. V. Wollaston, 1855, 118 (should be *Epyss*).

59. BEMBIDIUM FOCKII, Humm.; T. J. Bold, 1864, 34: *Tachys id.*
60. BEMBIDIUM QUADRISIGNATUM, Dufts.; E. C. Rye, 1866, 61: *Tachys id.*  
*Bembidium riparium*, Payk., and *B. biguttatum*, Fab.; *B. lampros*, Hbst., and *B. velox*, Er.; for observations on the specific values of these insects, cf. G. R. Crotch, 1867, 107.
61. BEMBIDIUM MANNERHEIMII, Sahlb.; E. C. Rye, 1864, 35.
62. BEMBIDIUM CLARKII, Dawson (1849); 1855, 119: J. F. Dawson, 1856, 81: = *Leja bisulcata*, Chaud. (1844), *nec Nicol.*; *id.*, 1857, 67.
63. BEMBIDIUM QUADRIPISTULATUM, Dej.; H. S. Gorham, 1871, 26: *nec* Fab., and = 4-*guttatum*, Ol., *nec* Fab., and is renamed *Olivieri*; G. R. Crotch, 1872, 28.  
*Bembidium 4-guttatum*, Fab., *nec* Pont., is renamed *antiquorum*; G. R. Crotch, 1872, 28.
64. BEMBIDIUM STURMII, Panz.; J. F. Dawson, 1857, 67.
65. BEMBIDIUM DORIS, Panz.; J. F. Dawson, 1855, 119; 1856, 81.
- \*66. BEMBIDIUM CALLOSUM, Küst.; J. F. Dawson, 1855, 119.
67. BEMBIDIUM SCHUPPELII, Dej.; T. J. Bold, 1855, 119.
68. BEMBIDIUM NIGRICORNE, ? Gyll.; G. R. Waterhouse, 1861, 60: E. C. Rye, 1863, 69.
69. BEMBIDIUM TESTACEUM, Dufts.; J. F. Dawson, 1855, 118 (*Peryphus neglectus*, Dawson; *Bembidium tricolor*, F., Hdy. & B.); 1858, 54.
70. BEMBIDIUM ANGLICANUM, Sharp; 1870, 43.
71. BEMBIDIUM BRUXELLENSE, Wesm.; H. Clark, 1855, 118: J. F. Dawson, 1856, 80.
72. BEMBIDIUM FLUVIATILE, Dej.; J. F. Dawson, 1855, 118.
73. BEMBIDIUM STOMOIDES, Dej.; J. F. Dawson, 1855, 118; 1858, 54.
74. BEMBIDIUM OBLIQUUM, Sturm.; Hardy & Bold, 1855, 118: J. F. Dawson, 1856, 80; 1857, 66.  
*Bembidium punctulatum* (in error *punctatulum*), Drap., and *velox*, Linn.; J. F. Dawson, 1858, 57: H. Schaum, 1860, 125.



## HYDRADEPHAGA.

75. HALIPLUS VARIUS, Nicolai; T. J. Bold, 1869, 14: = *confinis*, var.; E. C. Rye, *ibid.*
76. HALIPLUS FLUVIATILIS, Aubé; H. Schaum, 1855, 119.
77. HALIPLUS STRIATUS, Sharp; 1870, 44.
- \*78. HYPHYDRUS VARIEGATUS, Aubé; E. Brown, 1866, 63: ? indigenous.
- †79. OXYNOPTILUS CUSPIDATUS, Kunze; H. Moncreaff (*Hydroporus*); 1870, 45: *Hydrovatus*, Mots., has prior generic claim; E. C. Rye, 1872, 29.
80. HYDROPORUS QUINQUELINEATUS, Zett.; H. Clark, 1863, 69.
81. HYDROPORUS MINUTISSIMUS, Germ.; H. Schaum, 1855, 119 (*trifasciatus*, Woll.): Wollaston's original specimens not British, but the species taken by him in Devon subsequently; 1870, 46.
82. HYDROPORUS UNISTRIATUS, Schr.; considered to have been introduced in error; E. C. Rye, 1863, 70: undoubtedly indigenous examples recorded; D. Sharp, 1870, 47.  
*Hydroporus bisulcatus*, Curt.; considered to have been introduced in error; E. C. Rye, 1863, 70: = *unistriatus*, Schr.; *id.*, 1871, 25.
- \*83. HYDROPORUS SANMARKII, Sahlb.; G. R. Crotch, 1867, 57 (considered a *sub*-species): = *rivalis*, Gyll., *var.*  
*Hydroporus halensis*, Fab., Steph.; corroborated as British; H. Clark, 1863, 70.
84. HYDROPORUS GRISEOSTRIATUS, De G.; E. C. Rye, 1863, 70.  
*Hydroporus oblongus*, Steph., to be used for the later *nitidus*, Stm.; G. R. Crotch, 1867, 108 [*oblongus*, Dej., Aubé, later than Stephens, requires re-naming, and may be called *Dejeani*].
85. HYDROPORUS OBSOLETUS, Aubé; D. Sharp, 1870, 49.  
*Hydroporus ferrugineus*, Steph., *nec* Linn. (*Hyphydrus*), to be deposited for the later *victor*, Aubé; G. R. Crotch, 1867, 108.  
*Hydroporus piceus*, Steph., to be adopted for *Gyllenhalii*, Schiödt; G. R. Crotch, 1867, 108 (but Stephens's *piceus* = *rufifrons*, Duftsch.,—*rufifrons*, Steph., being the *piceus* of Aubé, *teste* Wat. Cat. Syn.).  
*Hydroporus rufifrons*, Duftsch., *nec* Müll., *nec* Fab., re-named *Duftschmidti*; E. C. Rye, 1872, 47.

- \*86. HYDROPORUS DERELICTUS, Clark; 1863, 71: = *erythrocephalus*, Linn.; H. Schaum, 1870, 51.  
*Hydroporus pubescens*, Gyll., = *melanocephalus*, Marsh., *nec* Gyll., Aubé, Thoms.; D. Sharp, 1872, 48.
87. HYDROPORUS DISCRETUS, Fairm.; D. Sharp, 1870, 47 (*nigrita*, Sturm, *nec* Fab.; Thoms., Sk. Col. ii; *pubescens*, Thoms., Sk. Col. ix): considered erroneously by T. J. Bold to be a sex of *nigrita*, Fab., *ibid*.
- \*88. HYDROPORUS GLABELLUS, Thoms.; G. R. Crotch, 1869, 18: = *nigrita*, Fab.; E. C. Rye, *ibid.*; 1860, 47.
- \*89. HYDROPORUS BREVIS (Sahlb.); G. R. Crotch, 1867, 58: erroneously identified.
90. HYDROPORUS CELATUS, Clark; 1863, 71.
91. HYDROPORUS MELANARIUS, Sturm; H. Clark, 1856, 82.
92. HYDROPORUS MONTICOLA, Sharp; 1870, 48.
93. HYDROPORUS PARALLELUS, Sharp; 1870, 49: renamed *longicornis*, on account of the prior *parallelus* of Aubé; *id.*, 1872, 48.  
*Hydroporus melanocephalus*, Gyll. (*morio*, Dej. Cat., *nec* Heer), *nec* Steph., is renamed *atriceps*; G. R. Crotch, 1872, 24: subsequently named *scaphiformis*; D. Sharp, 1872, 48 (this withdrawn in Sharp's Cat.).
- \*94. HYDROPORUS ELONGATULUS (Sturm); T. V. Wollaston, 1856, 82: = *melanocephalus*, Gyll., Wat. Cat. Syn.: T. J. Bold, 1869, 19; erroneously identified.
95. HYDROPORUS TRISTIS, Payk.; H. Schaum, 1855, 119.
96. HYDROPORUS NEGLECTUS, Schaum; J. A. Power, 1867, 58.
97. HYDROPORUS OBSCURUS, Sturm; H. Schaum, 1855, 119.
- \*98. HYDROPORUS TINCTUS, Clark; 1863, 72: = *palustris*, Linn., *var.*; G. R. Crotch, 1867, 108.
99. HYDROPORUS INCOGNITUS, Sharp; 1870, 49.
100. LACCOPHILUS VARIEGATUS, Germ.; G. R. Waterhouse, 1863, 69.
101. ILYBIUS SUBÆNEUS, Er.; J. A. Power, 1867, 57.
- \*102. COLYMBETES SEXDENTATUS, Schiödt; G. R. Crotch, 1864, 80; 1865, 47 (*Ilybius*): = *obscurus*, Marsh., *var.* ♂; *id.*, 1869, 15.
103. AGABUS SEXUALIS, Reiche; G. R. Crotch, 1864, 80; 1865, 47: = *Solieri*, Aubé, G. R. Crotch, *ibid.*: D. Sharp, 1869, 18.

104. AGABUS STRIOLATUS, Gyll.; A. White, 1855, 119 (*Colymbetes rectus*, Babington).
105. AGABUS TARSATUS, Zett.; D. Sharp, 1870, 51.
106. COLYMBETES DISPAR, Bold; 1855, 119 (an *Agabus*): this name to stand for *A. uliginosus*, Payk., *nec* Linn.; G. R. Crotch, 1867, 108.  
*Agabus nigroæneus*, Er., *nec* Marsh., named *Erichsoni*; E. C. Rye, 1869, 16 (not yet recorded as British): this anticipated by Gemm. & v. Harold; 1870, 51.  
*Agabus affinis*, Schaum, Wat. Cat., = *unguicularis*, Thoms.; G. R. Crotch, 1869, 17.
107. AGABUS AFFINIS, Payk., *nec* Schaum; D. Sharp, 1869, 17.
- \*108. AGABUS PULCHELLUS (Heer); E. Newman, 1857, 69: ? = *maculatus*, Linn.
109. DYTISCUS LAPPONICUS, Gyll.; H. Clark, 1856, 82.
- \*†110. EUNECTES STICTICUS, Linn.; G. R. Crotch, 1866, 62.  
*Hydaticus transversalis*, Fab., confuses two species, named *punctipennis* and *lævipennis* by Thomson; G. R. Crotch, 1869, 14 & 15.  
*Gyrinus natator*. D. Sharp notes two races of this species, *mergus*, Ahr., peculiar to the south of England, and *natator*, more attached to the north; 1869, 20.
111. GYRINUS SUFFRIANI, Scriba; D. Sharp, 1870, 52.
112. GYRINUS DISTINCTUS, Aubé; D. Sharp, 1869, 21 (? = *bicolor* Payk., var.).
113. GYRINUS CASPIUS, Mén.; D. Sharp, 1869, 21.
- \*114. GYRINUS CELOX, Schiödte; A. H. Haliday, 1856, 82: = *bicolor*, Fab.; E. C. Rye, 1863, 72.
115. GYRINUS COLYMBUS, Er.; G. R. Crotch, 1867, 58: D. Sharp, 1869, 22.
116. GYRINUS OPACUS, Sahlb.; G. R. Crotch, 1867, 58: D. Sharp, 1869, 22.
- \*117. GYRINUS ÆNEUS, Stephens; E. C. Rye, 1869, 23 (? *spec. distincta*): non-existent according to Sharp; 1870, 52.

## PHILHYDRIDA.

*Hydrobius fuscipes*, Linn. Vars. (?) of this species, *subrotundus*, Steph., and *æneus*, Sol. (= *chalconotus*, Leach), are recorded by E. C. Rye, 1871, 43.

118. HELOCHARES (PHILHYDRUS) PUNCTATUS, Sharp; 1870, 97.
119. PHILHYDRUS MARITIMUS, Thoms.; E. C. Rye, 1864, 67.
120. PHILHYDRUS NIGRICANS, Zett.; G. R. Crotch, 1864, 68.
121. PHILHYDRUS OVALIS, Thoms.; G. R. Crotch, 1864, 68.  
*Hydrobius atricapillus*, Steph., to be used for *bicolor*, Payk., nec Fab.; G. R. Crotch, 1867, 115.  
*Hydrobius globulus*, Payk., to be used for the earlier but irre-  
 cognizable *limbatus*, Fab.; G. R. Crotch, 1867, 115: Thom-  
 son's genus *Anacæna* adopted, and *limbata* retained; D. Sharp,  
 1871, 44.
122. ANACÆNA VARIABILIS, Sharp; 1871, 44: *carinata*, Thoms.,  
 identical with this; D. Sharp, 1872, 48.
123. ANACÆNA BIPUSTULATA, Steph., revived; D. Sharp, 1871, 44  
*Berosus æriceps*, Curt., = *signaticollis*, Charp.; G. R. Crotch,  
 1867, 115.  
*Limnebius atomos*, Dufts., to be used for *picinus*, Wat. Cat.;  
 G. R. Crotch, 1867, 114.
124. HELOPHORUS RUGOSUS, Ol.; A. Murray, 1855, 120.
125. HELOPHORUS INTERMEDIUS, Muls.; J. A. Power, 1860, 100  
 (*inland* capture); E. C. Rye, 1863, 114.
126. HELOPHORUS DORSALIS, Muls. (nec Marsh.); G. R. Crotch,  
 1864, 66: named *Mulsanti*, by E. C. Rye, 1867, 114.
127. HELOPHORUS ÆNEIPENNIS, Thoms.; G. R. Crotch, 1864, 66:  
 = *obscurus*, Muls.; G. R. Crotch, 1867, 114 (who connects it  
 with *H. granularis* and *H. griseus*).
128. HELOPHORUS PUMILIO, Er.; H. Clark, 1857, 69: = *arvernicus*,  
 Muls.; G. R. Crotch, 1864, 67.
129. HYDROCHUS CARINATUS, Germ.; E. W. Janson, 1860, 100.
- \*130. HYDROCHUS PARUMOCULATUS, Hardy; 1855, 120: is queried  
 as a *Macronychus*: T. J. Bold, 1871, 43: evidently not indi-  
 genous.

131. OCHTHEBIUS POWERI, Rye; 1870, 95.  
*Ochthebius rufimarginatus*, Steph., = *bicolor*, Germ., var.;  
 sec. de Mars. and v. Harold; E. C. Rye, 1870, 96.
132. OCHTHEBIUS EXARATUS, Muls.; G. R. Waterhouse, 1855, 120.  
*Ochthebius hibernicus*, Curtis; observations on: E. C. Rye, 1870,  
 96.
133. HYDRÆNA PALUSTRIS, Er.; G. R. Crotch, 1867, 77 (the *Hydræna* 2 nov. sp. ? of Wat. Cat.).  
*Hydræna concolor*, Waterh., = *riparia*, Kugel.; given as a good  
 species by Gemm. & v. Harold; E. C. Rye, 1870, 96.
134. HYDRÆNA ANGUSTATA, Sturm.; G. R. Crotch, 1867, 78.
135. HYDRÆNA PULCHELLA, Germ.; G. R. Crotch, 1867, 78 (the  
*Hydræna* 6 nov. sp. ? of Wat. Cat.).  
*Hydræna flavipes*, St., to be used for the prior *atricapilla* of  
 Waterhouse; G. R. Crotch, 1867, 114: the latter to stand;  
 E. C. Rye, *ibid*.  
*Hydræna Sieboldi*, Rosenh., to be used for the prior *pygmæa*  
 of Waterhouse; G. R. Crotch, 1867, 114: the latter to stand;  
 E. C. Rye, *ibid*.
136. SPHÆRIDIDIUM MARGINATUM, Fab.; G. R. Crotch, 1869, 37:  
 apparently of doubtful specific value.
- \*137. CERCYON MARINUS, Thoms.; G. R. Crotch, 1867, 115 (*aquatius*,  
 Muls., pars).  
*Cercyon plagiatus*, Er., to be preferred for the prior *terminatus*,  
 Marsh.; G. R. Crotch, 1867, 115.  
*Cercyon centromaculatus*, Steph., to be used for the prior  
*nigriceps*, Marsh.; G. R. Crotch, 1867, 116.
138. CERCYON LUGUBRIS, Payk.; G. R. Crotch, 1869, 37.  
*Megasternum boletophagum*, Marsh., Er., to be used for *obscurum*,  
 Marsh.; G. R. Crotch, 1867, 116 (although the type of the  
 former is *Cercyon minutus*).

## BRACHELYTRA.

139. AUTALIA PUNCTICOLLIS, Sharp; 1865, 47: subsequently de-  
 scribed by Thomson under the same name; 1869, 6.
- †140. BORBOROPORA KRAATZII, Füss; J. A. Power, 1866, 63 (*Sauleyi*,  
 Ktz.).
141. BOLITOCCHARA LUCIDA, Grav.; G. R. Waterhouse, 1858, 62.

142. BOLITOCHARA LUNULATA, Payk. (*nec* Steph.); G. R. Waterhouse, 1859, 124.
143. BOLITOCHARA BELLA, Märk.; G. R. Waterhouse, 1858, 62.
144. PHYTOSUS BALTICUS, Ktz.; E. C. Rye, 1867, 59.
- \*145. PHYTOSUS NIGRIVENTRIS, Chev.; T. J. Bold, 1858, 62: = *balticus*, Ktz.; E. C. Rye, 1867, 59; true *nigriventris* also considered British by G. R. Crotch, *ibid*, and 1868, 61: but not included in Sharp's Catalogue.
- †146. ACTECHARIS READINGII, Jans., MS.; G. R. Crotch, 1864, 83: genus *Actocharis* characterized, and species *Readingii* described; D. Sharp, 1871, 27: priority for his *marina* claimed by A. Fauvel, *ibid*.: Fauvel's claim to be disallowed; E. C. Rye, 1872, 30.
- †147. SILUSA RUBIGINOSA, Er.; G. R. Waterhouse, 1858, 62.
148. OCALEA LATIPENNIS, Sharp; 1871, 27.
- \*149. OCALEA RIVULARIS, Mill.; G. R. Waterhouse, 1858, 63: = *picata*, Steph. (*eustanea*, Er.), *var.*; D. Sharp, 1872, 38.
150. OCALEA BADIA, Er.; G. R. Waterhouse, 1858, 63.
151. LEPTUSA ANALIS, Gyll.; E. W. Janson, 1865, 48.
- †152. LEPTUSA FUMIDA, Er.; G. R. Waterhouse, 1858, 63.
153. LEPTUSA RUFICOLLIS, Er.; G. R. Waterhouse, 1858, 63.
- †154. EURYUSA LATICOLLIS, Heer; G. R. Waterhouse, 1859, 127.
- \*155. EURYUSA SINUATA, Er.; E. W. Janson, 1865, 48.
- \*156. EURYUSA KIRBYI, Janson, 1858, 64: = *Thiasophila inquilina*, Märk.; E. C. Rye, 1866, 65; 1868, 61.
- †157. HOMŒUSA ACUMINATA, Märk.; T. V. Wollaston, 1857, 75.
- †158. THIASOPHILA ANGULATA, Er.; E. W. Janson, 1857, 74.
159. THIASOPHILA INQUILINA, Märk.; G. R. Waterhouse, 1858, 63.  
*Cratarœa* (*Haploglossa*) *prætexta*, Er., = *erythroceras*, Steph., = *suturalis*, Sahlb.; G. R. Crotch, 1868, 61.
160. MICROGLOSSA (HAPLOGLOSSA) MARGINALIS, Grav.; D. Sharp, 1872, 48.
161. MICROGLOSSA (H.) RUFIPENNIS (Ktz.); E. W. Janson, 1861, 61: = *nidicola*, Fairm.; E. W. Janson, 1863, 73.
162. MICROGLOSSA (H.) GENTILIS, Luen.; E. W. Janson, 1860, 101.
163. MICROGLOSSA (H.) PULLA, Gyll.; E. W. Janson, 1863, 72.

164. ALEOCHARA LATA, Grav.; D. Sharp, 1870, 52 (*fuscipes*, var., *olim*).
- \*165. ALEOCHARA FUMATA, Er.; G. R. Waterhouse, 1865, 49: = *brevipennis*, Grav., var.; D. Sharp, 1870, 53.
166. ALEOCHARA VILLOSA, Mann.; T. J. Bold, 1872, 49.
167. ALEOCHARA LYGÆA, Ktz.; D. Sharp, 1869, 24.
168. ALEOCHARA GRISEA, Ktz.; G. R. Crotch, 1867, 59 (the *Fauvelii* of Rye's Cat.); 1868, 62.  
*Aleochara Kirbii*, Steph., is considered non-existent, and *algarum*, Fauvel, is adopted for the insect; G. R. Crotch, 1867, 59.
169. ALEOCHARA PROCERA, Er.; G. R. Waterhouse, 1865, 49.
170. ALEOCHARA SPADICEA, Er.; E. W. Janson, 1865, 50.
171. ALEOCHARA MYCETOPHAGA, Ktz.; G. R. Waterhouse, 1858, 66.  
*Aleochara brunncipennis*, Ktz., = *sanguinea*, Steph., = *mærens*, Gyll. (E. W. Janson, 1863, 73); G. R. Waterhouse, 1865, 50.
172. ALEOCHARA LUGUBRIS, Aubé; G. R. Crotch (Cat. ed. 1, = *mærens*; ed. 2, given as distinct).
173. ALEOCHARA FUNGIVORA, Sharp; 1871, 28.
174. ALEOCHARA BISIGNATA (Er.); G. R. Waterhouse, 1859, 126: = *euniculorum*, Ktz.; E. C. Rye, 1869, 25.
175. ALEOCHARA MACULATA, Ch. Bris.; H. S. Gorham, 1871, 28.
- 176.? ALEOCHARA INCONSPICUA, Aubé; G. R. Waterhouse, 1864, 37.  
*Dinarda dentata*, Curt., Steph., *nee* Grav., = *Märkelii*, Kies.; E. W. Janson, 1858, 66.
177. DINARDA DENTATA, Grav.; E. W. Janson, 1858, 66; E. C. Rye, 1863, 112 (the latter in error, the insects being a small race of *Märkelii*).
178. ATEMELES PARADOXUS, Grav.; E. W. Janson, 1857, 75.
179. MYRMEDONIA COGNATA, Märk.; G. R. Waterhouse, 1857, 72.  
*Myrmedonia funesta*, Grav., noticed by E. W. Janson as incorrectly considered an unrecorded British sp.; 1856, 90.
- \*180. MYRMEDONIA SIMILIS, Märk.; G. R. Crotch, 1864, 83: introduced in error; E. C. Rye, *ibid.*
181. MYRMEDONIA LUGENS, Grav.; G. R. Waterhouse, 1857, 72.
182. MYRMEDONIA LATICOLLIS, Märk.; G. R. Waterhouse, 1857, 72.

183. MYRMEDONIA PPLICATA, Er.; E. W. Janson, 1866, 65.
184. ILYOBATES PROPINQUA, Aubé; G. R. Waterhouse, 1858, 67.
185. ILYOBATES FORTICORNIS, Lacord.; G. R. Waterhouse, 1858, 67.
186. ILYOBATES (OXYPODA) GLABRIVENTRIS, Rye; 1856, 67: the *Calodera* (*I.*) *Bonnairei* of Fauvel is identical with this: *id.*, 1870, 53.
187. CALLICERUS RIGIDICORNIS, Er.; G. R. Waterhouse, 1858, 67.
188. CALODERA NIGRITA, Mann.; E. W. Janson, 1858, 67 (*Calodera* 1 *nov. sp.?*, Wat. Cat.): G. R. Crotch, 1864, 83.
189. CALODERA RUBENS, Er.; E. C. Rye, 1871, 29.
190. CALODERA RIPARIA, Er.; G. R. Waterhouse, 1859, 124.
191. CALODERA ÆTHIOPS, Grav.; G. R. Waterhouse, 1858, 68.
192. CALODERA UMBROSA, Er.; G. R. Waterhouse, 1858, 68.
193. CHILIPORA (CALODERA) RUBICUNDA, Er.; Hardy & Bold, 1855, 121: *Ischnopoda id.*, G. R. Waterhouse, 1859, 124.
194. TACHYUSA COARCTATA, Er.; E. C. Rye, 1863, 74.
195. TACHYUSA SCITULA, Er.; G. R. Waterhouse, 1858, 68.
196. TACHYUSA FLAVITARSIS, Sahlb.; Hardy, 1855, 121.
197. TACHYUSA UMBRATICA, Er.; E. C. Rye, 1863, 74.
198. TACHYUSA CARBONARIA, Mann.; Hardy & Bold, 1855, 121.
199. TACHYUSA CONCOLOR, Er.; G. R. Waterhouse, 1860, 102.
200. TACHYUSA UVIDA, Er.; Hardy & Bold, 1855, 121.
201. TACHYUSA SULCATA, Kies.; G. R. Waterhouse, 1858, 68.
202. OCYUSA (OXYPODA) MAURA, Er.; A. Murray, 1855, 122.
203. OCYUSA RUFICORNIS, Ktz.; E. W. Janson, 1859, 125: = *picina*, Aubé, E. C. Rye, 1863, 112.
204. OXYPODA SPECTABILIS, Märk.; E. W. Janson, 1860, 103: this to be used for *ruficornis*, Gyll. (with which it is conspecific), *nec* Grav.; G. R. Crotch, 1872, 24.
205. OXYPODA VITTATA, Märk.; G. R. Waterhouse, 1857, 74.
206. OXYPODA LONGIPES, Muls.; D. Sharp, 1871, 29.
207. OXYPODA RUPICOLA, Rye; 1867, 46.
208. OXYPODA LENTULA, Er.; Hardy & Bold, 1855, 122: G. R. Waterhouse, 1864, 38.



209. OXYPODA EDINENSIS, Sharp; 1872, 51.
210. OXYPODA UMBRATA, Mann.; E. C. Rye, 1864, 38 [the name *Erichsoni* proposed for Erichson's *umbrata*, preoccupied by Grav.; G. R. Crotch, 1867, 108: already named *humidula* by Kraatz; E. C. Rye, *ibid.*; 1868, 62: N.B.; these notices do not refer to the species above introduced]: Rye's insect described as new, under the name *pectita*, by D. Sharp, 1872, 50, who considers *cuniculina*, Er. (*brevicornis*, W. C.) = true *umbrata*.
211. OXYPODA NIGRINA, Waterhouse; 1859, 126: = *sericea*, Heer; G. R. Crotch, 1868, 62: this identification doubtful.
212. OXYPODA EXIGUA, Er.; G. R. Waterhouse, 1858, 68: = *investigatorum*, Ktz., *sec.* Fauvel; E. C. Rye, 1870, 54: not the latter species, *sec.* Ktz., and probably true *exigua*; D. Sharp, 1872, 51.
213. OXYPODA VERECUNDA, Sharp; 1872, 51.
214. OXYPODA EXOLETA, Er.; G. R. Waterhouse, 1858, 68 (*O. præcox*, G. R. W., *olim*).
- \*215. OXYPODA RUFULA (Muls.); G. R. Waterhouse, 1859, 126: = *riparia*, Fairm.; E. C. Rye, 1870, 55.
216. OXYPODA RIPARIA, Fairm.; G. R. Crotch, 1864, 83: E. C. Rye, 1870, 55: renamed *mutata*, on account of the prior *riparia* of Thoms.; D. Sharp, 1872, 52.
217. OXYPODA SOROR, Thoms.; E. C. Rye, 1867, 60.
218. OXYPODA ? ATERRIMA, Waterhouse; 1859, 126: = *incrassata*, Muls.; G. R. Crotch, 1868, 62.
219. OXYPODA RECONDITA, Ktz.; G. R. Crotch, 1864, 83: D. Sharp, 1872, 51.
- \*220. OXYPODA LUCENS (Muls.); G. R. Waterhouse, 1863, 75: = *recondita*, Ktz., *teste* Crotch; D. Sharp, 1872, 51.
221. OXYPODA FORMICETICOLA, Märk.; E. W. Janson, 1857, 74.
222. OXYPODA HEMORRHOA, Sahlb.; E. W. Janson, 1857, 74.
223. OXYPODA AMENA, Fairm.; G. R. Crotch, 1864, 83.
- \*224. OXYPODA FLAVICORNIS, Ktz.; D. Sharp, 1869, 25: = *amæna*, Fairm.; E. C. Rye, 1870, 55.
225. OXYPODA NIGROFUSCA, Waterhouse; 1859, 126: = *amæna*, Fairm., *sec.* Fauvel (erroneously), E. C. Rye, 1870, 55: named *Waterhousei*, on account of the prior *nigrofusca* of Stephens; *id.*, *ibid.*; 1872, 52.

226. OXYPODA HELVOLA, Er.; G. R. Crotch, 1864, 83: the *annularis* of Wat. Cat., *nec* Mann.; = *pallidula*, Sahlb.; E. C. Rye, 1870, 56.
- \*227. OXYPODA TESTACEA (Er.); Hardy & Bold, 1855, 122: = *pallidula*, Sahlb.  
*Oxyпода brachyptera*, Steph., *nec* Ktz.; not conspecific with *ferruginea*, Er.; E. C. Rye, 1870, 56: redescribed, and *forticornis*, Fairm., identified with it; *ferruginea*, Er., would not stand, if identical with Stephens's insect; D. Sharp, 1872, 52.  
*Oxyпода brachyptera*, Ktz., *nec* Steph., renamed *Kraatzii*; E. C. Rye, 1872, 53.
228. OXYPODA MISELLA, Ktz.; G. R. Waterhouse, 1864, 39: = *ferruginea*, Er., *sec.* Fauvel; E. C. Rye, 1870, 56: returned as apparently *misella* by Ktz.; 1872, 52.
229. HOMALOTA CURRAX, Ktz.; G. R. Waterhouse, 1858, 68.
230. HOMALOTA LANGUIDA, Er.; G. R. Waterhouse, 1858, 68.
231. HOMALOTA INSECTA, Thoms.; D. Sharp, 1870, 56: = *sulcifrons*, Steph.; E. C. Rye, *ibid.*
232. HOMALOTA PAVENS, Er.; D. Sharp, 1870, 57: *obliquepunctata*, Wollast., identical with this; *id.*, 1871, 30.
- 233.?HOMALOTA DEBILICORNIS, Er.; G. R. Waterhouse, 1858, 68: = *Eic(h)hoffi*, Scriba; D. Sharp, 1870, 57.
234. HOMALOTA CAMBRICA, Wollaston; 1856, 82.
- \*235. HOMALOTA VELOX, Ktz.; G. R. Waterhouse, 1864, 40: = *cambrica*, Woll.; D. Sharp, 1870, 57.
236. HOMALOTA PLANIFRONS, Waterhouse (*platycephala* in description, not in diagnosis), 1864, 41.
237. HOMALOTA FRAGILICORNIS (Ktz.); G. R. Waterhouse, 1858, 68: described as new, under the name *eximia*, by D. Sharp; 1870, 58.
238. HOMALOTA FRAGILIS, Ktz.; G. R. Waterhouse, 1858, 69.
239. HOMALOTA LONGULA, Heer; E. C. Rye, 1866, 54.
240. HOMALOTA DELICATULA, Sharp; 1870, 58.
241. HOMALOTA SUBTILISSIMA, Ktz.; D. Sharp, 1867, 61.
242. HOMALOTA FLUVIATILIS (Ktz.); G. R. Waterhouse, 1863, 75: described as new, under the name *littorea*, by D. Sharp; 1870, 58.

243. HOMALOTA IMBECILLA, Waterhouse; 1859, 124: = *meridionalis*, Muls., *sec. Fauvel*; 1870, 58: this change not adopted in Sharp's Cat.
244. HOMALOTA LUTEIPES, Er.; G. R. Waterhouse, 1863, 75.
245. HOMALOTA LABILIS, Er.; G. R. Waterhouse, 1858, 69.
246. HOMALOTA CARBONARIA, Sahlb.; D. Sharp, 1870, 59 (*cærulea*, Wat. Cat., = *labilis*, var.): = *cærulea*, Sahlb.
247. HOMALOTA PLUMBEA, Waterhouse; 1859, 125.
248. HOMALOTA FALLAX, Ktz.; G. R. Waterhouse, 1858, 69.
249. HOMALOTA LURIDIPENNIS, Mann.; G. R. Waterhouse, 1858, 69.
250. HOMALOTA LONDINENSIS, Sharp; 1870, 59.
251. HOMALOTA HYGROTOPORA, Ktz.; G. R. Waterhouse, 1858, 68.
252. HOMALOTA VOLANS, Scriba; D. Sharp, 1870, 60.
253. HOMALOTA CLAVIPES, Sharp; 1870, 60.
254. HOMALOTA NIVALIS, Kies.; Hardy & Bold, 1855, 121: = *tibialis*, Heer.
255. HOMALOTA NITIDULA, Märk.; G. R. Waterhouse, 1858, 68: ? var. *nitidiuscula*, described by D. Sharp, 1870, 61; this var. = *alpestris*, Heer, *sec. Fauvel*; 1872, 30.
256. HOMALOTA OBLONGA (Er.); G. R. Waterhouse, 1864, 41; described as new, under the name *oblongiuscula*, by D. Sharp; 1870, 61.
257. HOMALOTA HYPNORUM (Kies.); D. Sharp, 1867, 60: = *silvicola*, Fuss; *id.*, 1870, 61.
258. HOMALOTA CRASSICORNIS, Gyll.; D. Sharp, 1867, 60.
259. HOMALOTA PAGANA, Er.; G. R. Waterhouse, 1858, 68.
260. HOMALOTA MARITIMA, Waterhouse, 1864, 43 (*flavipes*, Thoms., *nee Grav.*; *puncticeps*, Wat. Cat., *nee Thoms.*): = *atricilla*, Er., *sec. Scriba*; E. C. Rye, 1867, 108: = *algæ*, Hdy.; G. R. Crotch, *ibid.*; 1863, 62: renamed *Halobrectha* by D. Sharp; 1870, 62 (*maritima* being preoccupied).
261. HOMALOTA ALGÆ, Hardy; 1855, 121: = *puncticeps*, Thoms.; G. R. Waterhouse; 1864, 42: Hardy's name entitled to priority of date; T. J. Bold, 1871, 29: but not adopted by Sharp, as description applies also to *Halobrectha*.
262. HOMALOTA PRINCEPS, Sharp; 1870, 62.
- \*263. HOMALOTA FUNGIVORA, Thoms.; D. Sharp, 1870, 62: = *occulta*, Er., var.; *id.*, 1872, 38.

264. HOMALOTA FUSCOFEMORATA, Waterhouse; 1864, 46 (*picipes*, Thoms., *nec* Steph.): Stephens's species considered as non-existent, and *picipes*, Thoms., retained; D. Sharp, 1870, 63.
265. HOMALOTA EXCELLENS, Ktz.; G. R. Waterhouse, 1858, 69.
266. HOMALOTA MONTICOLA, Thoms.; G. R. Waterhouse, 1858, 69.
267. HOMALOTA SUBGLABRA, Sharp; 1870, 63.
268. HOMALOTA NIGELLA, Er.; G. R. Waterhouse, 1858, 69.
269. HOMALOTA ÆQUATA, Er.; G. R. Waterhouse, 1858, 69.
270. HOMALOTA PILOSA, Ktz.; G. R. Waterhouse, 1858, 69: = *pilicornis*, Thoms.; G. R. Crotch, 1870, 63.
271. HOMALOTA DEBILIS, Ktz.; G. R. Waterhouse, 1858, 69.
272. HOMALOTA FALLACIOSA, Sharp; 1870, 63.
273. HOMALOTA DEFORMIS, Ktz.; G. R. Waterhouse, 1858, 69.
274. HOMALOTA CLESULA, Er.; G. R. Waterhouse, 1858, 71.
275. HOMALOTA ELEGANTULA, Bris.; D. Sharp, 1870, 64.
276. HOMALOTA RUFOTESTACEA, Ktz.; E. C. Rye, 1870, 64.
277. HOMALOTA SPLENDENS, Ktz.; D. Sharp, 1870, 64.
278. HOMALOTA ÆGRA, Heer; G. R. Waterhouse, 1859, 125.
279. HOMALOTA IMMERSA, Er.; Hardy & Bold, 1855, 121.
280. HOMALOTA (?) CRIBRICEPS, Sharp; 1870, 65.
281. HOMALOTA PLANA, Gyll.; J. A. Power (erroneously, *deplanata*), 1857, 73.
282. HOMALOTA CUSPIDATA, Er.; J. A. Power, 1857, 73.
283. HOMALOTA EREMITA, Rye; 1867, 47.
284. HOMALOTA AUBEI, Bris.; D. Sharp, 1870, 65.
285. HOMALOTA GEMINA, Er.; G. R. Waterhouse, 1864, 44.
286. HOMALOTA CURTIPENNIS, Sharp; 1870, 66.
287. HOMALOTA VILIS, Er.; G. R. Waterhouse, 1864, 45.
288. HOMALOTA CAVIFRONS, Sharp; 1870, 66.
289. HOMALOTA SIMILLIMA, Sharp; 1870, 66.
- 290.?HOMALOTA SOROR, Ktz.; G. R. Waterhouse, 1864, 44.
291. HOMALOTA DECIPIENS, Sharp; 1870, 66.
292. HOMALOTA EXILIS, Er.; G. R. Waterhouse, 1858, 69.
293. HOMALOTA PALLENS, Redt.; D. Sharp, 1867, 61.

294. HOMALOTA PALLEOLA, Er.; G. R. Waterhouse, 1863, 75.
295. HOMALOTA VALIDIUSCULA, Ktz.; D. Sharp, 1870, 67.
296. HOMALOTA PARALLELA, Mann.; G. R. Waterhouse, 1863, 75.  
*Homalota depressa*, Grav., to be used for *brunnea*, Fab., *nec* Payk.; G. R. Crotch, 1867, 63.
297. HOMALOTA HEPATICA, Er.; G. R. Waterhouse, 1858, 70.
298. HOMALOTA EXARATA, Sharp; 1870, 67.
299. HOMALOTA SUBÆNEA, Sharp; 1870, 68: = *aquatica*, Thoms.; *id.*, 1872, 53.
300. HOMALOTA ÆNEICOLLIS, Sharp; 1870, 68: = *xanthoptera*, Steph.; E. C. Rye, *ibid.*: = *Waterhousei*, Wollast.; A. Fauvel, 1872, 30: the latter an erroneous identification.
301. HOMALOTA MERDARIA, Thoms.; E. C. Rye, 1870, 68 (the *xanthoptera* of Crotch's Cat. and Sharp's Revision, not of Steph.).
302. HOMALOTA INCOGNITA, Sharp; 1870, 69.
303. HOMALOTA VALIDA, Ktz.; G. R. Crotch, 1864, 83: D. Sharp, 1870, 69.  
*Homalota succicola*, Thoms., to stand for *euryptera*, Steph.; G. R. Crotch, 1870, 69.
304. HOMALOTA HYBRIDA, Sharp; 1870, 69.
305. HOMALOTA SUBLINEARIS, Ktz.; G. R. Waterhouse, 1850, 70: = *xanthopus*, Thoms.; G. R. Crotch, 1870, 70.
306. HOMALOTA TRIANGULUM, Ktz.; G. R. Waterhouse, 1858, 70.  
*Homalota fungicola*, Thoms., to stand for the *nigricornis* of Wat. Cat.; G. R. Crotch, 1870, 70.
307. HOMALOTA IGNOBILIS, Sharp; 1870, 70.
308. HOMALOTA DIVERSA, Sharp; 1870, 71.
309. HOMALOTA NIGRITULA (Grav.); G. R. Waterhouse, 1858, 70: = *nigritula*, Ktz., = *boletobia*, Thoms.; G. R. Crotch, 1870, 71: = *pubescens*, Heer (1839); G. R. Waterhouse, *ibid.*  
*Homalota liturata*, Steph., = *nigritula*, Grav. (*nec* Wat. Cat.); G. R. Waterhouse, 1870, 71.
310. HOMALOTA CORIARIA, Mill.; G. R. Waterhouse, 1858, 70.
311. HOMALOTA SODALIS, Er.; G. R. Waterhouse, 1858, 70.  
*Homalota gagatina*, Baudi (1848), to be used for *variabilis*, Ktz.; G. R. Crotch, 1870, 71.
312. HOMALOTA DIVISA, Märk.; G. R. Waterhouse, 1858, 70.

313. HOMALOTA THOMSONI, Janson; 1863, 76 (*nigricornis*, Thoms., nec Steph.): *nigricornis*, Thoms., to stand, as Stephens's species is to be considered non-existent; D. Sharp, 1870, 72.
314. HOMALOTA ANGUSTICOLLIS, Thoms.; G. R. Waterhouse, 1864, 47 (? = *ravilla*, Er.): *ravilla*, Sharp, Cat.
315. HOMALOTA LEPIDA, Ktz.; G. R. Waterhouse, 1863, 78: = *corvina*, Thoms.; D. Sharp, 1870, 72.
316. HOMALOTA PUBERULA, Sharp; 1870, 72.
317. HOMALOTA ATOMARIA, Ktz.; D. Sharp, 1870, 72.
318. HOMALOTA PEREXIGUA, Sharp; 1870, 72.
319. HOMALOTA HOSPITA, Märk.; G. R. Waterhouse, 1858, 70.
320. HOMALOTA SCAPULARIS, Sahlb.; G. R. Waterhouse, 1858, 70.
321. HOMALOTA SUBTERRANEA, Muls. (E. W. Janson, 1861, 61: = *scapularis*, Sahlb.; G. R. Waterhouse, 1863, 77); G. R. Waterhouse, *l. c.*
322. HOMALOTA DILATICORNIS, Ktz.; G. R. Waterhouse, 1864, 47.
323. HOMALOTA SAUNDERSI, Rye; 1867, 47: = *varicornis*, Ktz. = *brevicollis*, Baudi, = *testaceipes*, Heer; D. Sharp, 1870, 73.
324. HOMALOTA OBLITA, Er.; G. R. Waterhouse, 1858, 70.
325. HOMALOTA AUTUMNALIS, Er. (Hardy & Bold, 1855, 122: = *gregaria*, Er., *ex typ.*; G. R. Waterhouse, 1863, 76); G. R. Waterhouse, *l. c.*  
*Homalota sericea*, Muls., to stand for *amicula*, Steph.; G. R. Crotch, 1870, 73.
326. HOMALOTA SUBTILIS, Scriba; D. Sharp, 1870, 74.
327. HOMALOTA INDUBIA, Sharp; 1870, 74.
328. HOMALOTA INDISCRETA, Sharp; 1870, 74.
329. HOMALOTA MORTUORUM, Thoms.; D. Sharp, 1870, 75.
330. HOMALOTA INCONSPICUA (Er.); G. R. Waterhouse, 1858, 70: described as new, under the name *atricolor*, by D. Sharp; 1870, 75.
331. HOMALOTA INQUINULA, Er.; G. R. Waterhouse, 1858, 71.
332. HOMALOTA ANCEPS, Er.; E. W. Janson, 1857, 73.
333. HOMALOTA FLAVIPES, Grav.; E. W. Janson, 1857, 73.
334. HOMALOTA CONFUSA, Märk.; E. W. Janson, 1857, 73.
335. HOMALOTA NIGRA, Ktz.; G. R. Waterhouse, 1858, 70.

336. HOMALOTA GERMANA, Sharp; 1870, 75.
337. HOMALOTA HODIERNA, Sharp; 1870, 75.
338. HOMALOTA CELATA, Er. (Hardy & Bold, 1855, 122: probably erroneously recorded, as it is not included in T. J. Bold's Revision); G. R. Crotch, 1864, 83: D. Sharp, 1870, 76.
339. HOMALOTA SORDIDULA, Er.; G. R. Waterhouse, 1858, 70.
340. HOMALOTA CANESCENS, Sharp; 1870, 76.
341. HOMALOTA MARCIDA, Er.; G. R. Waterhouse, 1859, 125.
342. HOMALOTA INTERMEDIA, Thoms.; G. R. Waterhouse, 1863, 77.
343. HOMALOTA MACROCERA, Thoms.; D. Sharp, 1870, 76.
344. HOMALOTA CADAVERINA, Bris.; D. Sharp; 1870, 77.
345. HOMALOTA LÆVANA, Muls.; G. R. Waterhouse, 1864, 48.
346. HOMALOTA SUBRUGOSA (Kies.); G. R. Waterhouse, 1858, 71: = *cinnamoptera*, Thoms.; D. Sharp, 1870, 77.
347. HOMALOTA VILLOSULA, Ktz.; G. R. Waterhouse, 1858, 71.
- \*348. HOMALOTA CAUTA (Er.); Hdy. & Bold, 1855, 122: = *atramentaria*, Gyll.; T. J. Bold, Rev., 30.
349. HOMALOTA SETIGERA, Sharp; 1870, 77.  
*Homalota parvula*, Wat. Cat., = *parva*, Sahlb.; E. C. Rye, 1864, 48.  
*Homalota sordida*, Wat. Cat., = *melanaria*, Sahlb., nec Wat. Cat.; G. R. Crotch, 1870, 77.
350. HOMALOTA MELANARIA (Mann.); G. R. Waterhouse, 1858, 71: = *testudinea*, Er.; G. R. Crotch, 1870, 78.  
*Homalota muscorum*, Bris., to stand for *picipes*, Wat. Cat.; D. Sharp, 1870, 78.
351. HOMALOTA PILOSIVENTRIS, Thoms.; D. Sharp, 1870, 78.  
*Homalota fusca*, Sahlb., to stand for *laticollis*, Wat. Cat.; D. Sharp, 1870, 78.  
*Homalota subsinuata*, Er., to stand for *castanipes*, Wat. Cat.; D. Sharp, 1870, 78.
352. HOMALOTA SHARPI, Rye; 1871, 30.
353. HOMALOTA PULCHRA, Ktz.; G. R. Waterhouse, 1859, 125: = *montivagans*, Wollast.; D. Sharp, 1871, 30.
354. HOMALOTA ORBATA, Er.; G. R. Waterhouse, 1859, 125.  
*Homalota fungi*, Grav.; a var. described under the name *dubia*, by D. Sharp, 1870, 78, which apparently connects *clientula* with *fungi*.

- \*355. HOMALOTA HYGROPHILA, Hardy; 1855, 122: = *fungi*, Grav.; T. J. Bold, Revis. Col. North. Durh., 31.
356. HOMALOTA CLIENTULA, Er.; G. R. Waterhouse, 1858, 71.
357. HOMALOTA ORPHANA, Er.; D. Sharp, 1870, 79.
358. HOMALOTA CRIBRATA, Kr.; D. Sharp, 1870, 79.
359. HOMALOTA NOTHA, Er.; E. W. Janson, 1865, 50.
- \*360. HOMALOTA PICEA, Mots.; E. C. Rye, 1867, 109: irrecognizable.
- †361. PLACUSA INFIMA, Er.; G. R. Waterhouse, 1858, 71.
362. PLACUSA PUMILIO, Grav.; G. R. Waterhouse, 1859, 127.
- \*363.? PLACUSA COMPLANATA, Er.; G. R. Crotch, 1867, 61: ? = *pumilio*, Wat. Cat.
- \*364. PLACUSA HUMILIS, Er.; A. Murray, 1855, 122.
365. PLACUSA DENTICULATA, Sharp; 1871, 31.
366. PHLEOPORA CORTICALIS, Grav.; G. R. Waterhouse, 1858, 71.
- †367. SCHISTOGLOSSA VIDUATA, Er.; G. R. Waterhouse, 1858, 71.
368. OLIGOTA PYGMÆA, Ktz.; G. R. Waterhouse, 1865, 51: name changed to *parva* by Kraatz (*pygmæa* being preoccupied).
369. OLIGOTA ATOMARIA, Er.; E. W. Janson, 1860, 103.
370. OLIGOTA RUFICORNIS, Sharp; 1871, 31.
371. OLIGOTA GRANARIA, Er.; G. R. Waterhouse, 1859, 126: E. C. Rye, 1864, 49.
372. OLIGOTA FLAVICORNIS, Lacord.; G. R. Waterhouse, 1859, 127.
373. OLIGOTA APICATA, Er.; J. A. Power, 1863, 78 (erroneously stated to be the *O. granaria* of Wat. Cat.).
374. GYROPHLENA GENTILIS, Er.; G. R. Waterhouse, 1859, 127.
375. GYROPHLENA PULCHELLA, Heer; G. R. Waterhouse, 1863, 78.
- \*376. GYROPHLENA N. SP. (?); T. J. Bold, 1872, 53.
377. GYROPHLENA POWERI, Crotch; 1867, 48 (*G. sp.*? 6\*—; G. R. Waterhouse, 1863, 79):= *puncticollis*, Thoms.; G. R. Crotch, 1869, 6: Crotch's name apparently has priority; E. C. Rye, 1872, 53.
378. GYROPHLENA LÆVIPENNIS, Ktz.; G. R. Waterhouse, 1863, 79.
379. GYROPHLENA LUCIDULA, Er.; G. R. Waterhouse, 1858, 71.
380. GYROPHLENA MINIMA, Er.; G. R. Waterhouse, 1858, 71.
381. GYROPHLENA MANCA, Er.; G. R. Waterhouse, 1863, 79.



382. GYROPHLENA STRICTULA, Er.; G. R. Waterhouse, 1859, 127 :  
E. C. Rye, 1869, 26.
- \*383. ?GYROPHLENA POLITA, Grav.; E. C. Rye, 1869, 26.
- †384. AGARICOCCHARA LEVICOLLIS, Ktz.; G. R. Waterhouse, 1859,  
127.
- \*385. MYLLENA GRACILIS, Heer; Hdy. & B., 1855, 122: = *brevi-*  
*cornis*, Matth.
- \*386. MYLLENA INFUSCATA, Ktz.; G. R. Waterhouse, 1858, 71.
- \*387. MYLLENA MINIMA, Ktz.; E. C. Rye, 1869, 26.
388. MYLLENA GLAUCA (Aubé); E. C. Rye, 1870, 79 (*elongata*, Kr.,  
*nee* Matth.): named *Kraatzi* by D. Sharp, Aubé's sp. being  
identical with the prior *elongata* of Matthews; 1872, 54.
389. GYMNUSA BREVICOLLIS, Payk. (A. H. Haliday, 1855, 122: =  
*variegata*, Kies.; E. W. Janson, 1856, 90); J. Curtis, 1856,  
90.  
*Hypocyptus*: ? new genus allied to; J. Curtis: = *H. longicornis*,  
Payk.; E. W. Janson, 1856, 91.
390. HYPOCYPTUS PULICARIUS, Er.; G. R. Waterhouse, 1859, 128 :  
suppressed as a species by Pandellé; E. C. Rye, 1871, 23.
- \*391. HYPOCYPTUS RUFIPES, Ktz.; G. R. Crotch, 1864, 83.
392. HYPOCYPTUS PYGMEUS, Ktz. (?); G. R. Waterhouse, 1859,  
128: = *nigripes*, Steph., *sec.* Pandellé (in error); E. C. Rye,  
1871, 32.
393. HYPOCYPTUS SEMINULUM, Er.; G. R. Crotch, 1864, 83.
394. HYPOCYPTUS APICALIS, Bris.; E. C. Rye, 1871, 31.
395. CONOSOMA PEDICULARIUM, Grav.; E. W. Janson, 1860, 103 :  
= *Conurus pedicularius*.
396. CONURUS BIPUNCTATUS, Er.; G. R. Waterhouse, 1859, 128.  
*Tachyporus ruficollis*, Wat. Cat., = *nitidicollis*, Steph., =  
*obtusus*, Linn., *var.*; D. Sharp, 1866, 67.
- \*397. TACHYPORUS ABDOMINALIS, Er.; G. R. Crotch, 1864, 83: non-  
existent as a species; E. C. Rye, 1871, 33.
398. TACHYPORUS TERSUS (Er.); G. R. Waterhouse, 1859, 128: not  
Erichson's *tersus*, *sec.* Pandellé; E. C. Rye, 1871, 32: named  
*pallidus* by D. Sharp; 1872, 354.  
*Tachyporus scitulus*, Wat. Cat., *nee* Er., = *pusillus*, Grav.,  
*var.*; E. C. Rye, 1870, 80.
399. TACHYPORUS TERSUS, Pand. (? Er.), *nee* Wat. Cat.; E. C. Rye,  
1871, 32.

400. TACHYPORUS TRANSVERSALIS, Grav.; G. R. Waterhouse, 1859, 128.
401. LAMPRINUS SAGINATUS, Grav.; G. R. Waterhouse, 1859, 128.
402. TACHINUS PROXIMUS, Ktz.; D. Sharp, 1865, 51.
403. TACHINUS RUFIPENNIS, Gyll.; G. R. Waterhouse, 1859, 128.
- 404.?TACHINUS FRIGIDUS, Er.; D. Sharp, 1867, 62.
405. TACHINUS PALLIPES, Grav.; D. Sharp, 1865, 53.
406. TACHINUS BIPUSTULATUS, Grav.; G. R. Waterhouse, 1859, 129.
407. TACHINUS LATICOLLIS, Grav.; J. A. Power, 1860, 104.
- 408.?BRYOPORUS RUFUS, Er.; E. C. Rye, 1867, 62: = *rugipennis*, Pand.; *id.*, 1871, 33.
409. BRYOPORUS (?) CASTANEUS, Hardy & Bold; G. R. Waterhouse, 1864, 49: the name *Hardii* proposed for this by G. R. Crotch, 1867, 109, on account of the prior *castaneus* of Stephens: *castaneus* retained for Hardy's insect by Pandellé; 1870, 23.
410. MYCETOPORUS LUCIDUS, Er.; G. R. Waterhouse, 1859, 129.
411. MYCETOPORUS PUNCTUS, Grav.; G. R. Waterhouse (*punctatus*), 1859, 129.
412. MYCETOPORUS LONGULUS, Mann.; G. R. Waterhouse, 1864, 50.
413. MYCETOPORUS ANGULARIS, Muls.; E. W. Janson, 1861, 62: renamed *Reyi*, on account of *angularis*, Payk., Steph., & Sachse, by Pandellé; E. C. Rye, 1871, 33.
414. MYCETOPORUS TENUIS, Muls.; D. Sharp, 1867, 62: ? = *sp. nov.*; *id.*, 1872, 38.
415. MYCETOPORUS NANUS, Grav.; E. C. Rye, 1864, 52.
416. MYCETOPORUS LONGICORNIS, Ktz.; E. C. Rye, 1864, 53.
- †417. ACYLOPHORUS GLABRICOLLIS, Lacord.; J. A. Power, 1860, 105: E. C. Rye, 1870, 38.  
*Euryporus picipes*, Payk., noticed by E. W. Janson, as incorrectly considered an unrecorded British sp.; 1856, 91.
418. HETEROHOPS DISSIMILIS, Grav.; G. R. Waterhouse, 1859, 131.
419. HETEROHOPS QUADRIPUNCTULUS, Grav.; G. R. Waterhouse, 1859, 131.  
*Quedius fulgidus*. The forms described by Thomson as confused under this name discussed; 1869, 27 and 28.

- \*420. *QUEDIUS* (*MICROSAURUS*) 4-PUNCTATUS, Thoms.; G. R. Crotch; 1869, 27.
- \*421. *QUEDIUS* (*M.*) TEMPORALIS, Thoms.; G. R. Crotch, 1869, 27 (*fulgidus*, type, Wat. Cat.).
422. *QUEDIUS* (*M.*) BREVICORNIS, Thoms. (D. Sharp, 1867, 64 ? : = *puncticollis*, Thoms.; G. R. Crotch, 1869, 28); E. A. Waterhouse, 1872, 54.
423. *QUEDIUS* (*M.*) PUNCTICOLLIS, Thoms.; G. R. Crotch, 1869, 28.
- \*424. *QUEDIUS* (*M.*) FAGETI, Thoms.; G. R. Crotch, 1869, 27 (included, as Crotch states "all the forms occur").
425. *QUEDIUS* TRUNCICOLA, Fairm.; E. W. Janson, 1861, 63; E. C. Rye, 1863, 112.
426. *QUEDIUS* XANTHOPUS, Er.; G. R. Waterhouse, 1859, 131.
427. [*QUEDIUS* LONGICORNIS, Ktz.; G. R. Waterhouse, Cat. Brit. Col., 1858: seems to have escaped record in 1859 Annual.]
428. *QUEDIUS* SCITUS, Grav.; G. R. Waterhouse, 1859, 131.
429. *QUEDIUS* LÆVIGATUS, Gyll.; J. Hardy, 1859, 132.
430. *QUEDIUS* BREVIS, Er.; E. W. Janson, 1857, 76.
431. *QUEDIUS* UMBRINUS, Er.; E. C. Rye, 1863, 80.
- \*432.? *QUEDIUS* MODESTUS, Ktz.; G. R. Crotch, 1864, 83.  
*Quedius rufipes*, Er., = *semiobscurus*, Marsh.; G. R. Crotch, 1867, 63.  
*Quedius semiæneus*, Steph., corroborated as a good species; G. R. Waterhouse, 1863, 80: *semiobscurus*, Er., *nec* Marsh., to be used for this! G. R. Crotch, 1868, 63: ? = *microps*, Grav.; E. C. Rye, 1870, 81.
- \*433. *QUEDIUS* MICROPS, Grav.; E. C. Rye, 1870, 81.
- \*434. *QUEDIUS* OBLITTERATUS, Er.; T. V. Wollaston, 1855, 123.
435. *QUEDIUS* AURICOMUS, Kies.; A. Murray, 1855, 123 (*Q. scintillans*, Hardy).
436. *QUEDIUS* INFUSCATUS, Er.; J. A. Power, 1863, 81: = *chrysurus*, Kies.
- \*437. *RAPHIRUS* NIGRICORNIS, Holme; 1855, 123: E. C. Rye, 1870, 81: queried as identical with *Quedius fuscipes*, Steph., in Hardy & Bold's Cat., p. 73.
- \*438. *OCYPUS* SAULCYI, Reiche; G. R. Crotch, 1864, 83: = *morio*, Gr.

*Philonthus carbonarius*, Er., *nee* Gyll., = *succicola*, Thoms.; E. C. Rye, 1864, 55.

- 439.? PHILONTHUS TEMPORALIS (Muls.); E. C. Rye, 1863, 82; 1864, 55: considered as most probably distinct from Mulsant's species, and named *addendus*; D. Sharp, 1867, 48: = *succicola*, Thoms., according to that author, but evidently in error; E. C. Rye, 1869, 30: true *temporalis* (not British) described; *id.*, 1870, 82.
440. PHILONTHUS PUNCTIVENTRIS (Ktz.); E. W. Janson, 1863, 82: = *tenuicornis*, Muls.; G. R. Crotch, 1867, 64: = *carbonarius*, Gyll.; G. R. Crotch, 1869, 29: *punctiventris*, Ktz., *nee* Janson, probably = *temporalis*, Muls., and, if different, cannot stand, as there is a prior *punctiventris* of Stephens, and *rhaticus*, Stierl., could be used for it; E. C. Rye, 1870, 82.
441. PHILONTHUS LUCENS, Mann.; G. R. Waterhouse, 1859, 129.
442. PHILONTHUS LEPIDUS, Grav.; G. R. Waterhouse, 1859, 189.
443. PHILONTHUS NIGRIVENTRIS, Thoms.; D. Sharp, 1869, 31.
- \*444. PHILONTHUS NITIDULUS, Grav.; G. R. Crotch, 1864, 83: erroneously introduced as British; E. C. Rye, *ibid.*
445. PHILONTHUS FUSCUS, Grav.; J. A. Power, 1860, 106.  
*Philonthus xantholoma*, Grav.; a ♂ *var.* named *variolosus*; D. Sharp, 1872, 55.
446. PHILONTHUS CICATRICOSUS, Er.; G. R. Crotch, 1871, 34.
- \*447. PHILONTHUS CONCINNUS, Grav.; G. R. Crotch, 1867, 65: *varians*, Thoms., *nee* Payk., identical with this; *id.*, 1868, 63.
448. PHILONTHUS CORVINUS, Er.; W. C. Unwin, 1858, 71; E. C. Rye, 1863, 113.
449. PHILONTHUS AGILIS, Grav.; E. C. Rye, 1864, 56.
450. PHILONTHUS SPLENDIDULUS, Grav.; G. R. Waterhouse, 1859, 130.
451. PHILONTHUS THERMARUM, Aubé; G. R. Waterhouse, 1859, 130.
452. PHILONTHUS FUMARIUS, Grav.; G. R. Waterhouse, 1859, 130.
453. PHILONTHUS NIGRITA, Nordm.; G. R. Waterhouse, 1859, 130.  
*Philonthus rubripennis*, Steph.: observations on, with regard to *fulvipes*, F.; E. C. Rye, 1864, 56. As Stephens's insect is definitely appreciated as conspecific with *fulvipes*, it cannot be treated (as so many others of the Stephensian species have been) as non-existent; and the *rubripennis* of Kiesenwetter (allied to *micans*) cannot stand,—*lividipes*, Bandi, apparently being available for it.

454. ?PHILONTHUS TROSSULUS, Nordm.; G. R. Crotch, 1864, 84.
455. PHILONTHUS PULLUS, Nordm.; G. R. Waterhouse, 1859, 130.
456. PHILONTHUS CINERASCENS, Grav.; G. R. Waterhouse, 1859, 131.
457. PHILONTHUS SIGNATICORNIS, Muls. et Rey; G. R. Waterhouse, 1859, 131.
458. PHILONTHUS PROLIXUS, Er.; J. A. Power, 1863, 82.
459. XANTHOLINUS ATRATUS, Heer, E. W. Janson, 1863, 83.
- \*460. XANTHOLINUS PICIPES, Thoms.; G. R. Crotch, 1869, 31.
461. XANTHOLINUS DISTANS, Muls.; E. C. Rye, 1871, 34.
462. XANTHOLINUS LONGIVENTRIS, Heer; G. R. Waterhouse, 1859, 129.
463. XANTHOLINUS LENTUS, Grav.; G. R. Crotch, 1867, 65.
- \*464. XANTHOLINUS CHALYBÆUS, Brullé; W. S. Rooke, 1864, 57 (*sapphirina*): not indigenous.  
*Leptacinus pusillus*, Steph., to be used for *linearis*, Grav.,  *nec* Fab.; G. R. Crotch, 1868, 63.
465. LEPTACINUS FORMICETORUM, Märk.; E. W. Janson, 1857, 76.
466. OTHIUS MYRMECOPHILUS, Kies.; G. R. Crotch, 1867, 65.
- \*467. OTHIUS SEXPUNCTATUS, Haliday; 1855, 123.
468. LATHROBIUM GEMINUM, Ktz.; E. C. Rye, 1863, 83: = *boreale*, Hochh.; E. C. Rye, *l. c.*, 84.
469. LATHROBIUM RUFIPENNE, Gyll.; E. W. Janson, 1859, 132.
470. LATHROBIUM ANGUSTATUM, Lac.; D. Sharp, 1870, 82.
471. LATHROBIUM ATRIPALPE, Scriba; D. Sharp, 1872, 56.  
*Lathrobium punctatum*, Zett.,  *nec* Fourcr., renamed *Zetterstedti*; E. C. Rye, 1872, 25.
472. LATHROBIUM PALLIDUM, Nordm.; G. R. Waterhouse, 1859, 133; E. C. Rye, 1863, 113.
- \*473. LATHROBIUM JANSONI, Crotch; 1867, 49: = *pallidum*, Nordm.,  *var.*; E. C. Rye, 1870, 83.
474. LATHROBIUM ANGUSTICOLLE, Lac.; A. R. Hogan, 1855, 123.
- \*475. LATHROBIUM CARINATUM, Bold; 1855, 123 (= *L. angusticolle*, Lac.;  *ibid.*, note).
476. STILICUS SUBTILIS, Er.; G. R. Waterhouse, 1859, 133.
477. STILICUS SIMILIS, Er.; G. R. Waterhouse, 1859, 133.

478. *STILICUS GENICULATUS*, Er.; G. R. Waterhouse, 1859, 133.
479. *STILICUS AFFINIS*, Er.; Hardy & Bold, 1855, 125.
480. *SCOPEUS LEVIGATUS*, Gyll.; G. H. Waterhouse, 1859, 133:  
= *Erichsoni*, Kolen.
481. *LITHOCHARIS MARITIMA*, Aubé; G. R. Crotch, 1866, 69.
482. *LITHOCHARIS DILUTA*, Er.; D. Sharp, 1872, 56.
483. *LITHOCHARIS FUSCULA*, Lac.; T. V. Wollaston, 1855, 125.
- \*484. *LITHOCHARIS FERRUGINEA*, Er.; G. R. Crotch, 1867, 66:  
queried, *id.*, 1868, 63.
485. *LITHOCHARIS BRUNNEA*, Er.; G. R. Waterhouse, 1859, 133.
486. *LITHOCHARIS RIPICOLA*, Ktz.; E. C. Rye, 1863, 84.
487. *LITHOCHARIS APICALIS*, Ktz.; G. R. Waterhouse, 1859, 133.  
*Lithocharis ruficollis*, Ktz., to be used for *tricolor*, Marsh., *nec*  
Fab.; G. R. Crotch, 1868, 64: incorrect, according to Fauvel,  
and *vicina*, Bris., to stand; E. C. Rye; 1870, 83: = *propinqua*,  
Bris., Sharp, Cat.
488. *SUNIUS FILIFORMIS*, Latr.; J. A. Power, 1858, 72.
- \*489. *SUNIUS NEGLECTUS* (Märk.); H. S. Gorham, 1871, 35: = *angustatus*, Payk.
490. *SUNIUS DIVERSUS*, Aubé; D. Sharp, 1872, 38: = *angustatus*,  
Gorham, *nec* Payk.
- \*491. *SUNIUS UNICOLOR*, Curtis; 1855, 125 (? = *unicolor*, Steph.,  
which is *Lithocharis obsoleta*, Nordm.).
- \*492. *PÆDERUS LONGIPENNIS*, Er.; G. R. Crotch, 1864, 84: errone-  
ously introduced as distinct from *fuscipes*, Curt.; E. C. Rye,  
*ibid.*
493. *PÆDERUS CALIGATUS*, Er.; G. R. Waterhouse, 1859, 134.
494. *EVÆSTHETUS LEVIUSCULUS*, Mann.; G. R. Waterhouse, 1859,  
135.
495. *EVÆSTHETUS RUFICAPILLUS*, Lac.; G. R. Waterhouse, 1859,  
135.
496. *STENUS ASPHALTINUS*, Er.; G. R. Waterhouse & E. W. Jan-  
son, 1856, 83.
497. *STENUS ATER*, Mann.; G. R. Waterhouse & E. W. Janson,  
1856, 83.
498. *STENUS LONGITARSIS*, Thoms.; E. C. Rye, 1865, 53.
499. *STENUS INCRASSATUS*, Er.; G. R. Waterhouse & E. W. Janson,  
1856, 83.

500. *STENUS SHEPHERDI*, Crotch; 1867, 49 (*Sheppardi*): = *ruralis*, Er., according to v. Harold's Cat., but without reason; E. C. Rye, 1870, 85.
501. *STENUS MORIO*, Grav.; G. R. Waterhouse & E. W. Janson, 1856, 83.
502. *STENUS ATRATULUS*, Er.; Hardy & Bold, 1855, 125; E. C. Rye, 1863, 85.
503. *STENUS INCANUS*, Er.; D. Sharp, 1870, 84.  
*Stenus amulus*, Er. (= *nitens*, Steph., not of coll.), noticed by E. W. Janson as incorrectly considered an unrecorded British sp.; 1856, 91.
504. *STENUS ENIGUUS*, Er.; G. R. Waterhouse & E. W. Janson, 1856, 83.
505. *STENUS PROVIDUS*, Er.; G. R. Waterhouse & E. W. Janson, 1856, 83.
- \*506. *STENUS ROGERI*, Ktz.; G. R. Crotch, 1865, 54: = *providus*, var.; Sharp, Cat.
507. *STENUS RUGOSUS*, Kies.; T. V. Wollaston, 1859, 134: = *Guy-nemeri*, du V.; G. R. Waterhouse, *ibid.*
508. *STENUS LUSTRATOR*, Er.; G. R. Waterhouse, 1863, 85.
- \*509. *STENUS SCRUTATOR* (Er.); G. R. Crotch, 1864, 84; 1865, 55.
- \*510. *STENUS SYLVESTER* (Er.); G. R. Crotch, 1864, 84; 1865, 55.
511. *STENUS PRODITOR*, Er.; E. W. Janson, 1860, 107.
512. *STENUS OPACUS*, Er.; G. R. Waterhouse & E. W. Janson, 1856, 83: this sp. is incorrectly referred to *carbonarius*, Gyll.; E. C. Rye, 1865, 56; 1872, 32: = *niger*, Mann.; G. R. Crotch, 1867, 110: *carbonarius* used in Sharp's Cat.
- \*513.? *STENUS DEBILIS*, Dietr.; E. C. Rye, 1865, 56: = *opacus*, Er.; E. C. Rye, 1867, 110.
514. *STENUS ARGUS*, Grav.; G. R. Waterhouse & E. W. Janson, 1856, 84.  
*Stenus rafellus*, Er. (= *submarginatus*, Steph., not coll.), noticed by E. W. Janson as incorrectly considered an unrecorded British sp.; 1856, 91.  
*Stenus declaratus*, Er., = *nanus*, Steph.; E. C. Rye, 1865, 57.
- \*515. *STENUS PUMILIO* (Er.); A. H. Hogan, 1855, 125; G. R. Crotch, 1864, 84: erroneously so named, E. C. Rye, 1865, 57.
516. *STENUS OPTICUS*, Grav.; E. W. Janson, 1860, 107.

- Stenus nigritulus*, Er., nec Gyll., *crassiventris*, Thoms. (1857)  
= *crassus*, Steph.; E. C. Rye, 1865, 58.
- \*517. STENUS LITTORALIS, Thoms.; G. R. Crotch, 1864, 84; 1865, 58:  
= *crassus*, Steph., var.; E. C. Rye, 1865, 58.  
*Stenus unicolor*, Steph., *campestris*, Er., = *nigritulus*, Gyll.;  
G. R. Crotch, 1865, 58.  
*Stenus pallitarsis*, Steph., to stand for *plantaris*, Er.; G. R.  
Waterhouse and E. W. Janson, 1870, 85: the latter name ap-  
parently used in Wat. Cat. by accident.
518. STENUS MAJOR, Muls.; D. Sharp, 1869, 32.  
*Stenus nitidus*, Steph., *plancus*, Er., = *bifoveolatus*, Gyll.;  
G. R. Crotch, 1865, 58.  
*Stenus bifoveolatus*, Er., nec Gyll., *foreicollis*, Ktz. (1858), =  
*brevicollis*, Thoms.; G. R. Crotch, 1865, 59.
519. STENUS PICIPENNIS, Er.; E. W. Janson, 1859, 134.  
*Stenus impressipennis*, Duv., *carinifrons*, Fairm., *sardous*, Ktz.,  
*Fauvelii*, Bris., = *ossium*, Steph.; E. C. Rye, 1867, 110.
520. STENUS GENICULATUS, Grav.; G. R. Waterhouse and E. W. Jan-  
son, 1856, 84.
521. STENUS PALUSTRIS, Er.; E. Shepherd, 1860, 108; E. C. Rye,  
1863, 113.
522. STENUS GLACIALIS, Heer; E. C. Rye, 1867, 66.
523. STENUS ANNULATUS (E. C. Rye, Ent. M. M., 1864), Crotch;  
1867, 50: = *aceris*, Lac., see Fauvel; E. C. Rye, 1879, 85:  
this opinion erroneous; *id.*, 1872, 57.
524. STENUS FLAVIPES, Er.; G. R. Waterhouse and E. W. Janson,  
1856, 84: named *Erichsoni*, by E. C. Rye, 1865, 59, on account  
of the prior *flavipes* of Stephens.
525. STENUS FUSCICORNIS, Er.; G. R. Waterhouse and E. W. Jan-  
son, 1856, 84.  
*Stenus filum*, Er., = *flavipes*, Steph.; E. C. Rye, 1865, 59.
526. STENUS KIESENWETTERI, Rosenh.; D. Sharp, 1865, 59.
527. STENUS SOLUTUS, Er.; G. R. Waterhouse, 1859, 134.
528. STENUS LATIFRONS, Er.; G. R. Waterhouse and E. W. Janson,  
1856, 84.
529. STENUS OSCILLATOR, Rye; 1871, 35.  
*Stenus contractus*, Er.; E. W. Janson, 1855, 125 (*basalis*, Curtis):  
= *fornicatus*, Steph.



*Stenus assimilis*, Steph.; given as a distinct species in Gemm. & v. Harold's Cat., but must be treated as non-existing; E. C. Rye, 1870, 84.

*Stenus sulcicollis*, Steph.; in the same position as the preceding.

530. BLEDIUS SPECTABILIS, Ktz.; D. Sharp, 1870, 86.

531. BLEDIUS UNICORNIS, Germ.; E. W. Janson, 1858, 72 (*hispidus*, Parfitt).

\*532. BLEDIUS TALPA, Mann., resuscitated as British; G. R. Waterhouse, 1863, 86.

533. BLEDIUS SUBTERRANEUS, Er.; J. Hardy, 1855, 126: 1863, 86.

534. BLEDIUS PALLIPES, Grav.; G. R. Waterhouse, 1859, 135: = *Bledius*, 5 sp. — ? Wat. Cat., 1863, 86: again brought forward, with a query, as British; G. R. Crotch, 1868, 64: = *pallipes*, Sharp Cat.

535. BLEDIUS FUSCIPES, Rye; 1866, 69; 1868, 64: = *pallipes*, Grav., sec. Fauvel: is a good and distinct species, sec. Kraatz; E. C. Rye, 1870, 87.

536. BLEDIUS FEMORALIS, Gyll.; G. R. Waterhouse, 1859, 135.

537. BLEDIUS CRASSICOLLIS, Lac.; J. A. Power, 1863, 86.

538. BLEDIUS ERRATICUS, Er.; E. C. Rye, 1864, 84.

539. PLATYSTETHUS CAPITO, Heer; T. J. Bold, 1859, 135.

540. PLATYSTETHUS NODIFRONS, Sahlb.; G. R. Waterhouse, 1859, 135.

541. PLATYSTETHUS NITENS, Sahlb.; E. W. Janson, 1860, 109.

542. OXYTELUS FULVIPES, Er.; H. S. Gorham, 1872, 57.

543. OXYTELUS PICEUS, Linn.; G. R. Waterhouse, 1859, 136: E. C. Rye, 1863, 86.

544. OXYTELUS MARITIMUS, Thoms.; G. R. Crotch, 1863, 87: the *O. flavipes* of Hardy & Bold's & Murray's Cats. (? Stephens) is identical with this; W. R. McNab, 1868, 65.

545. OXYTELUS SPECULIFRONS, Ktz.; E. C. Rye, 1865, 60.

546. OXYTELUS FAIRMAIREI, Pand.; D. Sharp, 1872, 58.

†547. ANCYROPHORUS (H)OMALINUS, Er.; G. R. Waterhouse, 1859, 136.

548. ANCYROPHORUS LONGIPENNIS, Fairm.; G. R. Waterhouse, 1863, 87.

549. TROGOPHLEUS SPINICOLLIS, Rye; 1871, 36.

- \*550. TROGOPHLÆUS SCROBICULATUS, Er.; A. Murray, 1855, 126: erroneously recorded as new to Britain, as it is *arcuatus*, Steph.  
*Trogophlæus riparius*, Lac., Er., Ktz., Wat. C., = *bilineatus*, Steph., nec Er.; D. Sharp, 1872, 58.  
*Trogophlæus bilineatus*, Er., nec Steph., is renamed *Erichsoni*; D. Sharp, 1872, 58.
551. TROGOPHLÆUS HALOPHILUS, Kies.; G. R. Crotch, 1864, 84; 1865, 61.
552. TROGOPHLÆUS FOVEOLATUS, Sahlb.; G. R. Waterhouse, 1859, 136.
553. TROGOPHLÆUS TENELLUS, Er.; E. C. Rye, 1864, 57.
554. TROGOPHLÆUS SUBTILIS, Er.; G. R. Crotch, 1867, 66.
555. THINOBIUS MAJOR, Ktz.; D. Sharp, 1872, 58.
- †556. THINOBIUS LONGIPENNIS, Heer; A. Murray, 1855, 126.
557. THINOBIUS BREVIPENNIS, Kies.; E. W. Janson, 1863, 88.
- 558.?THINOBIUS BRUNNEIPENNIS, Kraatz; G. R. Waterhouse, 1859, 137.
559. THINOBIUS LINEARIS, Ktz.; D. Sharp, 1867, 67.
- †560. COMPSOCHILUS PALPALIS, Er.; T. V. Wollaston, 1872, 59.
- †561. ACROGNATHUS MANDIBULARIS, Gyll.; J. W. Douglas, 1859, 137; E. C. Rye, 1863, 113; 1864, 31.  
*Deleaster dichrous*, Grav.: *Leachii*, Curt. (*adustus*, Bielz), is a var., and not the type form, of this sp.; E. C. Rye, 1872, 59.
562. ANTHOPHAGUS CARABOIDES, Grav.; G. R. Waterhouse, 1859, 137.
- \*563. ANTHOPHAGUS PYRENÆUS (Ch. Bris.); T. Blackburn, 1867, 67: = *alpinus*; E. C. Rye, *ibid.*
564. LESTEVA MONTICOLA, Kies.; D. Sharp, 1865, 61: considered distinct from Kiesenwetter's species, and named *Sharpi* by E. C. Rye, 1867, 51: referred to *collina* (?Haliday) by G. R. Crotch, *ibid.*
565. LESTEVA PUBESCENS, Mann.; G. R. Waterhouse, 1859, 137.
566. LESTEVA MUSCORUM, Du V.; D. Sharp, 1872, 60.
567. OLOPHRUM FUSCUM, Grav.; D. Sharp, 1866, 70.
568. OLOPHRUM CONSIMILE, Gyll.; D. Sharp, 1872, 60.
569. DELIPHURUM CRENATUM, Grav.; G. R. Crotch, 1867, 68 (the *Omalium* 14 sp. — ? of Wat. Cat.).

- †570. *ARPEDIUM BRACHYPTERUM*, Grav.; Hardy & Bold, 1855, 126.  
*Micra(ca)lymma brevipennis*, Gyll., = *marina*, Ström; G. R. Crotch, 1868, 64.  
*Philorhinum subpubescens*, Steph., should stand for *humile*, Er.; E. C. Rye, 1870, 89.
- \*†571. *BOREAPHILUS BREVICOLLIS*, Haliday; 1855, 126: = *Coryphium angusticolle*, Steph.
- †572. *EUDECTUS WHITEI*, Sharp; 1872, 61.
573. (H)OMALIUM *RUGULIPENNE*, Rye; 1864, 58.
574. *HOMALIUM SEPTENTRIONIS*, Thoms; W. Henderson, 1867, 68.
575. (H)OMALIUM *RIPARIUM*, Thoms.; G. R. Waterhouse, 1864, 58.
576. (H)OMALIUM *ALLARDI*, Fairm.; E. C. Rye, 1863, 88.
577. (H)OMALIUM *NIGRICEPS*, Kies.; E. C. Rye, 1863, 89.
- \*578. (H)OMALIUM *CONFORMATUM*, Hardy; 1855, 126: = *oxyacantha*, Grav.; T. J. Bold, Rev. Col. North. & Durh., 46.
579. (H)OMALIUM *EXIGUUM*, Gyll.; G. R. Waterhouse, 1859, 138.
580. (H)OMALIUM *MONILICORNE*, Gyll.; G. R. Waterhouse, 1859, 137.
581. (H)OMALIUM *PLANUM*, Payk.; G. R. Waterhouse, 1859, 137.
582. (H)OMALIUM *LAPPONICUM*, Zett.; D. Sharp, 1866, 71 (*pineti*, Thoms.): *pineti* to stand, on account of the prior *lapponicum* of Mann.; *id.*, 1867, 110.
- \*583. *HOMALIUM ABIETINUM*, Thoms. (*Phlæonomus*); G. R. Crotch, 1869, 33: = *pusillum*, Grav.; Sharp, Cat.
584. *HOMALIUM PUNCTIPENNE*, Thoms. (*Phl.*): G. R. Crotch, 1869, 33 (formed at the expense of *pusillum*, Gr.).
- \*585. *HOMALIUM HEERII*, Heer; T. Blackburn, 1867, 68: = *vile*, var.; E. C. Rye, 1871, 38.
- \*586. (H)OMALIUM *TESTACEUM*, Er.; A. Matthews, 1864, 62.
587. (H)OMALIUM *BREVICORNE*, Er.; A. Matthews, 1864, 63: = *vile*, Er., var., *sec.* Fauvel; E. C. Rye, 1870, 87: correctly recorded as British; E. C. Rye, 1871, 36: Fauvel *in litt.* now admits the species.
588. *HOMALIUM GRACILICORNE*, Fairm.; E. C. Rye, 1870, 88; 1871, 37.
589. (H)OMALIUM *NIGRUM*, Grav.; A. Matthews, 1864, 65.
- \*590. (H)OMALIUM *CRASSICORNE*, Matthews; 1864, 64: = *salicis* Gyll., var.; E. C. Rye, 1870, 87.

- \*591. (H)OMALIUM MESOMELAS, Holme; 1855, 126 (*sordidum*, var. ?, *teste auct.*): to be treated as non-existent; E. C. Rye, 1870, 88.
592. (H)OMALIUM PYGMÆUM, Payk.; G. R. Waterhouse, 1859, 138.
593. (H)OMALIUM INFLATUM, Gyll.; G. R. Waterhouse, 1859, 138.
594. ANTHOBIUM LAPPONICUM, Mann.; G. R. Crotch, 1867, 69.
595. PROTEINUS ATOMARIUS, Er.; A. Murray, 1855, 126.
596. MEGARTHURUS BELLEVOYII, Sauley; G. R. Crotch, 1867, 69: = *affinis*, Mill.; E. C. Rye, 1869, 34.
597. MEGARTHURUS SINUATOCOLLIS, Linn.; J. Hardy, 1859, 139.
598. MEGARTHURUS HEMIPTERUS, Ill.; J. Hardy, 1859, 139.
599. MICROPEPLUS MARGARITÆ, Du Val; H. S. Gorham, 1863, 89.

## PSELAPHIDEA.

- †600. TRICHONYX SULCICOLLIS, Reich.; G. R. Waterhouse, 1863, 110.
601. TRICHONYX MÄRKELII, Aubé; G. R. Waterhouse, 1863, 111.
602. BRYAXIS SIMPLEX, Waterhouse; 1863, 110: renamed *Waterhousei*, on account of the prior *simplex* of Motschoulsky, by E. C. Rye; 1870, 114.
603. BRYAXIS HELFERI, Schm.; G. R. Waterhouse, 1863, 110.
604. BRYAXIS LEFEBVRII, Aubé; G. R. Waterhouse, 1863, 110.
- \*605. BRYAXIS HÆMOPTERA (?Aubé); H. Schaum, 1870, 115 (omitted from Ent. Ann., 1855, by accident): has yet to be accounted for; E. C. Rye, *ibid.*: this is probably *B. Waterhousei*.
- \*606. BRYAXIS ASSIMILIS, Curtis (revived); H. Schaum, 1870, 115: has yet to be accounted for: according to Schaum, the preceding species is probably identical with this, which has priority.  
*Pselaphus nigricans*, Leach, revived as British and referred to *Bryaxis* by Gemm. & v. Harold, is described from Italy; E. C. Rye, 1870, 117.
- \*607. TYCHUS IBERICUS, Mots.; H. Schaum, 1855, 121: G. R. Crotch, 1864, 83: = *niger*, Payk., var.; E. C. Rye, 1870, 116.  
*Bythinus clavicornis*, Panz.; the evidence of its British origin reviewed; E. C. Rye, 1870, 118.

*Bythinus glabricollis* of Denny = *bulbifer*, Reich., ♀; of Reich., = *clavicornis*, Panz., ♀; H. Schaum, 1870, 117: of Gyll., Aubé, & Leachian Coll. = *bulbifer*; E. C. Rye, *ibid.*

608. BYTHINUS GLABRATUS, Rye; 1871, 53.
609. EUPLECTUS KUNZEI, Aubé; G. R. Waterhouse, 1863, 111.
610. EUPLECTUS PUNCTATUS, Muls.; G. R. Crotch, 1869, 64.
611. EUPLECTUS DENNII, Waterhouse; 1863, 111 (? *sanguineus*, Denny): = *nigricans*, Chaud.
- \*612. EUPLECTUS EASTERBROOKIANUS, Leach (revived); E. Parfitt, 1868, 78: E. C. Rye, 1870, 116: this must apparently be treated as a nonentity.
613. TRIMIUM BREVIPENNE, Chaud.; H. Schaum, 1870, 118: E. C. Rye, 1872, 45.
614. SCYDMÆNUS RUFUS, Müll. & K.; E. C. Rye, 1872, 62.
615. SCYDMÆNUS GODARTI, Latr.; A. Matthews, 1863, 90.  
*Scydmænus Wetterhallii*, Gyll., erroneously attributed to Britain by v. Harold; E. C. Rye, 1870, 91.
616. SCYDMÆNUS RUBICUNDUS, Schaum; E. C. Rye, 1863, 91 (*Scydmænus sp.* —, G. R. Waterhouse).
617. SCYDMÆNUS CARINATUS, Muls.; D. Sharp, 1872, 61.
618. SCYDMÆNUS PUMILIO, Schaum; A. Matthews, 1863, 90.  
*Scydmænus rutilipennis*, Müll., discussed as indigenous; 1869, 7.
619. SCYDMÆNUS FIMETARIUS, Thoms.; G. R. Crotch, 1869, 35: T. J. Bold, 1870, 91.
620. SCYDMÆNUS NANUS, Schaum; G. R. Waterhouse, 1863, 91.
621. EUTH(E)IA PPLICATA, Gyll.; G. R. Waterhouse, 1859, 124.
622. EUTHIA SCHAUMII, Kies.; G. R. Waterhouse, 1863, 92.
623. CEPHENNIUM INTERMEDIUM, Aubé; A. Matthews, 1863, 91.
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624. SCAPHISOMA ASSIMILIS, Er.; E. C. Rye, 1866, 76.
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## TRICHOPTERYGIA.

625. PTINELLA PROTEUS, Matthews; 1863, 104.
626. PTINELLA MARIA, Matthews; 1863, 105.
- †627. PTINELLA BRITANNICA, Matth.; 1859, 141; 1863, 106.
- \*628. PTINELLA RATISBONENSIS (Gillm.), E. W. Janson, 1860, 111; = *punctipennis*, Fairm.; A. Matthews, 1863, 105: *P. ratisbonensis*, Wat. Cat., = *Proteus*, Matth.; *l. c.*, 104: *P. ratisbonensis*, A. Matthews, 1863, 106, ? = *testacea*, Heer, *var.*; *sec.* Matth.
629. PTINELLA DENTICOLLIS, Fairm.; A. Matthews, 1861, 65; 1863 105.
- \*630. PTINELLA PUNCTIPENNIS, Fairm.; A. Matthews, 1863, 105: = *denticollis*, Fairm.
631. PTINELLA TENELLA, Er. (E. W. Janson, 1860, 111; but apparently incorrectly, *cf.* 1863, 106); A. Matthews, 1863, 106.
632. PTINELLA APTERA, Gillm.; A. Matthews, 1861, 65; 1863, 107.
- \*633. PTINELLA LIMBATA, Heer; A. Matthews, 1861, 64: = *aptera*, Gillm.
- \*634. PTINELLA TESTACEA, Heer; A. Matthews, 1863, 106 (*limbata*, Wat. Cat.): = *aptera*, Gillm.
635. PTINELLA ANGUSTULA, Gillm. (E. W. Janson, 1860, 111; = *denticollis*, Fairm.; A. Matthews, 1861, 65); A. Matthews, *l. c.*; 1863, 107.
- \*636. PTINELLA GRACILIS, Gillm.; A. Matthews, 1863, 107: = *angustula*, Gillm.
- †637. PTERYX MUTABILIS, Matth.; 1859, 141: = *suturalis*, Heer.
638. TRICHOPTERYX (?) MOLLIS, Haliday; 1856, 85: = *fucicola*, Allib.; Wat. Cat.; A. Matthews, 1866, 115.
639. TRICHOPTERYX SARÆ, Matthews; 1867, 54.
640. TRICHOPTERYX THORACICA, Gillm.; A. Matthews, 1859, 141.
641. TRICHOPTERYX CONVEXA, Matth.; 1859, 141.
642. TRICHOPTERYX ANTHRACINA, Matth.; A. Matthews, 1869, 62.
643. TRICHOPTERYX OBSCÆNA, Woll.; A. Matthews, 1869, 62.
644. TRICHOPTERYX ATTENUATA, Gillm.; A. Matthews, 1863, 107.
645. TRICHOPTERYX EDITHIA, Matth.; 1872, 64.

646. TRICHOPTERYX CANTIANA, Matth.; 1872, 64.
647. TRICHOPTERYX LATA, Mots.; A. Matthews, 1866, 117.
648. TRICHOPTERYX SERICANS, Heer; A. R. Hogan, 1855, 127 (*T. depressa*, Stm., A. Murray).
649. TRICHOPTERYX BOVINA, Mots.; A. Matthews, 1866, 118.
650. TRICHOPTERYX BREVIS, Mots.; A. Matthews, 1866, 119.
651. TRICHOPTERYX FUSCULA, Matth.; 1872, 63.
652. TRICHOPTERYX BREVIPENNIS, Er.; A. Matthews, 1859, 141.
653. TRICHOPTERYX KIRBII, Matthews; 1866, 117.
654. TRICHOPTERYX PICICORNIS, Mann.; A. Matthews, 1866, 118.
655. TRICHOPTERYX LONGULA, Matth.; 1872, 63.  
*Trichopteryx pygmaea*, Er., *parallelogramma*, Gillm., = *Chevroletii*, Allib.; A. Matthews, 1867, 125.
656. TRICHOPTERYX WATERHOUSII, Matthews; 1867, 55.
657. TRICHOPTERYX GUERINII, Allib.; A. Matthews, 1863, 108.
658. TRICHOPTERYX JANSONI, Matthews; 1867, 55.
659. TRICHOPTERYX SIMILIS, Gillm.; A. Matthews, 1859, 141: = *Montandonii*, Allib.; A. Matthews, 1867, 125.
660. TRICHOPTERYX RIVULARIS, Allib.; A. Matthews, 1872, 63.
661. TRICHOPTERYX SUFFOCATA, Haliday; 1856, 84.
662. TRICHOPTERYX DISPAR, Matthews; 1866, 116.
663. TRICHOPTERYX AMBIGUA, Matthews, 1866, 116.
664. TRICHOPTERYX CHEVRIERII, Allib.; A. Matthews, 1867, 98.
665. BÆOCRARA LITTORALIS, Thoms.; D. Sharp, 1867, 99; Sharp proposes the name *Thomsoni* for this sp., if *Bæocrara* be sunk in *Trichopteryx*, as there is a prior *T. littoralis*: *Bæocrara* not to stand as a genus, and the species = *variolosa*, Muls.; A. Matthews, 1868, 79.
- \*666. TRICHOPTERYX CURTUS, Allib.; A. R. Hogan, 1855, 127.
- \*667. TRICHOPTERYX (ACRATRICHIS) PUNCTATISSIMA, Mots.; E. C. Rye, 1871, 51: dubious.
- \*668. TRICHOPTERYX (ACRATRICHIS) SUBÆNEA, Mots.; E. C. Rye, 1871, 52: dubious.
- †669. MICRUS FILICORNIS, Fairm. et Lab.; A. Matthews, 1859, 141.
670. MICRUS PULCHELLUS, Gillm.; A. Matthews, 1859, 141.

671. PTILIIUM BREVICOLLE, Matthews; 1861, 63.
672. PTILIIUM HALIDAYI, Matth.; 1869, 64.
673. PTILIIUM SAXONICUM, Gillm. (A. Matthews, 1861, 63 : omitted, as being var. of already recorded sp.; G. R. Crotch, 1865, 80 : = *Kunzæi*, var.; *id.* 1867, 100); G. R. Crotch, 1867, 100.
674. PTILIIUM FUSCUM, Er.; A. Matthews, 1859, 141: = *rugulosum*, Allib.; A. Matthews, 1867, 125.
675. PTILIIUM CALEDONICUM, Sharp; 1872, 62.
676. PTILIIUM ANGUSTATUM, Er.; A.H.Haliday, 1856, 85: = *Spencei*, Allib.; A. Matthews, 1867, 125.
677. PTILIIUM CÆSUM (Er.); E. W. Janson, 1860, 110: = *inquilinum*, Er.; 1863, 108: = *myrmecophilum*, Allib.; A. Matthews, 1867, 126.
678. PTILIIUM CANALICULATUM, Er.; A. Matthews, 1859, 141: = *excavatatum*, Allib.; A. Matthews, 1867, 125.
679. PTILIIUM AFFINE, Er.; A. Matthews, 1864, 73.
680. PTILIIUM INSIGNE, Matthews; 1863, 108.  
*Ptilium excavatum*, Er., = *forceolatum*, Allib.; A. Matthews, 1867, 126.
- \*680<sup>a</sup>. PTILIIUM CLANDESTINUM, Haliday; 1856, 85: = *forceolatum*, Allib.  
*Ptilium trisulcatum*, Aubé, to be used for *minutissimum*, Web., *nce* Linn.; G. R. Crotch, 1867, 126.
- \*680<sup>b</sup>. PTILIIUM INQUILINUM, (Er.); G. R. Waterhouse, 1863, 108: ? = *discoideum*, Gillm., E. C. Rye, *ibid.*: the latter to be omitted, as being a var. of already recorded species; G. R. Crotch, 1865, 80.  
*Ptilium minutum*, Steph., considered a good species by Gemm. & v. Harold, is nonexistent; E. C. Rye, 1870, 112.
681. PTILIIUM COARCTATUM, Haliday; 1856, 85: A. Matthews, 1869, 63: *P. elongatum*, Thoms. (A. Matthews, 1867, 100), is identical with this.
682. PTILIIUM CONCOLOR, Sharp; 1867, 55: A. Matthews, 1869, 63.  
ACTIDIUM, g. n.; to include *Ptilium transversale*, Er., *P. concolor*, Shp., and *P. coarctatum*, Hal.; A. Matthews, 1869, 63.
683. ANISARTHRIA PUNCTATA, Gyll.; A. R. Hogan, 1855, 127: = *Ptenidium id.*
684. PTENIDIUM PICIPES, Matthews; 1861, 63: = *fuscicorne*, Er.; E. C. Rye, 1863, 109.



685. PTENIDIUM LÆVIGATUM, Gillm.; A. Murray, 1855, 127.  
 686. PTENIDIUM INTERMEDIUM, Wankov.; A. Matthews, 1871, 52  
 (provisionally named *Vankoviezii*, on account of *Trichopteryx*  
*intermedia*, Gillm.).  
 687. PTENIDIUM FORMICETORUM, Ktz.; A. Matthews, 1863, 109.  
 688. PTENIDIUM KRATZII, Matth.; 1872, 63.  
 689. PTENIDIUM ATOMAROIDES, Mots.; A. Matthews, 1872, 63.  
 690. PTENIDIUM APICALE, Stm.; A. Murray, 1855, 127.  
 691. PTENIDIUM TURGIDUM, Thoms.; A. Matthews, 1866, 119.

## NECROPHAGA.

- †692. SPHÆRIUS ACAROIDES, Waltl; A. Matthews, 1859, 141.  
 693. ORTHOPERUS ATOMARIUS, Heer; D. Sharp, 1872, 64.  
 \*694. ORTHOPERUS CURVIMANUS, Mots.; H. Clark, 1855, 141.  
 695. CORYLOPHUS SUBLÆVIPENNIS, Du V.; D. Sharp, 1870, 112.  
 696. CLAMBUS PUBESCENS, Redt.; G. R. Waterhouse, 1863, 104.  
 697. CLAMBUS PUNCTULUM, Gyll.; G. R. Crotch, 1867, 93.  
*Clambus coccinelloides*, Steph.; a distinct species according to  
 Gemm. & v. Harold; E. C. Rye, 1870, 112: this must be con-  
 sidered non-existent.  
*Clambus nitidus*, Steph.; in the same condition as the preceding  
 species.  
 698. AGATHIDIUM CLYPEATUM, Sharp; 1866, 79 (*mandibulare*,  
 Wat. Cat., *nee* Stm.): = *confusum*, Bris.; *id.*, 1872, 65.  
 \*699. AGATHIDIUM LYCOGALÆ, Hardy; 1855, 121: = *rotundatum*,  
 Gyll.; T. J. Bold, Rev. Col. North. Durh., 53.  
 700. AGATHIDIUM ROTUNDATUM, Gyll.; A. Matthews, 1863, 92.  
 701. AGATHIDIUM CONVEXUM, Sharp; 1866, 79: = *globosum*,  
 Muls., *see* Gemm. & v. Harold (erroneously referred); E. C.  
 Rye, 1870, 93.  
 \*702. AGATHIDIUM PICEUM (Er.); G. R. Crotch, 1864, 80: = *con-*  
*rexum*, Sharp.  
 703. AGATHIDIUM MARGINATUM, Stm.; T. V. Wollaston, 1855, 121.  
 \*704. AGATHIDIUM PUMILUM, Hardy; 1855, 121: = *marginatum*,  
 Stm.; T. J. Bold, *l. c.*, 54.

705. AGATHIDIUM RHINOCEROS, Sharp; 1866, 79.
- \*706. LIODES AXILLARIS (Gyll.); G. R. Crotch, 1864, 80: = *humeralis*, Fab.; E. C. Rye, 1867, 111.
707. LIODES CASTANEA, Hbst.; E. C. Rye, 1865, 65.
708. LIODES ORBICULARIS, Hbst.; G. R. Waterhouse, 1859, 124.
- \*709. LIODES VITTATA, Curtis; 1855, 120: ? = *Cyrtusa minuta*, Ahr. (Wat. Cat. syn.).
- \*710. LIODES LATIFRONS, Curtis; 1855, 121: ? = *Colenis dentipes*, Gyll. (Wat. Cat. syn.).
- †711. AGARICOPHAGUS CEPHALOTES, Schm.; G. R. Waterhouse, 1859, 124.
- \*712. AGARICOPHAGUS CONFORMIS, Er.; G. R. Crotch, 1864, 80; 1867, 111: probably = *cephalotes*, Schm., minor individual.
- †713. CYRTUSA MINUTA, Ahr.; G. R. Waterhouse, 1859, 124.
714. CYRTUSA PAUXILLA, Schm.; G. R. Crotch, 1864, 80; 1865, 65; 1867, 111.
- 715.? ANISOTOMA GRANDIS, Fairm.; E. C. Rye, 1872, 65.
- 716.? ANISOTOMA OBLONGA, Er.; E. C. Rye, 1872, 65.
717. ANISOTOMA TRIEPKII, Schm.; G. R. Crotch, 1864, 80: E. C. Rye, 1866, 77.
718. ANISOTOMA PICEA, Ill.; G. R. Crotch, 1864, 80; 1865, 64.
719. ANISOTOMA SILESIACA, Ktz. (G. R. Crotch, 1864, 80: = *ovalis*, Schmidt; E. C. Rye, 1866, 77); D. Sharp, 1867, 69.
720. ANISOTOMA BRUNNEA, Sturm; G. R. Waterhouse, 1859, 123 (= *obesa*, Schm.; E. W. Janson, *ibid.*).
721. ANISOTOMA CILIARIS, Schm.; G. R. Waterhouse, 1859, 124.
722. ANISOTOMA SCITA, Er. (G. R. Crotch, 1864, 80; 1865, 64: = *litura*, Steph.; G. R. Crotch, 1867, 111); E. C. Rye, 1872, 66.
723. ANISOTOMA NIGRITA, Schm.; G. R. Waterhouse, 1860, 110.
- \*724. ANISOTOMA RUBIGINOSA, Schm.; G. R. Crotch, 1864, 80: re-introduced; apparently on insufficient grounds.
725. ANISOTOMA SIMILATA, Rye; 1871, 38.  
*Anisotoma*, 13 sp. —?, Wat. Cat., = *ornata*, Fairm., = *litura*, Steph.; E. C. Rye, 1865, 65; 1866, 78; 1867, 111.
726. HYDNOBIUS PERRISII, Fairm.; E. C. Rye, 1865, 62.
727. HYDNOBIUS PUNCTATUS, Sturm; G. R. Crotch, 1864, 80; 1865, 63.

- \*728. HYDNOBIUS SPINIPES, Gyll.; G. R. Crotch, 1864, 80; 1865, 63.  
 729. HYDNOBIUS STRIGOSUS, Schm.; G. R. Waterhouse, 1864, 65.  
 †730. TRIARTHRON MÄRKELII, Schmidt; J. A. Power, 1870, 92.  
 731. COLON VIENNENSE, Hbst.; G. R. Crotch, 1864, 80.  
 732. COLON ZEBEL, Ktz.; G. R. Crotch, 1864, 80.  
 733. COLON DENTIPES, Sahlb.; A. Murray, 1855, 120.  
 \*734. COLON SPINIPES, Haliday; 1855, 120: = *dentipes*, Sahlb.  
 735. COLON APPENDICULATUM, Sahlb.; A. H. Haliday, 1855, 120.  
 736. COLON DENTICULATUM, Ktz.; E. C. Rye, 1871, 38.  
 737. COLON ANGULARE, Ktz.; G. R. Crotch, 1864, 80.  
 738. COLON RUFESCENS, Ktz.; G. R. Crotch, 1864, 80.  
 739. COLON FUSCULUM, Er.; A. H. Haliday, 1855, 120: = *serripes*, Sahlb.; G. R. Crotch, 1864, 80.  
 \*740. COLON CLAVIGER, Hbst.; A. Murray, 1855, 120.  
*Choleva angustata*, Fab.; G. R. Crotch, 1866, 74 (characters for it and the insects separated by Kraatz and Brisout from it, not allowed specific rank by Murray, and considered sub-species by Crotch).  
 741. CHOLEVA INTERMEDIA, Kr.; G. R. Crotch, 1866, 75.  
 742. CHOLEVA CISTELOIDES, Fröhl.; G. R. Crotch, 1866, 74.  
 743. CHOLEVA STURMII, Bris.; G. R. Crotch, 1866, 74.  
 744. CHOLEVA (CATOPS) SPADICEA, Sturm; A. Murray, 1857, 69.  
 \*745. CHOLEVA (CATOPS) FLAVICORNIS, Thoms.; G. R. Crotch, 1869, 34 (brought forward with doubt).  
 746. CHOLEVA (CATOPS) CORACINA, Kellner; A. Murray, 1857, 69.  
 747. CHOLEVA (CATOPS) GRANDICOLLIS, Er.; A. Murray, 1855, 120: E. C. Rye, 1863, 89.  
*Choleva Kirbyi*, Spence, revived as a good species; E. C. Rye, 1863, 90.  
 748. CHOLEVA LONGULA, Kelln. (? G. R. Crotch, 1864, 80; *pilicornis*, Thoms.); E. C. Rye, 1866, 75; 1867, 110.  
 \*749. CHOLEVA (CATOPS) UMBRINA, Er.; A. Murray, 1855, 120.  
 \*750. CHOLEVA (CATOPS) PRÆCOX, Er.; A. Murray, 1855, 120: = *Wilkinii*, Spence, already recorded.

751. CHOLEVA COLONÖIDES, Ktz.; J. A. Power, 1865, 62.  
*Choleva frater*, Newman; omitted from Ent. Ann. 1855, and to be treated as non-existent; E. C. Rye, 1870, 90.
- †752. ADELOPS WOLLASTONI, Janson; 1857, 70.
- †753. LEPTINUS TESTACEUS, Müll.; J. Hardy, 1855, 120.
- \*754. NECROPHORUS GALLICUS, Du Val; J. A. Power, 1866, 73: = *interruptus*, Steph., var.; E. C. Rye, *ibid.*
- \*755. NECROPHORUS MICROCEPHALUS, Thoms.; J. A. Power, 1866, 71: = *ruspator*, Er., var.; E. C. Rye, *ibid.*  
*Necrophorus sepultor*, Charp.; erroneously referred to Britain by v. Harold; E. C. Rye, 1870, 89.  
*Silpha carinata*, Ill.; erroneously referred to Britain by v. Harold; E. C. Rye, 1870, 89.
756. HISTER SUCCICOLA, Thoms.; G. R. Crotch, 1866, 79.
757. HISTER MARGINATUS, Er.; G. R. Waterhouse, 1859, 139.
- \*758. HISTER 14-STRIATUS, Payk.; G. R. Crotch, 1866, 80: = *12-striatus*, Schr.; E. C. Rye, *ibid.*  
*Carcinops pumilio*, Er., to be used for the posterior *14-striatus*, Steph., nec Gyll.; G. R. Crotch, 1867, 112 (*Paromalus*).
759. PAROMALUS PARALLELOPIPEDUS, Hbst.; G. R. Crotch, 1864, 81.
- †760. HETERIUS SESQUICORNIS, Preysl.; E. W. Janson, 1857, 77; 1863, 123.
761. SAPRINUS PICEUS, Payk.; E. W. Janson, 1857, 77.
762. GNATHONCUS (SAPRINUS) PUNCTULATUS, Thoms.; G. R. Crotch, 1867, 70: ? = *rotundatus*, Ill., var.; E. C. Rye, 1870, 93.
763. SAPRINUS IMMUNDUS, Gyll.; G. R. Waterhouse, 1859, 139.
764. SAPRINUS METALLICUS, Fab.; G. R. Waterhouse, 1859, 140.
- \*765. SAPRINUS DIMIDIATUS, F. (? Ill.); A. R. Hogan, 1855, 126.
- \*766. ONTHOPHILUS EXARATUS, Ill.; G. R. Waterhouse, 1865, 66.
- \*767. ABRÆUS VULNERATUS (Kug. ?); J. F. Stephens, 1855, 126: ? = *Plegaderus dissectus*, Er.
768. ABRÆUS GRANULUM, Er.; E. W. Janson, 1860, 112.
769. ACRITUS PUNCTUM, Aubé; G. R. Crotch, 1864, 81.
770. ACRITUS NIGRICORNIS, Ent. H.; G. R. Waterhouse, 1859, 140.

- †771. MURMIDIUS OVALIS, v. Beck; G. R. Crotch, 1870, 119: E. C. Rye, *ibid.*
772. PHALACRUS BRUNNIPES, Ch. Bris.; D. Sharp, 1872, 67.
- \*773. PHALACRUS CASTANEUS, Curtis; 1855, 127.
774. OLIBRUS LIQUIDUS, Er.; G. R. Crotch, 1864, 81; 1865, 67.
775. OLIBRUS OBLONGUS, Er.; G. R. Waterhouse, 1860, 113.  
*Cercus bipustulatus*, Payk., possibly conspecific with *C. pedicularius*, Linn.; G. R. Crotch, 1867, 112.
776. CARPOPHILUS SEXPUSTULATUS, Fab.; E. C. Rye, 1866, 82: ? introduced.
777. EPURÆA DIFFUSA, Ch. Bris.; D. Sharp, 1866, 81.
778. EPURÆA MELINA, Er.; A. Murray, 1855, 127.
779. EPURÆA SILACEA, Hbst.; E. C. Rye, 1870, 93.
780. EPURÆA VARIEGATA, Hbst.; T. Blackburn, 1867, 70.
781. EPURÆA IMMUNDA, Er.; G. R. Crotch, 1867, 70.
782. EPURÆA NEGLECTA, Heer; E. W. Jnason, 1858, 72; 1860, 112.
783. EPURÆA ANGUSTULA, Er.; E. C. Rye & D. Sharp, 1866, 81.  
*Epuræa pygmæa* (Gyll.), Hardy & Bold, = *obsoleta*, Fab., *ex typ.*; E. C. Rye, 1870, 94.
784. EPURÆA OBLONGA, Hbst.; E. C. Rye, 1865, 67.
785. EPURÆA LONGULA, Er.; E. C. Rye, 1870, 94 (*longula*, Wat. Cat., = *obsoleta*, Fab., *ex typ.*).  
*Nitidula flexuosa*, Fab., probably not indigenous; 1857, 78 [has recently been taken near Scarborough by Mr. R. Lawson].  
*Nitidula obscura*, Fab., to be used in preference to *rufipes*, Linn., which is considered to be a *Meligethes*; G. R. Crotch, 1867, 112.
786. MELIGETHES FULVIPES, Bris.; E. C. Rye, 1871, 39 (6, *spec. nov.*?, Wat. Cat.).
787. MELIGETHES SUBRUGOSUS, Sturm; D. Sharp, 1869, 26.
788. MELIGETHES SYMPHYTI, Sturm; G. R. Waterhouse, 1863, 92.
789. MELIGETHES KUNZEL, Er.; E. C. Rye, 1867, 71.
790. MELIGETHES BRUNNICORNIS, Sturm; E. C. Rye, 1871, 39.
- \*791. MELIGETHES OCHROPUS (Sturm); T. J. Bold, 1867, 72: = *brunnicornis*, Stm.; E. C. Rye, 1871, 39.
792. MELIGETHES VIDUATUS, Sturm; E. C. Rye, 1871, 40.

793. MELIGETHES PEDICULARIUS (Gyll. ?), Er., *nee* Wat. Cat.; E. C. Rye, 1871, 40.
794. MELIGETHES BIDENS, Bris.; E. C. Rye, 1871, 40 (*pedicularius*, Wat. Cat., *nee* Er.).
795. MELIGETHES MARRUBII, Bris.; G. R. Crotch, 1867, 72.
796. MELIGETHES OVATUS, Sturm; E. C. Rye, 1871, 41.
797. MELIGETHES ROTUNDICOLLIS, Bris.; E. C. Rye, 1871, 41.
- \*798. MELIGETHES EBENINUS, Först.; G. R. Crotch, 1867, 72: = *lugubris*, Stm.; *id.*, 1871, 41.
799. MELIGETHES OBSCURUS, Er.; G. R. Crotch, 1867, 73: = *pal-matus*, Er.; *id.*, 1871, 41: = *distinctus*, Wat. Cat. (? Er.); E. C. Rye, *ibid.*
800. MELIGETHES BIDENTATUS, Bris.; E. C. Rye, 1871, 42.
801. MELIGETHES EXILIS, Sturm; G. R. Waterhouse, 1863, 92.
802. MELIGETHES PICTUS, Rye; 1872, 67.
803. CYCHRAMUS FUNGICOLA, Heer; G. R. Waterhouse, 1861, 66.
804. BYTURUS FUMATUS, Fab.; G. R. Waterhouse, 1860, 114.
805. RHIZOPHAGUS POLITUS, Hellw.; J. W. Douglas, 1860, 113.
806. RHIZOPHAGUS CÆRULEUS, Walzl; Hardy & Bold, 1855, 128 (*cyaneipennis*, Hdy.): = *cæruleipennis*, Sahlb.
- †807. ENDOPHLÆUS SPINULOSUS, Latr.; E. W. Janson, 1863, 92.
- 808.?SYNCHITA MEDIOLANENSIS, Villa; E. C. Rye, 1868, 65.
- †809. OXYLEMUS CYLINDRICUS, Panz.; E. W. Janson, 1857, 79.
810. OXYLEMUS VARIOLOSUS, Dufour (1843; *cæsus*, Er., 1845); E. W. Janson, 1857, 79.
- 811.?CERYLON SEMISTRIATUM (Perris); D. Sharp, 1867, 73: = *fagi*, Bris.; *id.*, 1872, 37.  
*Cerylon angustatum*, Er., to be used for the unrecognized *ferru-gineum* of Stephens; G. R. Crotch, 1867, 112.
- 812.?CERYLON DEPLANATUM, Gyll.; G. R. Crotch, 1864, 81.  
*Cerylon oryzæ*, Steph. Coll., = ? *Thorictus sp. n.*; T. V. Wol-laston, 1866, 83; and cannot be indigenous.
- †813. DENDROPHAGUS CRENATUS, Payk.; A. Murray, 1855, 128 (Weaver, *Brontes flavipes*).  
*Brontes planatus*, Linn., corroborated as indigenous; E. C. Rye, 1868, 55.  
*Læmophlæus bimaculatus*, Payk., not doubtfully British; E. C. Rye, 1867, 113.

814. LÆMOPHLÆUS DUPLICATUS, Waltl; E. W. Janson, 1860, 114:  
E. C. Rye, 1863, 114.
815. LÆMOPHLÆUS CLEMATIDIS, Er.; E. W. Janson, 1858, 73.
816. PEDIACUS DEPRESSUS, Hbst.; E. C. Rye, 1872, 68.
817. SILVANUS BIDENTATUS, Fab.; M. Young, 1867, 73.
818. SILVANUS SIMILIS, Wesm.; A. Adams & W. B. Baikie, 1858,  
73: J. A. Power, 1870, 95.
819. TELMATOPHILUS SCHÖNHERRI, Gyll.; G. R. Crotch, 1864, 81:  
1865, 72; 1866, 95.
820. TELMATOPHILUS BREVICOLLIS, Aubé; G. R. Crotch, 1866, 94.
- \*821. ANTHEROPHAGUS NIGRICORNIS, Fab.; T. J. Bold, 1857, 80:  
= *silaceus*, Gyll., *nee* Hbst., already recorded, the Fabrician  
name having priority; E. W. Janson, 1857, 84.
822. ANTHEROPHAGUS SILACEUS, Hbst. (*nee* Gyll.); A. Matthews,  
1863, 93.
823. CRYPTOPHAGUS SCHMIDTI, Stm.; E. C. Rye, 1872, 68.
824. CRYPTOPHAGUS PUNCTIPENNIS, Ch. Bris.; D. Sharp, 1872, 69.
825. CRYPTOPHAGUS UMBRATUS, Er.; G. R. Crotch, 1864, 81.
826. CRYPTOPHAGUS VALIDUS, Ktz.; E. C. Rye, 1871, 42.
827. CRYPTOPHAGUS BADIUS, Stm.; T. J. Bold, 1855, 128.
828. CRYPTOPHAGUS GRANDIS (? Ktz.); G. R. Crotch, 1864, 81;  
1867, 113: = *pale populi*, Payk.
829. CRYPTOPHAGUS FUSCICORNIS, Sturm (G. R. Crotch, 1864, 81:  
= *dentatus*, var.; E. C. Rye, 1867, 74); E. C. Rye, *ibid.*
830. CRYPTOPHAGUS FUMATUS, Gyll.; T. J. Bold, 1871, 42.
831. CRYPTOPHAGUS DENTATUS, Hbst.; T. J. Bold, 1855, 128.
832. CRYPTOPHAGUS PARALLELUS, Ch. Bris.; D. Sharp, 1872, 69.
833. CRYPTOPHAGUS WATERHOUSEI, Rye; 1867, 51 (the *C.* 16—*sp.*?  
of Wat. Cat.). This is apparently a monstrosity of *acutangulus*.
- \*834. CRYPTOPHAGUS SUBDEPRESSUS (Gyll.); T. J. Bold, 1855, 128:  
= *affinis*, Stm.; T. J. Bold, Rev. Col. North. & Durh., 61:  
G. R. Crotch, 1864, 81, also = *affinis*, Stm.; G. R. Crotch,  
1867, 113.
835. CRYPTOPHAGUS SERRATUS, Gyll.; G. R. Crotch, 1866, 85 (who  
states it is not a *Paramecosoma*).

- \*836. *PARAMECOSOMA ABIETIS*, Payk.; G. R. Crotch, 1864, 81: = *Cryptophagus vini*, Panz.; G. R. Crotch, 1867, 113.
- \*837. *PARAMECOSOMA PILOSULUM*, Er.; G. R. Crotch, 1864, 81: = *Cryptophagus vini*, Pz.; G. R. Crotch, 1869, 6.
- †838. *HYPOCOPRUS LATRIDIOIDES*, Mots.; G. R. Crotch, 1867, 75.
839. *ATOMARIA PALLIDA*, Wollast.; 1855, 128: = *ferruginea*, Sahlb.; T. V. Wollaston, Rev. of Brit. *Atom.*, 4.
840. *ATOMARIA DILUTA*, Er.; R. Hislop, 1866, 85: (?) E. A. Waterhouse, 1869, 36.
841. *ATOMARIA FIMETARII*, Hbst.; T. V. Wollaston, 1858, 73.
842. *ATOMARIA FUMATA*, Er. (? G. R. Crotch, 1864, 81); E. C. Rye, 1865, 68.
843. *ATOMARIA BARANI*, Ch. Bris.; E. C. Rye, 1866, 86.
844. *ATOMARIA WOLLASTONI*, Sharp; 1867, 52.  
*Atomaria nana*, Er., adopted for the prior *nigriventris*, Steph.; G. R. Crotch, 1867, 113.
845. *ATOMARIA BADIA*, Er.; D. Sharp, 1872, 70.
846. *ATOMARIA LONGICORNIS*, Thoms.; G. R. Crotch, 1867, 75.
847. *ATOMARIA PELTATA*, Ktz.; T. V. Wollaston, 1858, 73.
- \*848. *ATOMARIA NIGRICEPS*, Er.; A. Murray, 1855, 128: = *atri-capilla*, Steph., already recorded.
849. *ATOMARIA ATRA*, Hbst. (T. V. Wollaston, 1858, 73: = *mesomelas*, Hbst., var.); E. C. Rye, 1872, 70.
850. *ATOMARIA RHENANA*, Ktz.; G. R. Crotch, 1864, 81.
851. *ATOMARIA BASALIS*, Er.; T. V. Wollaston, 1858, 74.
852. *ATOMARIA MUNDA*, Er.; T. V. Wollaston, 1858, 74.
853. *ATOMARIA IMPRESSA*, Er. (D. Sharp, 1866, 86); R. Lawson, 1872, 45.
854. *ATOMARIA HISLOPI*, Woll.; 1858, 74.  
*Atomaria terminata*, Comolli; T. V. Wollaston, 1855, 128: = *ruficornis*, Marsh.; T. V. Wollaston, Rev. of Brit. *Atom.*, 17.
- \*855. *ATOMARIA TURGIDA* (Er.); A. Murray, 1855, 128: = *versicolor*, Er.; T. V. Wollaston, l. c. 18.
856. *EPHISTEMUS GLOBOSUS*, Waltl; T. J. Bold, 1855, 128.  
*Ephistemus gyrinoides*, Marsh. (*ovulum*, Er.), to be used for *globulus*, Wat. Cat., nec Payk.; G. R. Crotch, 1867, 113.



857. EPHEMUS GLOBULUS, Payk.; G. R. Crotch, 1867, 75 (stated not to be the *E. globulus* of our Catalogues).
- \*858. EPHEMUS PALUSTRIS, Wollast.; 1855, 128: = *globosus*, Waltl.
- †859. ANOMMATUS 12-STRIATUS, Müll.; T. J. Bold, 1858, 72.
860. MONOTOMA CONICICOLLIS, Aubé; E. W. Janson, 1857, 83: = *angusticollis*, Gyll.; G. R. Crotch, 1867, 112.
861. MONOTOMA ANGUSTICOLLIS, Aubé (*nee* Gyll.); E. W. Janson, 1857, 83: = *formicetorum*, Dej.; G. R. Crotch, 1867, 113.
862. MONOTOMA SPINICOLLIS, Aubé; G. R. Waterhouse, 1863, 93.
863. MONOTOMA BREVICOLLIS, Aubé; G. R. Waterhouse, 1863, 93: the 4-*dentata* of Thomson is apparently identical with this sp.; E. C. Rye, 1872, 71.
864. MONOTOMA QUADRICOLLIS, Aubé; G. R. Waterhouse, 1863, 93: the *parallela* of Thomson is apparently identical with this sp.; E. C. Rye, 1872, 71.
865. MONOTOMA SUBQUADRIFOVEOLATA, Waterhouse; 1863, 93 (*quadrifoveolata*, Waterh., *nee* Aubé): = *rufa*, Redt.; G. R. Crotch, 1866, 82.
866. MONOTOMA QUADRIFOVEOLATA, Aubé; G. R. Crotch, 1866, 83.
- \*867. MONOTOMA GRACILIS, Curtis; 1855, 141.
868. LATHRIDIDIUS ANGULATUS, Mann.; G. R. Crotch, 1867, 100.
869. LATHRIDIDIUS CARINATUS, Gyll.; G. R. Waterhouse, 1861, 66.
870. LATHRIDIDIUS CONSTRICTUS, Gyll.; E. C. Rye, 1871, 53.
871. LATHRIDIDIUS RUGOSUS, Hbst.; G. R. Waterhouse, 1863, 109. *Lathrididius cordaticollis*, Aubé, = *testaceus*, Steph.; G. R. Crotch, 1866, 120: *crenicollis*, Thoms., is also to be referred to Stephens's species; *id.*, 1869, 6.
872. LATHRIDIDIUS MINUTUS, Linn.; A. R. Hogan, 1855, 141.
873. LATHRIDIDIUS CONSIMILIS, Mann.; G. R. Crotch, 1867, 101.
- \*874. LATHRIDIDIUS ASSIMILIS, Mann.; G. R. Crotch, 1864, 81.
875. LATHRIDIDIUS CARBONARIUS, Mann.; E. C. Rye, 1868, 78.
876. LATHRIDIDIUS FILIFORMIS, Gyll.; E. Parfitt, 1858, 74: M. Young, 1866, 120 (the *elongatus* of Murray's Cat., *nee* Curtis, is identical with this sp.).
877. LATHRIDIDIUS FILUM, Aubé; E. C. Rye, 1867, 101.
878. LATHRIDIDIUS PINI, Mots.; E. C. Rye, 1870, 113 (dubious as British).

879. *LATHRIDIDIUS UNDULATUS*, Mots.; E. C. Rye, 1870, 114 (dubious as British).
- \*†880. *ARIDIUS NODULOSUS*, Mots.; referred to England only; E. C. Rye, 1870, 112: probably = *L. nodifer*, Westw., var.
881. *CORTICARIA SERRATA*, Payk.; G. R. Waterhouse, 1860, 114.
882. *CORTICARIA OBSCURA*, Ch. Bris.; E. C. Rye, 1872, 71.
- 883.? *CORTICARIA CYLINDRICA*, Mann.; A. H. Haliday, 1856, 91.
- \*884. *CORTICARIA BOREALIS*, Wollaston; 1856, 90: apparently not described until 1866, by Motschoulsky: = *cylindrica*, Mann., teste Wollaston; E. C. Rye, 1870, 114.
885. *CORTICARIA FULVA*, Villa; G. R. Waterhouse, 1860, 114.  
*Corticaria elongata*, Gyll., = *ferruginea*, Marsh., nec Gyll.; G. R. Crotch, 1867, 126.  
*Corticaria rufula*, Zett., to be used for *ferruginea*, Gyll., nec Marsh.; G. R. Crotch, 1877, 126.
886. *CORTICARIA WOLLASTONI*, Waterh.; 1860, 114.
887. *CORTICARIA FUSCULA*, Gyll.; G. R. Waterhouse, 1860, 114.
888. *CORTICARIA CURTA*, Woll.; J. A. Brewer, 1866, 120 (? = *truncatella*, Mann.).
- †889. *MYRMECOXENUS VAPORARIORUM*, Guér.; G. R. Waterhouse, 1863, 109.
890. *MYCETOPHAGUS FULVICOLLIS*, Fab.; E. C. Rye, 1870, 95.
- †891. *DIPLOCÆLUS FAGI*, Guérin; E. C. Rye, 1868, 66.
- †892. *SYMBIOTES LATUS*, Redt.; G. R. Waterhouse, 1860, 117: E. C. Rye, 1863, 115.
893. *DERMESTES FRISCHII*, Kugel.; G. R. Crotch (*Fischeri*), 1863, 94; 1865, 69.  
*Dermestes undulatus*, Brahm, should be used for *tessellatus*, Ill.; G. R. Crotch, 1863, 94.
894. *ATTAGENUS MEGATOMA*, Fab.; T. V. Wollaston, 1869, 36.
895. *SYNCALYPTA HIRSUTA*, Sharp; 1872, 72.  
*Byrrhus dorsalis*, Fab., = *pustulatus*, Forst.; G. R. Crotch, 1867, 113.
- †896. *MACRONYCHUS QUADRITUBERCULATUS*, Müll.; G. R. Crotch, 1867, 76.
897. *ELMIS CUPREUS*, Müll.; D. Sharp, 1866, 87.

898. *ELMIS* (*LIMNIUS*) *TROGLODYTES*, Gyll. ; G. R. Crotch, 1867, 77.
- \*899. *PARNUS MONTANUS*, Curtis ; 1855, 128 : = *prolifericornis*, Fab. ; Waterh. Cat. syn.
900. *PARNUS NITIDULUS*, Heer ; D. Sharp, 1867, 76.
- \*901. *HETERO CERUS RECTUS*, Waterhouse (*H. fossor*, Kies., var. ?) ; 1861, 67.
- \*902. *HETERO CERUS FEMORALIS*, Kies. ; T. V. Wollaston, 1825, 129 : = *fleuosus*, Steph., Wat. Cat., already recorded.
903. *HETERO CERUS ARENARIUS*, Kies. ; G. R. Crotch, 1864, 80 ; 1867, 76 (? = *femoralis*, Kies. ; G. R. C.).
904. *HETERO CERUS FUSCULUS*, Kies. ; G. R. Waterhouse, 1861, 67.

## LAMELLICORNIA.

905. *APHODIUS LAPPONUM*, Gyll. ; Hardy & Bold, 1855, 129 (*A. subalpinus*, Hdy.).
906. *APHODIUS ALPINUS*, Scop. ; T. J. Bold, 1855, 129 : most probably = *fœtidus*, Fab., as does the *alpinus* of Wat. Cat. (E. C. Rye, 1863, 94) ; no mention is made of *alpinus* in Bold's revision of Cat. Col. North. & Durh., in which *fœtidus* is recorded.
907. *APHODIUS ULIGINOSUS*, Hardy ; 1855, 129 : = *borealis*, Gyll. ; G. R. Crotch, 1864, 81 ; 1865, 69 : = *putridus*, Creutz. ; T. J. Bold, Rev. Col. North. & Durh., 71.
908. *APHODIUS PICEUS* (Gyll.) ; G. R. Crotch, 1867, 78 : = *nemoralis*, Er. ; D. Sharp, *ibid.*
909. *APHODIUS NIGER*, Panz. ; G. R. Crotch, 1867, 79.
910. *APHODIUS ZENKERI*, Germ. ; E. C. Rye, 1863, 95.
911. *APHODIUS SCROFA*, Fab. ; D. Sharp, 1869, 38.
912. *APHODIUS PUBESCENS* (Sturm) ; G. R. Crotch, 1867, 79 : = *consputus*, Creutz. ; G. R. Crotch, *ibid.*
- \*913. *APHODIUS SABULICOLA*, Thoms. ; G. R. Crotch, 1869, 38 : Thomson's insect = *punctatosulcatus*, Stm., teste v. Harold.
914. *APHODIUS OBLITERATUS*, Panz. ; D. Sharp, 1865, 69.
- †915. *AMMŒCIUS BREVIS*, Er. ; J. A. Power, 1863, 95.
- \*916. *PSAMMODIUS PORCICOLLIS*, Ill. ; C. O. Waterhouse, 1865, 70.
917. *ÆGIALIA RUFA*, Fab. ; G. R. Crotch, 1866, 87.

*Geotrupes putridarius*, Esch., Er., = *stercorarius*, Linn., nec Er.; and the *stercorarius* of Erichson is named *mesoleius* by Thomson; E. C. Rye, 1872, 72.

918. GEOTRUPES PYRENÆUS, Charp.; D. Sharp, 1872, 73 (*vernalis*, Steph., nec Linn.).
- \*919. TROX HISPIDUS, Laich.; G. R. Waterhouse, 1861, 68.
- \*920.? AMPHIMALLA VERNA, Meg.; S. Stevens, 1855, 129.
921. CETONIA ÆNEA, Gyll.; J. F. Stephens, 1855, 129.
- \*922. TRICHIUS ZONATUS, Schm.; F. Smith, 1855, 129: probably *T. abdominalis*, Mén.

## STERNOXI.

- \*923. ANCYLOCHIRA MAURITANICA, Lucas; F. Bond, 1855, 129: not indigenous.  
*Trachys pygmæus* Wat. Cat., nec Fab. = *troglydites*, Schön.; D. Sharp, 1869, 39.
924. THROSCUS CARINIFRONS, Bonv.; E. C. Rye, 1872, 74.
925. THROSCUS ELATEROIDES, Heer; E. W. Janson, 1867, 79.
926. ELATER COCCINATUS, Rye; 1868, 66 (the *Elater* ♂ *nov. sp.*? of Wat. Cat.); 1872, 34.
- \*927. ELATER PRÆUSTUS, Fab.; G. R. Waterhouse, 1868, 67 (doubtfully noted as British).
928. ELATER RUFITARSIS, Desv.; G. R. Waterhouse, 1863, 96: = *æthiops*, Lac.
929. AMPEDUS TRISTIS, Linn.; Weaver, 1855, 130: = *Elater id.*
930. AMPEDUS LUGENS, Redt.; E. W. Janson, 1855, 130 (*Ectinus aterrimus*, Curt., nec Linn.; *Ectinus?* *gagates*, Curt.): = *Megapenthes id.*
931. AMPEDUS SUBCARINATUS, Germ.; E. W. Janson, 1855, 130 (*Aplotarsus?* *cothurnatus*, Curtis); 1856, 86: = *Megapenthes tibialis*, Lac.
932. APLOTARSUS MARITIMUS, Curtis; 1855, 130: = *Cryptohypnus id.*
933. CRYPTOHYPNUS SABULICOLA, Boh.; D. Sharp, 1869, 40.
934. CRYPTOHYPNUS PULCHELLUS, Linn.; R. Hislop, 1869, 39.
- \*935. CRYPTOHYPNUS 4-GUTTATUS, Lap.; G. R. Crotch, 1864, 81: doubtfully distinct from *C. dermestoides*; G. R. Crotch, 1867, 116: certainly not distinct from the latter.

- Cardiophorus thoracicus*, Fab., described from Britain, to be considered doubtful as British; G. R. Crotch, 1867, 116.
- \*936. *CARDIOPHORUS TESTACEUS*, Fab.; A. R. Hogan, 1855, 130: ?  
= *cinereus*, Hbst., var.
- \*937. *CARDIOPHORUS FORMOSUS*, Curtis; 1855, 130: probably = *C. sexpunctatus*, Ill., var., teste E. W. Janson, l. c.: but that species has not been reputed British as yet.  
*Melanotus punctolineatus*, Pelerin (*Ectinus aterrimus*) to be adopted for *Elater niger*, Fab., if *E. niger*, Linn., be referred to *Athous*; G. R. Crotch, 1867, 116.
938. *CRATONYCHUS CASTANIPES*, Payk.; J. W. Douglas, 1856, 85:  
= *Melanotus id.*
939. *LIMONIUS PARVULUS*, Panz.; G. R. Crotch, 1867, 80.
940. *ATHOÛS SUBFUSCUS*, Müll.; G. R. Crotch, 1867, 80.  
*Athoüs campyloides*, Newm. = *difformis*, Lac. (♂, *carus*, Wat. Cat.); G. R. Crotch, 1864, 81.
941. *ATHOÛS UNDULATUS*, De G.; G. R. Waterhouse, 1864, 69.
942. *DIACANTHUS IMPRESSUS*, Fab.; S. Stevens, 1855, 131.
943. *AGRIOTES PILOSUS*, Panz.; (G. R. Waterhouse, Trans. Ent. Soc., v, 1859) J. A. Power, 1866, 88; E. C. Rye, 1868, 67.
944. *AGRIOTES SORDIDUS*, Ill.; D. Sharp, 1872, 74.
- 945.? *AGRIOTES PALLIDULUS*, Ill.; G. R. Crotch, 1864, 81: the *A.* 4\*  
*sp.* —, of Wat. Cat.; E. C. Rye, 1863, 96.

## MALACODERMATA.

946. *MICROCARA BOHEMANNI*, Mann.; G. R. Crotch, 1867, 80.
- \*947. *CYPHON FUSCICORNIS*, Thoms.; G. R. Crotch, 1864, 81; 1865, 71: = *coarctatus*, Payk., ♀, sec. Kiesenw.; W. S. Dallas, 1870, 97.
948. *CYPHON NITIDULUS*, Thoms.; G. R. Crotch, 1864, 81; 1865, 71.
949. *CYPHON PALLIDIVENTRIS*, Thoms.; G. R. Crotch, 1867, 81.
950. *CYPHON NIGRICEPS*, Kies.; G. R. Crotch, 1867, 81.
951. *DICTYOPTERUS AURORA*, Fab.; J. F. Stephens, 1855, 131: =  
*Eros id.*
952. *EROS AFFINIS*, Payk.; E. C. Rye, 1868, 68, 79.
- †953. *PHOSPHÆNUS HEMIPTERUS*, Geoffr.; E. C. Rye, 1869, 41.

- Telephorus lituratus*, Fall., to stand for the doubtful *rufus* of Linn.; G. R. Crotch, 1867, 117.
954. TELEPHORUS DARWINIANUS, Sharp; 1867, 52.
955. TELEPHORUS FIGURATUS, Mann.; G. R. Crotch, 1864, 81; 1865, 71; queried, 1867, 117.
956. TELEPHORUS 21 \* *sp.*—? Wat. Cat.; E. C. Rye, 1863, 97: = *Telephorus femoralis*, Br., ? ; G. R. Crotch, 1864, 82: = *assimilis*, Payk.; G. R. Crotch, 1866, 89: = *figuratus*, Mann.; G. R. Crotch, 1867, 53: described as *nov. sp.*, under the name *scoticus*, by D. Sharp, 1867, 53.  
*Telephorus discoideus*, Steph., *nec* Ahr., = *nigricans*, Müll., *var.*; G. R. Crotch, 1866, 88.
- \*957. TELEPHORUS FULVICOLLIS, Fab.; G. R. Crotch, 1864, 81.  
*Telephorus clypeatus*, Ill., = *hæmorrhoidalis*, Fab.; G. R. Crotch, 1866, 90.
958. TELEPHORUS (RHAGONYCHA) PALUDOSUS, Gyll.; Hardy & Bold, 1855, 131 (*Telephorus æthiops*, Curtis).
959. TELEPHORUS UNICOLOR, Curtis; 1855, 131: *translucidus*, Lap., to stand for this, on account of the prior *unicolor* of Fald.; G. R. Crotch, 1867, 117.
- \*960. TELEPHORUS APICALIS, Curtis; 1855, 131: = *fuscicornis*, Ol.; Wat. Cat. syn.  
*Telephorus fulcus*, Scop., to be used for *melanurus*, Fab.; G. R. Crotch, 1866, 90; 1867, 117.
961. TELEPHORUS LIMBATUS, Thoms.; G. R. Crotch, 1866, 90: but the Linnæan types of *testaceus* agree with this sp.; *id.*, 1867, 117.  
*Telephorus ochropus*, Steph., = *testaceus*, Linn.; G. R. Crotch, 1866, 90: but, if Linnæus' *testaceus* be Thomson's *limbatus*, Stephens's name would apparently stand for this.
- \*962. TELEPHORUS ATER, Linn.; G. R. Waterhouse, 1863, 97.
963. TELEPHORUS (RHAGONYCHA) ELONGATUS, Fall.; E. W. Janson, 1861, 68.
964. MALTHODES MYSTICUS, Kies.; G. R. Crotch, 1866, 91.
965. MALTHODES FIBULATUS, Kies.; G. R. Crotch, 1866, 92.
966. MALTHODES PELLUCIDUS, Kies.; G. R. Crotch, 1866, 92.
967. MALTHODES MISELLUS, Kies.; D. Sharp, 1869, 42.
968. MALTHODES GUTTIFER, Kies.; D. Sharp, 1869, 42.
- \*969.? MALTHODES BREVICOLLIS, Payk. (*nec* Kies.); G. R. Crotch, 1866, 91.

- Malthodes brevicollis*, Kies., *nec* Payk., = *atomus*, Thoms.; G. R. Crotch, 1866, 92.
- Malachius rubricollis*, Marsh., = *ruficollis*, Ol.; G. R. Crotch, 1866, 92.
- Anthocomus ruficollis*, Fab., *nec* Ol., = *terminatus*, Ménét.; G. R. Crotch, 1866, 93.
970. DASYTES OCULATUS, Kies.; G. R. Crotch, 1871, 45.  
*Dasytes flavipes*, Wat. Cat., *nec* Fab., = *plumbeus*, Müll.; G. R. Crotch, 1866, 94; 1871, 45.  
*Dasytes cœratus*, Steph., = *subœneus*, Schön.; G. R. Crotch, 1866, 93: further corrections made, resulting in the adoption of *plumbeo-niger*, Goeze; *id.*, 1871, 45.
971. DOLICHOSOMA PROTENSA, Géné; G. R. Crotch, 1871, 46.
972. HAPLOCNEMUS NIGRICORNIS, Fab.; E. C. Rye, 1863, 97.  
*Haplocnemus nigricornis*, Wat. Cat., = *impressus*, Marsham; E. C. Rye, 1863, 97.
- \*973. PTINUS RAPTOR, Sturm; J. F. Stephens, 1855, 131.
974. PTINUS SUBPILOSUS, Müll. (? Sturm); D. Sharp, 1872, 75.
- \*†975. MICROPTINUS GONOSPERMI, Du V.; J. A. Power (*Niptus*), 1870, 98: not indigenous; E. C. Rye, 1871, 45.
976. ANOBIUM NIGRINUM, Stm.; J. A. Power, 1866, 96: = *Ernobius id.*  
*Dryophilus pusillus*, Wat. Cat., *nec* Gyll., = *anobioides*, Chev.; G. R. Crotch, 1864, 82; 1865, 72.
977. DRYOPHILUS PUSILLUS, Gyll.; G. R. Crotch, 1865, 72.
978. DORCATOMA CHRYSOMELINA, Sturm; G. R. Waterhouse, 1861, 68.
979. DORCATOMA FLAVICORNIS, Fab.; E. W. Janson, 1858, 75.
- †980. SPHINDUS GYLLENHALII, Chev.; J. A. Power, 1863, 112: = *dubius*, Gyll.; G. R. Waterhouse, *ibid.*: = *hispidus*, Payk., *sec.* Thomson; E. C. Rye, 1872, 29.
981. DINODERUS SUBSTRIATUS, Payk. (*nec* Steph.); G. R. Waterhouse, 1863, 98.
982. CIS RUGULOSUS, Mell.; G. R. Crotch, 1867, 81.
983. CIS MICANS, Hbst.; G. R. Waterhouse, 1861, 70.  
*Cis hispidus*, Payk., not specifically distinct from *micans*, Hbst.; G. R. Crotch, 1867, 118.
984. CIS ELONGATULUS, Gyll.; D. Sharp, 1872, 75.
985. CIS JACQUEMARTII, Mell.; G. R. Crotch, 1867, 82.

986. CIS ALNI, Gyll.; G. R. Waterhouse, 1861, 71.  
 987.?CIS PUNCTULATUS, Gyll.; G. R. Crotch, 1867, 82.  
 988. CIS LINEATOCRIBRATUS, Mell.; J. A. Power, 1864, 69.  
 989. CIS FESTIVUS, Panz.; G. R. Waterhouse, 1861, 71.  
 990. CIS VESTITUS, Mell.; E. C. Rye, 1870, 99.  
 991. CIS FUSCATUS, Mell.; G. R. Waterhouse, 1861, 71.  
 †992. RHOPALODONTUS PERFORATUS, Gyll.; E. W. Janson, 1861,  
 69.  
 993. RHOPALODONTUS FRONTICORNIS, Panz.; G. R. Crotch, 1864,  
 82.  
 994. ENNEARTHRON CORNUTUM, Gyll.; G. R. Waterhouse, 1861,  
 72.

## HETEROMERA.

995. BLAPS MORTISAGA, Linn.; T. J. Bold, 1859, 141.  
 \*996. BLAPS CHEVOLATII, Solier; G. R. Crotch, 1864, 83: = *macro-*  
*nata*, Latr.  
 †997. BOLITOPHAGUS CRENATUS, Fab.; R. Weaver, 1855, 131: =  
*reticulatus*, Linn.; A. Murray, Cat. Scotch Col., 99.  
 \*†998. ULOMA CULINARIS, Linn.; G. R. Crotch, 1864, 83 (naturalized,  
 Crotch, *ibid.*).  
 †999. PYTHO DEPRESSUS, Linn.; R. Weaver, 1855, 132.  
 1000. SALPINGUS ÆRATUS, Muls.; R. Hislop, 1867, 84 (*Lissodema*).  
*Lissodema Heyana*, Curt., to stand for *cursor*, Gyll., *nee* Linn.;  
 G. R. Crotch, 1868, 69.  
 1001. TETRATOMA DESMARETSII, Latr.; J. F. Stephens, 1855, 131  
 (and *var. pallida*, Curtis): = *Desmarestii*.  
*Orchesia fasciata*, Payk., *nee* Ktz., to be used for the *undulata*  
 of our Catalogues; G. R. Crotch, 1868, 69.  
 †1002. HALLOMENUS HUMERALIS, Panz.; E. W. Janson, 1859, 142.  
*Hallomenus fuscus*, Wat. Cat., = † *Anisoxya fuscula*, Ill.;  
 G. R. Crotch, 1866, 97.  
*Carida flexuosa*, Payk., erroneously considered as not indigenous;  
 E. C. Rye, 1868, 69.  
 †1003. SERROPALPUS VAUDOUEII, Latr.?; J. O. Westwood, 1855,  
 132: = *striatus*, Hellen.; *id.*, 1872, 76: almost certainly not  
 indigenous; E. C. Rye, 1872, 76.



*Phloxotrya rufipes*, Steph., *nee* Gyll., = *Stephensii*, Du Val;  
G. R. Crotch, 1866, 98.

†1004. DIRCÆA DISCOLOR, Fab.; S. Stevens, 1855, 132: = *lævigata*,  
Hellen.

†1005. ZILORA FERRUGINEA, Payk.; D. Sharp, 1872, 78.

1006.? CONOPALPUS BREVICOLLIS, Ktz.; G. R. Crotch, 1867, 82.

1007. XYLOPHILUS NEGLECTUS, Du Val; G. R. Crotch, 1867, 84.

1008. ANTHICUS SALINUS, Crotch; 1867, 53 (the *A.* 2 *sp. nov.*? of  
Wat. Cat.).

1009. ANTHICUS BIMACULATUS, Ill.; E. W. Janson, 1861, 72.

\*1010. ANTHICUS QUISQUILIUS, Thoms.; G. R. Crotch, 1867, 83 (*quis-*  
*quiliarius*): = *floralis*, Linn., *var.*

\*1011.? ANTHICUS FLAVIPES, Panz.; E. C. Rye, 1868, 70 (*A.* 6 *sp. nov.*?  
Wat. Cat.).

1012.? ANTHICUS FENESTRATUS, Dej. Cat.; T. V. Wollaston, 1855,  
132 (= *tristis*, Schm., *var. b.*): considered specifically distinct  
and named *Schaumii* by Wollaston: queried as only a *var.* of  
*tristis* by G. R. Crotch; 1868, 70.

1013. PYROCHROA PECTINICORNIS, Fab.; S. Stevens, 1855, 132.

†1014. TOMOXIA BIGUTTATA, Gyll.; G. R. Waterhouse (*bucephala*,  
Costa), 1860, 115.

*Mordella aculeata*, Linn., considered truly indigenous; G. R.  
Crotch, 1868, 69.

*Mordellistena pusilla*, Wat. Cat., = *inæqualis*, Muls., = *par-*  
*vula*, Gyll.; G. R. Crotch, 1868, 69.

1015. MORDELLISTENA BREVICAUDA, Boh.; E. C. Rye, 1870, 99.

1016. ANASPIS RUFILABRIS, Gyll.; G. R. Crotch, 1867, 82.

*Anaspis pulicaria*, Costa, to stand for the posterior *forecipata* of  
Muls.; G. R. Crotch, 1867, 118.

\*1017.? ANASPIS MONILICORNIS, Muls.; G. R. Crotch, 1867, 83.

*Anaspis Geoffroyi*, Müll., = *fasciata*, Forst.; G. R. Crotch,  
1867, 118.

*Anaspis maculata*, Fourcr., = *melanopa*, Forst.; G. R. Crotch,  
1867, 118.

\*1018. MELOË DECORUS, Br. & Er.; W. R. McNab, 1871, 46: probably  
= *rugosus*, Msh.

*Edemera cærulea*, Linn., = *nobilis*, Scop.; G. R. Crotch, 1868,  
69.

## RHYNCHOPHORA.

1019. OTIORHYNCHUS FUSCIPES (Ol.); J. Walton, 1855, 135: erroneously referred; E. C. Rye, 1867, 120: endeavoured to be corroborated by F. Smith, *ibid.*: there are *two* British species of the *tenebricosus* group; G. R. Crotch, *ibid.*: Walton's reference probably right; D. Sharp, 1870, 103: the insect identified with *fagi*, Chev., but proposed to be named *Waltoni* by F. Smith, *ibid.*: ? = *hæmatopus*, Schön.; Sharp Cat.
1020. OTIORHYNCHUS EBENINUS, Schön.; J. Walton, 1855, 135.
1021. OTIORHYNCHUS SEPTENTRIONIS, Hbst.; S. Stevens, 1855, 135: = *seaber*, Linn., *sec.* Thoms.; E. C. Rye, 1872, 29 (but Thomson's proposed name for the *Trachyphlæus* appears unnecessary, in the face of *tessellatus*, Marsham, Steph., Schön., Walton).
- 1022.? OTIORHYNCHUS AMBIGUUS, Schön.; E. C. Rye, 1867, 87.
- 1023 OTIORHYNCHUS MUSCORUM, Ch. Bris.; E. C. Rye, 1868, 70.
- †1024. PERITELUS GRISEUS, Ol.; E. W. Janson, 1865, 74; E. C. Rye, *ibid.*, 80.
1025. OTIORHYNCHUS ? (TRACHYPHLÆUS) FISSIROSTRIS, Walton; 1855, 135 (*fuscirostris*, S. Stevens); 1856, 86: = *Cænopsis id.*
1026. OMIAS BOHEMANNI, Schön.; T. V. Wollaston (*Baumanii*), 1855, 135: = *mollinus*, Schön.; E. C. Rye, 1869, 46.
1027. OMIAS SULCIFRONS, Schön.; R. N. Greville, 1855, 135: now referred to *Barypeithes*, Du V.; E. C. Rye, 1869, 46.
1028. BARYPEITHES PELLUCIDUS, Schön.; W. G. Pelerin, 1869, 45. *Omi*s, *Barypeithes*, and *Platyttarsus* discussed; E. C. Rye, 1869, 46.
1029. TRACHYPHLÆUS LATICOLLIS, Schön.; G. R. Crotch, 1871, 46.
1030. TRACHYPHLÆUS ALTERNANS, Schön.; J. Walton, 1855, 135.
1031. TRACHYPHLÆUS ARISTATUS, Gyll.; E. C. Rye, 1866, 101.
1032. TRACHYPHLÆUS MYRMECOPHILUS, Seidl.; E. C. Rye, 1871, 47.
- †1033. CATHORMIOCERUS SOCIUS, Schön.; J. Walton, 1855, 135: corroborated as indigenous; E. C. Rye, 1869, 42.
- \*1034. CATHORMIOCERUS SP.—; E. C. Rye, 1871, 21.
1035. TROPIPHORUS CARINATUS, Müll.; G. R. Crotch, 1864, 82; 1865, 73.
1036. BARYNOTUS SCHÖNHERRI, Zett.; G. R. Crotch, 1867, 86.

*Strophosomus coryli*, Fab., = *melanogrammus*, Forst.; G. R. Crotch, 1867, 119.

- \*1037. STROPHOSOMUS FULVICORNIS, Walton; 1855, 134: = *obesus*, Marsh.; Sharp Cat.
1038. STROPHOSOMUS HIRTUS, Schön.; J. Walton, 1855, 134: = *Platytarsus setulosus*, Schön.; E. C. Rye, 1869, 46; 1871, 24; 1872, 44.
- †1039. EUSOMUS OVULUM, Germ.; D. Sharp, 1872, 79.
- \*1040. SITONES GRESSORIUS, Fab.; G. R. Crotch, 1866, 99.
1041. SITONES LONGICOLLIS, Schön.; G. R. Crotch, 1867, 85.
1042. SITONES ONONIDIS, Sharp; 1867, 54: the subsequently described *guttulatus* of Chevrolat is identical with this; E. C. Rye, 1872, 80.
1043. SITONES TIBIALIS, Hbst.; J. Walton, 1855, 134.
1044. SITONES BREVICOLLIS, Schön.; D. Sharp, 1872, 80.
1045. SITONES LINEËLLUS, Gyll. (G. R. Crotch, 1864, 82: withdrawn, G. R. Crotch, 1866, 100; = *tibialis*, var.); D. Sharp, 1867, 85.
1046. SITONES WATERHOUSEI, Walton; 1855, 134.
1047. SITONES CINERASCENS, Schön.; E. C. Rye, 1866, 100: D. Sharp, 1867, 85.
1048. SITONES MELILOTI, Walton; 1855, 134.
1049. POLYDROSUS PLANIFRONS, Schön.; J. Walton, 1855, 134.
- †1050. TRACHODES HISPIDUS, Linn.; J. Walker, 1855, 137.
1051. HYPERA ELONGATA, Payk.; G. R. Crotch, 1867, 87.
1052. HYPERA JULINI, Sahlb.; G. R. Crotch, 1867, 86 (var. *alternans*, Steph., of *Pollux*).
1053. HYPERA TIGRINA, Schön.; J. Walton, 1855, 134.
1054. LIMOBIUS MIXTUS, Schön.; T. V. Wollaston (*Phytonomus id.*), 1855, 134.
1055. PROCAS GRANULICOLLIS, Walton; 1855, 135: an extreme form of *picipes*, Marsham, *nec* Fab., = for which *Stevensi*, Schön., must be adopted; G. R. Crotch, 1867, 120.  
*Larinus carlinæ*, Ol., = *ebeneus*, Marsham; G. R. Crotch, 1867, 121.
1056. LIXUS FILIFORMIS, Fab.; E. W. Janson, 1865, 75: E. C. Rye, *ibid.* 80.
- †1057. LEPYRUS BINOTATUS, Fab.; F. A. Black, 1870, 102.

- \*1058. *PISSODES PICEÆ*, Ill.; J. Walton, 1855, 136: not indigenous.
- \*1059. *PISSODES PINIPHILUS*, Hbst.; T. J. Bold, 1872, 81: not indigenous.
- \*1060. *PISSODES GYLLENHALI*, Schön.; T. J. Bold, 1872, 82: not indigenous.
1061. *ERIRHINUS (NOTARIS) SCIRPI*, Fab.; S. Stevens, 1855, 136.
1062. *ERIRHINUS (DORYTOMUS) PILLUMUS*, Schön.; J. Walton, 1855, 136.
1063. *ERIRHINUS (D.) SILBERMANNI*, Wencker; G. R. Crotch, 1869, 47.
1064. *ERIRHINUS (D.) VALIDIROSTRIS*, Schön.; S. Stevens, 1855, 136.
1065. *ERIRHINUS (D.) SALICIS*, Walton; 1855, 136.
1066. *ERIRHINUS (D.) SALICINUS*, Gyll.; T. V. Wollaston, 1855, 136.
1067. *ERIRHINUS (D.) AGNATHUS*, Dahl.; J. Walton, 1855, 136.
1068. *MECINUS COLLARIS*, Germ.; S. Stevens, 1855, 139.
1069. *BAGOÛS NODULOSUS*, Schön.; E. C. Rye (1861, 75; = *lutulentus*, var.; *id.*, 1864, 86), 1871, 48.
1070. *BAGOÛS LIMOSUS*, Gyll.; J. Walton, 1857, 82: *subcarinatus*, Schön., Wat. Cat., to be used for this; G. R. Crotch, 1864, 82; 1867, 90.
1071. ?*BAGOÛS FRIT*, Hbst.; J. Walton, 1857, 82.
1072. *BAGOÛS LUTULOSUS*, Gyll.; J. Walton, 1857, 82.
1073. *BAGOÛS TEMPESTIVUS*, Hbst.; S. Stevens, 1855, 138.
1074. *BAGOÛS NIGRITARSIS*, Thoms.; D. Sharp, 1872, 82.
1075. *BAGOÛS PETROSUS*, Hbst.; J. Walton, 1857, 82: = *limosus*, Gyll., = *laticollis*, Schön.; G. R. Crotch, 1867, 90: *limosus*, Sharp, Cat.
1076. *BAGOÛS LUTULENTUS*, Gyll., = *collignensis*, Hbst.; G. R. Crotch, 1867, 123.
1077. *BAGOÛS INCERATUS*, Gyll.; E. C. Rye, 1870, 109.
- †1078. (S)*MICRONYX JUNGERMANNIÆ*, Reich.; S. Stevens, 1855, 137.
1079. *SMICRONYX CICUR*, Reich.; J. Walton, 1857, 80.
1080. (S)*MICRONYX PYGMÆUS*, Curtis (*Pissodes? id.*); 1855, 137.
1081. *ANOPLUS ROBORIS*, Suffr.; G. R. Crotch, 1867, 89.
- †1082. *BRACHONYX INDIGENA*, Hbst.; E. W. Janson, 1861, 73.

*Balaninus glandium*, Marsh., to stand for *venosus*, Germ.;  
E. C. Rye, 1870, 104.

*Balaninus tessellatus*, Fourer., to stand for *turbatus*, Gyll.;  
E. C. Rye, 1870, 104.

1083. *BALANINUS RUBIDUS*, Gyll.; E. C. Rye, 1869, 49: considered to be the ♂ of *cerasorum*, Hbst.; F. Smith, *ibid.*: Smith's opinion incorrect; E. C. Rye, 1870, 104.
1084. *ANTHONOMUS CHEVROLATI*, Des Loges; E. C. Rye, 1870, 105.
- \*1085. *ANTHONOMUS RUFUS*, Schön.; E. C. Rye, 1870, 106 (dubious as British).
1086. *ANTHONOMUS CONSPERSUS*, Des Loges; E. C. Rye, 1870, 106.
- \*1087. *ANTHONOMUS INCURVUS*, Panz.; E. C. Rye, 1870, 106 (dubious as British).
1088. *ANTHONOMUS VARIANS*, Payk.; G. R. Crotch, 1870, 104 (the *pubescens* ? of Wat. Cat., not of Walton or Paykull).
1089. *ANTHONOMUS PUBESCENS* ? (Payk.); A. White, (J. Walton) 1855, 136: described as new, under the name of *britannus*, by Des Loges; E. C. Rye, 1870, 105.  
*Anthonomus rubi*, Hbst. A var. (queried) of this species is named *comari* by G. R. Crotch; 1870, 107: considered a distinct species in Sharp's Cat.
- †1090. *ACALYPTUS CARPINI*, Hbst.; S. Stevens, 1855, 137: = *rufipennis*, Schön.; G. R. Crotch, 1867, 122.
1091. *ORCHESTES SPARSUS*, Schön.; D. Sharp, 1872, 82.
- \*1092. *ORCHESTES RUFUS*, Ol.; J. Walton, 1857, 81: E. C. Rye, 1867, 122.
1093. *ORCHESTES IOTA*, Fab.; J. Walton, 1857, 81.
- \*1094. *ORCHESTES SEMIRUFUS*, Gyll.; H. Brisout, 1867, 89 (erroneously referred to Britain; E. C. Rye, *ibid.*).
- \*1095. *ORCHESTES PUBESCENS*, Stev.; H. Brisout, 1867, 89 (erroneously referred to Britain; E. C. Rye, *ibid.*).
- \*1096. *ORCHESTES POPULI*, Fab.; H. Brisout, 1867, 90 (erroneously referred to Britain; E. C. Rye, *ibid.*).
- \*1097. *ORCHESTES DECORATUS*, Germ.; H. Brisout, 1867, 90 (erroneously referred to Britain; E. C. Rye, *ibid.*).
1098. *ELLESCHUS SCANICUS*, Payk.; J. Walton, 1855, 136.
1099. *TYCHIUS POLYLINEATUS*, Germ.; G. R. Crotch, 1867, 88.

1100. TYCHIUS FLAVICOLLIS, Schön.; J. Walton, 1857, 80: named *Kirbii* by G. R. Waterhouse, 1863, 98: = *squamulatus*, Schön.; G. R. Crotch, 1867, 121.
1101. TYCHIUS POLYLINEATUS (Germ.); G. R. Waterhouse, 1863, 98: = *lineatulus*, Bris.; G. R. Crotch, 1867, 121.  
*Tychius junceus*, Walton, *nec* Reich., = *curtus*, Bris.; G. R. Crotch, 1867, 121.
1102. TYCHIUS NIGRIROSTRIS, Walton (but not described until May, 1862, by G. R. Waterhouse, Proc. Ent. Soc.); J. F. Dawson, 1855, 137: = *tibialis*, Schön.; G. R. Crotch, 1867, 122.
1103. TYCHIUS HÆMATOCEPHALUS, Schön.; J. Walton, 1857, 80.
1104. TYCHIUS BREVICORNIS, Waterhouse, 1863, 99: = *pygmæus*, Ch. Bris.; E. C. Rye, 1865, 75; 1866, 102; 1872, 83.
1105. SIBYNES CANUS, Linn.; E. W. Janson, 1865, 76: E. C. Rye, *ibid.*, 80.
1106. SIBYNES POTENTILLÆ, Knoch; J. F. Dawson, 1855, 137 (*Sibinia*).
1107. SIBYNES STATICES, Moncreaff, M.S.; 1870, 107 (*Sibynia*): = *sodalis*, Germ.; E. C. Rye, 1871, 48.
1108. CIONUS HORTULANUS, Marsh., revived as a distinct species; G. R. Crotch, 1867, 92.
1109. CIONUS OLENS, Fab.; E. C. Rye, 1870, 110.
1110. GYMNETRON PASCUORUM, Gyll.; A. Murray, 1855, 139.
1111. GYMNETRON VILLOSULUS, Schön.; A. Murray, 1855, 139: *G. beccabungæ*, Walt., Wat. Cat. (*nec* Linn.), is identical with this sp.; G. R. Crotch, 1866, 111.
1112. GYMNETRON VERONICÆ (Germ.); S. Stevens, 1855, 139: = *beccabungæ*, Linn. (*nec* Walton, Wat. Cat.); G. R. Crotch, 1866, 112.
- \*1113. GYMNETRON NIGER, Germ.; T. V. Wollaston, 1855, 139: = *beccabungæ*, Linn. (*nec* Walt., W. C.), *var. veronicæ*; G. R. Crotch, 1866, 112.
1114. GYMNETRON ROSTELLUM, Hbst.; J. F. Dawson, 1855, 139.
1115. GYMNETRON NOCTIS, Hbst.; A. R. Hogan, 1855, 139.
1116. GYMNETRON COLLINUS, Gyll. (*nec* Steph.); J. Walton, 1857, 83.
1117. GYMNETRON MICROS, Germ.; G. R. Crotch, 1866, 112.
1118. GYMNETRON (MIARUS) PLANTARUM, Schön.; J. Walton, 1857, 83.

*Acalles misellus*, Schön., is a small form of *turbatus*, Schön., which name should be used; G. R. Crotch, 1867, 123.

1119. CÆLIODES SUBRUFUS, Hbst.; J. Walton, 1857, 82.  
*Cæliodes fuliginosus*, Marsh., Wat. Cat., must stand for *C. guttula*, Wat. Cat., *nee* Fab.; G. R. Crotch, 1866, 102.
1120. CÆLIODES EXIGUUS, Ol.; G. R. Crotch, 1866, 102.
- \*1121. CEUT(H)ORHYNCHUS ULIGINOSUS, Schön.; J. Walton, 1857, 82: = *Cæliodes didymus*, F.; G. R. Waterhouse, 1863, 99: G. R. Crotch, 1866, 104.
1122. CEUTHOTHYNCHUS SUTURALIS, Fab.; J. A. Power, 1867, 91.
1123. CEUTHORHYNCHUS SYRITES, Germ.; G. R. Waterhouse, 1861, 74: *inaffectatus*, Schön., *nee* Wat. Cat., is identical with this; G. R. Crotch, 1866, 107.  
*Ceuthorhynchus contractus*, Marsh., *var.?* *pallipes*; G. R. Crotch, 1867, 123.
1124. CEUT(H)ORHYNCHUS SETOSUS, Schön.; T. V. Wollaston, 1855, 138 (*Nedyus setiger*).
1125. CEUT(H)ORHYNCHUS VIDUATUS, Gyll.; A. White, 1855, 138: E. C. Rye, 1863, 114.
1126. CEUT(H)ORHYNCHUS URTICÆ, Schön.; T. V. Wollaston, 1855, 138.  
*Ceuthorhynchus chrysanthemi*, Wat. Cat., = *campestris*, Gyll.; G. R. Crotch, 1866, 104.
1127. CEUTHORHYNCHUS VICINUS, Ch. Brisout; G. R. Crotch, 1866, 104: = *triangulum*, Boh.; E. C. Rye, 1871, 49: not a *Ceuthorhynchideus*; *id.*, 1872, 39.  
*Ceuthorhynchus melanostigma*, Marsh., = *rugulosus*, Hbst., which should be used, to avoid confusion with *melanostictus*; G. R. Crotch, 1866, 104.
1128. CEUTHORHYNCHUS ARCUATUS, Hbst.; E. C. Rye, 1870, 110.
1129. CEUT(H)ORHYNCHUS AUBEI, Schön.; J. F. Dawson (originally as *Nedyus erux*, Walt., MS.), 1855, 138: not *Aubei*, Schön.; J. Walton, 1857, 82: *erux*, Walton, M.S.; E. C. Rye, 1866, 103: = *euphorbiæ*, Ch. Bris., M.S.; G. R. Crotch, 1866, 103: reference to description; E. C. Rye, 1868, 72.
1130. CEUT(H)ORHYNCHUS CRASSIDENTATUS (not yet described); J. Walton, 1857, 82.
- \*1131. CEUTHORHYNCHUS DISTINCTUS, Ch. Bris.; E. C. Rye, 1871, 49: = *marginatus*, Payk., *var.*
1132. CEUTHORHYNCHUS ROTUNDATUS, Ch. Bris.; D. Sharp, 1872, 84.

1133. CEUTHORHYNCHUS PUNCTIGER, Gyll.; G. R. Crotch, 1866, 105.
1134. CEUT(H)ORHYNCHUS HISPIDULUS (not *yet* described); J. Walton, 1857, 82: = *pilosellus*, Gyll.; G. R. Crotch, 1866, 107.
1135. CEUT(H)ORHYNCHUS BIGUTTATUS, Schön.; J. Walton, 1857, 82: F. P. Pascoe, 1863, 99: = *verrucatus*, Gyll.; G. R. Crotch, 1866, 106.
1136. CEUTHORHYNCHUS DEPRESSICOLLIS (Gyll.); T. V. Wollaston, 1855, 138 (*Nedys impressicollis*, Little): not *depressicollis*, Gyll.; J. Walton, 1857, 82: = *angulosus*, Boh.; G. R. Crotch, 1866, 106.
1137. CEUTHORHYNCHUS TARSALIS, Schön.; G. R. Waterhouse, 1861, 74: = *picitarsis*, Gyll.
1138. CEUTHORHYNCHUS INORNATUS, Waterh.; 1863, 100: = *alliarie*, Bris.; G. R. Crotch, 1866, 107.
1139. CEUT(H)ORHYNCHUS RAPÆ, Gyll.; S. Stevens (originally, in error, as *Nedys syrites*, Germ.), 1855, 138: *inaffectatus*, Wat. Cat., *nee* Schön., is to be referred to this sp.; G. R. Crotch, 1866, 107.
1140. CEUT(H)ORHYNCHUS CYANIPENNIS, Ill.; R. N. Greville, 1855, 138: = *sulcicollis*, Payk., the *sulcicollis* of Gyll., Wat. Cat., being *pleurostigma*, Marsh., *see* Thomson; E. C. Rye, 1872, 29.
1141. CEUT(H)ORHYNCHUS HIRTULUS, Germ.; J. F. Dawson, 1855, 138.
- 1142.? CEUTHORHYNCHUS SUTURELLUS, Schön.; W. Tylden, 1867, 91.
1143. CEUT(H)ORHYNCHUS CHALYBÆUS, Germ.; J. Walton, 1857, 82.
1144. CEUTHORHYNCHIDEUS HEPATICUS, Gyll.; G. R. Crotch, 1866, 108.
1145. CEUTHORHYNCHIDEUS PULVINATUS, Gyll.; D. Sharp, 1872, 83.
1146. CEUTHORHYNCHIDEUS POWERI, Rye; 1865, 76 and 80: = *pumilio*, Gyll.; *id.*, 1866, 109.
1147. CEUTHORHYNCHIDEUS (AMALUS) MINIMUS (not described); J. Walton, 1857, 83: G. R. Waterhouse, 1863, 100: E. C. Rye, 1866, 108 (Walton's description published).
1148. CEUTHORHYNCHIDEUS CHEVOLATII, Ch. Bris., M.S.; G. R. Crotch, 1866, 109: apparently not *yet* described.
1149. CEUTHORHYNCHIDEUS FRONTALIS, Ch. Bris., M.S.; G. R. Crotch, 1866, 110 (described by M. Brisout in "L'Abeille," v, 1868, p. 438).



1150. CEUTHORYNCHIDEUS DAWSONI, Ch. Bris., M.S.; G. R. Crotch, 1866, 110 (the *pygmaeus*, Guyon, M.S., of our collections): described by M. Brisout as mentioned in notice of last species.
1151. CEUTHORYNCH(IDE)US NIGROTERMINATUS, Woll.; G. R. Crotch, 1866, 106.  
*Ceuthorynch(ide)us quercicola*, Wat. Cat., nec Fab., = *versicolor*, Ch. Bris., M.S.; G. R. Crotch, 1866, 105 (is a *Ceuthorynchideus*; E. C. Rye, *ibid.*): 1867, 123: reference to description; E. C. Rye, 1868, 71.
1152. CEUTHORYNCH(IDE)US CROTCHI, Ch. Bris.; E. C. Rye, 1872, 83.
- †1153. TAPINOTUS SELLATUS, Fab.; T. V. Wollaston, 1855, 138: E. C. Rye, 1871, 25.
1154. PHYTOBIUS VELARIS, Beck; S. Stevens (*Pachyrhinus villaris*), 1855, 137: = *relatus*, Beck.
1155. PHYTOBIUS (PACHYRHINUS) CANALICULATUS, Schön.; J. Walton, 1857, 81: = *notula*, Germ.
1156. PHYTOBIUS WALTONI, Schön.; T. V. Wollaston, 1855, 137.
1157. PHYTOBIUS (PACHYRHINUS) 4-NODOSUS, Gyll. (*nec* Wat. Cat.); J. A. Power, 1867, 91.  
*Rhinoncus (Pachyrhinus) 4-nodosus*, Wat. Cat., nec Gyll., = *denticollis*, Schön.; J. A. Power, 1867, 91.
1158. RHINONCUS BRUCHOIDES, Hbst.; T. V. Wollaston, 1855, 138.  
*Baris abrotani*, Germ., to be used for the prior *picicornis*, Marsh., on account of a possible confusion by the latter author with *B. lepidii*; G. R. Crotch, 1867, 122.
1159. BARIS LEPIDI, Germ.; E. W. Janson, 1857, 80 (with characters of *B. picicornis*, Msh.; *l. c.*, 81).
1160. BARIS CHLORIZANS, Germ.; D. Sharp, 1872, 84.
1161. BARI(DIU)S SCOLOPACEUS, Germ.; G. C. Champion, 1871, 48 (*vestitus*, Ferris).
1162. SITOPHILUS ORYZÆ, Linn.; G. R. Waterhouse, 1863, 100: *Calandra*, *id.*, Sharp, Cat.
- †1163. PENTARTHURUM HUTTONI, Wollaston; 1855, 139.
- 1164.?PHLÆOPHAGUS SPADIX, Herbst; J. Walton, 1857, 83: 1872, 45.
1165. RHYNCOLUS TRUNCORUM, Germ.; E. W. Janson, 1858, 75.
1166. RHYNCOLUS GRACILIS, Rosenh.; D. Sharp, 1872, 84.
1167. MAGDALI(NU)S PHLEGMATICUS, Hbst.; A. White, 1855, 136.

1168. MAGDALINUS DUPLICATUS, Germ.; R. Hislop, 1869, 47.
1169. MAGDALINUS HEYDENI, Desbr.; D. Sharp, 1872, 85.
1170. MAGDALINUS BARBICORNIS, Latr.; G. R. Crotch, 1867, 88.
1171. APION CERDO, Gerst.; D. Sharp, 1869, 43.
1172. APION SCROBICOLLE, Gyll.; E. C. Rye, 1870, 102: unknown everywhere.
1173. APION ANNULIPES, Wenck.; E. C. Rye, 1872, 85.
1174. APION GERMARI, Walton; 1855, 133: = *semivittatum*, Gyll.
1175. APION CURTISII, Curtis; 1855, 133.
1176. APION DISSIMILE, Schön.; S. Stevens, 1855, 133.
1177. APION SCHÖNHERRI, Schön.; S. Stevens, 1855, 133.
1178. APION BOHEMANNI, Schön.; D. Sharp, 1866, 98 (*ononidis*, Gyll.): *ononidis* to be retained; D. Sharp, 1867, 118: both names objectionable, and *ononicola*, Bach, suggested; E. C. Rye, *ibid.*
1179. APION AFER, Schön.; A. Murray, 1855, 133: = *platalva*, Germ.
1180. APION LIVESCERUM, Schön.; J. Walton, 1855, 134 (*A. hedysari*, Walt.; T. V. Wollaston).
- \*1181. APION PAVIDUM, Germ.; J. Walton, 1855, 134: E. C. Rye, 1872, 40.
1182. APION MINIATUM, Schön.; A. R. Hogan, 1855, 133.
1183. APION CRUENTATUM, Walton; 1855, 133.
1184. APION SANGUINEUM, De G.; J. Walton, 1855, 133.
1185. APION SEDI, Germ.; J. F. Dawson, 1855, 134.
1186. RHYNCHITES BACCHUS, Linn.; J. Walton, 1855, 133.  
*Rhynchites purpureus*, Linn., to stand for *æquatus*, Linn.; G. R. Crotch, 1871, 20.  
*Rhynchites interpunctatus*, Steph., to stand for *alliariæ*, Schön.; G. R. Crotch, 1871, 20.
1187. RHYNCHITES UNCINATUS, Thoms.; G. R. Crotch, 1867, 84: = *planirostris*, Fab.; *id.*, 1870, 20.
1188. HYLASTES CUNICULARIUS, Er.; E. W. Janson, 1861, 75.
1189. HYLASTES ANGUSTATUS, Hbst. (G. R. Crotch, 1864, 82; ? = *palliatum*, Gyll.); E. C. Rye, 1865, 77.

*Hylastes palliatus*, Gyll., = *rufus*, Marsham; G. R. Crotch, 1867, 123.

1190. HYLURGUS MINOR, Hart.; D. Sharp, 1872, 86.
- †1191. CISSOPHAGUS HEDERÆ, Schm.; E. C. Rye, 1872, 86.
- †1192. XYLECHINUS PILOSUS, Ratz.; E. C. Rye, 1872, 86.
- \*†1193. PHLÆOTRIBUS OLEÆ, Fab.; J. O. Westwood, 1872, 43: not indigenous.
- †1194. POLYGRAPHUS PUBESCENS, Fab.; E. C. Rye, 1872, 87.
1195. SCOLYTUS RATZEBURGII, Janson (*Eccoptogaster nov. spec.*, S. Stevens), 1856, 86; and synonymy of *S. destructor*, Ol.; *ib.*, 89.
1196. SCOLYTUS PRUNI, Ratz.; E. W. Janson, 1860, 116.
1197. SCOLYTUS RUGULOSUS, Ratz.; E. W. Janson, 1858, 76.
1198. TRYPODENDRON (XYLOTERUS) QUERCÛS, Eichh.; D. Sharp, 1867, 93.
1199. TRYPODENDRON (XYLOTERUS) LINEATUM, Ol.; E. W. Janson, 1855, 139 (*Bostrichus Waringii*, Curtis): = *quercûs*, Eichh.; D. Sharp, 1867, 93, who records the true *lineatum*, *ibid.*: E. C. Rye, 1868, 72.
1200. CRYPHALUS GRANULATUS, Ratz.; D. Sharp, 1872, 88.
1201. CRYPHALUS TILLÆ, Fab.; J. A. Power, 1866, 113.
- †1202. CRYPHALUS BINODULUS, Ratz.; E. W. Janson, 1857, 83.
1203. CRYPHALUS PICEÆ, Ratz.; A. Matthews, 1863, 101.
1204. CRYPHALUS ABIETIS, Ratz.; E. W. Janson, 1861, 76; E. C. Rye, 1863, 115: = *asperatus*, Gyll.; G. R. Crotch, 1867, 124.
1205. CRYPHALUS FAGI, Fab.; E. W. Janson, 1861, 76.  
*Tomicus flavus*, Wilkin, = *dryographus*, Er., immat.; E. C. Rye, 1869, 52,
1206. XYLEBORUS (TOMICUS) SAXESENII, Ratz.; E. C. Rye, 1859, 142.
1207. DRYÆCETES (T.) AUTOGRAPHUS, Ratz.; E. C. Rye, 1870, 111.
1208. DRYÆCETES (T.) MARSHAMI, Rye: 1869, 50 (? *fuscus*, Marsh., *nec bicolor*, Hbst.): = *alni*, Georg; D. Sharp, 1871, 51.
1209. DRYÆCETES (T.) CORYLI, Perris; E. C. Rye, 1869, 51.
- \*1210. DRYÆCETES (T.) LICHTENSTEINII, Ratz.; G. R. Crotch, 1867, 93: withdrawn, G. R. C., *ibid.*
1211. DRYÆCETES (T.) BICOLOR, Hbst; G. C. Champion, 1871, 50.

1212. PITYOPHTHORUS (T.) QUADRIDENS, Hartig; D. Sharp, 1867, 93.
- †1213. XYLOCLEPTES (BOSTRICHUS) BISPINUS, Ratz. (G. Guyon, 1856, 86; = *bidens*, E. W. Janson, 1858, 75): T. J. Bold, 1858, 75.
1214. TOMICUS NIGRITUS, Gyll.; D. Sharp, 1871, 50.
1215. TROPIDERES SEPICOLA, Hbst.; E. W. Janson, 1857, 84.  
*Phlæobius griseus*, Fab.; G. R. Crotch, and T. J. Bold, 1872, 40: again recorded from Britain; but not indigenous.
1216. BRUCHUS CANUS, Germ.; J. A. Power, 1870, 101: 1872, 45.
1217. BRUCHUS PISI, Linn.; J. Walton, 1855, 132.
- 1218.?BRUCHUS FLAVIMANUS, Schönh.; J. Walton, 1855, 132: = *affinis*, Fröhl.
1219. BRUCHUS LUTEICORNIS, Ill.; J. Walton, 1855, 133.
1220. BRUCHUS NUBILUS, Boh.; J. A. Power, 1870, 101.
1221. BRUCHUS VICIÆ, Ol.; J. A. Power, 1870, 100.
1222. BRUCHUS LENTIS, Boh.; J. A. Power, 1870, 100.
- \*1223. BRUCHUS CISTI, Payk.; G. R. Crotch, 1864, 82: = *ater*, Marsh., *villosus*, Fab.; E. C. Rye, *ibid*.
- †1224. URODON RUFIPES, Fab.; D. Sharp, 1872, 89.

## LONGICORNIA.

- \*1225. CALLIDIUM LURIDUM, Fab.; — Hindley, 1855, 140: not indigenous.
1226. LEPTURA RUFÆ, Brullé; D. Sharp, 1866, 114.

## PHYTOPHAGA.

1227. DONACIA OBSCURA, Gyll.; G. R. Waterhouse, 1860, 116.  
*Donacia lævicollis*, Thoms., = *sericea*, Linn.; E. C. Rye, 1870, 111.
1228. DONACIA COMARI, Suffr.; E. W. Janson, 1861, 77: = *aquatica*, Linn.; G. R. Waterhouse, 1863, 101: is the *geniculata* of Thomson; E. C. Rye, 1870, 111.
1229. ZEUGOPHORA TURNERI, Power; 1864, 70: = *scutellaris*, Suffr. *var.*; G. R. Crotch, 1867, 124.

1230. LEMA ERICHSONII, Suffr.; G. R. Waterhouse, 1859, 142: ? = *melanopa*, Linn., var.; G. R. Crotch, 1867, 124.
- \*1231. CRIOCERIS DODECASTIGMA, Suffr.; G. R. Waterhouse, 1861, 77 (= 12-punctata, var.; E. W. Janson, *ibid.*).
1232. CLYTHRA LÆVIUSCULA, Ratz.; G. R. Crotch, 1864, 82; 1865, 77.  
*Eumolpus pygmæus* (*Dillwynii*, Steph.) discussed as possibly indigenous; 1869, 7.
- \*1233. EUMOLPUS HOBSONI, Curtis; 1855, 140: ? = *Chrysomela lamina*, var.
1234. CRYPTOCEPHALUS IMPERIALIS, Fab.; G. R. Waterhouse, 1859, 143.
- \*1235. CRYPTOCEPHALUS VARIABILIS, Schneid.; G. R. Waterhouse, 1859, 143.
- \*1236. CRYPTOCEPHALUS VIOLACEUS, Linn.; G. R. Crotch, 1867, 94.
1237. CRYPTOCEPHALUS 10-PUNCTATUS, Linn., and var. *bothnicus*, L.; E. C. Rye & D. Sharp, 1866, 114.  
*Cryptocephalus flavilabris*, Wat. Cat., *nec* Payk., = *fulcratus*, Germ.; G. R. Crotch, 1867, 124.
- \*1238. CRYPTOCEPHALUS VITTATUS, Fab.; G. R. Crotch, 1867, 94.  
*Cryptocephalus bipustulatus*, Fab., corroborated as a good species; E. C. Rye, 1871, 23.
- \*1239. CRYPTOCEPHALUS GRACILIS, Fab.; G. R. Crotch, 1864, 82.
1240. CRYPTOCEPHALUS WASASTJERNII, Gyll.; G. R. Crotch, 1864, 72 (*Wasastjernæ*); 1871, 24 & 25.
1241. CRYPTOCEPHALUS QUERCETI, Suffr.; E. C. Rye, 1867, 94.
- \*1242. CHRYSOMELA SPARSHALLI, Curtis; 1855, 140: a Sicilian species, which, according to Hope and Dohrn, = *variolosa*, Petagna.  
*Chrysomela distinguenda*, Steph. [from which *lucidicollis*, Küst., seems scarcely separable], is united as a "sub-species" to *sanguinolenta*, Linn.; G. R. Crotch, 1868, 72.
1243. CHRYSOMELA MARGINALIS, Dufts.; A. Murray, 1855, 140.  
*Chrysomela hyperici*, Forst., should be used for *fucata*, Fab.; G. R. Crotch, 1868, 73.  
*Lina tremulæ*, Wat. Cat., *nec* Fab., = *longicollis*, Suffr.; G. R. Crotch, 1868, 73. *L. tremulæ*, Fab., is included in Dr. Sharp's Catalogue, in addition to *longicollis*, Suffr.; this is not noticed in the *errata* or *addenda*, but is presumably so inserted by accident.

1244. GONIOCTENA AFFINIS, Gyll.; C. O. Waterhouse, 1866, 115.  
*Phædon betulæ*, Linn., to be used for *armoraciæ*, Linn.; G. R. Crotch, 1868, 73.  
*Phædon cochleariæ*, Ol., to be used for *betulæ*, Wat. Cat.; G. R. Crotch, 1868, 73.
1245. PHYLLODECTA (PHRATORA) CAVIFRONS, Thoms.; D. Sharp, 1869, 52.
1246. ADIMONIA SUTURALIS, Thoms.; G. R. Crotch, 1869, 52.  
*Lyperus rufipes*, Wat. Cat., *new* Fab., = *betulinus*, Fourer.; G. R. Crotch, 1868, 73.  
*Graptodera*. Observations on the British species; 1869, 55.
1247. HALTICA (GRAPTODERA) AMPELOPHAGA, Guér.; G. R. Waterhouse, 1863, 101 (*coryli*, Crotch, Cat.); corroborated as *ampelophaga* by Kutschera; 1869, 54.
1248. HALTICA (G.) ERICETI, All.; G. R. Crotch, 1867, 94.
- \*1249. HALTICA (G.) LONGICOLLIS, All.; G. R. Crotch, 1867, 95: = *pusilla*, Dufts., *var.*; Kutschera, 1869, 54: = *ericeti*, All., ♂; D. Sharp, 1869, 55.  
*Haltica (G.) oleracea*, Wat. Cat., = *pusilla*, Dufts.; G. R. Crotch, 1864, 82; 1865, 78.
- \*1250. HALTICA (G.) MONTANA, Foudr.; G. R. Waterhouse, 1869, 53: = *pusilla*, Dufts., *var.*; E. C. Rye, *ib.*, 54.
1251. HALTICA (G.) HELIANTHEMI, All.; G. R. Crotch, 1867, 95: ? = *pusilla*, Dufts.
1252. CREPIDODERA CHLORIS, Foudr.; G. R. Crotch, 1863, 101.
1253. CREPIDODERA (HALTICA) PUBESCENS, Ent. H.; H. Clark, 1855, 140.
1254. CREPIDODERA ATROPÆ, Foudr.; E. W. Janson, 1861, 79.
1255. CREPIDODERA VENTRALIS, Ill.; G. R. Waterhouse, 1863, 102.  
*Mantura chrysanthemi*, *var. Crotchii*, All.; E. C. Rye, 1868, 74.
1256. PODAGRICA (HALTICA) FUSCIPES, Fab.; A. Murray, 1855, 140.
1257. APHTHONA NIGRICEPS, W. Redt.; E. C. Rye, 1865, 78.  
*Aphthona pseudacori*, Marsh., = *cærulea*, Payk.; G. R. Crotch, 1864, 82; Marsham's insect = *violacea*, Ent. H.; E. C. Rye, *ibid.*: the latter opinion erroneous; G. R. Crotch, 1868, 74; Marsham's insect is *cærulea*, *var.*; G. R. Waterhouse, 1869, 4.

- Aphthona venustula*. Kuts., to stand for *euphorbiæ*, Wat. Cat.; Kutschera, 1869, 5.
- Aphthona cyanella*, Redt., to stand for *atrocærulea*, Wat. Cat.; Kutschera, 1869, 5.
1258. APHTHONA ATRATULA, All.; G. R. Crotch, 1867, 95.  
*Phyllotreta antennata*, Ent. H. (1803), to stand for *nodicornis*, Marsh. (1802); Kutschera, 1869, 5.
1259. PHYLLOTRETA PÆCIOCERAS, Comolli; G. R. Waterhouse, 1863, 102; *obscurella*, Ill., to stand for this; Kutschera, 1869, 5.
1260. PHYLLOTRETA VITTULA, Redt.; G. R. Waterhouse, 1863, 102.
1261. PHYLLOTRETA FLEXUOSA, Ent. H.; G. R. Crotch, 1867, 95.  
*Plectroscelis Sahlbergii*, Wat. Cat., *nec* Gyll.; = *subcærulea*, Kuts.; G. R. Crotch, 1867, 96; 1869, 5.
1262. PLECTROCELIS SAHLBERGII, Gyll. (*nec* Wat. Cat.); G. R. Crotch, 1867, 96.
1263. PLECTROCELIS ARIDULA, Gyll.; G. R. Crotch, 1864, 83; 1865, 79.
1264. THYAMIS NIGRA, Ent. H.; G. R. Crotch, 1864, 82; 1867, 125.
1265. THYAMIS OBLITERATA, Rosenh.; G. R. Waterhouse, 1863, 102.
1266. THYAMIS ABSINTHII, Kuts.; G. R. Crotch, 1867, 96.  
*Thyamis brunnea*, Wat. Cat.; G. R. Crotch, 1868, 74; 1869, 5: = *castanea*, Foudras; G. R. Crotch, 1867, 96; 1868, 74; 1869, 5.
1267. THYAMIS BRUNNEA, Redt.; G. R. Crotch, 1864, 82.  
*Thyamis lurida*, Scop.; characters of: 1869, 57.
1268. THYAMIS FUSCULA, Kuts.; C. O. Waterhouse, 1867, 97.  
*Thyamis thoracica* (Steph.), All., to stand for *fuscicollis*, Steph.; Kutschera, 1869, 5.
1269. THYAMIS LATERALIS (Ill.); G. R. Crotch, 1864, 82 (the *T.* 26 *sp.*—? of Wat. Cat.): = *patruelis*, All.; G. R. Crotch, 1867, 96; E. C. Rye, 1868, 74: = *lateralis*, Ill., *var.*; Kutschera, 1869, 60 (in error).
1270. THYAMIS ATRICEPS, Kuts.; G. R. Crotch, 1867, 96: requires re-naming, on account of the long prior *atriceps* of Stephens; and may be called *Kutscheræ*.  
*Thyamis atricapilla*, All., referred by Foudras, Kutschera and Allard, to *piciceps*, Steph. (in error, *picipes*); E. C. Rye, 1868, 76: named *Foudrasi* by G. R. Crotch; 1872, 91.

1271. THYAMIS LYCOPI, Foudr.; G. R. Waterhouse, 1863, 103.  
*Thyamis femoralis*, Marsh., to stand for *exoleta*, Wat. Cat.; Kutschera, 1869, 5.
1272. THYAMIS CERINA, Foudr.; E. C. Rye, 1872, 90.
1273. THYAMIS WATERHOUSEI, Kuts.; C. O. Waterhouse, 1867, 97:  
E. C. Rye, 1869, 58 (erroneously stated by Thomson to be *pratensis*, Panz.).
- \*1274. THYAMIS FERRUGINEA (Foudr.); G. R. Crotch, 1864, 83: =  
*Waterhousei*, Kutsch.; E. C. Rye, 1869, 60.  
*Thyamis pratensis*, Auct.; observations on: 1869, 59.
1275. THYAMIS REICHEI, All.; G. R. Waterhouse, 1863, 103.
1276. THYAMIS MEDICAGINIS, All.; G. R. Crotch, 1867, 96.
1277. THYAMIS AGILIS, Rye; 1869, 56: 1872, 90.
1278. THYAMIS RUTILA, Ill. (G. R. Crotch, 1864, 83; 1865, 79: =  
*jacobæ*, Wat.); E. C. Rye, 1872, 89.
1279. THYAMIS GRACILIS, Kuts.; C. O. Waterhouse, 1867, 97.
- \*1280. THYAMIS POWERI, All.; E. C. Rye, 1868, 75: = *gracilis*, All.,  
*var.*; E. C. Rye, 1869, 58.
1281. THYAMIS (LONGITARSUS) APICALIS, Waterh., M.S.; T. V.  
Wollaston, 1855, 140: = *lævis*, Dufts.
1282. THYAMIS PELLUCIDA, Foudr.; G. R. Waterhouse, 1863, 103.  
*Thyamis rubiginosa*, Foudr., to stand for *flavicornis*, Wat. Cat.;  
Kutschera, 1869, 5.
1283. THYAMIS MINUSCULA (Foudr.); G. R. Waterhouse, 1863, 102:  
= *teuerii*, All., = *membranacea*, Foudr.; E. C. Rye, 1868,  
75; 1869, 5.
- \*1284. THYAMIS CANESCENS (Foudr.); G. R. Crotch, 1864, 83: =  
*membranacea*, Foudr.; Kutschera, 1869, 58.
- \*1285. PSYLLIODES NIGRICOLLIS, Marsh., revived; G. R. Crotch, 1867,  
98: = *chrysocephala*, Linn., *var.*; E. C. Rye, *ibid.*; 1869, 61.
1286. PSYLLIODES LURIDIPENNIS, Kuts.; C. O. Waterhouse, 1867,  
98 (the *Psylliodes* 6 *sp.*—? of Wat. Cat.).
1287. PSYLLIODES CUPRONITENS, Först.; G. R. Waterhouse, 1863,  
103: *cuprea*, Ent. H., to stand for this; Kutschera, 1869, 5.
1288. PSYLLIODES PICIPES (Redt.); G. R. Waterhouse, 1863, 103:  
E. C. Rye, 1864, 32: = *instabilis*, Foudr.; Kutschera, 1869,  
5: ? = *cuprea*, Ent. H. (*herbacea*, All.); E. C. Rye, 1869, 61.  
*Psylliodes affinis*, Payk., to stand for *atricilla*, Wat. Cat.;  
Kutschera, 1869, 5.



- \*1289. *MACROCNEMA SPERGULÆ*, Gyll.; R. N. Greville, 1855, 140:  
= *Psylliodes cucullata*, Ill. (noticed by Allard as occurring  
in all parts of Europe; E. C. Rye, 1868, 76).  
*Dibolia occultans*, Hoffm., erroneously attributed to England by  
Allard; E. C. Rye, 1868, 76.  
*Apteropeda orbiculata*, Marsh., to stand for *graminis*, Wat. Cat.;  
Kutschera, 1869, 5.
1290. *APTEROPEDA SPLENDIDA*, All.; G. R. Waterhouse, 1863, 103.  
*Sphaeroderma testacea*, Fab., to stand for *centaureæ*, Wat. Cat.;  
Kutschera, 1869, 4: cf. E. C. Rye, *ib.*, 62.  
*Sphaeroderma cardui*, Gyll., to stand for *testacea*, Wat. Cat.;  
Kutschera, 1869, 4; cf. E. C. Rye, *ib.*, 62.
- \*1291. *HALTICA DISPAR*, Rudd; 1855, 140.

## PSEUDOTRIMERA.

- Triplax ruficollis*, Lac., *nee* Steph., re-named *Lacordairii*:  
G. R. Crotch, 1868, 77: corroborated as indigenous; *ibid.*, and  
1871, 24 and 25.  
*Hispa atra*, Linn., discussed as indigenous; 1869, 6.
1292. *CASSIDA CHLORIS*, Suffr.; D. Sharp, 1872, 91.  
*Cassida ferruginea*, Fab., discussed as indigenous; 1869, 6.
1293. *COCCINELLA LABILIS*, Muls.; J. F. Stephens, 1855, 140.  
*Coccinella 12-guttata*, F., truly British; G. R. Crotch, 1868, 77.
- \*1294. *SCYMNUS FASCIATUS*, Fourcr.; G. R. Waterhouse, 1863, 103.
- \*1295. *SCYMNUS QUADRILUNULATUS*, Ill.; G. R. Waterhouse, 1864,  
72: E. C. Rye, 1872, 40.
1296. *SCYMNUS MULSANTI*, Waterh.; 1863, 103.
- \*1297. *SCYMNUS ANALIS*, Fab.; A. Murray, 1855, 140.
1298. *SCYMNUS LIVIDUS*, Bold; 1872, 91.

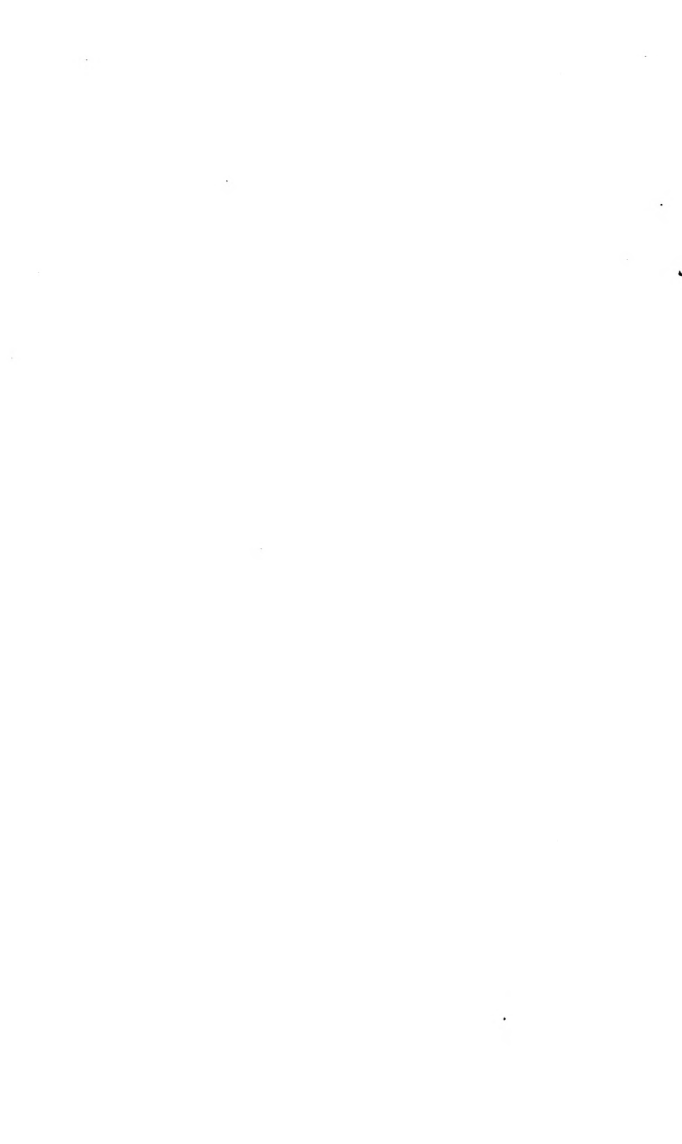
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I regret that, owing to the length of this list, and the short time available for its production, one or two slight errors in numbering the species have been detected, too late to permit a correction in that respect of the introductory remarks; which, however, remain sufficiently practically correct as to average.

E. C. R.

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1881

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## EXPLANATION OF PLATE.

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- Fig. 1. *Crambus verellus*, Zincken, see page 42.  
2. *Zelleria fuscipennella*, Logan, see page 48.  
3. *Z. sazifragæ*, Stainton, see page 48.  
4. *Lymexylon navale*, Linné, see page 4.  
5. *Athous difformis*, Lacordaire, see page 3.  
6. *Tychius hæmatocephalus*, Schönherr, see page 7.  
7. *Smicronyx Reichei*, Gyllenhal, see page 30.
- 

The Editor deeply regrets the unavoidable delay in the appearance of the present Volume of "THE ANNUAL."

February 14th, 1873.

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## COLEOPTERA.

---

NEW BRITISH SPECIES, CORRECTIONS OF NOMENCLATURE, ETC., NOTICED SINCE THE PUBLICATION OF THE ENTOMOLOGIST'S ANNUAL, 1872.

BY E. C. RYE.

THE reaction inevitably following any great effort has set in during the past year; and against the 60 good species, &c., added to our list in the last "Annual," I have now only to set 25, all of genera well known to us, and from which 4 must be subtracted as either certainly or probably representing species already recorded as British (viz., an *Ilybius* and *Olibrus*, which will most likely be found to be mere corrections of names, a *Hydnobius* erroneously identified, and a *Meloë* which seems to resolve itself into an outrageous form of the common oil-beetle, but which is nevertheless most interesting, as its by no means most *outré* form has been recognized as a species).

Of the remaining 21, 8 have been described as new to science (one of them representing an insect already in our list), another is yet undescribed, and four (*Lithocharis picea*, *Anisotoma brunnea*, *Nanophyes gracilis* and *Scymnus arcuatus*) are especially interesting, owing to their unexpected appearance in this country or universal rarity, and in the case of the *Anisotoma*, to the light thrown by the capture upon the value of the species.

These 25 species have, alas! to be credited to even a smaller number of workers (9) than last year, having been recorded by Dr. Sharp (5, two new), Mr. Wollaston (2, one 1873.

new), Mr. Champion (1), and myself (17, five new, and one still undescribed).

Our motto must be now changed to "*Festina lente.*"

Some old familiar names will be missed, as the band of workers contracts; and we can only hope that, as the hunting-ground afforded by the British Islands is evidently still far from exhausted, others may arise to take their place. Of these, however, at present, there seems but scanty indication. Perhaps, the weaker brethren may be kept back by the present oppressive system of nomenclature; if this be so, and should success follow the attempt now being made to base that system upon one of the simple and lucid rules of our common law, what a crop of workers may we not soon expect?

I preface my present record of the additions to our list by such notices of captures, æconomy, changes of nomenclature, and literature as are likely to be of interest to the student of British Coleoptera.

From flood refuse, Mr. Champion has recorded *Agriotes sordidus* at Hampton and Chatham, *Ptenidium atomaroides* (hitherto unique as British), *Homalota Eichhoffi*, *Ilyobates forticornis*, *Stenus opacus*, and other good things at Walton-on-Thames, *Scydmaenus pusillus* (also at Walton and Tottenham under similar conditions, and at Chatham, in moss), at Staines, and *Lathrobium pallidum* at Arundel.

Mr. Champion has also found *Homalota elegantula* in moss, *Aphanisticus pusillus*, *Deleaster* on the wing, *Aphodius arenarius*, abundant in *stercore*, and *Ceuthorhynchus urticæ* (also at Caterham) on nettle, at Arundel; *Scydmaenus rubicundus* and *Acidota cruentata* at Shirley sand-pits, *Dyschirius elongatulus* and *Ceuthorhynchus vicinus* at Deal, *Lathridius testaceus* at Peckham, *Bruchus canus* at Brighton (again on *Onobrychis sativa*), *Cassida vittata*,

*Corticaria cylindrica* and *Trachyphleus spinimanus* commonly (the latter at roots of *Helianthemum vulgare*, on the chalk hills), near Chatham; *Mycetoporus nanus*, *Staphylinus latebricola*, *Colon Zebei*, *Salpingus æratus*, *Platytarsus setulosus* and *Apion annulipes* at Caterham; *Homalota elegantula*, *Stenus lustrator*, *Synckita juglandis* (recorded as *mediolanensis*), *Trachys troglodytes*, *Læmophleus bimaculatus*, *Diplocelus fugi*, *Microrhagus*, *Athous rhombeus*, *Tychius 5-punctatus*, and other good things, especially *Dasytes niger* in quantity, in the New Forest, near Bocken-hurst (Mr. O. Janson, at the same place, but with wet weather, has also found many of these species); and he has also discovered the head-quarters of *Baridius scolopaccus* in the Isle of Sheppy, having taken many specimens by sweeping *Atriplex portulacoides* and other salt-marsh plants in August.

To the Rev. H. S. Gorham have occurred *Bembidium 4-pustulatum* and *Sturmii*, and *Stenus morio* (hitherto almost unique as British), near Horsham; *Athous difformis* (one of the very rarest British insects, and of which the ♂ is figured on our Frontispiece), *Saprinus virescens* (feeding on the larvæ of its likeness, *Phædon cochleariæ*, on water-cress), *Stenus major*, *Ceuthorhynchideus hepaticus*, *Telmatophilus sparganii* and *brevicollis*, (both of which, with *Bagous binodulus*, *Gyrinus Suffriani*, and other good things, have occurred to Dr. Sharp and Mr. E. Saunders near Deal), at Eastry, near Sandwich (where, and not near Maidstone, as recorded in the last "Annual," the quantities of *Omius pellucidus* therein mentioned were found); *Myrmedonia Haworthi* at Southend; and *Stenus palustris* and *major* again, *Ptinus subpilosus*, *Stilicis fragilis*, *Quedius truncicola*, *Homalium salicis*, *Ceuthorhynchus urticæ* and *suturellus* at Bearsted, near Maidstone. Mr.

Gorham has also detected our blind *Adelops* in a bees' nest at Staple.

Messrs. Morley and Broadhurst have recorded from the Manchester district, amongst other things, *Gymnusa brevicollis* and *variegata*, *Acidota cruentata*, *Choleva spadicea*, *Agathidium convexum*, *Homalium Allardi* and *exiguum*, *Homalota autumnalis* and *eremita*, and *Bolitobius inclinans*; and Mr. J. Ray Hardy (who notes the Irish *Tachyporus obtusus* var. *nitidicollis* from Sherwood) has on Chatmoss found in fungus the rare *Cryptophagus ruficornis*, Stephens (re-described by me in Ent. Mo. Mag. ix, p. 38). Mr. J. Chappell, another well known Manchester entomologist, has been so lucky as to find several specimens of *Lymexylon navale* (figured on our Frontispiece), apparently in most of its stages, in oak, in Dunham Park (this species is not included in Dr. Sharp's Catalogue); and recently the rare *Heterothops prævius* has occurred to Messrs. Morley and Hardy near Manchester.

Mr. Wollaston has described the habits of the beetles occurring at Slapton Ley, S. Devon, conspicuous among them being an apparently new species of *Scopæus*, *Hydroporus minutissimus* as before, *Lithocharis ripicola*, a peculiar race of *Cephennium thoracicum*, a small form of *Scydmænus scutellaris* (recorded as *pusillus*), *Pæderus fuscipes* and *Philonthus punctus*,—the two last mentioned occurring in numbers.

Engrossed in the study of the *Trichopterygia*, Mr. Matthews has had no time to devote to the capture of ordinary British species; but he writes to me that he has taken a few more *Throseus carinifrons*, near Chislehurst (as before), and another specimen of *Cryphalus piceæ*.

*Teretrius picipes*, *Cryptophagus serratus*, *Monotoma 4-foveolata*, and *Lyctus brunneus* (on a fence) have been found at Peckham by Mr. Marsh; the latter rarity also was once taken in flood refuse of the River Lea by Mr. Champion.

Great quantities of *Licinus silphoides* (unusually abundant in other localities during the past year) have greeted Mr. George Lewis, on the beach at Hythe, on his return from Japan; and unaccustomed and unwelcome swarms of the Arachnoid *Niptus hololeucus* are recorded by the Rev. A. Nash from Gloucestershire.

The attention of any of our readers who is firmly persuaded that *Calosoma sycophanta* is truly indigenous, and who is determined not to allow personal convenience to stand in the way of proving his point, is directed to the "Petites Nouvelles Entomologiques" of 1st June last, which contains an account of the discovery of large numbers of that beetle on the dead body of a man who had hung himself in a forest near Rheims. Ely Cathedral, in which edifice the poet Crabbe (I believe) once found the *Calosoma*, contains secluded corners, but the vergers would probably object to the trap being laid there; and, indeed, it could with more chance of success be placed near Penzance, where Mr. Rodd (Ent. vi, p. 224) records the recent occurrence of the beetle; or in Exeter Street, Plymouth, where another specimen was taken on the wing last August by Dr. Harper.

*Carabus intricatus* has again appeared in South Devon, having been found by Mrs. Wollaston near Newton Abbott; and its dubiously British congener, *auratus*, once more asserts its claims, as usual, under suspicious circumstances—this time being found in radishes, in the heart of London.

*Hydroporus oblongus, melanarius, neglectus, Scalesianus*, and many others, are re-noted from Askham Bog, York, by Mr. H. Hutchinson.

*Aleochara cuniculorum* has been taken in the Isle of Man, by the Rev. R. P. Murray.

The rare *Homalota hepatica* is recorded from Hampstead, Darenth, Caterham, Shirley, Chatham, Greenhithe and Wim-

bledon during the past year; but all the captures appear to have been accidental.

Mr. W. C. Marshall notes the capture of *Tachinus rufipennis* in a dead grouse, on Kettlewell Moor, Yorkshire.

A small race of *Ocyopus morio*, apparently unnoticed by authors, and of which the characters of shorter and darker tarsi, shorter antennæ, longer and narrower head and parallel-sided thorax appear tolerably constant, has been discussed by myself, Ent. Mo. Mag. ix, p. 36, and also referred to by Mr. Bold, *ibid.* p. 60.

Mr. Gray of Esher has recorded the capture near his residence of *Acrognathus* on the wing,—“*rara avis in terris.*”

*Homalium rugulipenne*, unique since I described it in 1864, has been observed by Mr. Edwin Roper Curzon very abundantly under sea-weed on the sand-hills at Newton Nottage, Glamorgan, in November, 1870. Dr. Sharp also informs me that he has a specimen from the Scotch coast; and I have seen examples taken by Mr. Morley and Mr. Broadhurst at Blackpool and New Brighton.

Mr. Sidebotham has taken *Nemosoma elongatum*, somewhat plentifully, under elm bark, near Beeston, Notts; as usual, parasitic on *Hylesinus vittatus*.

The fungus in which *Atomaria fimetarii* has occurred at York is *Coprinus comatus*, generally found in burying grounds, according to Mr. Hutchinson. The beetle has subsequently been taken by the Rev. W. Hey in some numbers, at the root, and not in the gills, of the fungus.

Two specimens of the rare *Tillus unifasciatus* have been found by Dr. Baly on elm posts at Barford, Warwick.

*Platydemia violaceum*, one of the late Charles Turner's specialties, has occurred in its old locality, New Forest, in decayed oak, to Mr. James Allen.

*Rhipi(do)phorus*, in its accustomed wasp-nest, is recorded by Mr. Bradbury, from Alton, Staffordshire.



The rare *Apion sanguineum*, readily distinguishable from *cruentatum* by its narrower form and longer and straighter rostrum, fell to my net near Esher in October; and two specimens have been detected by Dr. Power in his collection, from Weybridge, and another by Mr. Champion, taken by him in a sand-pit at Reigate.

*Tychius hæmatocephalus*, as to the positive claims of which to be considered a truly British species I suppose most of us have had latent doubts, has turned up at last, a single specimen having been accidentally taken by Mr. Oliver Janson, I believe in Marlborough Forest, and some half-dozen secured by Mr. Lacy and Mr. Moncreaff near Gosport, under circumstances that enable the latter gentleman (to whom I am indebted for the specimen figured on our Frontispiece) to promise an account of its œconomy.

*Ceuthorhynchideus Chevrolatii* has assisted its claims to specific rank by occurring *en famille*, and in some numbers, in a very restricted space near Hythe to the Rev. W. Tylden.

*Thyamis agilis*, after a lapse of many years, has been met with by me in some small numbers at the identical spot of its original capture, Mickleham, and both in its immaculate and suturally darkened form. I found it in October, on one or two sporadic plants of *Scrophularia aquatica*, on dry chalk, near the Hilly Field. The leaves of these plants were quite riddled by it; and, the weather being wet, the insect by no means acted up to its specific name. It was, when alive, much more of a whitish yellow colour than would be imagined from the dried specimens.

The indications afforded last year in the notices of captures by Messrs. E. A. Waterhouse and Wollaston that collecting in birds' nests is profitable, may be supplemented by the record of the finding by the former gentleman of the

rare var. *corruscus* of *Philonthus ebeninus*, accompanied by *Aleochara lata*, at Bognor, in a nest on the ground; and by an account of Mr. Lawson's explorations in pigeon-cotes at Scarborough, where (besides a peculiar *Acanthia*, not strictly mentionable here, but probably *columbaria*, Jenyns) he has found in considerable quantity the universally very rare *Aleochara villosa*, which it may be remembered has also been met with under similar circumstances by Herr Cornelius (Stettin. Ent. Zeit., 1869, p. 4081; cf. Ent. Mo. Mag. viii, p. 65). With this species were some specimens, all exactly similar, of the var. of *Homalium florale*, Payk., with entirely rufous antennæ (for which species M. Fauvel adopts the name *rufipes*, Fourcroy), mentioned by Dr. Kraatz (Ins. Deutschl. ii, p. 997) as *ruficorne*, Waltl.\* With these were also a large number of very fine specimens of *Ptinus fur*, of both sexes, many *Niptus crenatus*, and quantities of *Cryptophagi*, chiefly *saginatus* and *cellaris*. Mr. Lawson found that a nest which had recently contained young pigeons was most prolific; and his account of the undue proportion of broken specimens would seem to throw doubt upon the accuracy of Dr. Watts' dictum, that "Birds in their little nests agree." To Mr. Lawson, also, in addition to the species mentioned in the last "Annual," p. 45 (especially *Nitidula flexuosa*, apparently well established at its locality), and to the others separately recorded in these pages, *Haploglossa pulla*, *Aleochara procera*, *Myllæna*

\* Dr. Kraatz refers to this form as much rarer than the type (in which the antennæ are pitchy black, and more or less rufo-ferruginous towards the apex), and as having almost the facies of a distinct species, on account of its less intensely black thorax and elytra, of which the margins are reddish-brown. I have never before seen this form; all my London district specimens being apparently the var. *maculicorne* of Heer, in which the 3rd, 4th, and apical joints are rufous.—E. C. R.

*Kraatzii*, both species of *Gymnusa*, *Lamprinus saginatus*, *Bolitobius inclinans* and *cingulatus*, *Staphylinus erythrop-terus*, *Thinobius linearis*, *Acidota crenata* and *cruentata* (in numbers, in moss), *Seydmænus nanus*, *Epuræa variegata*, *immunda*, *parvula*, and *angustula*, *Atomaria Hislopi*, *Tetratoma Desmarestii* and *ancora*, and *Rhinoncus denticollis*, have all occurred (mostly in numbers), with very many other species less noteworthy, near Scarborough. Mr. Lawson has also, amongst a number of the rare *Hydroporus obsoletus*, observed an individual with the right antenna quadri-furcate (described in Ent. M. M. viii, p. 288).

To this gentleman (apropos of whom I may be pardoned for saying, that I wish the Darwinian hypothesis were indisputably true, and that its periods of development had been so partially deranged, that he might, retaining his present abilities, have been born an annelid, and not a mammal; for then we could, without inconvenience to him, have cut him into separate Lawsons, by whom, scattered judiciously over Great Britain, our Coleopterous Fauna would be materially increased), moreover, we are chiefly indebted for the great impetus recently given to our knowledge of that most difficult group the *Anisotomidæ*, of which the British list may now fairly be said to exceed the usual average of species. These insects, usually obtained (if at all) either singly or in scanty numbers (and mostly in the form of *Anisotoma calcarata*!) by persistent evening-sweeping in localities for their occurrence in which the collector can assign no reason, appear to band together by genera and species near Scarborough, for the express purpose of being caught by Mr. Lawson; who on one occasion took during the past year in flood refuse upwards of 300 examples! The species that have been there taken by him are *Hydnobius punctatissimus*, *punctatus* (also taken by Mr. T. Wilkinson) and *stri-*

*gossus*; *Anisotoma rugosa*, *dubia*, *ovalis*, *scita*, *lunicollis*, *calcarata*, *brunnea*, *litura*, *badia* (including some astonishing black vars.), and *parvula*, *Cyrtusa minuta* (not the smaller Southron *minuta* of Wat. Cat., which is apparently *pauxilla*), *Liodes orbicularis*, *Amphicyllis globus* pale form, &c.; and very many of them have occurred in large numbers.

Dr. Sharp, also, has found many specimens of some of the above species near Dumfries, and has also taken many examples of 4 or 5 species of the rare genus *Colon* in one day at the same place.

In the South, we have not been idle in this family; the rare *Agaricophagus cephalotes* having during the past year fallen to Mr. Wollaston and myself near Claygate, to Mr. Champion (2) at Caterham, and to the Rev. Mr. Gorham at Rusper; *Anisotoma cinnamomea* and *grandis* to me at Mickleham, and to Mr. Champion at Arundel and Caterham; *A. nigrita* in profusion in the New Forest to Mr. Champion and Mr. O. Janson, and sparingly at Esher to Dr. Power and myself; *A. parvula* to Mr. Champion at Caterham and elsewhere, and to Mr. E. A. Waterhouse near Bognor, where *Hydnobius strigosus* also was (for a member of its genus) particularly common, in a most unlikely looking place.

The difficult genus *Meligethes* has during the past year been discussed by M. Charles Brisout in L'Abeille, viii, pp. 36 ("Synopse du genre Meligethes"), who has given a useful dichotomous table of 67 species known to him (abstracted, as regards food-plants, &c., of most of our species, by me in Ent. M. M. viii, p. 267). The European species have also been exhaustively treated by Herr Reitter in his "Revision der europäischen Meligethes-Arten," a separate publication of the "Verhandlungen des naturforschenden Vereines in Brünn," Bd. ix, 1871, pp. 133, 6 pls. (supple-

mented in Berlin. ent. Zeitschr.). This genus is fast acquiring in this country rather more than an average number of species, and several of its rarer members are now well known in collections—thanks, chiefly, to the persistent collecting in the South of Messrs. Champion, E. A. Waterhouse, Power and Gorham. It is reasonable, therefore, to suppose that our list will receive many further additions, when corresponding energy is shown in the other parts of Great Britain. Two species have during the past year been added to our number; localities and food plants have been recorded for *M. coracinus*, *corvinus*, *symphyti*, *Kunzei* (attributed to *difficilis* as a var. by Reitter; but cf. Ent. M. M. ix, p. 156), *brunnicornis*, *marrubii*, *rotundicollis* and others; and the following changes in nomenclature noticed:—*M. maurus*, Wat. Cat., nec Sturm, = *ovatus*, Sturm; *M. seniculus*, Er., = *murinus*, Er., var., according to Brisout (it is the ♀ of that species, according to Reitter); *M. palmatus*, Er. (*distinctus*, Wat. Cat., nec Er.) = *obscurus*, Er., ♂, and *M. marrubii*, Bris., = *nanus*, Er., according to Reitter; *M. pictus*, Rye, = *mutabilis*, Rosenhauer, according to Brisout, and the latter is a var. of *brevis*, Sturm, according to Reitter.

I may here observe that I have an unrecorded specimen of the rare *M. exilis* (of which, as British, I can only recall to memory Mr. G. R. Waterhouse's exponent taken in the British Museum court-yard, and one in Dr. Sharp's collection, from Galloway), taken by the Rev. R. P. Murray in the Isle of Man; and that the Rev. H. S. Gorham notes *Stachys sylvatica* as a particularly attractive plant, having on it found *M. ochropus*, *Kunzei*, *difficilis*, *brunnicornis* and *memnonius*.

Dr. Sharp has (Ent. M. M. ix, pp. 154 and 155) published some very useful notes on certain of our puzzling species of *Dascillidæ*;—resulting in the conclusion that *Microcara*

*Bohemanni*, Mann., is to be considered as only a var. of *livida* (if maintained as a species, the British specimens of so-called *livida* would probably have to be treated as a new species); that *Cyphon pallidiventris*, Thoms., is probably the ♀ of *nitidulus*; that a very interesting little Scotch insect, distributed by Dr. Sharp under the MS. name of *C. pallidiceps*, is only an extreme of *variabilis*; and that the name *ochraceus*, Steph., cannot be retained for *pallidulus*, Boh., which, though very close to certain varieties of *variabilis*, is always to be therefrom distinguished by the scanty pubescence and punctuation of the under side of its "hind-body."

In the "Scottish Naturalist," vol. i, Dr. Sharp has also commenced (pp. 202, 242, and 277) a revised list, with localities, of the Scotch *Coleoptera*, having as yet discussed only a portion of the *Geodephaga*. In the same publication Mr. Hislop (p. 212) records *Trechus longicornis* from Kelso, Mr. Bold notes *Dyschirius æneus* at Tain, and Mr. Cameron (p. 265) mentions the habits of *Acilius fasciatus*.

The sudden and unaccountable disappearance of *Gonioctena pallida*, *Orsodaena cerasi* and *Agathidium varians* near Ripon has been recorded by Mr. E. A. Waterhouse, who also observed *Rhinoncus subfasciatus* to possess the power of jumping, the leap being apparently caused by a sudden retraction of the limbs on the insect being caught. Having been at Bognor with Mr. Waterhouse, where this curious habit was noticed by him, I can testify both to the accuracy of his observation and the correctness of his inference.

The metamorphoses of *Dorcatoma bovistæ* have been observed by Mr. Sidebotham, who found the larvæ in *Bovista plumbea* at Barmouth (Ent. Mo. Mag. viii, p. 180); of *Dendrophagus crenatus*, by Dr. F. Buchanan White, who gives descriptions of the larva (by Dr. Sharp) and pupa, and

considers the previously published account of Von Gernet (Horæ Soc. Ent. Rossicæ, vi, 1868) to belong to an insect of another genus (*ibid.* p. 196 *et seq.*); and of *Hypera polygoni*, found on *Lychnis vespertina*, by Mr. C. G. Barrett, (*ibid.* p. 205).

The larva of *Clythra 4-punctata* is described with its case (which is not hairy), by Mr. R. Hislop, *ibid.* p. 269; who has also (*l. c.* ix, p. 39) remarked the occurrence of the larva of *Magdalinus carbonarius* in birch.

The habits of *Anaspis maculata* have been observed by Mr. Albert Müller, who has bred that species from woody excrescences on the trunks of birch trees.

A small race of *Lebia chlorocephala*, from Shirley, referred by myself in 1868 to *chrysocephala*, Motsch., is evidently the same as that recognized by Baron Chaudoir (Bull. Mosc. xliii.) as Motschoulsky's insect, and as a var. of *chlorocephala*.

*Cryptophagus punctipennis*, Brisout (not always smaller than *pilosus*), with *Atomaria badia* and *fumata*, have received further corroboration as British; but the insect brought forward by me as possibly the *Corticaria obscura* of Brisout is considered by that author to be possibly *longicollis*, Thoms., an opinion in which I cannot agree.

The following observations have been published by myself in Ent. Mo. Mag.:—*Pogonus littoralis*, Dawson, is probably only *chalceus*, var., according to Chaudoir (*l. c.* viii, p. 269); *Scydmaenus pumilio*, Schaum (*minutus*, Chaud., *nec* Fab. *nec* Gyll.), of which the only supposed British exponents that have been seen by me are small *Sparshallii*, is in all probability erroneously recorded as British, and had better be withdrawn (*l. c.* ix, p. 8); *Clambus punctulum*, Crotch, *nec* Gyll., = *minutus*, and should be withdrawn as British (*ibid.*); *Cryptophagus grandis*, Janson and Crotch (? also

Kraatz), = *populi*, Payk., pale form, and *C. Waterhousei*, Rye, = *acutangulus*, Gyll., monstrosity (*l. c.* viii, p. 179); the *Aphodius niger* of Mr. Crotch's Catalogue, "abundant at Deal," seems most likely, from the remarks of Von Harold, to be only dark *plagiatus* (*l. c.* ix, p. 39); our Scotch *Zeu-gophora Turneri* (Power, 1863) is recognized as a good species, and described under the name *rufotestacea* (which, of course, will not stand) by Dr. Kraatz, in Berlin. Ent. Zeitschr., xv.

In the Monograph of the Trichopterygia published by the Rev. A. Matthews during the past year (reviewed *l. c.* viii, p. 277), apart from its general interest to the British Coleopterist, as containing descriptions and figures of all the known species, it must be here noted that a genus, *Actinopteryx*, is founded (p. 148) to receive *Trichopteryx fucicola*, Allib., and that the *T. Chevrierii* of Matthews, *nec* Allibert, is re-named *Poweri*.

Since the publication of the last "Annual," M. Fauvel has published (Caen, May, 1872, pp. 214, 2 pls.) the 3rd livraison, commencing the 3rd vol. (vol. 2, intended to include the *Geodephaga*, *Hydradephaga* and *Philhydrida*, being postponed), of his Faune "Gallo-Rhénane," in which the descriptive portion of the work is commenced. As might have been anticipated, the author commences with the *Brachelytra* ("Staphylinides"), which he divides into two sub-families, the *Micropeplidæ*, and *Staphylinidæ*; and he follows Heer in discussing this group in an order exactly the inverse of that usually adopted, commencing with *Micropeplus*, which (dissenting from the views of Lubbock and Thomson) he retains in this family. The following observations likely to interest English Coleopterists occur:—

*Protinus clavicornis*, Stephens, is adopted for *atomarius*, Er.; the author not mentioning the way in which he recon-



eiles the size (the same as for *ovalis*) and black antennæ of Stephens' insect with that of Erichson.

*Eusphalerum* is fused with *Anthobium*.

*Homalium nigrum*, Grav., is united as a species with *florale*, Er. (for which the name *rufipes*, Fourcroy, is adopted), the intermediate gradations being stated to occur.

*H. punctipenne* and *abietinum*, Thomson, are rejected as "splits" of *pusillum*, Grav.

*H. nigriceps*, Kies., apart from its evident colour differences, is distinguished from *cæsum* by its smaller size, and being more narrowed in front, more convex, with the head more convex in the middle and finely (not rugosely) punctured, the thorax more narrowed, convex, and cordiform, much less closely punctured, with shorter and deeper foveæ, narrower and shorter elytra and smooth abdomen.

*H. excavatum*, Stephens, is adopted for *fossulatum*, Er.: but the *excavatum* of Stephens' collection is *oxyacanthæ*.

*H. ocellatum*, Wollaston, is now admitted to be distinct from *Allardi*.

*Philorhinum sordidum*, Stephens, is adopted for *subpubescens*, Steph., *humile*, Er.: but Stephens' insect is *Homalium iopterum*.

The *Arpedium brachypterum* of our Catalogues is referred to *troglydytes*, Kies., Ktz.; Gravenhorst's *brachypterum* being separated, and yet indicated as most probably only a winged form of the same species.

*Lesteva muscorum*, Duv., is considered to be the true *punctata*, Er.; and *L. punctata*, Ktz. (the smaller species) is renamed *Heeri*.

*Geodromicus nigrita*, Müll., and *globulicollis*, Zett., are united, with other insects hitherto deemed specifically distinct, under the name *plagiatus*, Er., as mere races.

*Actocharis Readingii*, Sharp, under the name *marina*,

Fauvel (for which the author still endeavours to claim priority, on the strength of a paper in "Bull. Soc. Linn. Norm. 2e sér. v, 19," supposed to bear date November, 1869, but which has not to this day been published, apparently!), is still referred to the neighbourhood of *Thinobius*; it is said not to cock up its tail in flight,—“ce qui est encore un vrai caractère d'Oxytélien.”

The *Ancyrophorus longipennis* of our Catalogues is considered not to be Fairmaire's species of that name, and is named *aureus*.

*Oxytelus maritimus*, Thomson (1861), is deposed in favour of *O. Perrisi*, Fauvel, for which priority is claimed on the following quotation, "Bull. Soc. Linn. Norm. vi, 42 (4 Mars, 1861); Ann. Soc. Ent. Fr. 1862, Bull., 34." Putting aside the fact that M. Fauvel can hardly have recognized this species, as in the same vol. of the "Annales" he again described it as *O. Oceanus*, it seems unnecessary to point out that Thomson's publication was in fact long prior to that of the Bull. Norm. The quotation of the *O. fulvipes* of Hardy and Bold's Catalogue as a synonym of this insect is incorrect: Hardy's insect is *flavipes*, Stephens.

The insect recorded by me as *O. speculifrons*, Ktz., is retained as such; but the *speculifrons* of Crotch and Sharp is referred to *clypeonitens*, Pandellé, and Kraatz himself is considered to have confused the two species. My insect is, of course, the same as that of Messrs. Crotch and Sharp.

My *Bledius fuscipes* is once more erroneously considered as a mere colour var. of *pallipes*. M. Fauvel appears to be quite confused as to these two species and *B. subterraneus*.

It is to be hoped that this work will be completed, as it cannot fail to be of some use to British Coleopterists. The plates are especially excellent.

In a valuable paper on the collection and preservation of Neuropterous Insects (Ent. M. M. ix, p. 99 *et seq.*), Mr. McLachlan has anew and somewhat vigorously urged the stock argument employed by those who prefer mutilating their specimens to keeping them whole on card. Those who are sufficiently interested in this attempt to revive an extinct practice, will find a reply at p. 136 of the same publication.

Some instructions by myself on collecting and preserving beetles will be found in "Science Gossip," No. 91 (July, 1872, pp. 145—151).

It is not, I trust, out of place for me to refer here to a matter concerning British Entomology as a whole, and to a small extent personally affecting myself. I allude to a discussion on the question of nomenclature, in which the "resurrection" of disused names is strongly opposed, raised by a Mr. W. A. Lewis, with whom, as an entomologist or otherwise, I admit, but (judging from the following sample of his method of working) can scarcely with truth say that I deplore, my want of acquaintance. This gentleman has been good enough to send me a printed page (56), extracted from a pamphlet of similar matter published by him, containing the following remarks: "But what am I to say of those who, professing to see through the hollowness of my arguments, nevertheless have from first to last denied themselves the gratification of exposing it? They have exercised a noble self-restraint; and deserve that entomologists should admire their magnanimity. Thus, Mr. E. C. Rye,—after a foot-note of two lines† designed apparently to dispose of the whole question,—in Ent. Ann. 1872 (p. 24), prefaces his sixteen pages of copied synonymy by mentioning 'the question of 'resurrection' upon which so much energy has been expended by certain of his fellow-students during the past year'—and there he stays his hand. Mr. Rye has 1873.

“ always taken much interest in questions of nomenclature,  
 “ and no doubt has views of his own upon them; † and it  
 “ would have been very satisfactory to know how Mr. Rye  
 “ disposes of his fellow-students’ arguments. He evidently  
 “ either took alarm at their ‘energy;’ or was hurt because  
 “ they had usurped the same virtue which distinguishes the  
 “ priority champions. §

“ † In 8 Ent. Mo. Mag. 42.

“ ‡ Mr. Rye’s articles in the Entomologist’s Annual, for instance, are  
 “ stuffed full of nomenclature, which gives to his portion of the work  
 “ an interest all its own. His notice of Mr. Crotch’s 1863 Catalogue,  
 “ wherein ‘it is the exception and not the rule for *any* species to  
 “ remain unaltered, either in position, value, name, or parentage,’ is  
 “ very entertaining reading now: see Ent. Ann. 1864, pp. 73—78.

“ § It happens to be already on record that ‘Dr. Standinger is a  
 “ young Lepidopterist of *extraordinary* energy’ (Ent. Ann. 1857,  
 “ p. 126.) Mr. Crotch likewise appears to have shown it. Mr. Rye, in  
 “ 1864, called him an ‘energetic worker;’ and in 1866 ‘the energy of  
 “ Mr. G. R. Crotch’ was again the subject of comment. (See Ent.  
 “ Ann. 1864, p. 73; Id. 1866, p. 47.) Mr. Rye should make allow-  
 “ ances for this, and consider the great temptation, in opposing such  
 “ redoubtable gentlemen, to give them a taste of their own quality.”

Although I believe that I should be justified in passing with silence this singular and utterly unprovoked attack, it may, perhaps, be worth while to reply to such of Mr. Lewis’s charges as are intelligible to me.

As regards, then, my own personal abstinence from strife with him and his arguments, I can only say, that (putting aside the fact of my having been ignorant of him and them until he thrust them upon me) I have not hitherto felt any inclination to waste the little leisure time at my disposal available for entomology upon the shadow of that pursuit,—upon mere names and squabbles on priority of names; but that for some years past, I have continuously, and to the

best of my small means, endeavoured to assist my fellow-students in this country by examining and naming their difficulties, recording events and facts likely to be useful, and otherwise working at least as much for others as for myself. Moreover, if I had felt inclined to confine myself to what I cannot but consider as the husks of the science, I should certainly have had sufficient intelligence to see that to dabble in nomenclature, with no special aptitude, and no means of obtaining readily *all* the literature that has been published on Entomology, could not but have entailed ridicule on me; and I should have recognized (as I do recognize) in Mr. G. R. Crotch the possession of the taste, ability, and means requisite for success. But if, in the ordinary course of my pursuit, I have met with questions of nomenclature bearing upon British *Coleoptera*, I have never found them so distressingly difficult to comprehend as Mr. Lewis apparently has, in the branch (whatever it may be) of Entomology studied by him;—for I am at a loss to imagine any other motive for his rabid dislike of synonyms.

The “foot note of two lines,” which Mr. Lewis (does not quote but merely) refers to as “designed apparently to dispose of the whole question,” is as follows:—“A careful perusal of Von Harold’s paper on Nomenclature (*Coleopterologische Hefte*, vi, 1870, pp. 37—69) is recommended to all who doubt the utility of the so-called ‘resurrection men.’—E. C. R.,” and (having just perused that paper, for other purposes) I added the name of v. Harold to those of the writers on *Lepidoptera* mentioned by Mr. Kirby (*Ent. Mo. Mag.* viii, p. 42) as conscientious appliers of the rule of priority. I cannot compliment Mr. Lewis (with justice, at least) upon his perceptive capabilities, if such a reference has so misled him.

The expression “sixteen pages of copied synonymy,” is, to say the very least, misleading; a lengthy paper, contain-

ing very many changes in nomenclature referring to *Coleoptera* in general, was published in a Munich periodical; and, in recording in the last "Annual" everything that occurred to me in connection with my subject, I felt it my duty to toil through this, and collate and extract (not copy) all such proposed alterations as referred to our Fauna. I, also, in reviewing Dr. Sharp's "Catalogue," published since the last preceding "Annual," took the trouble to extract all such changes as that gentleman proposed to make in nomenclature. Mr. Lewis considers that my articles in the "Annuals," being, as he elegantly says, "stuffed full of nomenclature," give to my portion of the work "an interest all its own." This is, I presume, "meant sarcastic," as Artemus Ward puts it; but, as I am not conscious of leaving out anything I ought to put in, in order to make room for a record of the work during the past year of those who, unlike myself, *have* taken the trouble to work at nomenclature, I take it for what it is worth. Supposing I had omitted to notice the above-mentioned changes, it might have been irritating to me if I had been accused of the neglect by Mr. Lewis or any one else: but I cannot reasonably be expected to feel mortified at the charge of *not* omitting them.

I also fail to see why my eulogy of Mr. Crotch's energy is mentioned,—except as an endorsement of the compliment to that gentleman, which, from the context, I scarcely think is intended. Mr. Crotch is certainly the most energetic English (perhaps the most energetic European) Entomologist, and I wish his energies were occupied on English Entomology as heretofore. Mr. Lewis, also, appears to be energetic (in another way) and ingenious.

The reason for my having "stayed my hand" after mentioning the question of "resurrection" in last year's "Annual," is simply, as above indicated, that I did not consider my-

self possessed of sufficient special knowledge to do more than record results in my own branch: my "views," such as they were, have (as Mr. Lewis desires to know them, and as is indeed tolerably evident from my remarks in Ent. Ann. 1864 quoted by him) been hitherto inclined somewhat to the cowardly scheme now proposed by Mr. Lewis, of avoiding present trouble by submission to error; but, being compelled to look steadily at the question, I have no hesitation in giving my unqualified adherence to the rule of priority, until it can be shown that there is one more equitable; and I cheerfully accept that rule with all its possible drawbacks, in preference to supporting the attempt to found a new law, based on no just principle, and under which, in my opinion, as many errors are likely to be made as under its predecessor.

An attempt has been made by Mr. Lewis by circular to enlist the support of (amongst others) mere collectors, who, on such a point as the rational weighing of the question of nomenclature, may without offence be termed the halt, maimed and blind of Entomology. I add here a copy of the reply (published in the "Athenæum" of 13 July last, No. 2333, p. 54) to one of these circulars made by Dr. Gray:—

"British Museum, July 4, 1872.

"Sir,—I decline signing the paper you have sent me, which is decidedly against all proper treatment to your predecessors and against the just maxim, 'Do unto others as you would be done unto.' It can only have been put forth by mere butterfly collectors, who have had no proper scientific training.

"I am, sir, yours truly,

"J. E. GRAY."

1. *ILYBIUS ÆNESCENS*, Thomson, Opusc. Ent., p. 125; G. Kraatz, Berl. ent. Zeitschr., xv, p. 166; E. C. Rye, Ent. Mo. Mag., ix, p. 36; T. J. Bold, *ibid.*, p. 60.

I have much doubt whether this can be considered as anything but a mere change of name. The species was first recorded as British by Dr. Kraatz; and I find all my so-called *angustior* are apparently more correctly referred to it. The true *angustior* appears to be usually larger, with more metallic reflections, and the antennæ pitchy at the apex. Mr. Bold is also inclined to refer his supposed *angustior* to Thomson's insect; but fails to see the situation at the base of the underside of the claws of the intermediate tarsi referred to by the Swedish author as a character of the ♂, and distinctly visible in one of my insects.

2. *PHILHYDRUS SUTURALIS*, D. Sharp, Ent. Mo. Mag., ix, p. 153, *described*.

“Common both in England and Scotland.”

Closely allied to *P. marginellus* (Thoms.), but larger, with yellow palpi (occasionally the second and middle of the last joint a little clouded), the clypeus with a yellow spot on each side in front of the eye, the punctuation of the upper surface slightly less marked, and the elytra dull testaceous with the suture black. *P. ovalis*, Thoms. (probably the true *marginellus*, Thomson's species of the latter name being almost certainly *affinis*, Gyll. according to Dr. Sharp), which also has yellow palpi, is black, with the sides of the thorax and elytra yellowish, and the head unspotted.

3. *LEPTUSA TESTACEA*, Ch. Brisout, in Gren. Cat. et Mat., &c., 1863, p. 16; E. C. Rye, *l. c.*, p. 5.

A single specimen taken by Mr. Champion on 6th June, 1870, out of sea-weed on the sandy shore at Whitstable,



Kent, has been named for me by M. Brisout. It was originally recorded from Toulon ; and is  $1\frac{1}{8}$  lin. long, linear, flattened, rather dull, testaceous, with dark abdomen, very short elytra and long antennæ, and, when alive, has much the facies of *Phytosus*.

4. HOMALOTA DIFFICILIS, Ch. Brisout, Ann. Soc. Ent. Fr., 1860, p. 219 ; D. Sharp, *l. c.*, viii, p. 247.

“Near *H. vilis*, but smaller, with shorter thorax and paler antennæ. Taken by Mr. Crotch and also by Mr. Champion.” I have also taken this species near London, and it has been corroborated for me by M. Brisout. Mr. Champion’s examples are from Staines, Arundel, and Lee, out of flood-refuse.

5. HOMALOTA HUMERALIS, Ktz., Ins. Deutschl., ii, p. 278 ; D. Sharp, *l. c.*

“Very near *H. sodalis*, but smaller, with paler elytra and antennæ and different ♂ characters.”

Taken by Prof. McNab at Cirencester.

Dr. Kraatz states it to be very close to *H. nigritula*, Grav., Thoms., but to be somewhat less, with the abdomen more acuminate behind, less strongly transverse antennal joints, more strongly punctured thorax, and chestnut-brown elytra, which are yellow at the shoulders.

6. HOMALOTA FIMORUM, Ch. Brisout, *l. c.*, p. 343 ; D. Sharp, *l. c.*

“Very near *H. cinnamoptera*, but smaller, darker, rather more sparingly punctured, and with shorter antennæ.”

Taken by Mr. Crotch (in Norfolk, according to Dr. Sharp’s belief).

7. HOMALOTA ATRATA, Mann. ; Kraatz, Ins. Deutschl., ii, p. 285 ; G. C. Champion, Ent. Mo. Mag., viii, p. 247.

*clancula*, Er.

Five examples taken by Mr. Champion in a marshy place near Lee, and determined as above by Dr. Sharp.

Most nearly allied to *gagatina* (*variabilis*, Wat. Cat.), but rather smaller, shorter and broader, with the abdomen thickly and finely punctured all over the upper surface. It occurs with *Oxypoda lentula*, which, though smaller, it is not unlike.

8. SCOPÆUS RYEI, T. V. Wollaston, Ent. Mo. Mag., ix, p. 34, *described*.

Nine examples of this apparently undescribed species were taken by Mr. Wollaston under stones near Slapton Ley, S. Devon, in May, 1869 and 1872.

It is readily known from *S. minutus* (*sulcicollis*, Kby.) by its smaller size, narrower outline, paler colour and more opaque surface, thinner legs, and less strongly divided abdominal segments.

9. LITHOCHARIS PICEA, Kraatz, Ann. Soc. Ent. France, 1858, Bull., p. exci ; E. C. Rye, *l. c.*, ix, p. 156.

Several examples of this well marked and apparently universally rare species were taken by Mr. Champion late in the past autumn, by sifting dead leaves in Bexley Wood, Kent. Dr. Sharp has also found it in Spain.

Its dark pitchy colour and ferruginous limbs are almost enough to separate it from our other species; and it may also be known from its ally *brunnea* by its broader build, more slender antennæ, more finely and closely punctured

head, more obsoletely punctured thorax and much longer elytra.

10. *SCYDMENUS PRÆTERITUS*, E. C. Rye, *ibid.*, p. 6, *described*.

Usually found in chalky districts (Croydon, Isle of Wight, Erith, Seaford, Caterham), and associated with ants.

This species, which has somewhat the appearance of a very small specimen of *S. elongatulus* (from which its unpunctured thorax, the basal furrow whereof has no middle keel, and its less convex elytra, at once distinguish it), is possibly the *Sparshallii* of Schaum and Redtenbacher, but not of Denny, which is lighter in colour, shorter, broader, and more convex, with 2 foveæ on each side of the thoracic basal groove, more evidently punctured, with larger eyes, antennæ less stout at the apex, &c.

11. *HYDNOBIUS SPINIPES*, Gyll., Thomson; E. C. Rye, *l. c.*, viii, p. 204.

This species cannot as yet be considered truly indigenous, as I now think that the single male example which I have referred to it is only a highly developed ♂ of *H. strigosus*. Since my notice above quoted, I have seen many examples of the latter species, taken by Mr. E. A. Waterhouse and myself at Bognor, Mr. Champion and Mr. Lawson; and I find, as might indeed have been expected, that it varies very much both in size and development. My former exponents were, though of both sexes, of slight build.

12. *ANISOTOMA LUNICOLLIS*, E. C. Rye, *ibid.*, p. 203, *described*; *id.*, *l. c.*, ix, p. 136.

Apparently allied to *A. hybrida*, Er., but having the lateral edges of the elytra sparsely set with short setæ, and

thereby exhibiting an affinity with *A. ciliaris* and *furva*. Of the size of average *calcarata*; with the apical joint of its antennæ narrower than the preceding, the thorax wide, very rotundate at the sides and truncate at the base, the punctures of the striæ of the elytra small and closely packed, the anterior tibiæ linear, somewhat irregular on the outer edge, and the posterior femora of the male flattened and widened, with a minute denticle at the apex.

Several specimens have been taken by Mr. R. Lawson, near Scarborough, chiefly under flood-refuse; and Mr. G. R. Waterhouse has a small ♀ example taken many years ago at Sydenham.

13. ANISOTOMA BRUNNEA, Sturm; Er., Ins. Deutschl., iii, p. 72; E. C. Rye, *l. c.*, ix, p. 135.

I have referred to the above species a few individuals (of both sexes) taken during the past autumn by Mr. R. Lawson out of flood-refuse near Scarborough; and which, agreeing as they do so well in all respects with the characters mentioned by Erichson, prove that Dr. Kraatz was quite wrong in attributing *brunnea* to *obesa*, as a small form (Stettin. ent. Zeit., xiii, p. 379).

The insect is rather less than *calcarata*, entirely ferruginous, with a narrow club to its antennæ, of which the apical joint is not narrower than the preceding, the base of its thorax not sinuate, and the striæ of its elytra fine, with small and closely packed punctures. The hind legs of the ♂ are much as in *litura*, but the tibiæ are broader, and not so elongate or so much curved inwards at the apex.

14. PHALACRUS BRISOUTI, E. C. Rye, *l. c.*, ix, pp. 8 (*described*) and 37.

This is the species dubiously referred to by me in Ent. Ann. 1872, p. 67, as *brunnipes*, Bris., from Lee and

Gravesend, but which have been returned to me by M. Brisout as new, and allied to his *seriepunctatus*. It is unknown to M. Tournier of Geneva, who is engaged upon a monograph of the group, and to whom I have communicated my type.

Of our recorded species it seems most nearly allied to *P. corruseus*, from which it differs in its smaller size, rather lighter coloured fore-legs, tarsi and antennæ, the club of which is rather broader and not so long, the apical joint being conspicuously broader and shorter, not so acuminate, and slightly flexuous on the inner side towards the apex, and in its elytra being more obtusely rounded behind, more evidently punctate-striate, and with the interstitial punctures much less numerous.

15. PHALACRUS HUMBERTII (Tournier, MS.) ; E. C. Rye, *l. c.*, ix, p. 37.

M. Tournier has returned to me with the above MS. name the insect formerly supposed by me (*l. c.*, p. 9) to be a very small example of *P. corruseus*, from which species it appears to differ also in the stronger punctuation of its elytra and the club of its antennæ. As M. Tournier's monograph is not yet published, I refrain from further describing this insect, which I have since found among some insects taken by the Rev. Mr. Gorham in Kent, Mr. Champion at Caterham, and Mr. Walker in Sheppy.

16. OLIBRUS PARTICEPS, Mulsant, Opusc. Ent. 61, p. 127 ; E. C. Rye, *l. c.*, ix, p. 38.

I strongly suspect that this insect is represented by the *O. affinis* of our Catalogues, as I have never seen an authentic British example of the latter. The individual

returned to me as *O. particeps* by M. Tournier was given to me as *O. affinis* by Dr. Power.

The *O. bicolor* of our Catalogues, as anticipated, is also returned to me as *liquidus* by M. Tournier; to whom I am indebted for types of true *bicolor*, a larger, rather less elongate and more convex insect, with somewhat less distinct striae, and very decided and *more abrupt* elytral spots.

17. MELIGETHES OCHROPUS, Sturm; Erichson, Ins. Deutschl., iii, p. 180; Reitter, Revision, &c., p. 78, Pl. iv. fig. 50; Brisout, Synopse, &c., p. 30; E. C. Rye, *l. c.*, ix, p. 156.

Detected by me among some *Meligethes* taken by Dr. Power in June and August, 1862, in the New Forest; also found by myself in September last at Claygate, Esher, and has apparently been met with for many years past by the Rev. H. S. Gorham, who has recently taken it at Rusper, near Horsham, on *Stachys sylvatica*. It is also recorded from *Lamium album*.

It is allied to *M. difficilis*; but is readily separable from all its allies by its comparatively broad and short oval form, stronger convexity, and widely and coarsely punctured elytra, and especially by the outer margin of its posterior tibiae not being rounded, but dilated in almost a straight line until the lower third, where it is suddenly and obliquely contracted. The front tibiae have 3 or 4 sharp teeth at the apex, not so strongly developed as in *difficilis*. The legs seem to be either clear yellow or somewhat infuscated.

18. MELIGETHES INCANUS, Sturm; Erichson, *l. c.*, p. 190; Reitter, *l. c.*, p. 65, Pl. iii. fig. 40; Brisout, *l. c.*, p. 9; E. C. Rye, *l. c.*, viii, p. 268.

A single specimen, taken by Mr. G. R. Waterhouse, at Darenth Wood, on *Echium vulgare*, in June, 1859.

Of the size of ordinary *ovatus*; of exactly oval outline, dull, closely and finely punctured, convex, clothed with very evident, depressed grey hairs, with the anterior tibiæ considerably dilated towards the apex, and having their outer margin finely denticulated to a little below the middle, and then armed with 3 or 4 stronger and rather irregular teeth.

Found by M. Brisout on *Solanum dulcamara* and *Nepeta cataria*. Herr Reitter records it from *N. grandiflora*.

19. CYPHON PUNCTIPENNIS, D. Sharp, *l. c.*, ix, p. 155, *described*.

*nigriceps*, Sharp, *Cat.*, *nee* Kies., *nee* Thoms.

Dr. Sharp describes as new the species taken by himself at Rannoch and on the Keir Hills, Thornhill, Dumfries (and also by Dr. Power, near Balmuto, Fife), and formerly brought forward as *nigriceps*; as Kiesenwetter's species of that name is according to Tournier (who has received types from Kiesenwetter) only *variabilis*, and Thomson's *nigriceps* has the suture infusate behind (which is never the case in the Scotch insect), and is probably also only a form of *variabilis*.

It lives in moss in wet places on the moors, especially where growing thickly with heather and mixed with reindeer lichen; and, compared with *variabilis*, is shorter, broader, and more convex, with extremely short, fine and scanty pubescence, more sparingly (and at the base more coarsely) punctured elytra, and the 3rd joint of the antennæ comparatively rather shorter.

20. ANTHICUS SCOTICUS, E. C. Rye, *l. c.*, ix, p. 10, *described*.

This insect, the "*Anthicus* 6 *sp. nov. ?*" of Mr. Waterhouse's Catalogue, has been already sufficiently discussed in *Ent. Ann.* 1868, p. 70. It has been returned to me by M. Brisout as unknown; and has recently occurred in some

numbers to Dr. Syme and Mr. E. A. Waterhouse on the shores of Loch Leven.

21. MELÖE CYANEUS, Mulsant, Col. de France, Vésicants, p. 47 ; E. C. Rye, *l. c.*, viii, pp. 248 and 288 ; C. G. Rotheram-Websdale, *ibid.*

Several specimens, found in the Isle of Man by the Rev. R. P. Murray, and near Barnstaple by Mr. Websdale, have been referred by me to Mulsant's insect above named, with the ultimate conviction that the latter is itself (as has been suggested) only a variety of *proscarabæus*, from which some of the Manx specimens are much more aberrant than Mulsant's type, having a brightly metallic and remotely punctured head and thorax, the latter with a broad and very evident basal longitudinal channel. The Barnstaple specimens are on the average smaller, with a semi-cupreous tinge over the whole of the body. The punctuation and depressions of the thorax seem capable of almost any amount of variation.

22. SMICRONYX REICHEI, (Frontisp., fig. 7) Gyll., in Schön., Gen. et Spec. Curc., vii, p. 314 ; E. C. Rye, *l. c.*, ix, p. 11.

Not unlike an enormous example of *Tanysphyrus lemnae*; larger than *S. jungermanniae*, with a thicker and duller rostrum, and much more thickly and coarsely punctured thorax, and, when in good condition, densely clothed with tessellated grey and brown scales.

An abraded example was taken by Mr. Champion in August, 1868, and another, in fine condition, in the early summer of 1871 by Mr. E. A. Waterhouse, both near Folkestone.



23. *NANOPHYTES GRACILIS*. Redtenbacher, Fauna Austr., 1849, p. 370 (2nd ed., p. 819); E. C. Rye, *l. c.*, ix, p. 157.

A single example of this species (recorded only once, from Vienna) was taken by myself in September last near Esher; and Mr. Champion has subsequently detected 2 specimens, found by Mr. J. S. Allin during the past summer in the New Forest.

From our common *lythri*, it differs in having two small sharp spines on the under side of each femur; it has also longer and thinner legs, antennæ and rostrum, less evident pubescence, and broader and much less acuminate elytra, of which the interstices are flat. In colour, it seems to differ from any *lythri* in having yellow legs, of which the *tips* only of the femora are narrowly black, and an irregularly triangular basal patch of black on the elytra.

As M. Henri Brisout remarks (Monographie des Nanophyes, "L'Abeille," vi, p. 350, Mon. p. 46), it is very probable that the *geniculatus* of Aubé (1864) is identical with this. The latter is recorded from the Pyrenees, Eastern France, Paris (rare), Crete, Spain and Algeria. M. Brisout has taken it in October on *Erica cinerea*.

24. *THYAMIS DISTINGUENDA*, E. C. Rye, *l. c.*, ix, p. 157, *described*.

Many examples of this apparently undescribed species were taken by Mr. Champion at Box Hill in September and November last, on *Teucrium scorodonia* (not *Senecio jacobæa*, as originally supposed); and I have long had a specimen set aside in my collection, taken by myself at Mickleham.

Having somewhat the gelatinous appearance of *T. teucarii* (common to most apterous species), this insect is allied to *atricilla*, from which it differs in its average rather larger size, lighter and non-metallic head and thorax, and less regularly oval outline (the greatest width being nearer the apex), the more perceptible shoulders and less obtuse apical angles of its elytra, of which the punctuation is rather stronger and evidently disposed in striæ, especially towards the base, its longer posterior tarsi, the longer and stronger spurs of its hind tibiæ, and its stouter antennæ.

It also exhibits in some characters a slight superficial resemblance to *T. suturalis*, from which its much lighter-coloured head and thorax, larger size and heavier build, less evident shoulders, longer antennæ, &c., readily distinguish it. The well-defined dark sutural stripe of that species, moreover, reaches from the base to the apex of its elytra; whereas in the most marked individual that I have seen of *T. distinguenda* (taken since the publication of my description), the usual narrow rufescent sutural edging is only slightly dilated and becomes somewhat darker for the lower two-thirds, contracting again just before the apex. In this example, also, the hind tibiæ are more or less pitchy.

I have in my description alluded to variation in the degree of punctuation of the thorax exhibited by different individuals in this (and, of course, in other) species. To this observation I may add, that among a considerable number of normal specimens taken by Mr. Champion (all together), is one which he has kindly presented to me, and which, though undoubtedly belonging to *T. distinguenda*, departs considerably from the others in having its antennæ of more feeble development, its build broader and shoulders more evident,—being, in fact, more Aphthoniform.

25. *SCYMNUS ARCUATUS*, Rossi, Mant., ii, 88; Mulsant, Sécurip. de France, 245; Redt., Faun. Austr. (2), p. 972; T. V. Wollaston, Ins. Mad., 468; id., Ent. Mo. Mag., ix, p. 117.

A single specimen was, on the 24th of August last, brushed out of very old ivy at Shenton Hall, near Market Bosworth, Leicestershire, by Mr. Wollaston, who has found this Mediterranean species abundant round Funchal, in Madeira (it appears to have been recorded as far north as Vienna). It is rather less than *hæmorrhoidalis*, and readily distinguishable by its elytra having in common two horse-shoe shaped whitish-yellow lines, open towards the front, and of which the lower encloses the upper.

10, LOWER PARK FIELD, PUTNEY, S.W.

*December, 1872.*

## LEPIDOPTERA.


 NOTES ON NEW AND RARE BRITISH LEPIDOPTERA  
 (EXCEPTING TINEINA) IN 1872.

BY H. GUARD KNAGGS, M.D., F.L.S.

WITH the exception of a few "early appearances" in February, among which may be mentioned two small white butterflies, which doubtless imagined they were going to have a fine time of it, and a hibernated *Vanessa Antiopa* ♀, little remains to be recorded for the first half of the year, for February set in in May and January in June; towards the beginning of July, however, warmth and sunshine for a time held sway, and everything seemed to be brightening up, except the collector's prospects, whatever his hopes may have been. Then came storms, hurricanes, and pelting rains, which did not exhaust themselves until the middle of August, when the face of nature again looked radiant, and three weeks of glorious weather supervened during which the best part of the year's work was effected. At this period, "the grand surprise" of the season was in store for us; three of our rarest butterflies, *Pieris Daplidice*, *Argynnis Latona* and *Vanessa Antiopa*, suddenly started forth from ——— nobody knows where, in such numbers as had never previously been heard of,—at any rate in the present century; *Antiopa* especially eclipsing all former displays within the memory of living man, and throwing into the shade the so-called "Great Antiopa Year" of 1846, for then the captures

were recorded by tens only, whilst now we reckon them by hundreds.

The latter part of the season has been marked by a succession of wind and rain of unusual severity, during which collecting, if not absolutely impracticable, has been almost barren of results.

In spite of the adverse atmospheric conditions, our list of novelties (half of the number having been discovered by Mr. C. G. Barrett in his researches among the *Tortricina*) consists of the following:—These will be discussed in their places.

1. *Zygæna meliloti*, Esper (Ent. Mo. Mag. ix. 111; Entom. 184 et 238).
2. *Syntomis phegea*, Lin. (N. E. Brown, Ent. Mo. Mag. ix. 160).
3. *Crambus verellus*, Zincken (Ent. Mo. Mag. ix. 89).
4. *Scoparia scotica*, Buchanan White (Ent. Mo. Mag. viii. 169).
5. *Dichelia gnomana*, Lin. (Ent. Mo. Mag. ix. 129).
6. *Antithesia staintoniana*, Barrett (Ent. Mo. Mag. ix. 127).
7. *Sericoris doubledayana*, Barrett (Ent. Mo. Mag. viii. 126).
8. *Dicrorampha herbosana*, Barrett (Ent. Mo. Mag. ix. 27).

Besides these, a race of *Leucania comma* differing from the type of that species appreciably in the form of its forewings, and having two spots on the under surface not observable in *comma*, has been detected by Mr. Eedle.

As for rarities, besides the butterflies already mentioned, *G. rhamni* has been detected in the neighbourhood of Carlisle, the most northern locality for the species with which we are acquainted; *L. arion* has been taken at Bolthead; *S.*

*convolvuli* is conspicuous by the record of a single specimen from Dulwich (it ought to have occurred by hundreds, if the conditions which favoured the appearance of *V. antiopa* were also congenial to it, as they appeared to be in 1846); of *C. celerio* a solitary example has come to light; *D. livornica* and *Sesia asiliformis* have been exhibited at the Entomological Society; *Nola albula* has turned up near Dartford; *L. caniola* at Bolthead, so Mr. Bignell informs me; *S. fagi* has been particularly scarce this season; a few *A. alni* have occurred in widely separated localities, most of the captures being as usual larvæ; two examples of *Leucania l-album* have been secured at Settlebourne; Ranworth has produced *N. Cannæ*, *N. brevilinea* and *Arundineta*; and Cambridge has yielded *Helmanni*; *L. exigua* has been attracted to the light of the city lamps; *X. conspicillaris* has been noticed in Gloucestershire; two examples of *P. leucophea* have visited sugar at Canterbury; *D. rubiginea* has been taken in Surrey; *H. peltigera* in the larval state at Plymouth; *P. interrogationis* in Ireland; *P. orichalcea* near Sherbourne; *G. erythrocephala* at Darenth; *Micra parva* from the Isle of Wight, all seem worthy of notice; while *C. fraxini* is recorded from Canterbury, Ipswich, Wisbeach and Shrewsbury; *M. alternata* has been bred by Mr. Bignell, as has also *P. albariella* (*Davisellus*), from larvæ discovered by Mr. Davis in the Isle of Wight, and a single specimen of this interesting species has been detected by Mr. Moore in the New Forest; lastly, two examples of *Agrotera nemoralis*, captured at Abbot's Wood, Sussex, by Mr. J. Jenner Weir, have been exhibited at the Entomological Society.

The chief varieties which have been noticed during the past season may be thus enumerated:—A melanic *Arge Galatea*; *Vanessa Io*, with the black costal spot coalescing with the eye-like spot on the fore-wings, and the eye of the

hind-wing absent; a handsome spotted *Argynnis Paphia*; these three varieties are figured in Newman's Entomologist; dark varieties of *A. selene* and *M. Artemis*; *Lycæna Ægon*, the sides representing respectively two different forms of the female; pale small *Bombyx trifolii*, bred from Romford Marsh; *L. monacha*, with a dark denticulated fascia; dark *Limacodes testudo*, with a yellow-brown patch at the inner margin; black *Chelonia caja*; a lovely variety of *N. dodonea*; *A. leporina*, with one side typical, the other of the var. *brady-porina*; black *A. megacephala* and *N. typhæ*; *C. xerampelina*, with the ground colour dull coppery red; albino (or pretty nearly so) *M. oxyacanthæ*; a handsome clouded variety of *Euperia fulvago*, similar to one taken by Mr. Stainton in 1846; and an immaculate *V. maculata*.

Then, in the way of curiosities, one *Vanessa Atalanta* bearing the larval head has occurred, while *V. urticæ* has mated with its big relation *Polychloros*.

#### IS VANESSA ANTIOPA A NATIVE OR AN IMMIGRANT?

The extraordinary profusion in which *V. antiopa* has occurred during the past season has given rise to various surmises as to how it happened that we have been favoured with such a welcome visitation. Of these, the theory put forward by Mr. Stainton is the centre around which the rest revolve; Mr. Stainton's suggestion is, that a flight of these beautiful insects took place last August from Sweden and Norway to our east coast. In support of the idea that this is the correct solution of the mystery, the following facts are adduced:—

1. It is well known that migrations of *Vanessidæ* (e. g., *P. cardui*) do occur.—
2. The bulk of the captures were made on the coast, and that the east coast.—
3. Although many, perhaps most, of the specimens were in remarkably fine con-

dition, others even at a very early date were in a dilapidated state.—4. Most of the captures were of the Scandinavian type, that is, were of a finer texture than continental examples, and were adorned with the white border.

On the other hand, it has been argued that if the butterflies had travelled three or four hundred miles over the sea, they could not possibly have been in such fine condition as most of them undoubtedly were; that if a migration had taken place, a large body of them would have arrived together at one spot, and that their appearance simultaneously on the east and south coasts militates against the probability that they had migrated from Norway.

To me the greatest obstacle seems the rapidity and duration of their flight, for from Norway to the nearest Scotch point represents a distance of, say, three hundred miles; and to accomplish this, they would have to fly continuously for twelve hours, at the rate of about a mile in less than two and-a-half minutes, and butterflies usually face the wind. But if they landed at Norfolk, the distance would be about four hundred miles; and if their transit occupied six hours, their velocity would equal that of an express train.

Now, amongst the recorded captures are some, we cannot say how many, yellow-bordered specimens; and Mr. Stainton informs us that both forms occur in Holland, a country situated about one hundred miles from the coast of Norfolk and Suffolk, giving over three and-a-half minutes per mile for a six hours' journey.

It seems to me that the migratory hypothesis is the only one which can hold water, for it is inconceivable that the earlier stages of the insect, supposing it to have bred in the country, should have been so entirely overlooked; and again, if our visitors had been true British born, it is only natural to suppose that their appearance in the North would have



been considerably later than in the South, whereas such was certainly not the case.

#### PARTHENOGENESIS IN SPHINX LIGUSTRI.

In Newman's "Entomologist," Mr. Stephen Clogg, of Looe, makes some interesting observations on parthenogenesis. It appears that that gentleman obtained from an unimpregnated female, *S. ligustri*, eggs which produced sixty-three larvæ; of these, Mr. Clogg kept ten for his own personal observation, gave nine to one friend, six to another, and turned the remaining thirty-eight (i. e., about three-fifths of the whole number) adrift. The larvæ selected thrived, and in due course went to earth. From the twenty-five pupæ twelve moths emerged, all of which proved to be barren females.

It is much to be regretted that the whole batch was not retained, for no doubt Mr. Clogg did not pick out for investigation the smallest larvæ, and these would have been the most likely to produce males.

#### VARIETY-BREEDING.

In the "Entomologist's Monthly Magazine," vol. viii., p. 272, Mr. Llewelyn records the results of some most interesting experiments in the breeding of varieties by selection. A few years ago Mr. Llewelyn obtained ova from three "dusky smoke-coloured" females of *I. crepuscularia* (*Laricaria* of Stainton's "Manual") impregnated by males of the ordinary type, from which he succeeded in rearing 160 moths in the exact proportion of half dark and half typical. From these broods two dark parents were selected, the offspring, this time, being in the proportion of about two dark to one pale. In the next generation, the darkest specimens having been chosen, the whole batch, ninety in number, emerged imbued with the parental melanism, not one being of the typical

colour. Mr. Llewelyn's experience of *crepuscularia* is that, at large, dark examples occur in the proportion of about one in thirty.

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## NEW BRITISH SPECIES IN 1872.

ZYGÆNA MELILOTI, *Esper* (Ent. Mo. Mag. ix. 111 ;  
Entom. 184).

This new *Zygæna* has been captured in some numbers during the past and preceding seasons by several collectors in the New Forest at the end of June and beginning of July. Mr. J. P. Barrett (E. M. M. ix. 111, et Entom. 185) seems to have secured examples in 1871 in the locality for *A. caliginosa*, known as "stubby coppice," but he looked upon them at the time as diminutive specimens of *Z. trifolii*: Mr. Ramsay Cox (Ent. 224) mentions having taken the species in 1869 near the same locality; and Messrs. Boden, Gulliver, Harper and Lewis also record their capture of the species.

Doubtless now that attention has been called to its specific distinctness from *A. trifolii*, *meliloti* will be found, mixed with the former, in many collections; indeed for many years my friend Mr. Bond has had a series of half-a-dozen separated from *A. trifolii* in his cabinet, under the firm belief that they would eventually prove to be a distinct species.

*Meliloti* is smaller, slenderer, and less densely clothed than *trifolii*, and the red spots in the fore-wing differ slightly, chiefly in the upper middle spot of *meliloti* being more oblong; the marginal black border, too, of the hind-wing is narrower.

According to *Esper* the larva is pubescent, of a glaucous-green colour, with a white line running along the back, and

a yellow spot, with a black one above it, marking each segmental division. Head and legs brownish-black. Food trefoil and other *Leguminosæ*.

The ordinal position of *meliloti* will be between *exulans* and *trifolii*.

Hübner's *meliloti* appears to be an aberrant form of *Carniolica* of Scopoli, and distinct from the species in question.

SYNTOMIS PHEGEA, *Lin.* (N. E. Brown, Ent. Mo. Mag.,  
vol. ix., p. 160).

For this south European addition to our fauna we are indebted to Mr. J. G. Batchelor, who captured an example while it was flying leisurely in the sunshine near Dover, last June.

The specimen in question, from its perfect condition, appeared to have very recently emerged from the pupa.

Mr. Brown thus describes the specimen (of which he also sent a very accurate drawing): "Expanse of fore-wings  $1\frac{1}{2}$  in., deep glossy blue-black, tips of antennæ white, abdomen with a crescent-shaped spot at base, and band on fifth segment golden yellow. Fore-wings with six white semi-hyaline spots, one basal, two (larger) sub-median and three (smaller) sub-apical. Hind-wing with two similar spots, one basal, the other central."

It is difficult to account for the appearance here of single examples of such species as *S. phegea* and *Naclia ancilla*, another of the family *Syntomidæ*, which a few years ago made its appearance on the south coast. And it is very much to be desired that further captures of these interesting species should be made.

At Louvain, in Belgium (says our Editorial note), *phegea* frequents old ramparts, flying over them in the hottest sun-

shine. If, therefore, there be any connection between *phegea* and old ramparts, there could not well be found a more likely place for its occurrence than Dover.

CRAMBUS VERELLUS, *Zincken* (Ent. Mo. Mag.,  
vol. ix., p. 88). Frontispiece, fig. 1.

On the 21st of July last Mr. C. A. Briggs captured an example of this interesting *Crambus* at Folkestone. The species was determined by Mr. Howard Vaughan, who introduced it to public notice in the September number of the "Entomologist's Monthly Magazine." Through the liberality of Mr. Briggs, this example is now in Mr. Vaughan's collection.

Two other specimens have since been detected by Mr. Vaughan; the one in Mr. S. Stevens' collection (separated and ticketed "n. sp."), the other captured by Mr. Ramsay Cox, at Beechboro' Wood, a few miles from Folkestone.

*Crambus verellus* is allied to *falsellus*, but is smaller, darker, and has rounder wings. It is an inhabitant of France, Germany, Sweden and Galicia.

SCOPARIA SCOTICA, *Buchanan White* (Ent. Mo. Mag.,  
vol. viii., p. 169).

Under the above name Dr. F. Buchanan White describes a *Scoparia* new to science in the January number of the "Entomologist's Monthly Magazine."

*S. scotica* is closely allied to *cembrae*, but differs from that species chiefly in having the fore-wings more triangular and dilated before the apex; the breadth across the hind margin, too, is proportionately greater, the apex is more acute, the hind margin more oblique, the colour grey, not brownish, and the lines and stigmata more distinctly marked.

Several specimens of this novelty have been captured in

the neighbourhood of Perth by Messrs. T. Marshall and W. Herd.

*DICHELIA GNOMANA*, *Lin.* (Barrett, Ent. Mo. Mag., vol. ix., p. 129).

Three or more examples of this *Tortrix* are stated to have been taken some fourteen or fifteen years since by a northern collector, who cannot now remember the locality from which he procured them. They were sent as *T. costana* to Mr. Hodgkinson, who at the time considered them varieties of the last-named species. Subsequently they duly found their way into the collection of the Rev. H. Burney, who recently forwarded them for examination to Mr. Barrett.

Mr. Barrett's description of *D. gnomana* will be found in the November number of the Magazine, in a truly interesting and valuable paper on British Tortrices, the materials for which have been got together with painstaking care and shaped with patient thought.

Mr. Barrett writes me that in his opinion *gnomana*, although placed by Dr. Wocke in the genus *Dichelia*, bears no resemblance to *grotiana*, but is more nearly related to *semialbana* and *costana*, though easily distinguished from them by its ochreous-yellow colour, its peculiar broken fascia, and the strongly marked spot before the apex.

Dr. Standinger considers that the insect which Hübner and Haworth called *gnomana* is but a variety of *Peronea ferrugana*, and that the *gnomana* of the Vienna Catalogue is identical with Hübner's *strigana*, but that Stephens, in his "Illustrations" (4-162) correctly figured *gnomana*; he therefore gives England as a locality for the species. It also occurs in France, Germany, west and south-east of Russia, Greece, and Andalusia, so that it seems to be pretty widely distributed over the Continent.

ANTITHESIA STANTONIANA, *Barrett* (Ent. Mo. Mag.,  
vol. ix., p. 127).

This handsome addition to our lists, which my old friend Charles G. Barrett has named in honour of Mr. Stainton, was captured in 1869, on mountains in Perthshire by Mr. Eedle, who secured about twenty examples of the species amongst *Arctostaphilos uva ursi*. These were distributed into various collections as *grevillana*.

Mr. Barrett's excellent description, which will be found *in extenso* in the November number of the "Entomologist's Monthly Magazine," will give a vivid idea of the beauty of *stantoniana*. It runs as follows:—

Alar. exp. 8 lines. Head, palpi, and antennæ greyish-brown; thorax blackish-brown, dusted with pale ochreous. Fore-wing: *costa arched, with sharply angulated square apex*, and truncate hind margin. *Ground colour pale cream*, with the basal two-thirds dark bluish-brown, the portion between the basal patch and central fascia being paler, and showing the ground colour near the costa. Basal patch with its outer margin angulated near the costa, thence perpendicular to the dorsal margin. Outer margin of central fascia indented, with the usual pale hook in the middle. In the pale apical third is a faint brown line, followed by a narrow brown cloud before the apex. Cilia cream-coloured, spotted with brown, and with a dark line at the base.

Mr. Barrett places *stantoniana* next to *sauciana*, from which it may be distinguished by its longer wings, and by the pale patches in the dark portion of the wing which bounds the basal patch. From *grevillana* Mr. Barrett separates it by its rounded costa, square apex, and the cream or pinkish colour of the pale portions.

I may add, that Professor Zeller entirely concurs with Mr. Barrett in considering *staintoniana* a good new species.

SERICORIS DOUBLEDAYANA, *Barrett* (Ent. Mo. Mag.,  
vol. viii., p. 126).

*S. doubledayana* is allied to *cespitana*, but, as ably pointed out by Mr. Barrett, differs from it in the first place by the form of its wings, which are short and truncate, those of *cespitana* being narrow, with straighter costa, and slightly produced tip; again, the female *doubledayana* is fully as large as the male, whilst in *cespitana*, and others of the genus, the female is considerably the smaller of the sexes; then, the markings are much more sharply defined in *doubledayana*, and the pale fascia before the middle is narrower and more regularly formed.

Mr. Barrett, who has abundant opportunities of observing the habits and habitats of both species in nature, has never found a single *cespitana* in the fenny haunts of *doubledayana*; nor has he ever seen *doubledayana* on the "Buck" Sand at Brandon, where dark forms of *cespitana* abound; nor on the celebrated Hill of Howth, where he has met with all sorts of queer varieties of *cespitana*; in fact, he is perfectly confident that the two insects are totally distinct from one another.

DICRORAMPHA HERBOSANA, *Barrett* (Ent. Mo. Mag.,  
vol. ix., p. 27).

In a masterly paper on that most perplexing group the *Dicroramphæ*, in which he begins by demolishing my poor *flavidorsana*, Mr. Barrett, to whom all Microlepidopterists ought to feel deeply grateful for the pains he has taken to set our *Tortrices* in order, introduces to our lists the above-

named novelty, for the separation of which from its congeners he gives ample characters.

After carefully describing the species, Mr. Barrett observes that it may be readily distinguished from its congeners by its pointed wings, and distinct oblique and pointed dorsal blotch (darkly margined and triangular in shape). In respect to the last character, *herbosana* is closely allied to *acuminatana*, from which, however, it may be known by its golden brown or pale-drab colour.

The species, which appears to be local, has been taken by Mr. J. Sang, on grassy slopes near Darlington; and on a canal bank near Saltwick, Lancashire, by Mr. Hodgkinson.



## LARVÆ DETECTED IN 1871 AND 1872.

| Species.                          | Date.            | Food.                                                      | By whom and where described.                        | Remarks.                                       |
|-----------------------------------|------------------|------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------|
| <i>Tapinostola elymi</i> ...      | May, m. ...      | <i>Elymus arenarius</i> ...                                | W. Buckler, E. M. M. viii. 68...                    | Discovered by Mr. Batty.                       |
| <i>Miana arcuosa</i> ...          | June, b. ...     | <i>Aira cespitosa</i> ...                                  | W. Buckler, E. M. M. vii. 260...                    | Discovered by Rev. E. H. Todd and Mr. Batty.   |
| <i>Agrotis corticea</i> ...       | April to May, b. | <i>Chenopodium album</i> and other plants.                 | W. Buckler, E. M. M. viii. 89...                    | Eggs from Mr. Geo. Norman.                     |
| <i>Dianthæcia casta</i> ...       | Aug. b. ...      | <i>Silene maritima</i> and <i>infata</i> .                 | W. Buckler, E. M. M. ix. 64 ...                     | " <i>La chenille est à peine connue</i> ," Gh. |
| * <i>Xylina furcifera</i> ...     | June, m. ...     | <i>Alnus glutinosa</i> ...                                 | W. Buckler, E. M. M. viii. 114...                   | Eggs laid Marell, b.                           |
| <i>Acidalia trigeminata</i> ...   | July, e. ...     | Fed on <i>P. aviculare</i> ...                             | W. Buckler, E. M. M. viii. 22...                    | Larvæ received from Mr. Wellman.               |
| <i>Acidalia renutata</i> ...      | Spring ...       | Fed on <i>P. aviculare</i> ...                             | G. T. Porritt, Entom. 360 ...                       | Hibernates.                                    |
| <i>Acidalia degeneraria</i> ...   | April ...        | Fed on <i>P. aviculare</i> ...                             | W. Buckler, E. M. M. ix. 115...                     | Larvæ from Mr. G. Harding.                     |
| <i>Acidalia strigilata</i> ...    | June, m. ...     | Fed on <i>P. aviculare</i> ...                             | G. T. Porritt, E. M. M. viii. 91; Entom. 358.       | Larvæ from Mr. J. P. Barrett.                  |
| <i>Eupithecia pygmaea</i> ...     | July, m. ...     | Flowers of <i>Stellaria holostea</i> .                     | Rev. H. Harpur Crewe, E. M. M. ix. 65; Entom. 166.  | Noticed previously by Rev. J. Hellins.         |
| <i>Eupithecia subciliata</i> ...  | May, b. ...      | Maple ...                                                  | Rev. H. Harpur Crewe, E. M. M. ix. 16; Entom. 125.  | Eggs at footstalk of leaf.                     |
| <i>Eupithecia pimpinellata</i> .  | Sept. e. ...     | Seeds of <i>Pimpinella magna</i> and shoots of spruce fir. | W. Prest, Entom. 240 ...                            | Resembles larva of <i>E. fraxinata</i> .       |
| <i>Eupithecia togata</i> ...      | Aug. e. ...      | Buds and shoots of spruce.                                 | Rev. H. Harpur Crewe, E. M. M. ix. 114; Entom. 223. | Minutiae of <i>Cossus</i> .                    |
| <i>Phibalapteryx lignata</i> ...  | Aug. b. ...      | Probably <i>Galium palustri</i>                            | Rev. J. Hellins, E. M. M. viii. 18                  | Second brood hibernates in larval state.       |
| <i>Phibalapteryx lapidata</i> ... | June, e. ...     | Will eat <i>Clematis</i> ...                               | Rev. J. Hellins, E. M. M. viii. 165                 | Eggs from Mr. Fetherstonhaugh.                 |
| <i>Crambus fascicellus</i> ...    | ... ...          | <i>Triticum junceum</i> ...                                | W. Buckler, E. M. M. vii. 161.                      | Discovered by Mr. C. G. Barrett.               |
| <i>Ephesthia artemisiella</i> ... | Spring? ...      | Near roots of <i>Artemisia absinthium</i> .                | W. Buckler, E. M. M. ix. 143 .                      | Discovered by Mr. D'Orville.                   |
| <i>Gymnanycela canella</i> ...    | Sept. m. ...     | <i>Mines stens</i> of <i>Salsola kauli</i> .               | W. Buckler, E. M. M. viii. 161.                     | When half-grown attacks the seeds.             |

\* Has been figured and described by Hübner and Freyer.

## NEW BRITISH TINEINA.



BY H. T. STAINTON, F.R.S.

THE only novelties I have to announce on the present occasion are the two species *Zelleria Saxifragæ*, Stainton, and *Chauliodus daucellus*, Peyerimhoff.

*ZELLERIA SAXIFRAGÆ*, Stainton (Frontispiece, fig. 3).

Dr. Buchanan White has recorded in the "Entomologist's Monthly Magazine," vol. viii. p. 271, that he captured a specimen of this insect at Braemar, in July, 1871, amongst *Saxifraga aizoides*. In 1872, he again met with it, and says that he *saw* it *commonly* on the precipices of Maol Ghyrdhy, in Glen Lyon, flying about the ledges, but was only able to take a few specimens for want of time.

The natural history of this species is given in the "Natural History of the Tineina," vol. xi. pp. 116—125, pl. iii. fig. 3. It was previously only known as occurring in Switzerland and in the South of Bavaria, where my active friend, Herr Ernst Hofmann, detected the larva at the end of May feeding under a web in the hearts of *Saxifraga Aizoon*. This plant not occurring with us, the insect in Scotland was found amongst the closely allied *S. aizoides*, showing that it has the philosophic good sense to act upon the proverb—

"Si on n'a pas ce qu'on aime, il faut aimer ce qu'on a."

In the Plate I have had represented (fig. 2), the somewhat allied *Zelleria fasciapennella*, Logan, a Scotch species

formerly taken both by Mr. Logan and by Dr. Lowe, but which I believe has not been met with of late, and of which the larva is entirely unknown to us. The difference in the form of the hind margin of the anterior wings, and of the outline of the cilia, should at once enable any observant Entomologist to distinguish it from *Z. Saxifragæ*.

The habitat given for *Z. fasciapennella*, in the "Insecta Britannica—Lep. Tineina," p. 193, is, "Occurs on the Pentlands, among *Vaccinium Myrtillus*, in September and October."

#### CHAULIODUS DAUCELLUS, Peyerimhoff.

In a box of insects lately sent me for determination by Mr. C. W. Dale, of Glanville's Wootton, who seems determined to tread in the footsteps of his late father, and to make for himself a name in Entomology, was a specimen of *Chauliodus daucellus*, taken at Freshwater, October, 1868. Of this insect the natural history is given in the "Natural History of the Tineina," vol. xii. p. 82—89, plate iii. fig. 1. When writing that volume the insect was only known to me from specimens from the south of France, M. Peyerimhoff having first detected the insect at Hyères and subsequently at Cannes. As its food there is the common wild carrot (*Daucus carota*), there could be no earthly reason why it should not also occur with us. In the south of France the feeding larvæ are found in January and February, and the imago in March.

The date of capture of Mr. Dale's specimen, October 27,\* agreeing with the time when *Chauliodus chærophylllellus* appears in autumn, would imply that the larva might be found at the end of August or early in September.

\* Since writing the above, I have heard from Mr. Dale of other captures of this species: at Ventnor, October 27 and 28, 1866, and at Freshwater, November 2, 1868.

# INVESTIGATIONS ON SCIAPHILA WAHLBOMIANA, L., AND THE ALLIED SPECIES.

BY DR. OTTMAR HOFMANN.

[Translated from the Stettin. Entomol. Zeitung, 1872, pp. 433—446.]

FOR systematic Entomologists, as well as for observers of the natural history of insects, the genus *Sciaphila* seems to be a constant source of annoyance. The former are perplexed when attempting to characterize the different species, by the unusual variation amongst the individual specimens in the form of the wings, size, markings and colour; and the latter are hardly less confused by the polyphagous habits of the larvæ of this genus, which have a more extensive range of food than we find in any other *Tortrix*-larvæ; and many an industrious larva-collector, who has found on some scarce plant larvæ, either mining or in spun-up leaves, and carefully tended them in hopes of rearing from them some peculiar imago, has been bitterly undeceived by the eventual exclusion of some common *Sciaphila*, especially since, even then, he is at a loss whether he should call the creature *Wahlbomiana*, *communana*, *minorana*, *virgaureana*, *incertana*, &c., because any one of these descriptions would seem about equally suitable for it.

Such vexation has often been my lot formerly, and hence in my collection has gradually been accumulated rich material of *Sciaphilæ* from all possible food-plants and localities, which I have several times, but hitherto always in vain,

attempted to separate into the species enumerated by Herrich-Schäffer, in his "Schmetterlinge von Europa," vol. iv. p. 199. *et seq.*

Only quite lately, when examining repeatedly my materials in order to prove the correctness of Heinemann's opinion, that *Sc. incertana*, *Wahlbomiana*, *communana*, *alticolana*, *minorana*, and *virgaureana*, were all simply varieties of the Linnæan *Wahlbomiana*, I succeeded in finding a character, at least in the females, by which they may be sharply and decidedly divided into *two* species.

In the one species the female abdomen ends obliquely truncate, and is surrounded by a crown of pale yellow-grey hairs and scales, within which is the very short and thick ovipositor, which on its upper side bears a dense tuft of dark yellow (sometimes almost orange-yellow), stiff, bristly hairs, so that the end of the abdomen, even at a superficial glance, appears to be very distinctly coloured yellow.

When viewed through a microscope, which magnifies 60 times, the yellow tuft of hairs is seen to be covered above by two longish, round, yellowish, horny plates, which meet together at a central line and have long hairs at the fine margins, and that the individual bristles at the end are very neatly expanded spoon-shape, and are curved downwards. If we rub away the scales at the end of the abdomen, which is easily done with a camel's-hair pencil, we can readily see, with only a simple lens, the above-mentioned two horny plates very distinctly protruding beneath the straight, free margin of the last abdominal segment.

If we now turn to the other series of females, we find the formation of the ovipositor is quite different. The abdomen here terminates pointed, and with a thin, long, two-jointed ovipositor, at the base of which, on the upper side, stand two thin, directed upwards and outwards, pale yellow-grey

tufts of bristle-like hairs, and if these be removed with a camel's-hair pencil, one sees the rounded, free margin of the last abdominal segment.

The hairs of the tuft above the ovipositor, when examined with a microscope which magnifies 60 times, are seen to be scale-shaped, thicker towards the end, and terminating in two sharp points. The terminal joint of the ovipositor is clothed with fine, erect hairs.

Now the females with the form of ovipositor last described belong to *Sciaphila minusculana*, Zell. Ent. Ztg. 1849, p. 247 (*Minorana*, H.-S. iv. p. 201, figs. 104—106, Mann, *in lit.*), as I have been able to satisfy myself by a careful comparison of the original specimens from Professor Zeller and Herr Mann (for whose kindness in sending them I beg here to offer my best thanks). *Sc. incertana*, Tr. (H.-S. iv. p. 199), also possesses this form of ovipositor, whence I consider it to be a variety of *Sc. minusculana*. It appears to represent the southern form of the latter, and to be rather scarce. The two specimens which Herr Mann sent me for examination (♂ and ♀) came from Fiume and Spalato. The only certain specimen of *Incertana* in my collection had also been previously received from Herr Mann, with the label, "from Turkey." *Incertana* also occurs in Hungary and near Vienna, according to Herrich-Schäffer (iv. p. 200); of course also at Glogau, which announcement may easily arise from a confusion with an allied form.

*Minusculana* appears to be a widely-spread and abundant form, since I possess specimens from the most diverse localities in Germany, even from the Island of Rügen, and probably also the small *Sciaphila*, which Professor Zeller met with at Bergün (Stett. Ent. Ztg. 1872, p. 102), should be referred here. The three original specimens sent me by Professor Zeller are from Tuscany. As the larva also of

*Sc. minusculana*, as I will point out presently, can be easily and with certainty distinguished from other *Sciaphila*-larvæ, it appears to me that in good truth the specific distinctness of *Minusculana* is well founded.

All the remaining species of *Sciaphila* which are now under consideration, namely, those in Herrich-Schäffer's Section VI., 2 (vol. iv. p. 199), have the first mentioned short, thick ovipositor, with the yellowish tuft of hairs. *Wahlbomiana*, *communana*, *alticolana*, *virgaureana*, and *derivana* (*paraliana*), seem all to be only different forms of a single species, which shows an extraordinary tendency to vary even in the larva state, as will be pointed out further on.

*Wahlbomiana* is widely spread and everywhere abundant, but this does not appear to be so much the case with *Sc. communana* and *virgaureana*. Of the former I have specimens from Ratisbon, and through Herr Mann also from Vienna, Carinthia and Dalmatia. I have it also from Muggendorf and Marktsteft. Of *Virgaureana* I have specimens from Ratisbon, Vienna, Munich, Coburg, and Marktsteft. *Alticolana*, a variety which is distinguished by its larger size and more lively colouring, occurs principally in mountainous districts—in the Alps, the Engadine, the Bregenzer Wald, and at Bergün in the Grisons (Zeller); yet many specimens from the neighbourhood of Ratisbon, and from the Upper Palatinate, are hardly distinguishable from these Alpine forms.

*Derivana* (which, according to Heinemann is identical with *paraliana*), is, as Heinemann (vol. ii. p. 61) quite correctly observes, distinguished by the second fascia of the anterior wings being mixed with brownish-yellow in the middle, a character which I have not so far observed in any other variety. Besides this, the middle flap of the male

genital organs is, as will be seen presently, somewhat different from the typical form, so that here probably we have an indication of a distinct species, which, however, can only be firmly ascertained by further examination, and especially by breeding the insect from the larva. It appears to occur principally in North Germany and on the coast—thus, at Dantzic and Brunswick; but I also possess one specimen from the Tyrol, and Lederer has (as Heinemann affirms, vol. ii. p. 61) received specimens from Corsica.

Whether the *Sc. cypressivorana*, Stdgr., found by Herr Mann at Brussa, the larva of which lives in spun-together cypress twigs, and which, according to the form of the ovipositor, belongs to the *Wahlbomiana*-group, is a distinct species or not, I do not venture to decide, but my belief rather inclines to the latter alternative.

*Fragosana*, Zell., from Sicily; *chrysanthemana*, Dup., from Vienna, and *pasivana*, Hüb., from Spalato, of each of which I have received through the kindness of Herr Mann a pair for examination, all appear to be good species.

*Chrysanthemana*, as Herr Mann writes to me, is also distinguished in the larva state, and seems with *pasivana*, the larva of which feeds on everlasting (*Xeranthemum annuum*), and *fragosana*, to be more attached to southern localities.

If we now turn to the form of the ovipositor in other species of the genus *Sciaphila* (as collected by Wocke in Staudinger's Catalogue, p. 240), we find in *Sc. osseana*, *Sc. argentana*, Cl., *Penziana*, Hüb., and *nubilana*, Hüb., the same form as in *Sc. Wahlbomiana*; whereas in *Abrasana*, Dup., we find the pointed form of ovipositor as in *Sc. minusculana*, Zell. Of the remaining species I have for want of materials not been able to examine the form of the genital organs.



In the genera that follow after *Sciaphila*: *Sphaleroptera alpicolana*, Hüb.; *Cheimatophila tortricella*, Hüb.; *Oxypteron impar*, Stdgr.; *Exapate congelatella*, Cl., have likewise the same form of ovipositor as we see in *Sc. Wahlbomiana*, and this also occurs in *Tortrix* (*Lophoderus*, Stph.) *oxyacanthana*, H.-S.

*Olindia hybridana*, var. *albulana*, Tr., has again the pointed, naked ovipositor as in *Sc. minusculana*, and we find a quite similar formation in that of *Ephestia elutella*, Hüb. But the *Olindia ulmana*, placed in the same genus with *hybridana*, has on the other hand an ovipositor totally different from the forms I have already described, which, however, I have not at present space to describe here.

More detailed investigations, which I propose in time to carry out, will no doubt show many repetitions of the same form of ovipositor in different other genera of *Tortricidæ* or *Micro-Lepidoptera*.

At any rate it may already be seen from the few examples above given, that the difference of form of the ovipositor may under circumstances furnish an excellent character for the separation of very closely allied and very similar species, as in our *Sc. Wahlbomiana*, L., and *Sc. minusculana*, but that these differences seem less adapted to be used as generic characters, since even in species so closely allied as *Sc. Wahlbomiana* and *Sc. minusculana*, the difference in the form of this organ is so great.

From the investigations above recorded *Sc. minorana*, H.-S. (*minusculana*, Zell.), with its variety *incertana*, Tr., must be separated as a distinct species from *Wahlbomiana*, L., and its varieties, a result, which we shall presently see, is confirmed by other investigations.

## FORM OF THE MALE GENITAL ORGANS.

After the discovery of the extraordinary differences in the ovipositors of *Sc. Wahlbomiana* and *Sc. minusculana*, I was anxious to examine also the genital organs of the male specimens. But these offer only very slight differences, as I will shortly explain, and are by no means adapted to serve as characters by which to recognize the species, as can be done by means of the form of the ovipositor.

The males of *Sciaphila* possess, as usual in the Lepidoptera, at the end of the abdomen three horny flaps, an odd one above in the middle, and a pair, one on each side (called forceps). Where the two latter unite beneath, the penis is inserted; beneath the upper flap is the anal opening. These flaps are thickly scaled externally, and usually more or less withdrawn within the last abdominal segment. One can very easily force them out for investigation in fresh specimens by pressure on the abdomen, when they become protruded and opened. In dried specimens one can generally make them visible by denuding the scales from the end of the abdomen with a camel's hair pencil.

Now in *Sc. minusculana*, Zell., the upper genital flap is rather quadrangular, convex on the upper surface, with the corners of the hinder margin more or less pointed and protruding. In the middle of its hinder margin arises a long, thin, horny hook, which is curved downwards. The entire flap is generally coloured pale brown, seldom darker. The side flaps (forceps) are elongate, quadrangular, rounded at the hinder end and rather curved upwards; they are more skin-like, pale yellow, at the upper edge entirely, but at the lower edge only at the basal half, margined with a narrow, brown bordering of horn. In one solitary male in my collection, which, according to all the other characters, belongs to

*Minusculana*, I find there is no hook at all at the hinder margin of the upper flap, but it ends with a straightly cut, clean margin. Probably this occurrence is only accidental and the hook may have got turned down beneath the upper genital flap.

In *Sc. Wahlbomiana* the upper genital flap has a more triangular form, which terminates in a stout, horny hook, which is curved downwards; hence there is almost nothing to be seen of a hinder margin to the flap with protruding corners. The upper surface of the flap shows two hemispherical prominences, which are separated by a furrow in the medial line. The entire form appears more compact than in *Minusculana* and is of a darker brown colour. In the lateral flaps I do not perceive any difference.

I must here again call attention to the fact that these differences in the form of the middle, upper, genital flap are not constant throughout, since there are plenty of intermediate forms between the more quadrangular shape we find in *Minusculana* and the more triangular form in *Wahlbomiana*. The typical *Wahlbomiana* and the var. *communana* have especially the more triangular form, whereas the var. *virgaureana* and the var. *alticolana* have again a more quadrangular form. The var. *derivana*, Lah. (*paraliana*), differs somewhat, as already noticed, in the form of the middle genital flap of the male; it is indeed also quadrangular, but extraordinarily large, and forms at the base two blunt knobs projecting upwards, whilst the terminal half is level above. The corners of the hinder margin are prominent, but rounded, the hook in the middle shorter, but thicker and more strongly curved downwards. That these differences would justify our placing it as a distinct species, I do not believe, since as we have already seen the form of the middle

genital flap seems to show abundant modifications in the insects, which we have now under consideration.

Whether amongst the other allied species of *Sciaphila*: *fragosana*, Zell.; *chrysanthemana*, Dup., and *pasivana*, Hüb., any differences of more importance occur in the form of the genital flaps, I could not ascertain from the want of materials, but I hardly fancy it from the previous investigations. *Sc. cupressivorana* ♂ has quite the same form of the genital flaps as in *Sc. communana*.

#### NATURAL HISTORY.

The natural history of the *Sciaphilæ* furnishes us with many peculiarities; and first of all, as mentioned in the preliminary observations, the extraordinarily polyphagous habits of the larvæ are to be noticed: it is true it is generally low plants and especially Dicotyledons, but these of all possible orders serve as food for the larvæ of this genus. On trees and bushes we seldom notice the larvæ of *Sciaphila*; once I found the larva of *Minusculana* on hawthorn, and once that of *Wahlbomiana* on a smooth-leaved willow, but in each case it was on very low bushes. Amongst the Monocotyledons I have only once found *Sciaphila*-larvæ on grasses (*Poa nemoralis* and *Brachypodium*), and once on an Iris (*Iris pseudacorus*). Amongst the Gymnospermeæ, the cypress is frequented by the larvæ of *Sc. cupressivorana* (Mann).

It is extremely probable that the eggs are deposited at the beginning of spring by hybernated females on the unfolding leaves of low plants; since in early spring we find the very characteristic first traces on the tender leaves, which are only just unfolded, whereas we never see any such traces in the autumn. In accordance too with this, we read that Herr Mann beat the imago of *Minusculana* in March from dry

oak-leaves, where it had evidently hibernated; the ordinary period for the flight of this species is June and July (Stett. Ent. Ztg., 1849, p. 247).

As soon as the larva quits the egg it bores beneath the upper skin of a tender leaf, and forms, by raising and folding longitudinally the loosened upper skin, which now appears white, a narrow and straight mine about two lines long, of which both the openings are protected by some delicate white silk. The chlorophyll, which the larva has to remove in order to form the mine, is its first food; the excrement is ejected at both ends of the mine. These mined abodes, which seem to be very characteristic of the genus *Sciaphila*, may easily be mistaken by the inexperienced for the mines of small larvæ of the *Tineina*, an error into which I used at one time to fall myself. The larvæ inhabiting these mines may be either pale or dark greenish-grey, with black head and thoracic shield, and a roundish black anal plate. Afterwards the larva quits the mine and spins up amongst the leaves of its food-plant, forming an abode which is apt to vary much in shape, according to the form of the leaves of the plant, but which generally forms a sort of capsule, within which the larva lives. Amongst the most remarkable abodes, and at the same time very characteristic of *Sciaphila*, are those which the larvæ construct on plants, with large, entire-margined leaves, e. g., *Bupleurum falcatum*, *Centaurea*, &c. In these cases, they curve a leaf along the midrib upwards, and fasten the edges together with silk, so as to form a prolonged capsule or cone.

The larva then proceeds to gnaw away the chlorophyll from the inner wall of this cone, and, at first, beneath the tip it gnaws a rather deep furrow all round the abode, in consequence of which, the end of the cone first becomes withered, but remains hanging to the larger basal portion which con-

tinues fresh, and generally it sinks a little within the latter; it is not till after the above-mentioned furrow has been excavated that the chlorophyll of the other parts of the inner wall of the cone is eaten in an irregular manner, and not to any great depth. The larva collects its excrement in a heap at the lower end of the cone. If its habitation be opened, the larva coils itself up like a *Noctua*-larva, which is another peculiarity by which the larvæ of this genus can be distinguished from other *Tortrix*-larvæ.

The change to the pupa state takes place in a slight white cocoon, between leaves, and when the imago is excluded, the pupa protrudes more than the half of its length from this cocoon.

Now, much as the larvæ of the individual species of *Sciaphila* resemble one another in their modes of life and in their appearance, yet are there some apparently insignificant, but nevertheless constant characters, by which the larvæ, for example of *Sc. minusculana* and *Wahlbomiana*, may be easily and certainly distinguished from each other; and even the larvæ of the varieties of *Wahlbomiana*, as far as I have been able to observe them, have their small, but constant, differences, when one has once thoroughly learnt their characters, by which they can be more easily and certainly recognized than the perfect insects themselves, which in reference to colour, markings, size, and especially the form of the wings, offer so many transitional forms, that one can only look upon them as varieties, and not as distinct species, in spite of the constant differences in the larvæ.

In the pupæ also of the *Sciaphilæ*, we can find small, though only unimportant, differences.

After these preliminary remarks, let us now consider more in detail the larvæ of the individual species of *Sciaphila*.

1. *Sciaphila minusculana*, Zell. (*minorana*, H.-S.).

The larva of this species occurs very early in the spring, and is already full-grown by the beginning of May; it is always small (about 5") and is the darkest-coloured of all its allies, namely, of a deep smoky-grey, or, indeed, generally quite black.

The so-called warts, which are apparently small plates of chitine, from the middle of which rises a hair, are always *paler* than the ground-colour, and only coloured black in the centre, so that the larva viewed superficially, and when only slightly magnified, shows small black warts *surrounded by pale*. This is a character by which the larva of *minusculella* may always be recognized.\*

\* The position of the warts, which in all Microlepidopterous larvæ provided with them, and probably in all naked Lepidopterous larvæ, is essentially the same, although in many genera and species there may be small deviations, is amongst the *Sciaphila*-larvæ as follows:—On the back of each segment, excepting the 2nd and 13th, are 4 warts, which on the 3rd and 4th segments are placed in one transverse row, but on the 5th to 12th segments, inclusive, are arranged in two transverse rows, so that the two warts of the anterior row are placed nearer together than the two of the posterior row. On the 13th segment are only 3 (though large) warts on the dorsal surface, and the 2nd segment bears as a thoracic shield the well-known horny-plate.

On the sides of the segments, again excepting the 2nd and 13th, we see on each 3 warts, which on the 3rd and 4th segments are arranged in the form of an acute triangle, of which the base is formed by the two upper warts placed in a line, and the apex by a single wart placed above the pectoral legs. From the 5th to 12th segments, inclusive, the 3 warts are placed in one vertical line, which runs rather obliquely from the upper anterior wart to the lower posterior one. On the sides of the 13th segment is only 1 large wart, but 2 on the 2nd segment placed vertically one above the other. The stigmata, 9 on each side, are placed on the 5th to 11th segments directly under the upper lateral wart, but on the 2nd and 12th segments immediately behind the upper lateral wart.

The head is honey-brown, with a black hind-margin; the thoracic shield on the second segment is black, pale-margined on its anterior edge, divided by a fine pale median line; pectoral legs, anal plate and outer side of the anal prolegs, black; the ventral prolegs are of the general colour of the body. Immediately behind and under the anal plate, exactly above the anal opening, is a small semicircular plate of black chitine, about half the size of the anal plate itself, which is extended posteriorily in 6 long black thorns, and probably has for its object to assist in the evacuation of the excrements. If one holds the larva between the fingers, one can easily see this rake-like plate of chitine when examining it with a simple lens. This formation is entirely wanting in the closely allied *Sc. Wahlbomiana*, but on the other hand it occurs again in

Again, on the ventral surface of each of the segments, which bear no feet, are also 4 warts, which are arranged in one transverse row, and the 2 inner warts are much smaller than the 2 outer ones. This, then, is the arrangement on the ventral surface of the 5th and 6th, and also of the 11th, 12th and 13th segments. The 2nd, 3rd and 4th segments bear the pectoral legs, which are surrounded at the base by a horny ring. The 7th to 10th segments bear the ventral prolegs, on the outer side of which is a small, elongate horny border, whilst on the inner side is a horny wart. The 2 outer warts of the 13th segment stand rather farther apart than the 2 inner ones, and are placed more backwards laterally.

On the outer side of the anal prolegs are likewise always a pair of horny warts.

Each segment has therefore 4 dorsal, 4 ventral and 3 lateral (on each side) warts: exceptions are made only by the 2nd and 13th segments and the ventral surfaces of those segments which bear legs.

Most of the warts bear only a single hair, but many, especially the larger ones, bear 2,—as, for instance, the dorsal warts of the 3rd, 4th and 13th segments, the middle lateral warts, from the 5th to 13th segments, probably also the outer ventral warts. The thoracic shield bears (on each half) 6 symmetrically-arranged hairy bristles, the anal plate bears 8 such bristles.



the varieties *communana* and *virgaureana*, a proof that it can be of no great importance either physiologically or systematically. It also occurs in many other *Tortricidæ*, whilst in many of the species it is entirely wanting.

The pupa of *Sc. minusculana* is dark-brown, paler on the ventral surface and in the incisions between the segments, darker on the back and on the wing-cases.

On the back of the 2nd to 8th segments short spines are arranged in two transverse rows, of which those of the anterior row are much stouter than those of the hinder row. These spines are only faintly indicated on the 2nd and 8th segments. These are the so-called *Adminicula*, which are found in all *Tortrix*-pupæ, that are protruded from the cocoon at the exclusion of the imago; as also in the *Sesiæ*, *Psychidæ*, and many other genera.

At the rounded anal end of the pupa are two extremely small horny points, and several stout bristles, which are curved like hooks.

As an example of the polyphagous habits of the larva, I will now mention some of the plants from which I have reared this species: *Achillea millefolium*, *Senecio erucifolius*, *Artemisia campestris* and *vulgaris*, *Mentha aquatica*, *Centaurea jacea*, *Veronica officinalis*, *Stachys recta*, *Cratægus oxyacantha*, *Chrysanthemum corymbosum*, *Bupleurum falcatum*, *Vicia sepium*, *Anthyllis vulneraria* and *Medicago sativa*.

The perfect insect usually appears in the first half of June.

I do not know the larva of the var. *incertana*, neither was Herr Mann able to give me any notice of it.

## 2. *Sciaphila Wahlbomiana*, L.

The larva, which generally occurs later than that of the

preceding species, and is still to be found in the latter half of June, and even in the beginning of July, is considerably larger (about 7" long) and varies in its colour from a dirty whitish-grey, bluish-grey, or yellowish-grey to a rather deep dark-grey.

The head is entirely honey-yellow, or on the hinder margin more or less broadly coloured black (to a very variable extent), sometimes even entirely black. The thoracic shield is black, narrowly margined with pale yellowish-brown at its anterior edge, divided in the middle by a slender pale longitudinal line. Pectoral legs, outer side of the anal prolegs and anal plate black; behind the latter, as already mentioned, the thorny plate of chitine is entirely wanting. Ventral prolegs, and the inner side of the anal prolegs, of the colour of the body. Generally the dorsal vessel shows through distinctly along the back, and forms a dark dorsal stripe. The warts are large and shining black. By them, and by the unarmed anal plate, *Sc. Wahlbomiana* is therefore easily distinguishable from *Minusculana*; how it differs from its varieties *Sc. virgaureana* and *communana* shall be shown further on.

The pupæ of *Wahlbomiana* are rather larger and of a darker brown colour, and have two considerably longer horny points at the anal end, directed posteriorly and upwards; these have between them at their bases a semicircular incision.

The hairs of the anal end are thinner and longer, and not recurved like hooks.

Hence by these characters the pupa of *Sc. Wahlbomiana* may be easily distinguished from that of *Sc. minusculana*.

As food-plants for this species I find, according to the labels on the specimens in my collection, the following are indicated:—*Ranunculus ficaria*, *Orobis tuberosus*, *An-*

*thyllis vulneraria*, *Medicago sativa*, *Vicia sepium*, *Sedum maximum*, *Angelica sylvestris*, *Ægopodium podagraria*, *Bupleurum falcatum*, *Cirsium* sp., *Centaurea scabiosa* and *phrygia*, *Solidago virgaurea*, *Chrysocoma linosyris*, *Achillea millefolium*, *Serratula tinctoria*, *Chrysanthemum corymbosum*, *Artemisia vulgaris*, *Hieracium* sp., *Primula veris*, *Saxifraga rotundifolia*, *Phyteuma spicatum*, *Salix* sp., which is certainly very satisfactory testimony to the polyphagous habits of a *Sciaphila*-larva.

Hence it may frequently chance that we find on the same individual plant larvæ both of *Minusculana* and *Wahlbomiana* at the same time; the former generally full-grown and nearly ready for pupation, the latter not yet fed up. The imago of *Wahlbomiana* appears in the second half of June, and one may find it to the middle or end of July.

Among the numerous larvæ of *Sciaphila Wahlbomiana* which I have observed, I have found only two constant varieties, namely, var. a. dark grey-green or blackish, with black head and black thoracic shield, and *small black warts, which, however, are not pale-margined*, as in *Minusculana*; the anal plate is round, yellow, broadly margined with black; beneath it is a small plate of black chitine, furnished with 6 thorns.

This larva, precisely with the above described colouring, especially the anal plate, I have hitherto only found four times, generally very early in the spring (April); once only as late as the 19th May. The food plants were *Cerastium arvense*, *Ononis spinosa*, *Hieracium* sp., and *Senecio vulgaris*.

The pupa has at the anal end two small pointed thorns, larger than in *Minusculana*, and smaller than in *Wahlbomiana*; the hairs are recurved, hook-like, as in *Sc. minusculana*.

Of the perfect insects obtained from these larvæ, two ♂ and two ♀, one ♂ agrees precisely with the specimens received from Herr Mann as "*communana*," whilst the other three scarcely differ from the typical *Wahlbomiana*. They made their appearance May 15th and 25th, June 1st and 11th.

Var. b. *pale yellow*, with a dark dorsal stripe (dorsal vessel); head pure honey-yellow. Thoracic shield yellow, with two lateral round black spots in its posterior half, or with the anterior half yellow and the posterior half black, or else entirely black. Warts shining black, large. Anal plate elongate, rounded, with the anterior half yellow, the posterior half black, sometimes it also is entirely black; immediately behind it is a semicircular plate of black chitine, with *five* long thorns.

I have hitherto only found this very striking larva twice, namely, on the 12th June, 1867, in the flowers of *Orobus tuberosus* at Coburg; and on the 31st May, 1871, I found 4 specimens on *Medicago sativa* at Marktstett.

The pupæ are paler brown than in the other *Sciophilæ*, and have at the anal end two fine pointed thorns, at the base of each of which on the ventral side of the pupa is a small horny strip. The few bristles at the anal end are recurved, hook-like.

The three imagos, all females, which were developed from these larvæ on the 22nd, 23rd and 28th June, agree precisely with the specimens of *Sc. virgaureana* received from Herr Mann, who had himself remarked, that to the best of his recollection the larvæ were *yellow*, with black head and black warts.

Var. c. agrees altogether in colour with the typical *Wahlbomiana*-larva, and has the same large shining black warts, but differs from that very decidedly in that the black plate of chitine behind the anal plate is furnished with *eight* thorny

points. (Whether the number of the thorns to these plates of chitine, 5 in the var. *virgaureana*, 6 in *minusculana* and the var. *communana*, and 8 in var. c., is constant, I cannot venture to decide, as I have only thoroughly examined a few larvæ.) The head is either honey-yellow, with a black hinder margin, or entirely black. The thoracic shield and anal plate are always black.

I found these larvæ at Marktstett on the 19th May, on *Cratægus oxyacantha*, but unfortunately did not succeed in rearing the imago, so that I am unable to say whether they correspond to any peculiar form of the imago or not, and the determination of this point must be left for future observation. In the extensive biological collection of my brother Ernst at Stuttgart, I found two beautifully-prepared *Sciaphila*-larvæ, which belong to this variety, and were found on the 26th May on *Lathyrus sylvestris* at Ratisbon.

As to the larvæ of the var. *alticolana* and *derivana*, we unfortunately possess no information; of the first named variety I once bred a specimen from *Parnassia palustris* from the Bregenzerwald, which rather curiously made its appearance as late as the 17th September.

With reference to the remaining *Sciaphilæ*, I only possess a notice, by Herr Mann, of the larva of *Chrysanthemana*, according to which the head and thoracic shield were black, and the warts *white*, which would seem to speak in favour of its specific distinctness.

The three larvæ which Frau Lienig described in the "Isis," 1846, p. 235, all appear to me to belong to the typical *Wahlbomiana* form, which, as already mentioned, is extremely variable in colour; at any rate they are not described with sufficient precision to be recognizable with certainty.

## CONCLUDING REMARKS.

As a result of the preceding circumstantial observations (continued during many years) on the *Sciaphilæ*, I would suggest that the *Wahlbomiana*-group, as it can scarcely be rightly considered as composed of one species (Heinemann, vol. ii. p. 58), appears to afford a very good illustration of the Darwinian views, according to which the tendency to variation in a species first leads to the formation of constant varieties, and gradually to their separation into distinct species. *Sc. communana* and *virgaureana*, which, in the larval state, show constant differences from the typical species, whilst in the perfect state, as Heinemann specially maintains, and rightly so, and as I have myself frequently observed, one can find numerous transitional forms to the typical species; and they can, therefore, only be reckoned as varieties of it, whilst *Sc. minusculana* with its var. *incertana*, in which an essential departure from the type in the form of the female genital organs is observable, may rightly enough be considered as a distinct species.

How it really stands with var. *alticolana* and *derivana*, I cannot for want of observations of the larvæ determine; yet they would also appear, especially *alticolana*, to which forms very similar occur amongst the *Wahlbomiana* of the plains, on that account, and on account of the similar formation of the ovipositor, only to be varieties.

Further, it seems to follow from my observations that certain differences from the type first become perceptible in the larva state, and gradually become constant, whilst up to such a time no perceptible differences have been developed in the perfect insects, and in the unicolorous group of the genus *Coleophora* I have observed a very similar state of affairs.

*Editorial Note.*—It is with regret that in the description of the position of the larval warts (p. 61), I have been obliged to alter the numbers of the segments from those printed in the Stettin. Ent. Zeit. I wish all Entomologists would bear in mind the following axioms as laid down by some of the very first authorities in Entomology:—

“Der Kopf nimmt immer den ersten der dreizehn Leibringe ein.”

*Burmeister, Handbuch der Entomologie*, vol. i. p. 42.

“The head always occupies the first of the thirteen segments of the body.”

*Shuckard's Translation of Burmeister*, p. 35.

“The larvæ, which are commonly called caterpillars, are long and cylindrical, composed of 13 segments, of which the anterior represents the head of the imago,” &c.

*Westwood's Introduction to the Modern Classification of Insects*, vol. ii. p. 319.

“The first segment is the head.”

*Newman's Familiar Introduction to the History of Insects*,  
p. 340.

If the head be the first segment, *the segment behind the head is the second*, and so on. Much confusion in descriptions of larvæ is caused by this simple fact being overlooked.

A CRITICAL NOTICE OF "THE LEPIDOPTERA OF PERTHSHIRE, BEING PART I. OF THE FAUNA PERTHENSIS." BY DR. F. BUCHANAN WHITE.

BY R. C. R. JORDAN, M.D.

LIVING myself in a county, which, according to the late Dr. Arnold, (I quote from memory,) has, in a direct line towards the east, nothing of interest nearer than the Ural Mountains, and moreover does not possess so much as a single peculiar plant, or I may add insect, and besides this living in a large manufacturing town in that county, a list of insects such as is given by a district like Perthshire cannot help imparting to me the same kind of longing that a cook's shop gives to a hungry man,—it is a very Barmecide's feast to my imagination.

My readers, with Mr. Birchall's Irish list fresh in their minds, are not likely to underrate the importance of such labours, and to overrate them would be difficult. I could wish every county, or indeed every parish, possessed such a chronicler; it is to be hoped, however, that when this is the case the authors may fix upon some suitable uniform size, and keep to it. Various kind friends are frequently sending me pamphlets, and the difficulties which they give to my book-binder are in some cases insuperable. The author may regard this criticism as a compliment, for there would be no grumbling if the catalogue before me was not well worth preserving; it is not a mere list of names strung together, but in the best sense of the term a "catalogue raisonné;" there are scattered through it, remarks, clearly the notes of a



philosopher as well as a naturalist; it is the work of a man who sees how important the history of even a single insect may be in pointing out some problem of the past, and proving the truth or falsehood of some real or supposed epoch in the story of the world. This is said to be the beginning of a complete catalogue of the Perthshire fauna, and if the other living beings it contains are chronicled as faithfully and well as the Macro-lepidoptera, the county and its society of natural science will have just cause to congratulate themselves on the work.

The trivial names throughout the list—with, perhaps, the single exception of *Deilephila Galii*—correspond with those used by Dr. Staudinger in his last edition of the well known "Catalog der Lepidopteren." It is very much to be desired that we could elect a parliament of naturalists from different nations to work out this subject of nomenclature and have done with it for ever; their decision should be like the laws of the Medes and Persians, and allow of no possible appeal; for my own part I should not care if we had an autocrat like Adam, and whatsoever he called every living creature that was the name thereof, I would myself abide by the decree; and if I had to spell *Corydon*, *Coridon*, and *Galii*, *Gallii*, or even to speak of *Sesia triamuliformis*, no word of grumbling should escape my lips: have I not already for years written *Arge Galathea* and *Lasiommata Ægeria*? Yet, in sober earnest, if the ghosts of some of our grand old naturalists could know what we were quarrelling about, they would never rest quiet in their graves, but would wake up and tell us that they invented names only for uniformity, but that we make them a source of discord. It is not that personally I have any objection to learning a new alphabet, but let me be assured that it is to be done once for all; if the names by which I have known some British insects during

the changes of the last thirty years were summed up, it would even astonish the greatest votaries of priority. Our author uses Dr. Staudinger's trivial names, but he does not follow his classification, nor does he follow him in the divisions of his genera: the position of many of the insects in the list before me is to my mind very unintelligible, for example, the gap between *Smerinthus* and *Saturnia* seems to me a very wide one, yet it is ever a pleasure to see the evidence of fresh thought in any classification; but to this one exception must be here made,—it is not a pleasure to see one system of classification dove-tailed as it were upon another. Now the arrangement of the Geometræ here is clearly that of Guenée; he commenced with *Ourapteryx*, because in his eyes it was the nearest European geometra to the *Saturniæ* which it follows; but, if he had made *Brephos* his last antecedent genus, he never could have begun with *Ourapteryx*. Dr. Staudinger, making the Geometræ follow *Brephos*, begins with *Pseudoterpna*, which is more natural; the transition from *Brephos* to *Ourapteryx* must be forced. But, enough of this: every one has his own crotchets on this subject of classification, so let me turn to some point of agreement between our author and myself; it is a treat to me to see such genera as *Triphæna* and *Noctua* retained; *Triphæna* is a well-known section of *Agrotis*, distinguished chiefly by its hind-wings, which are ample, and yellow with a black border, giving a marked character to the group. Now, it may be said that *Dasycera sulphurella* has just such hind-wings, and so has *Ophiodes Tirrhæa*—this is true; and if these were large unwieldy genera, and there was a well-defined section of *Dasycerata* or *Ophioidai* with such under-wings, they ought to be separated. Generic distinctions must be to a certain degree arbitrary, we cannot define them always with mathematical precision, and hence we must to a certain ex-

tent use them for our own convenience; a genus such as Dr. Staudinger's *Agrotis*, with 170 European species in it, is an evil in itself,—we cannot always define even the limits of species: and this leads me to a very important feature in the Catalogue before me. Our author has adopted in it Dr. Staudinger's plan of arranging varieties under different heads. Long ago, Mr. Wollaston laid it down as an axiom, that “a variety, to be technically such, must have in it the *primâ facie* elements of stability;” this definition of course distinguishes the more constant forms of varieties from the mere chance aberrations we may meet with, but Dr. Staudinger goes farther than this, and divides them into grades; his first step is what he terms “a Darwinian species,”—this is where the examination of a great number of specimens of two forms has not enabled him to decide with certainty whether they are two distinct species or only varieties of one; a familiar example is given by the two *Eupitheciæ*,—*Eup. pulchellata* and *Eup. linariata*.

The next stage is the “variety;” this is, in other words, a geographical or local race. Dr. Staudinger says truly of these, it is of no use arguing whether they are species or not; this would vary with the definition of the word, and the ideas of the individual; but he adds, that it is evident that they may become independent species, and curiously in some places they seem to have done so, whilst they remain varieties only in others. *Lycæna Artaxerxes* is in this sense a variety of *Medon*, or rather *Astrarche*; *Cænonympha Satyrion* a var. of *C. Arcania*.

The third grade is the “aberration;” and here Dr. Staudinger evidently feels the want of a fourth term and apologizes for its absence. Aberrations he defines as those forms which are met with at the same time, and in the same localities, as the ordinary type; but then he adds, that some of these are

of frequent and usual occurrence, such as, for example, *Thais Honoratii* and *Argynnis Valezina*, whereas others are exceptional cases that may never happen, except in the single individual; this is a wide and important difference, and it would be well to adopt such a fourth term,—the word “*lusus*,” for example, would convey its own meaning. Besides these, there are the varieties of the spring and summer seasons, which Dr. Staudinger indicates by Gen. I. and Gen. II.—spring and summer. We are all so apt to forget the distinctions between these forms of variation, that it seemed best to take this opportunity of entering into them at some length—even at the risk of appearing somewhat to forsake the immediate subject of the paper; but let us now turn to the list itself. Our author conveniently divides the county into eight parts, according to the rivers which drain it; it will suit us better to regard Perthshire as one, and to arrange its insect productions into Alpine species, namely, those which in the British isles are exclusively northern in their distribution, and, secondly, subalpine and lowland, those which may be met with in any part of our island.

To examine, firstly, the Alpine species of the list, amongst the butterflies we have—

*Cænonympha Typhon*, var. *Laidion*.—The north Scottish and the Irish examples of *Typhon* are of this variety, prominently brought before the notice of British Entomologists by its being treated as a distinct species in Mr. Kirby's excellent “Manual” under the name of *Typhon*, and also by its capture near Killarney by Mr. Birchall, and by his kind distribution of the insect: it has few ocelli, one in the upper wing, three or four in the lower. The English and south Scotch specimens are the var. *Philoxenus*, better known as *Rothliebi*; the typical *Typhon* does not occur in Britain; the Lapland var. *Isis*, according to our author, occurs in Perth-

shire as an aberration. It is smaller and less ocellated even than *Laidion*.

*Erebia Ethiops* (*Blandina*) and *E. Epiphron* (*Cassiope*), the latter not occurring lower than 1,600 ft.; both of these species we probably obtain from the Alps.

*Polyom. Astrarche*, var. *Artaxerxes*.—Common wherever *Helianthemum vulgare* grows in the district. This insect is exclusively Scottish. These are the only native butterflies which can be called Alpine; they are all found in Perthshire.

*Acronycta Myricæ*.—Exclusively Scottish and Irish, unless we regard it as a variety of *Euphorbiæ*.

*Crymodes Exulis*.—A most interesting species, found also in Iceland, Labrador and Greenland. It is suggested by Dr. Staudinger that it may be a Darwinian species of *Maillardi*, a native of the Alps, the Pyrenees and Norway, and that this again may be a Darwinian species of *Zeta*, from the Pyrenees. It varies very much; it would be interesting for any one possessing genuine Scottish specimens to compare them with *Zeta* and *Maillardi*, as also with Icelandic examples of *Exulis*.

*Triphæna Comes*, aberratio *Curtisii*.—This is such a very different looking insect from *Comes* (*Orbona*) that it is well to draw attention to it. Mr. Newman (as Dr. White mentions) regards it as a distinct species; it is probably unknown to Dr. Staudinger, unless it answers to his aberratio *prosequa*, "obscurior, distinctius variegata." Mr. Norman seems (*Ent. Mo. Mag.*, April, 1872) to have finally settled the question, and proved that *Curtisii* is only an aberration of *Comes*, or, as it is more commonly termed, *Orbona*.

*Noctua Conflua*, perhaps a northern and Alpine variety or a Darwinian species of *festiva*.

*Noctua Sobrina*, an insect as far as the British isles are

concerned only as yet found in Perthshire. This is strange, because the type occurs in Central Germany and in Switzerland. The Alpine var. *Gruneri* is a larger greyer insect. Our author asks, if this is the Scottish form?

*Pachnobia Alpina*.—*Pachnobia* is a genus founded by Guenée, and Dr. Staudinger places four insects in it, two of which are our *Tæniocampa rubricosa* and *T. leucographa*. The fourth, No. 1608, *Pachnobia Carneæ*, an insect of Lapland and Labrador, was long thought by me, from a probable though careless mistake, to be the Scottish moth; this is not the case however—our Perthshire *Noctua* is *Agrotis hyperborea*, var. *Carnicæ*, No. 1098 in the Catalogue: the type is a northern and Alpine insect, distributed rather widely in Europe. There is an evident confusion about the genus *Pachnobia*; in the “Manual,” “forewings with very distinct lines and spots,” is given as a generic character; now this can scarcely be said either of *rubricosa* or *leucographa*. What insect does Guenée assign as a type?

*Asteroscopus Nubeculosus*.—Here again we have a rather widely distributed European species, confined, as far as our islands are concerned, to Rannoch. A few words must here be said about the position of this insect as well as that of *Demas Coryli* and *Diloba Cæruleocephala* in our author’s list: he regards all of them as belonging to the *Noctuæ*. On this subject he makes himself some excellent remarks in the Entom. Mo. Mag. for March, 1871, showing that the egg of both *Diloba* and *Asteroscopus* favours this position. This is a physiological fact of some importance, much more so than the possession of stigmata; these are more or less marked in many *Bombycidæ*, as in *Dasychira pudibunda*, *Bombyx lanestræ*, *B. Trifolii*, *B. Quercus*, &c.; and even in the *Pseudo-bombycidæ*, as in *Notodonta trepida* and *N. Dromedarius*. Again, though well marked in some species of

a genus, as in *Cucullia Artemisiæ* (*Abrotani*), they are entirely absent in others, as in *Cucullia Umbratica* and its allies. The absence or presence of a well-developed mouth must be a better physiological character, since the whole internal anatomy must depend upon it; on this point it seems to me that our author does not lay quite sufficient stress, as is evident by the position of the *Psychidæ* next to the honey-loving *Trochilia*. The position of these three insects is certainly doubtful, yet *Demas* from its larva must clearly be referred either to the neighbourhood of *Orgyia* or *Acronyeta*, and *Asteroscopus* either to the *Notodontidæ*, or else to the neighbourhood of *Nylocampa*. *Diloba* seems to form a boundary line between the *Pseudo-bombyces* and the sugar-eating *Cymatophoræ*, and its tongueless character seems to me to give the preference to the former. This digression must be excused; it is a point worth working out, and these few remarks may draw the attention of more competent observers than myself to the subject, and amongst them I hope our author will pursue his investigations on the matter.

*Anarta Melanopa*, a Scottish insect of very great interest. As our ordinary *Melanopa* it seems to occur in Scotland, Lapland and Labrador only; it is found in the Alps under rather a different form, the under-wings being more uniformly grey. *Anarta Cordigera*, also found in Rannoch, has, with the exception of *A. Myrtilli*, a wider range than any other species in this essentially Arctic genus. There are twelve European *Anartæ*: of these *Myrtilli* and *Cordigera* are tolerably widely disseminated, *Melanopa* is distributed as before said, and of the remainder one is peculiar to the Alps; two more to the Alps in common with Lapland and Norway, but the remaining six are confined to Norway and Lapland, unless shared with Labrador or Greenland. Scotland owns none of these species.

*Plusia Interrogationis*.—Widely distributed in Europe, but always in Britain a northern species.

*Phoethedes Captiuncula* (*Miana expolita*).—Our British specimens are more of a uniform grey than the continental examples; it has a wide range in the mountainous parts of Europe. What are the true affinities of this species? with *Miana* or with *Erastria*? Surely the larva would decide this. The Irish specimens are said to differ slightly, and apparently approach the continental ones: it is rather remarkable that this is the only insect of all here noticed as Alpine which has not been detected in Rannoch.

*Schrankia turfosalis*.—This insect, though confined to the north of Great Britain, yet curiously has a wider distribution on the Continent than either of our *Hyphenodes*, both of which are rarities there.

GEOMETRÆ.—*Nyssia Lapponaria*, perhaps a boreal and Alpine variety of *Pomonaria*; this last has a tolerably wide distribution, and all know that there is some doubt whether it has not been taken in Britain; *Lapponaria*, of which the readers of the Entomologist's Monthly Magazine remember the capture at Rannoch last spring, has, with this exception, been taken only in Lapland and in the Upper Engadine.

*Dasydia Obfuscata*, *Psodos Coracina* (*trepidata*), *Venusia Cambrica*, *Acidalia Fumata*, *Fidonia Carbonaria*, and *Fidonia Brunneata*, are all met with in Rannoch, and all Alpine as well as boreal in their distribution in Europe.

*Oporabia Filigrammaria*.—This doubtful species is also of doubtful European distribution; it is perhaps unknown out of England.

*Larentia Cesiata* and *L. Flavicinctata* are both boreal and Alpine, but *L. Salicata* is Alpine only. The readers of the Entomologist's Monthly Magazine will remember that Mr. Barrett has recorded the appearance of this species in



North Devon. This is one of those strange instances where an insect Alpine in Europe and boreal in England, yet retains some little lingering outpost to prove how it came to us. *Acidalia Fumata* in a similar way is found on Dartmoor in Devonshire, where it was taken by my late brother and I believe by Mr. S. Stevens. I have still one bad specimen from the locality; it differs from Scotch examples in the more acuminate fore-wings, but in no other essential particular.

*Emmelesia Minorata* (*Ericetata*), *Adæquata* (*Blandiata*) and *Coremia Munitata* are all Alpine and boreal.

*Phibalapteryx lapidata* occurs in Perthshire and in Sutherlandshire, &c., and even in Ireland; it has a wide European distribution.

*Carsia paludata*, var. *imbutata*.—This insect under its typical form has a wide European range.

*Lygris reticulata*, though not mentioned in this list, was recorded by Mr. Meek as captured in Rannoch.

PYRALIDES.—*Scopula Alpinalis*.—Is not our species *Sc. Uliginosalis*? or are the two only varieties of each other? It is Alpine, and *Sc. decrepitalis* Alpine and boreal in its distribution.

*Scoparia Atomalis* is, as far as is known, British only, and the same may be said of *Alpina*, and the newly discovered species *Scotica*.

*S. Murana* is Alpine and boreal, but *gracilalis* is confined to Scotland and Norway.

Of the genus *Crambus*, *Ericellus*, *Myellus*, *Margaritellus* and *furcatellus* are found both in Central and Northern Europe; *latistrius* is hardly a northern species, but is widely distributed in our island; it is found in Perthshire, and my own specimens are from Norfolk and South Devon; its European distribution is in Western France and Livonia.

This list has thus given me the opportunity of passing in

review almost all the peculiarly northern Macro-lepidoptera of Britain, and curiously the only one that has not been met with in that entomological paradise, Rannoch, is *Phothesdes Captiuncula* and Dr. White's own discovery of *Zygæna Exulans*.

In this Alpine fauna we have the following species peculiar to Britain: *Lycæna Artaxerxes*, *Acronycta Myricæ*, *Oporabia filigrammaria*, and the three *Scopariæ*,—*S. Scotica*, *S. Atomalis*, and *S. Alpina*.

The following are only found in Scotland and the northern parts of Europe: *Crymodes Exulis*, *Anarta Melanopa*, Scottish form, and *Scoparia Gracilalis*. Our author gives *Dasypolia Templi* as probably of Scandinavian origin, but it is found in the Tyrol, and is not a boreal insect in England, the south of Devon being one of its best localities. This evidence from Lepidoptera of a group peculiar to Scotland with the great northern land is very slight, but if one species only be ultimately proved to be common to the two districts, it is enough to establish the point. This is scarcely the case with mere climatic varieties, such as, for example, *Anarta Melanopa*, for it is evident that there is a tendency to similarity of variation under similarity of circumstance: hence the variety or race of one district often arises spontaneously as an aberration elsewhere; thus, *Cænonympha Davus*, var. *Isis*, occurs as an aberration in Perthshire, as also seems to be the case with the Swiss variety *litterata* of *Euclidia Mi*; the fact is, however, too well known to need any proof. There must have been at some part of the world's history a large circumpolar land, including Greenland, Iceland and part of Norway; did it reach to the north of Scotland? This is a curious and interesting question, and one which rests, as far as Lepidoptera are concerned, on the evidence here pointed out. The presence of *Ranunculus Glacialis*

seems to show that it stretched to the Feroe Isles, and it would be much to be desired that some self-sacrificing Entomologist should spend a summer in these islands, and see what species and varieties are there taken; the facts learnt by such a sojourn might prove of more value than a collection of specimens. We want much such a list as the present from Sutherland and Caithness.

Some interesting remarks are made on the subject of boreal variations. Dr. B. White shows that, in Perthshire, the rainfall has much to do with their production. It is curious to note under what conditions changes of colour occur in species; but in noting this we must bear three things in mind: firstly, that climatic changes do not imply of necessity that either climate should be Alpine or boreal—thus a species often differs much when taken in the south of England from the same insect taken in the south of Europe; secondly, isolation from any cause always increases the tendency, and a different race is much more likely to occur when species breed in and in, than when fresh blood from extraneous sources is constantly being introduced; and, thirdly, variation is not uniform—though an Alpine variation is generally darker, such is not necessarily the case. Premising these things, we may sum up the *known* causes of colour-variation under the following heads:—1. Climate; 2. Altitude; 3. Amount of cloud, or rainfall; 4. Season of the year; 5. Smoky towns. It is easy to see what induction must be drawn by any one who has read his Bacon as to the real cause in the matter.

Variations in size are different, and the following recipe will always produce such, according to my experience: breed from the egg, and supply the larva with a short allowance of food in its early days, then feed it up well, or it will die in the pupa stage; the perfect insect will be invariably

small, and often with the colour rather intensified, as we see in an unexpanded specimen: the question is only of interest when taken in connection with the existence of such insects as *A. sub-baumaniella*.

I shall hope, at some future time, to return to this Catalogue, and pass in review those of our southern insects, which are hardy enough to hold their own in this northern outpost of our island; and to point out those which, on the contrary, though abundant in the south, are either absent, or else maintain a constant struggle for life in the sterner climate of Perthshire.

## ONE-SIDEDNESS.

BY H. T. STANTON, F.R.S.

“ There are more things in heaven and earth  
Than are dreamt of in your philosophy.”

It is a very common failing that we generalize from too limited an area of observation. Nor even are we content with having done so, for if some observation comes under our notice, as made by some distant observer, which militates against our views, we are only too ready to jump to the conclusion that our fellow-labourer (*not ourselves*) has made a mistake.

A notable instance of this kind has lately been brought prominently under our notice by some observations on the habits of some species of south European ants, by Mr. J. T. Moggridge, who, long known as a skilful and talented botanist, has now broken fresh ground and gathered laurels in the field of Entomology.

With the Entomologists of Northern Europe, it was an axiom, that “ants do not store grain,” and therefore they concluded that ancient writers who had spoken of a different practice had been mistaken. Mr. Moggridge, in his readable little book,\* has pointed out to us that this assumption savoured little of philosophy; for that the writers of the south were right from their point of view, and from that

\* “Harvesting Ants and Trap-door Spiders,” Reeve & Co., 5, Henrietta Street, Covent Garden.

only, and the writers of the north right from their point of view, and from that only ; but certainly the fault of the southern writers, made when northern Europe was not inhabited by civilized man, was more excusable than the error committed by the northern writers, who thought themselves on a pinnacle of civilization.

Mr. Moggridge well puts this antithesis as follows :—

“ However, just as the ancient writes, judging from their own experience, and from the reports of others, had erred in attributing to ants in general the habit of seed-storing possessed by certain species commonly found in the south, so have modern naturalists fallen into the mistake of denying it to any of the European species.

“ The older authors who lived in Greece and Italy, and the mediæval authors who drew their information, in great measure, from the former, being familiar with the fact that some ants habitually collect large supplies of seed, went so far as to assert, or to imply, that all European ants do so ; the authors of the present day, on the other hand, generalizing too freely from the experience of ants found near their northern homes, maintained and maintain the very reverse.

“ So long as Europe was taught natural history by southern writers the belief prevailed ; but no sooner did the tide begin to turn, and the current of information to flow from north to south, than the story became discredited.”

When at Mentone last spring, Mr. Moggridge on several occasions produced trowels full of seeds (like that represented in his Plate II.), from the galleries of the nests of *Atta barbara*, and frequently, I should say, I saw enough seeds simultaneously exposed to have half-filled a wine-glass.

The seeds I principally noticed were those of *Odontites lutea*, *Fumaria capreolata*, *Amaranthus blitum*, and *Veronica*, and I can quite confirm Mr. Moggridge's remark that, by the instrumentality of the ants, the weeds from the cultivated ground got planted on the wild ground, where, otherwise, they would hardly have gained a footing.

Mr. Moggridge has wisely abstained from saying that *all* ants in the south of Europe store seeds, but he has mentioned the species which he has observed to do so, and, as probably few of our readers will fail to read his book, we need not continue this portion of the subject further.

How frequently have we noticed that Entomologists, who have collected diligently for years in one locality, seem impressed with the notion that the experience they have obtained ought to be identical with the experience of others in distant localities, which are exposed to different atmospheric influences of wind, rain, and sun. And if we extend our comparison beyond our own island, still we find the same unwillingness to conceive the possibility of a state of things different from one's own actual experience.

Whether it will ever be possible to contrive some plan by which Entomologists of different countries shall be conveyed from one country to another, with the view of enlarging their own ideas, and those of the sedentary Entomologists with whom they are brought in contact, is a point which will, ere long, press increasingly on the attention of all true lovers of science.

The opening sentences of Professor Zeller's treatise on the North American Micro-Lepidoptera,\* recently published in

\* "Beitrage zur Kenntniss der nordamerikanischen Nachtfalter, besonders der Micro-Lepidopteren," von Professor P. C. Zeller.

the "Verhandlungen des zoologisch-botanischen Gesellschaft in Wien," 1872, are so appropriate to the subject under discussion, that I cannot resist quoting them here, though by no means endorsing all his assertions, some of which appear to me too sweeping, and would probably be modified were he to spend a few months in the United States.

"The more we come to know the North American Lepidoptera, the more species do we find which come very close to the European species, or, indeed, cannot be distinguished from them. If, therefore, we now include (as indeed we are quite right to do) in the European Lepidopterous Fauna, the species from all northern Asia, Asia Minor, and the north coast of Africa, then ought we also to extend our geographical limits to include not merely Iceland, Greenland, and Labrador (of which the products have long been considered as belonging to the European Fauna), but also Canada and a large portion of the United States. It is, indeed, somewhat surprising, that this has not already been done, as the insects of Siberia have more difficulty in reaching Europe than those of America. The latter (excepting the species from the extreme north), were probably only omitted by Dr. Staudinger from his excellent Catalogue because he had not had sufficient opportunities of studying them and their literature.

"One is probably not wronging the generality of American Lepidopterists in asserting that they seem too little anxious to make the Entomologists of Europe acquainted with their Fauna, and to learn, on the other hand, the Fauna of Europe, the consequence being that they cannot thoroughly become acquainted with their own insects, and that they give new names to species which are identical with those of Europe, and thereby, if of econo-



“ mical importance, lose the experience of observations  
“ already made in Europe ; and, on the other hand, species  
“ which are not identical, but simply nearly allied to the  
“ European species, they not unfrequently designate by the  
“ same names.”



## ENTOMOLOGICAL NOMENCLATURE.

THE UNDERSIGNED, considering the confusion with which Entomological nomenclature is threatened (and from which it is already to no small extent suffering), by the reinstatement of forgotten names to supersede those in universal employment, URGE upon Entomologists the desirability of ignoring the names so brought forward, until such time as the method of dealing with them shall be settled by a common agreement.

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Other Entomologists, at home or abroad, who are desirous of aiding this movement, will oblige by communicating with Mr. W. A. LEWIS, 4, Crown Office Row, Temple, London.

\* "As far as a very limited knowledge of the subject will enable me to judge."—A. SWANZY.

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PHALALOCERA,

EXOSOSTIA,

ELTERIA and

MICRODIPLOPS.

By H. T. STAINTON, F.R.S.

ASSISTED BY

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THE  
ENTOMOLOGIST'S ANNUAL

FOR  
M DCCCLXIV.

WITH ONE PLAIN PLATE.



LONDON:  
JOHN VAN VOORST, PATERNOSTER ROW.

M DCCCLXIV.

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ENTOMOLOGIST'S ANNUAL

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“Man verdirbt sich die Gegenwart, wenn man sich immerfort alle Möglichkeiten  
bismalt.”

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## PREFACE.



As this Volume is the twentieth of its series, it seems a fitting opportunity to bring that series to a close. Sooner or later there must have been an end to this Annual,—so why not now?

“The Entomologist’s Weekly Intelligencer” extended to ten Volumes: and I had scarcely thought when that terminated in 1861, the Annual would have survived it thirteen years.

So with these words, I bid the readers of the Annual—*Farewell!*

H. T. STAINTON.

MOUNTSFIELD, LEWISHAM, S.E.

*January 30th, 1874.*



## EXPLANATION OF PLATE.



- Fig. 1. *Sericoris Doubledayana*, Barrett, see Ent. Ann. 1873, page 45.
2. *Biston Lapponarius*, Boisduv., see Ent. Ann. 1872, page 116.
3. Hermaphrodite *Myrmica levinodis*, see page 147.
4. *Deleaster dichrous*, Grav. var. *Leachii*, Curtis, see Ent. Ann. 1872, page 59.
5. *Nanophyes gracilis*, Redt., see page 57.
6. *Liosomus oblongulus*, Boh., see page 102.
7. *Dromius vectensis*, Rye, see page 76.
- 7a. Elytra of *D. sigma*, Rossi, see page 77.
8. *Panagæus quadripustulatus*. var., see page 62.



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## OBSERVATIONS ON TINEINA.

*Epitomized Summary of the Observations occurring in  
the 19 previous volumes of this Annual.*

BY H. T. STAINTON, F.R.S.

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In the references to the Annual of 1855, the figures between parentheses pertain to the second edition; in the references to the Annual of 1868, the observations in the chapter "In Memoriam Carl von Heyden" are indicated thus (v. H.); E. M. M. refers to the observations in the third volume of the Entomologist's Monthly Magazine, which, though written for the Annual, were unavoidably excluded.

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EXAPATE GELATELLA, 57, 121, l. between united leaves of willows, VII; 63, 17 (v. H.), l. not scarce about Frankfort and Mayence, between united leaves on the terminal twigs of privet, b.v; i. XI. [This season I received a liberal supply of the l. in the terminal shoots of privet from Mr. Fletcher of Worcester, b.vi.]

DASYSTOMA SALICELLA, 62, 119, bred from strange-looking, slug-gish l. feeding x on *Potentilla anserina*; again found IX on the same plant growing by the side of a dusty road and far from anything like *Salix*.

CHIMABACCHE PHRYGANELLA, 58, 104, both sexes bred from adult l., all of which appeared to possess the club-shaped third pair of feet.

SEMIOSCOPIS STEINKELLNERIANA, 57, 123, i. observed to fly from daybreak to sunrise.

TALÆPORIA PSEUDOBOMBYCELLA, 61, 103, carnivorous propensities of the l. observed, they devouring dead insects.

T. PUBICORNIS, 70, 1, occurrence at Grünstadt, in Germany, of an insect (apparently referable to this species) in some numbers v amongst *Rosa spinosissima*; the ♀ with wings as fully developed as the ♂, hence no real *Talæporia*. Occurrence b.vi, at Howth in Ireland.

SOLENOBIA CONSPURCATELLA, Zeller, **68**, 127, described; occurrence in England; taken flying, e.III, not uncommonly near spruce firs, on the shore of Southampton Water opposite Calshot Castle; cases found near Brussels e.II under the bark of a dead tree.

S. (TALEPORIA), n. s., **62**, 120, bred m.III, whilst *Inconspicuellæ* was still in the l. state; cases found spun up e.II under the bark of a dead tree.

MELASINA LUGUBRIS, **68**, 8 (v. H.), l. found VII near St. Moritz, ate in captivity grass and other leaves, but soon died.

DIPLODOMA MARGINEPUNCTELLA, **56**, 49, occurrence of the l. at Exeter VIII, at Stockton IX; **61**, 103, carnivorous habits of the l. observed, they feeding on dead flies, earwigs, bruised beetles, &c., with an occasional taste of hawthorn.

XYSMATODOMA MELANELLA, **70**, 2, a notion started that the ♀ of this species is dimorphic, occurring both winged and apterous, and that in the latter form it had been referred to the genus *Solenobia* under the specific name of *Pomonæ*.

OCHSENHEIMERIA BIRDELLA, **55**, 51 (73), l. IV, crawling on the tops of grass.

O. VACCUELLA, **56**, 49, occurrence again *in the house*; **62**, 120, occurrence beneath the bark of a willow tree and on the trunk of an oak.

EUPLOCAMUS BOLETI, **62**, 120, several bred from an old fungus in the New Forest.

TINEA (BLABOPHANES) IMELLA, **68**, 9 (v. H.), bred v from l. feeding in an old felt shoe XI, lying in a field, almost covered with earth, near Frankfort-on-the-Main.

T. FENESTRATELLA, **68**, 9 (v. H.), described; bred b.VI from dry wood at Frankfort-on-the-Main; it ran uncommonly quickly.

T. RUSTICELLA, **57**, 121, freely bred from a piece of half-rotten old carpet.

T. FULVIMITRELLA, **57**, 121, l. feeds under the dead bark of beech and oak.

T. CORTICELLA, **57**, 121, l. under the bark of dead oaks and in rotten wood.

T. ARCUATELLA, **55**, 51 (73), l. VII in fungi, on birch trees at Rannoch.

T. PICARELLA, **58**, 104, remarkably small specimen taken on the stem of a birch tree, VII.

T. GLIRIELLA, 68, 10 (v. H.), described; allied to *Granella*, but distinct; bred e.v, VI, from rotten wood at Frankfort-on-the-Main.

T. CAPRIMULGELLA, 57, 121, 1 specimen on an oak in Hyde Park, e.vi; 61, 104, 1 on the trunk of a tree in Blackheath Park, e.vii.

T. ROESSLERELLA, 68, 11 (v. H.), described; 5 specimens captured v amongst *Silene nutans*, near Wiesbaden.

T. PARIETARIELLA, 68, 12 (v. H.), cases of l. collected abundantly VI on walls of vineyards at Rudesheim, amongst mosses, which they were not observed to eat; parts of insects were eaten, hence probably they only consume animal food; i. VII.

T. MISELLA, 57, 121, bred from unthrashed wheat; also from bean-stalks.

T. DUBIELLA, Gregson, 60, 133, n. sp., brief diagnosis; occurrence at Liverpool. [Having now had specimens of this insect in my collection for 14 years, I confess that I incline to the belief it is only *Pellionella*.]

T. FUSCESCENTELLA, Gregson, 60, 134, a name proposed for a *Tinea* which occurred at Liverpool, and seemed intermediate between *Pellionella* and *Misella*.

T. PALLESCENTELLA, 57, 122, described; l. granivorous; common at Liverpool.

T. MERDELLA, Zeller, 57, 102, described; occurrence in a wool warehouse at Liverpool; probably imported.

T. SEMIFULVELLA, 57, 122, bred from birds' nests.

T. CONFUSELLA, H.-S., 62, 111, description of H.-S. quoted; occurrence near Dublin, along the cliffs on the coast, running up the grass stems like an *Elachista*, VIII.

T. VINCULELLA, 68, 13 (v. H.), l. X-VI, on old walls grown over with *Byssus*, at Heidelberg and at Königstein, in the Taunus mountains, i. e.vi, b.vii; 70, 2, occurrence of l. on a wall at Florence, I, and on the trunks of trees at Naples, II; case easily recognized, for, like a tortoise-shell, it is flat beneath and arched above, and the upper-side projects at each end considerably above the lower part.

T. ARGENTIMACULELLA, 68, 13 (v. H.), l. b.vi on walls at Jugenheim, in delicate, tubular serpentine galleries, feeding on mealy grey-green lichen dust (the young form of a *Cladonia*); i. e.vi, b.vii.

MYRMECOZELA (TINEA) OCHRACEELLA, 55, 51 (73), l. feed on the straws, leaves of pine, &c., of which the ants make their nest.

PHYLLOPORIA (TINEA) BISTRIGELLA, 57, 122, l. VII, VIII, mining in birch leaves, at first excessively slender galleries, then a large blotch, from which it cuts out an elliptical case and descends to the ground; i. V, VI.

LAMPRONIA QUADRIPUNCTELLA, 55, 51 (73), bred v from reddish-brown l. in wild rose.

L. PRÆLATELLA, 56, 49, l. found feeding on *Spiræa ulmaria*.

TEICHOBIA (LAMPROSETIA) VERHUELLELLA, 55, 51 (73), l. in a case on *Asplenium trichomanes* and *ruta-muraria*; 56, 49, young l. mine the leaves of *Asplenium ruta-muraria*, afterwards feeding in a case; 57, 122, occurrence at Caerphilly, at Bideford and in North Wales; 58, 104, l. very plentiful on stone walls at Bideford and Barnstaple; l. mining in leaves of *Scolopendrium vulgare*, near Whitby, XII.

INCURVARIA MASCULELLA, E. M. M. iii. 54, l. mining rose leaves, m. VI, making a small whitish-green blotch; before e. VI they had cut out their cases.

I. PECTINEA, 58, 104, young mining l. observed near Scarborough; also half-grown l. feeding on green birch leaves.

I. TENUICORNIS, 55, 52 (74), capture of a male; occurrence at West Wickham, VI.

I. PROTECTELLA, 63, 14 (v. H.), described; two specimens from Vienna.

I. CANARIELLA, Stainton, 72, 122, n. sp., described; occurrence in the Isle of Man, b. VI, amongst *Rosa spinosissima*.

NEMOPHORA SWAMMERDAMMELLA, 58, 104, bred from l. in flattish cases formed of pieces successively added at one end; l. III, IV, feeding on sloe, chickweed or almost anything green; l. of III, 1856, produced i. v, 1857.

N. PILULELLA, 63, 15 (v. H.), cases found v in fir woods on the Taunus mountains, always under loose stones, few other plants under the fir trees except bilberry; i. b. VI.

N. CARTERI, 70, 2, the insect described under this name (Ins. Brit. Lep. Tin. p. 47) had no specific existence; it consisted of the ant. w., head and thorax of *Nemophora Schwarzziella*, united to the hind w. and abdomen of *Cerostoma lucella*.

ADELA FIBULELLA, 59, 158, l. feeding on the seeds and leaves of *Veronica Chamædrys*.

A. RUFIMITRELLA, 60, 144, l. x under fallen leaves. Young l. sus-

pected to feed in the capsules of *Erysimum alliaria*. [Since then bred both from that plant and from *Cardamine pratensis*.]

A. SULZELLA, 62, 120, cases of l. found b.IV under a hedge, principally privet, but mixed with rose, vetch and gooseberry; i. fond of sitting on the flowers of privet; cases elongate, with parallel sides, apparently made by additions spun round a central nucleus.

A. OCHSENHEIMERELLA, 68, 15 (v. II.), cases found v in fir woods on the Taunus mountains, always under loose stones, few other plants under the fir trees except bilberry; cases not distinguishable from those of *Nemophora pilulella*; i. e.v.

A. VIRIDELLA, 56, 49, bred from a case found in spring amongst fallen leaves; 58, 105, females observed *apparently* ovipositing on the mid-rib of oak leaves, but no eggs discernible; 61, 104, l. collected freely in flat, oval cases amongst the dried leaves at the foot of beeches and hazels, b. IV.

A. CUPRELLA, 61, 106, suggestion that the seeds of willows should be collected where this insect occurs, as thus the l. might be obtained.

NEMOTOIS SCABIOSELLUS, 56, 49, female imago observed *apparently* ovipositing in flowers of *Scabiosa columbaria*—"she had the usual straining and thrusting motion, and after *apparently* laying an egg in one place, crept across the flower and again thrust in her abdomen;" 58, 105, females again detected ovipositing in flowers of *Scabiosa arvensis* and eggs found; 61, 106, bred from *S. arvensis*; eggs laid in the fructification of the *Scabiosa* flowers; young l. eats out a seed and uses the husk as a case, boring into other seeds; larger l. construct cases of pieces of dried leaves, and feed on the leaves of *Scabiosa* and other low plants; 62, 121, l. more than twelve months old, still living IX, hence this species, as well as *N. violellus* and *N. minimellus*, will often spend two winters in the l. state.

N. CUPRIACELLUS, 61, 107, capture of male specimens; females observed depositing their eggs in the flowers of the scabious at Hampstead.

By collecting flower heads of *Scabiosa succisa* in Epping Forest IX, and keeping them for some time, some small cases tenanted by l., no doubt referable to the genus *Nemotois*, were obtained; 62, 121, many of these l. lived through the winter, but no i. was reared.

N. FASCIELLUS, 58, 105, two specimens VII at Darenth, on flowers of a dwarf umbelliferous plant; 62, 121, l. found e.III amongst the radical leaves of *Ballota nigra*, on which they fed rather voraciously,

gnawing holes in the leaves; case fiddle-shaped, of various shades of brown, darkest in the centre, not distinctly pieced.

MICROPTERYX CALTHELLA, 55, 52 (74), a specimen bred 13IV, in a tin which contained only a piece of decayed wood, a plant of *Dactylis* and a plant of *Carex*; l. unobserved; 70, 2, no information yet obtained respecting the l. of *Calthella*, *Aruncella*, *Seppella* or *Mansuetella*.

M. ALLIONELLA, 57, 123, many hundred specimens seen invariably among *Vaccinium Myrtillus*, flying over and sitting on that plant; 62, 126, a whitish l. (described No. 35) e.VI in birch leaves, *suspected* to be that of this species; the mine at first Nepticuliform, the *brown* excrement completely filling the track. [None of these were reared, so the l. of *Allionella* is still unknown to us.]

M. SALOPIELLA, 55, 52 (74), occurrence at West Wickham; 63, 154, bred at Scarborough [from l. collected v in birch leaves.]

M. UNIMACULELLA, 57, 123, bred from green pupæ found in the lichen and bark of birches; 62, 123, l. reared from the egg at Scarborough, mining in birch leaves; 62, 124, a whitish l. in birch leaves v (described No. 8 and 9) [also proved to be that of the species]; E. M. M. iii. 55, upwards of 80 specimens bred from the above l. (No. 8 and 9); 63, 154, also bred at Scarborough.

M. SPARMANNELLA, 62, 122, bred II at Ratisbon from l. collected VI in leaves of birch. The apod l. makes large blotches in the leaves in which the excrement, instead of being in round grains, is like short lengths of black cotton [this is the specially distinctive character of a *Micropteryx* mine]; the full-fed l. quits the mine and descends below the surface of the earth, where it forms a small oval cocoon, externally bedecked with grains of sand.

M. SUBPURPURELLA, 62, 125, l. b.VI in oak leaves (described No. 21), probably that of this species; 63, 154, bred from the above l. at Scarborough.

M. FASTUOSELLA, 63, 154, bred from l. mining in scarcely expanded hazel leaves, m.IV at Aix-la-Chapelle; 64, 164, l. in hazel leaves found at Manton Copse, near Marlborough, b.VI, only 1 l. found, other mines all empty; 65, 132, nut leaves mined by a *Micropteryx* l. were again collected 21V at Manton Copse; E. M. M. iii. 55, Manton Copse revisited b.VI, '65, no l. found, nor even a single mined leaf; 13VI, '66, a few empty mined nut leaves were found in the same

locality. [The question of the distinctness of *Fustuosella* and *Subpurpurella* remains for the present unsolved, no specimens having been yet bred in this country from hazel leaves; that a *Micropteryx* feeding on hazel should be specifically distinct from one feeding on oak is extremely probable; no *Nepticula* or *Lithocolletis* is common both to oak and hazel.]

MICROPTERYX, **63**, 152, note on the pupa, of (with figure) wing cases, legs and antennæ are perfectly free from the body, the abdomen being able to move away from them to a considerable extent.

M. sp.?, **62**, 125, a whitish l. (described No. 10) b.v in birch leaves, perhaps not distinct from *Unimaculella* (Nos. 8 and 9); species not ascertained.

M. sp.?, **62**, 125, a grey l. (described No. 11) v in birch leaves; species not ascertained. [It may be here noticed that two of our commonest birch species of this genus, *Purpurella* and *Semipurpurella*, have not yet been reared, and the grey l. so conspicuously different from all the other known l. of the genus, should probably be referred to one of those species.]

SWAMMERDAMIA APICELLA, **58**, 105, bred from l. on plum, VIII; **60**, 144, bred from the red-spotted l. on plum; **68**, 16 (v. H.), l. e.VI, b.VII on sloe bushes, which are rather shaded, usually in small societies, in a rather extensive delicate web, devouring the leaves which are still young; i. e.IV, b.V.

S. PRUNI, Stainton, **59**, 150. [This was the name given to the *Griseocapitella*-like *Swammerdamia* reputed to have been bred from the plum-feeding l. of *S. apicella*. No doubt the l. of *S. apicella* died, and some other *Swammerdamia* was introduced by accident into the same receptacle.]

S. GRISEOCAPITELLA, **58**, 105, something very like this bred from l. on plum. [Here there was some mistake, as the plum larva was that of *S. apicella*.]

S. CÆSIELLA, **70**, 3, considerable confusion existing as to this common species, and probably some others of the genus. *Cæsiella*, according to German Entomologists, has a white head, and the green l. feeds on birch. In England the green birch-feeding l. produce *Griseocapitella*. Our *Cæsiella* feeds on hawthorn, probably also on sloe, but l. on sloe not yet found here. In Germany they breed another species from hawthorn, with white head and grey thorax; this they

name *Oxyacanthella*; if this occurs in England it is probably reputed the ♀ of our hawthorn-feeding *Casiella*.

S. NANIVORA, Stainton, n. sp. (sp. ?), 70, 4, a l. m.IX on *Betula nana*, which appeared very different from the l. of *S. griseocapitella*, found at Strathglass, Invernesshire; 71, 96, a single i. bred from the above l.; differential characters pointed out.

S. CONSPERSELLA, Tengström, 68, 155, l. VI on crowberry (*Empetrum nigrum*) in the Island of Oesel; it forms a web with fine white threads, in the midst of which it spins its cocoon.

SCYTHROPIA CRATÆGELLA, 57, 123, nest found VI; the angular pupa is suspended, quite exposed in the common web.

HYPONOMEUTA VIGINTIPUNCTATUS, 57, 123, i. at Guildford v and VIII; l. X on *Sedum telephium* at Guildford; 58, 105, bred freely from l. collected at Guildford last autumn and this summer; 61, 108, occurrence at Witham in Essex and in Sussex.

H. PLUMBELLUS, 55, 52 (74), l. when young IV eats the pith of the young shoots of spindle, causing their tips to droop; afterwards emerges and eats the leaves.

H. ROPELLUS, 70, 4, l. gregarious on *Salix alba* at Munich.

H. EGREGIELLA, 67, 17, l. b.III on *Erica scoparia* at Cannes, not exactly gregarious, but generally several on one plant; i. m.IV, b.V; 68, 135, l. plentiful on *E. scoparia* at Cannes, b.III, and still more abundant on *E. cinerea*, b.IV at Fontainebleau.

ANESYCHIA FUNERELLA, 57, 123, l. on comfrey (*Symphytum officinale*), also on *Lithospermum officinale*; 58, 105, l. on comfrey near Cambridge, b.VIII.

CHALYBE (PSECADIA) PYRAUSTA, 63, 153, l. on *Thalictrum aquilegifolium*, VII, VIII, in the Island of Oesel; i. e.IV to m.V; flies of its own accord in the midday sun; 70, 4, bred m.IV from pupa received from the Island of Oesel; a plant of *Thalictrum aquilegifolium* was offered to the insects that they might oviposit thereon, but no fertile eggs laid.

PRAÏS CURTISELLUS, 55, 52 (74), l. which, when young, mine the leaves X, then enter the young buds and feed on the inner bark during the winter.

P. OLEELLUS, 67, 18, congeneric with *Praÿs Curtisellus*; l. at first a leaf miner b.III, then e.III eating down the stems of the young shoots; cocoon slender, open, very similar to the open cocoon of



*Curtisellus*; 68, 136, l. brought home from Mentone alive, when offered privet ate it readily, and two i. were reared from the l. which had fed upon privet.

EIDOPHASIA MESSINGIELLA, E. M. M. iii. 56, occurrence near Saffron Walden; 100 specimens caught at Wildbottoms, flying amongst *Equisetum* 4—7 p. m., m.vi; 72, 122, l. b.v feeding on the leaves of *Cardamine amara*, near Preston.

PLUTELLA ANNULATELLA, 57, 123, occurrence near Newcastle and near Scarborough; 58, 105, an open net-work cocoon reputed to belong to this species; 62, 127, abundant under the cliffs close to the sea near Dublin. [I believe the l. is most partial to *Cochlearia anglica*.]

P. DALELLA, 58, 105, l. in Iceland on *Arabis petræa*, e.vi; cocoon of open net-work, similar to that of *P. porrectella*.

CEROSTOMA HORRIDELLA, 56, 50, l. on sloe vi; 57, 123, l. on apple trees; 63, 16 (v. H.), l. m.vi on apple trees near Frankfort; it gnaws under a light web the upper side of the leaf, which hence becomes curved.

C. SCABRELLA, 70, 5, occurrence of 3 specimens, vii, near Croydon on an old fence.

C. NEMORELLA, E. M. M. iii. 55, l. collected pretty freely v at Bideford by beating honeysuckles towards dusk, when they ascend to the top of the plant to feed on the leaves; *young* l. very like the young l. of *C. xylostella*.

THERISTIS CAUDELLA, 65, 132, l. collected at Saffron Walden, e.vii, b.viii: they feed much more freely at night; by taking a lantern after dark, they may be found resting on the underside of the upper leaves, from which they rapidly descend on the least touch; E. M. M. iii. 56, l. reared from the egg at Exeter, fed up during v and vi.

ENICOSTOMA LOBELLA, 63, 18 (v. H.), l. viii on sloe, under a white web on the underside of the leaves, which are hence arched longitudinally; i. v.

EXÆRETIA ALLISELLA, 56, 50, i. in some plenty near Manchester, but food of l. not discovered; 61, 108, bred from l. feeding in the stems of mugwort, v, and causing the young shoots to droop.

DEPRESSARIA COSTOSA, 70, 5, strongly veined specimens, reminding one of *D. umbellana*, occurred at Forres, in Morayshire, amongst broom.

D. PALLORELLA, 60, 144, l. rolls up leaves of *Centaurea scabiosa*,

in a tubular form; dull greenish, with greenish-black dorsal and sub-dorsal lines and reddish-brown head.

D. BIPUNCTOSA, Curtis, 58, 89, described; several taken at Fresh-water, in the Isle of Wight, e.VII; 61, 108, several captured in the Isle of Wight, VIII.

D. CULCITELLA, 62, 127, l. v on *Chrysanthemum corymbosum* at Ratisbon.

D. UMBELLANA, 56, 50, l. on *Ulex Europæus* and *nanus* in a dense web of considerable size.

D. NANATELLA, 55, 52 (74), l. IV mines the upper side of the young leaves of *Carlina vulgaris*; 70, 5, a species allied to this occurs in Dalmatia, and has been named *D. aridella*. A British specimen of *Nanatella* bred, '54, from l. on *Carlina vulgaris* at Box Hill, differs from the usual specimens in being rather larger and less clouded with grey. Is it a distinct species?

D. RUTANA, 68, 137, occurrence of the l. at the Ile St. Marguerite, near Cannes, at Mentone, and in greater plenty at Monaco, III; i. v.

D. PETASITIS, 65, 138, l. v in stems of *Petasites albus*, *niveus* and *ramosus*, on the Bavarian Alps 2,000 feet above the sea; the l. betray their presence by the withering of the uppermost flowers; also l. in cylindrical puckers formed on the leaves.

D. ARENELLA, 57, 124, l. on burdock, apparently also on *Serratula tinctoria*; probably on many *Compositæ*.

D. PROPINQUELLA, 68, 17 (v. H.), l. e.VI, b.VII, in folds on the underside of leaves of burdock (*Arctium lappa*), at Frankfort; also on *Serratula arcensis* folding the leaf upwards like a gutter; i. e.VII.

D. SUBPROPINQUELLA, 55, 52 (74), l. near Norwich found indifferently on *Cirsium* and *Centaurea*; 70, 5, l. at Folkestone VI in thistles; amongst the series of specimens bred, one had the conspicuous dark head and thorax supposed to be distinctive of *D. Rhodochrella*. A specimen bred from l. feeding on the upper side of the leaves of burdock (*Arctium lappa*), at Worcester, had also the dark thorax of *Rhodochrella*.

D. RHODOCHRELLA, H.-S. 60, 134, the species with black thorax; its occurrence at Blackpool and at Epping. [This would probably be Heinemann's *Variabilis*, as he restricts the name of *Rhodochrella* to the species from the south of Europe; of *Variabilis* he says

“thorax either unicolorous with the ant. w., or bluish-black,” having bred such specimens from precisely similar thistle-feeding larvæ.]

D. PURPUREA, 57, 124, l. on *Torilis anthriscus*; 62, 127, l. plentiful in kitchen gardens at Breslau on carrots, feeding on the leaves quite in the style of *Applana*, preferring shady places; l. b.VIII; i. e.VIII, b.IX.

D. CAPREOLELLA, 56, 50, bred VII from a l. found feeding on the pinnate radical leaves of *Pimpinella saxifraga*, VI; 62, 127, near Dublin at ragwort bloom at dusk, VIII, and flying over furze bushes in the afternoon, IV; once seen flying freely in the afternoon at Sanderstead Downs, III; E. M. M. iii. 56, bred from l. feeding m.VI on *Falcaria Rivini* at Jena.

D. ANGELICELLA, 58, 106, l. very common on *Angelica sylvestris* at Dunoon and Ardrossan; twice reared from l. on *Heracleum Sphondylium*.

D. ASTRANTIE, 62, 127, l. VI on *Astrantia major* at Ratisbon; i. nearly allied to *Angelicella*, but larger.

D. CNICELLA, 70, 156, occurrence in England; bred from l. found on *Eryngium maritimum* at Southsea.

D. PARILELLA, 68, 18 (v. H.), l. e.V singly on *Peucedanum oreoselinum* at Mombach; spinning the leaves together to a rather large diffuse, ball-like web; i. e.VII.

D. CARDUELLA, 56, 50, bred from a l. feeding on the underside of the leaves of a species of thistle near Lynmouth, VII; E. M. M. iii. 56, l. not scarce b.VI at Witherslack, on a high rocky situation amongst stunted thistles not above eight or nine inches high; i. b.VII.

D. OCELLANA, 62, 127, bred from l. collected on *Salix viminalis*, b.VII.

D. GRANULOSELLA, 61, 108, bred from l. collected VII at Deal from a dwarf umbelliferous flower. [I have since bred this from l. collected b.VI on *Anthriscus vulgaris*, near Norwich.]

D. ROTUNDELLA, 62, 128, this and *D. nanatella* not uncommon on the coast, near Dublin, VIII, IX; fond of flowers of ragwort, thyme and *Galium verum*.

D. PIMPINELLÆ, 56, 51, occurrence of the l. near Kemsing in Kent; 57, 124, occurrence in Dorsetshire and near Plymouth, beaten from thatch.

D. OLERELLA, Zeller, 65, 128, described; occurrence of 6 specimens at Woolmer Forest, near Haslemere.

D. ALBIPUNCTELLA, 58, 106, l. differs from that of *Applana*, by the paler subdorsal lines, less conspicuous spots and the 2nd seg. being spotted with black.

D. EMERITELLA, 68, 18 (v. H.), l. e.VII between united leaves of tansy, near Frankfort; i. VIII, b.IX.

D. PULCHERRIMELLA, 56, 51, bred VII from l. feeding on the flowers of *Bunium flexuosum*; 58, 106, again bred from l. feeding on the flowers of *B. flexuosum*; 70, 8, l. at Brunswick on *Pimpinella saxifraga*.

D. DOUGLASELLA, 55, 52 (74), one specimen bred from a l. on one of the *Umbellifera*, Headley Lane, vi.

D. WEIRELLA, 70, 7, occurrence at Brunswick, but l. not distinguished from that of *Applana*.

D. ARTEMISIÆ (sp. ?), 62, 128, l. e.v in shoots of *Artemisia campestris*, erroneously referred by Treitschke to *Albipunctella*, produces an i. of the *Albipunctella* group, the name of which has not yet been satisfactorily determined. [Afterwards described under the name of *D. Artemisiæ* by Nickerl in the Wiener Entomolog. Monatschrift, viii. p. 4; see also Nat. Hist. Tineina, vol. xii. p. 174.]

D. ULTIMELLA, 61, 108, bred b.VI, from gaily-coloured l. found feeding on flowers of *Conium maculatum*, v, near Freshwater, Isle of Wight. [There is something incomprehensible in this announcement, as neither the food, nor the colour of the l., nor the time of year, agrees with what is now known of the habits of *D. ultimella* (see next entry). If the date and plant, &c. are really correctly given, we have probably here an indication of some unsuspected new species, which has been mistaken for *D. ultimella*.]

D. ULTIMELLA, 70, 8, l. pale green, without markings, feeds VII b.VIII inside the stems of *Phellandrium aquaticum*.

D. NERVOSA, 55, 53 (75), l. v on *Ænanthe crocata*, Dawlish; pupæ in stems of same plant at Ardrossan; 56, 51, occurrence of the l. in extreme profusion, near Dunoon, Argyllshire, on *Æ. crocata*; the pupæ in the interior of the stem; 57, 124, very dark (almost black) specimens beaten from thatch in Dorsetshire; 58, 106, when the full-fed l. enter the stem of *Æ. crocata*, they weave only a single web below them.

D. LIBANOTIDELLA, Schläger, 57, 103, described; occurrence of a specimen at Newhaven, Sussex. [My determination of this specimen

has been disputed, and as I only saw it for a short time I may have been mistaken, but the occurrence of *D. Libanotidella* in England seems extremely probable, and were its food-plant, *Athamanta* (*Seseli*) *libanotis*, searched VII, VIII, in all likelihood the conspicuous, large larva would be found. The plant is extremely local in this country, but in Babington's Flora of Cambridgeshire we read—"In old chalk-pits and by hedge-rows on both sides of the road from Hinton to the Gogmagog Hills."]

PSORICOPTERA GIBBOSELLA, 64, 164, l. e.V in oak leaves rolled up lengthwise; 67, 19, l. b.VI in oak leaves rolled tubularly lengthwise, at Haslemere; l. very like the young l. of one of the common oak feeding *Tortricina*, but more active and with the tremulous motion of the head so common amongst l. of the genus *Gelechia*.

GELECHIA FERRUGELLA, 68, 18 (v. H.), l. e.V in pod-like or tubularly united leaves of *Campanula persicifolia*.

G. LUTATELLA, 64, 164, l. on *Calamagrostis epigejos*, b.VI; i. VII. *Lutatella* has the apex of the ant. w. less produced, a distinct doubly-angulated pale hinder fascia, two or three distinct spots on the disc and fold, and post. w. much darker than in *G. rufescens*; 65, 134, l. m.VI on *C. epigejos* at Meseritz, very like l. of *G. rufescens*, but slight difference in markings of 5th and 6th segs. *Arundo phragmites* offered to these l. was refused,—they preferred starving.

G. LINEOLELLA, 62, 125, one specimen beaten from amongst *Calamagrostis epigejos*, VI, near Meseritz; this was the plant on which Metzner discovered the species, hence possibly the l. feeds on that grass.

G. HIPPOPHELLA, Schrank (the *basalis* of Douglas), 56, 51, bred VIII, IX, from l. in shoots of *Hippophaës Rhamnoides*, VII; 68, 19 (v. H.), l. m.VIII, m.IX, at Ragatz, on *H. Rhamnoides*; i. m.IX, b.X.

G. FLAVICOMELLA, 62, 128, bred from reddish l. on sloe, at Ratisbon.

G. VELOCELLA, 56, 51, l. in silken tubes at the roots of *Rumex acetosella*, VI.

G. FUMATELLA, 61, 109, 6 specimens captured on the sand hills near Liverpool, b.VI.

G. PINGUINELLA, Treitschke, 65, 129, described; occurrence near London, on the trunks of poplars; l. under the bark of poplar trees, v; 68, 138, l. m.VI from the tree on which the i. were found in '65; full-fed l. found gregariously under the bark of poplar trees, but on what

do they feed? on the leaves of the poplar? or on the moss growing on the trunks?; **68**, 19 (v. H.), l. v between united leaves of poplars (*P. nigra* and *pyramidalis*); pupa generally gregarious under loose bark beneath a grey web, VI; i. on trunks of poplars, VII.

G. CUNEATELLA, **55**, 53 (75), 2 specimens bred from l. on willow VI, **58**, 106, several taken on the trunk of a willow tree near York.

G. MUSCOSELLA, **70**, 157, occurrence of three specimens at Wicken Fen; frequents *Salix capræa*, the closely allied *G. cuneatella* frequents *S. alba*.

G. PELIÉLLA, **60**, 144, l. dark chocolate-brown, makes silken galleries among the lower leaves of *Rumex acetosella*.

G. ALACELLA, **56**, 51, l. feeds on the lichen on orchard trees, VI.

G. DIFFINIS, **68**, 21 (v. H.), l. not scarce b.VII on *Rumex acetosella*, forming a fine tubular web on the seed-bearing stems among the seeds on which it feeds; here also it changes to pupa in a rather thicker cocoon; i. e.VII.

G. TERRELLA, **57**, 124, bred in a cage in which was a bunch of rushes, hence it is supposed the l. lived in the moss around the roots; **58**, 106, a brown larva with paler dorsal line, active and with tremulous motion of the head, found amongst moss III. Can this be the larva of *G. terrella*? **68**, 141, l. found near Rotterdam, e. III, feeding on the lowermost parts of the grass stems, which they gnawed off; pupa in a silken cocoon underground; i. VI; l. dark green-grey, with darker dorsal and subdorsal lines; head black; 2nd seg. yellow with two black spots.

G. FIGULELLA, **68**, 139, bred from l. feeding at the roots of *Silene Nicænsis*, at Cannes, e.II, and forming sand cocoons; i. IV.

G. DESERTELLA, **55**, 53 (75), bred from moss on the sand hills near Liverpool; l. unobserved; E. M. M. iii. 57, a sand cocoon amongst moss v on the sand hills, at Northam Burrows, produced this insect, 31v.

G. GRACILELLA, Eales, **71**, 97, n. sp.; with no tenable character; three specimens near South Shields, e.v, flying amongst hawthorn.

G. ACUMINATELLA, **60**, 144, bred from l. mining down the mid-rib of *Centaurea scabiosa*, for which the name of *G. Freyji* had been suggested; **68**, 19 (v. H.), l. x in meadows at Offenbach, mining large irregular spaces along the mid-rib of leaves of *Carduus palustris*: i. e.IV.

G. STRELITZIELLA, H.-S., **72**, 123, two specimens taken at Lowestoft,

e.VII amongst *Ammophila arundinacea*; occurs at Glogau, Meseritz and Stettin, e.V to e.VI.

G. ARTEMISIELLA, 56, 51, l. v, between united leaves of *Thymus serpyllum*.

G. MUNDELLA, 55, 53 (75), bred from moss on the sand hills near Liverpool; l. unobserved.

G. AFFINIS, 55, 53 (75), l. on moss on walls, XII-III.

G. UMBROSELLA, Zeller, 66, 169, previously confounded with *G. affinis*, and described as the *imago* of that species by Stainton (Ins. Brit. Lep. Tin. p. 115); occurs most plentifully on the sand hills of the coast, but also occurs inland; Dawlish Warren, v; Weybridge. VII. *Umbrosella* differs from *Affinis* in the ant. w. being rather narrower and more glossy, the scattered pale scales are whiter, and the sub-apical spots are whitish, scarcely showing any tendency to form a fascia. L. not yet detected.

G. CONFINIS, Stainton, 71, 98, n. sp., closely allied to *Affinis* and *Umbrosella*, but with the ant. w. narrower and *black*er than in those species; bred VI from l. found v feeding on moss on old walls near Perth.

G. BOREELLA, 56, 52, capture of 3 or 4 specimens in Sutherlandshire, VI; 70, 8, occurrence in Germany on the Upper Harz.

G. DOMESTICA, 55, 53 (75), l. on moss on walls, III.

G. RHOMBELLA, 65, 135, l. VI on apple trees at Jena. [Of late years I have found the l. not uncommonly on apple trees in my garden at Lewisham.]

G. VULGELLA, 55, 53 (75), l. between united hawthorn leaves, e.IV, eating them half through and so discolouring them.

G. MYRICARIELLA, Reutti, 62, 128, l. in the stems of the terminal shoots of *Tamarix gallica*, b.VI, on the banks of the Reuss, near Bremgarten; the affected shoots turn yellowish; i. b.VII.

G. LUCULELLA, 55, 53 (75), l. II in decayed wood.

G. SCRIPTELLA, 68, 21 (v. II), l. b.X on maple, under a lobe of the leaf turned down on the upper side; i. v.

G. ÆTHIOPS, 62, 129, l. reared from the egg, on heath (*Erica cinerea*); when young it mines the leaves; then constructs a gallery of silk and excrement, intermixed with bits of the food-plant, and so continues to feed within the gallery.

G. BRAHMIELLA, 68, 19 (v. II.), described; l. mines the pinnate leaves of *Jurinea Pollichii* at Eberstadt and Jugenheim; the mined

leaves become inflated lengthwise, and the excavated portion becomes dry and yellowish-brown; l. e.V, e.VII, b.VIII and x; i. e.V.

G. SOLUTELLA, 55, 53 (76), occurrence in Scotland.

G. VISCARIELLA, Logan, 55, 43 (65), n. sp., described; l. IV, v. in shoots of *Lychnis viscaria*, near Edinburgh; 57, 124, bred from l. in shoots of *Lychnis dioica*, near Scarborough; 58, 106, bred again from l. feeding on *L. dioica*, at Scarborough. [I subsequently found what I believe to have been the l. of this insect in shoots of *L. dioica* at Bideford, but did not rear the i.]

G. VICINELLA, 62, 130, occurrence near Dublin, VIII; l. not found; food suspected to be *Silene maritima*.

G. LEUCOMELANELLA, Zeller, 59, 150, described; l. found in shoots of *Silene maritima* v, at the Lizard, in Cornwall; 62, 130, on the Dublin coast amongst *S. maritima*, not nearly so active as most of the *Gelechiæ*, generally falling down when beaten from its concealment.

G. HÜBNERI, Haworth (*Krösmanniella*, H.-S.), 65, 135, l. v between united leaves of *Stellaria holostea*, very similar to l. of *G. maculea*.

G. KNAGGSIELLA, Stainton, 66, 167, n. sp.; described, occurrence at Haslemere, on the trunks of oaks and other trees, VII, VIII; bred from l. feeding in Germany on *Stellaria holostea*. Very closely allied to *G. Hübneri*, but smaller, darker, with more markings, and the fascia whiter and less angulated.

G. CAULIGENELLA, 62, 129, l. makes galls in the stems of *Silene nutans*, VI.

G. MARMOREA, 59, 164, bred from sand cocoons collected on Dawlish Warren; 60, 145, l. feeds on *Cerastium vulgatum*, e.III, IV, on our coast sand-hills, forming a loose petticoat of grains of sand fastened together with silk, but rarely coming above the surface of the loose sand; [i. e.V, VI, and keeps out a long time].

G. OCELLATELLA, Stainton, 59, 151, n. sp., described; occurrence at the Lizard, in Cornwall, v; l. at the same time in the flower-heads of *Beta maritima*.

G. INSTABILELLA, 55, 61 (84), bred from l. mining the leaves of *Atriplex portulacoides*; 56, 52, bred from l. which mined the leaves of *Plantago maritima*, IV; 61, 109, exhibition of a long series of a *Gelechia* allied to *Instabilella* and *Ocellatella*, but possibly distinct from either.

G. ALEELLA, E. M. M. iii. 57, the *T. scalella* of Scopoli; bred from l. which fed in moss growing at the root of an oak tree in autumn.



G. LEUCATELLA, 56, 52, l. feeding between united hawthorn leaves, VI.

G. TRIPARELLA, 68, 22 (v. H.), l. IX, X, in serpentine silken galleries between oak leaves fastened one flat upon the other, of which it gnaws the cuticle; i. e.V, b.VI; l. found b.VII, produced i. m.V.

G. TENEBRELLA, 55, 53 (76), bred from moss; l. unobserved.

G. TENEBRELLA and TENEBROSELLA, E. M. M. iii. 78, l. IV, b.V, in the roots of *Rumex acetosella* at Brünn, sometimes burrowing beneath the bark of the root, but more plentiful in the lowermost shoots which spring from the root, in an excavation in the centre of the shoot, spun over with silk; l. carmine-red; i. VI, those with dark antennæ all ♂s, those with white-tipped antennæ all ♀s.

G. VORTICELLA, 67, 20, bred from l. feeding between united leaves of *Lotus corniculatus*, m.VI, at Hanover; l. very like l. of *G. tæniolella* and not unlike l. of *G. albipalpella*; i. b.VII, veritable *G. vorticella* with the ant. w. shorter than in *G. ligulella*.

G. TÆNIOLELLA, 56, 52, l. feeds e.V, b.VI, between united leaves of *Medicago minima*; 57, 124, bred from l. feeding VI between united leaves of *Lotus corniculatus*.

G. SIRCOMELLA, 57, 124, taken in company with *G. tæniolella* flying over clover; 61, 109, bred from the shoots of *Cerastium vulgatum*.

G. CORONILLELLA, 58, 107, bred from l. feeding between united leaves of *Coronilla varia*; l. something like that of *G. tæniolella* but fatter and greener; 62, 130, occurrence of a specimen near Dublin, VIII. [This last entry is an error; the name should have been *Anthyllidella*.]

G. SANGIELLA, Stainton, 63, 149, n. sp. described; closely allied to *G. coronillella*, but with a bluish gloss; taken at Darlington, e.VI, amongst clover and *Lotus corniculatus*; 67, 21, l. between united leaves of *Lotus corniculatus*, m.VI at Darlington; l. stout in the middle and much attenuated in front.

G. ANTHYLLIDELLA, 68, 23 (v. H.), l. m.X-IV mining the leaves of *Anthyllis vulneraria*; the older l. draws the leaf upwards near the leaf stalk into a pod-like form; i. m.V. Doubtless there is a second brood.

G. ALBIPALPELLA, H.-S., 58, 90, described; bred from l. VI on *Genista anglica*, which form conspicuous clusters of yellowish-white

leaves by drawing several leaves together round the stem and then eating them half through.

G. ATRELLA, 55, 54 (76), bred from *Anthyllis vulneraria*; "l. pale blackish-brown, without markings of any kind." [There must have been some confusion here, and though the description of the larva is not first-rate, it has been probably intended for that of *Anthyllidella*. The habit and larva of the real *Atrella*, not known for some years afterwards, are very different.]

G. ATRELLA, 67, 21, bred from l. which when young mine the stems of *Hypericum*, b.v, causing the tops to droop; 70, 9, l. e.v, when full fed cuts off a piece of the excavated stem of *Hypericum*, forming a brown flat case, within which it assumes the pupa state.

G. RHENANELLA, 68, 22 (v. H.), described; l. b.vii in hedges at Mombach, on the lower leaves of *Convolvulus sepium*, which appeared withered at the tips or at the edges; i. b.viii.

G. LUCIDELLA, 68, 141, taken freely e.vii at Ruislip Reservoir, Middlesex, by sweeping *Typha*.

G. INTAMINATELLA, 61, 86, n. sp., briefly noticed; allied to *Desertella* and *Senectella*, but with no spots or markings; taken on the railway bank near Darlington; 67, 20, bred from l. feeding between united leaves of *Lotus corniculatus*, ix, at Darlington; l. very similar to those of *G. nigricostella*; i. e.v and b.vi.

G. INTAMINATELLA, 64, 165, bred v from *Achillea millefolium*, at Frankfort-on-the-Main. [From the food of the l. of the Darlington *Intaminatella* above given, this yarrow-feeder, which bore at Frankfort the name of *Pulveratella*, is probably distinct, though at present I know not how to separate the perfect insects.]

G. ARUNDINETELLA, Zeller, 58, 91, described; bred vi from larvæ mining like an *Elachista* up and down the leaves of *Carex (riparia?)*, iv, v; 68, 142, occurrence in the sallow-pit at Lee, e.vii, b.viii; young l. (of this species?) mining in a leaf of *Carex* xi at Darlington; 70, 9, occurrence at Wicken Fen; also an insect which will probably prove to be a new species allied to *Arundinetella*.

G. PRUINOSELLA, 70, 8, l. e.v, on *Vaccinium uliginosum*, V. *Myrtillus* and *Andromeda polifolia*; occurrence in the Island of Oesel; i. resembles *G. terrella*, but is smaller and neater, often with a rosy tinge.

G. NIGRICOSTELLA, 57, 124, bred v from l. feeding ix, between united leaves of *Medicago sativa*, at Frankfort.

G. LATHYRI, Stainton, **65**, 130 (the *nigricostella*, Stainton, non Dup. etc.); l. IX on leaves of *Lathyrus palustris*; i. v larger than *Nigricostella*, the ant. w. more pointed, and the cilia of the hind margin yellow; moreover, *Lathyri* has no black spot on the fold beyond the middle.

G. PICTELLA, **60**, 145, l. in an underground sand tube at roots of *Cerastium vulgatum*, at Redcar, e. v.

G. TARQUINIELLA, Stainton, **62**, 112, n. sp., allied to *Pictella* and *Superbella*, but differing from both; occurs on the sand hills (near Dublin), in warm hollows among moss, *Galium*, &c., VI.

G. BRIZELLA, **56**, 52, l. winters in flower heads of *Statice armeria*, changing to pupa IV; **68**, 23 (v. H.), l. VI, b.VII, in flower heads of *Statice armeria*, of which it eats the unripe seeds; i. e.VII, b.VIII; l. in autumn produce i. v.

G. ERICINELLA, **56**, 52, l. in light gossamer-like webs near the ends of the shoots of heather, b.VII.

G. SUBDECURTELLA, Stainton, **59**, 152, n. sp.; a brief diagnosis; two taken VI in the Cambridge Fens; **62**, 130, bred from l. feeding on *Lythrum salicaria*.

G. PAUPELLA, **57**, 125, bred from l. found in flowers of *Inula dysenterica*; probably the summer broods of *G. inopella*.

G. ? OSSELLA, Stainton, **61**, 87, n. sp.; briefly described; captured b.VI at Yedmandale and Forge Valley, near Scarborough.

G. SUBOCELLEA, **70**, 9, l. v in the flowers of *Thymus vulgaris*, at Cannes.

PARASIA METZNERIELLA, **55**, 54 (76), l. XI below the seeds of *Centaurea nigra*.

P. PAUCIPUNCTELLA, **62**, 130, bred from l. collected x in the heads of *Anthemis tinctoria*, at Ratisbon.

CLEODORA STRIATELLA, W. V., **56**, 36, described; occurrence in England; **57**, 125, occurrence near Brighton; **58**, 107, occurrence of several specimens in the fens; E. M. M. iii. 79, bred from seed heads of *Anthemis tinctoria* collected in autumn at Brünn, along with *Parasia paucipunctella*. The *Cleodora* l. when full fed quits the seed head, the *Parasia* l. does not.

CHELARIA HÜBNERELLA, **56**, 52, l. said to feed on birch; the i. frequents poplars.

ANARSIA SPARTIELLA, **56**, 52, bred from furze; **57**, 125, bred from

brown l. in shoots of furze; **58**, 107, l. and p. freely collected VI in terminal shoots of furze, which they turn brown; p. generally to be found in the shoots.

A. GENISTÆ, **56**, 52, bred from boom.

YPSOLOPHUS TRINOTELLUS, **63**, 142, bred from dull red l. feeding III in the seeds of the wild wallflower at Dolce Acqua; i. e. VI, VII. I. at rest sits with the ant. portion of the body slightly raised, something like *Gelechia Mouffetella*.

Y. USTULELLUS, Fab., **68**, 129, occurrence near Worcester, e. v. l. IX between united leaves of hazel and hornbeam, winters full fed in the l. state.

Y. FASCIELLUS, **56**, 52, l. IX on sloe in doubled-up leaves, with an opening at each end.

Y. (NOTHRIS) DEFLECTIVELLUS, **64**, 166, l. on clover; blacker than the l. of *Durdhamellus*; **65**, 136, l. VI at Jena, between united leaves of *Trifolium medium*, fed in captivity on *T. pratense*; i. VII. [The oldest name of this insect is *Limosellus*.]

Y. (NOTHRIS) DURDHAMELLUS, **55**, 54 (76), l. v in curled leaves of *Origanum vulgare*; **56**, 53, l. black and white, not unlike that of *Gelechia rufescens*; (*Schmidiellus*), **68**, 23 (v. H.), l. VI, between spun-up leaves of *Origanum vulgare* and *Mentha arvensis*; i. m. VII. [The oldest name of this insect is *Schmidiellus*.]

Y. JUNIPERELLUS, Lin., **55**, 44 (66), described; occurrence of l. on juniper in Scotland.

NOTHRIS VERBASCELLA, **58**, 107, still obtainable at Norwich; **68**, 144, l. common everywhere about Cannes, on *Verbascum* III.

APLOTA PALPELLA, **56**, 53, bred from rotten wood at Hanover.

SOPHRONIA HUMERELLA, **56**, 53, l. on *Gnaphalium arenarium*; **58**, 107, l. also in the terminal shoots of *Artemisia campestris*.

PLEUROTA BICOSTELLA, **62**, 130, l. under a web on the mid-stem of *Erica cinerea*, XI; it spins a web amongst the heath, analogous to that spun by an *Ipsolophus* l. on juniper.

HARPELLA BRACTEELLA, Lin., **59**, 152, described; occurrence in England, near Gateshead, flying about some old tree stumps; l. a rotten-wood feeder, also in bark of mulberry trees; **61**, 107, capture of a specimen at Crumlyn, in Monmouthshire.

ANCHINIA GRISESCENS, **68**, 24 (v. H.), l. b. VII, on the Alp Laret, near St. Moritz, between united leaves of *Daphne alpina*; i. b. VIII.

**HYPERCALLIA CHRISTIERNANA**, 57, 125, l. between united leaves at the end of a shoot of *Polygala chamæbuxus*, near Zürich; 58, 107, l. from Switzerland off *Polygala chamæbuxus*, when offered *Polygala vulgaris* ate it readily; 70, 9, l. e.v between united leaves of *Polygala vulgaris*; easily recognized by the prettily-speckled head and 2nd seg.; many shoots of *Polygala* have the leaves drawn together by a *Sciaphila* l.

**CARPOSINA SCIRRHOSSELLA**, 62, 131, l. e.x, in rose hips; i. VI.

**CECOPHORA UNITELLA**, 61, 110, bred from a brown l. with yellowish-ochreous dorsal and subdorsal lines, feeding on decayed bark of oak.

**CE. FLAVIFRONTILLA**, 56, 54, bred from a singular case (rather semicircular and broad at its straight edge) found on the ground; 61, 109, l. in a case formed of an elliptical piece of dead beech leaf, folded lengthways and closed by a silky suture. Cases found v on trunks of beech trees, l. reared on beech leaves and lichens; 62, 131, l. found x among fallen leaves; it fed on the dry leaves, skeletonizing them like the l. of an *Incurvaria*.

**CE. TRAGICELLA**, 63, 26 (v. H.), described; one taken e.VII, on a lichen-covered fir tree at St. Moritz; a second specimen escaped.

**CE. FUSCESCENS**, 68, 144, occurrence of several at Pitlochrie, Perthshire. Is the l. a rotten-wood feeder?

**CE. LURIDICOMELLA**, 70, 10, distinct from *CE. fuscescens*; a neater insect, with more glossy and narrower ant. w., head distinctly pale yellow.

**CE. AUGUSTELLA**, 56, 53, l. in rotten wood.

**CE. GRANDIS**, 55, 54 (76), occurrence in North Wales; 56, 53, local; not uncommon e.v. and VI in one fence composed of dead and living hazel and birch, fly only in warm sunshine from 10 a.m. to 1 p.m.

**CEGOCONIA QUADRIPUNCTA**, 62, 131, beaten out of furze bushes VIII in company with *Depressaria costosa*, near Dublin.

**BUTALIS GRANDIPENNIS**, 56, 54, l. in early spring in a web on *Ulex nanus* and *Europæus*; 58, 107, l. in the greatest profusion on the furze-bushes on the steep hill side between Torrington and the river, II.

**B. FUSCOÆNEA**, 56, 54, occurred in some plenty, e.VII and b.VIII, in Headley Lane—also found in the north of England; 60, 145, l. VI on *Helianthemum vulgare*.

**B. SENESCENS**, 58, 107, bred from l. v making little web-like galleries amongst moss at the root of thyme, on Box Hill.

B. (CECOPHORA) KNOCHELLA, **68**, 27 (v. H.), l. m.VI on *Cerastium semidecandrum*, amongst a large thin web on the stem near the root, near Frankfort; i. b.VII.

B. (CECOPHORA) NORICELLA, **68**, 28 (v. H.), l. m.VII at Rippoldsau on *Epilobium angustifolium*, drawing the terminal leaves and flowers to a cluster; i. b.VIII.

B. VARIELLA, **62**, 131, found in great numbers VI running over the sand on the sand hills of the Antwerp Campine.

B. CICADELLA, **65**, 137, l. forms tubes of sand, e.v, amongst the roots of its food plant *Scleranthus perennis*, at Ratisbon.

AMPHISBATHIS (BUTALIS) INCONGRUELLA, **61**, 110, l. reared from the egg at Scarborough; fed on heath, *Calluna* and *Erica*; l. found IX at Cannock Chace. The motions of this l. are very curious and quite different to those of a *Coleophora* l., more than half the body being exerted from the case and the case then drawn after it, just as we see in the l. of the Long-Horns; E. M. M. iii. 79, occurrence of the i. on the Lickey Hills, near Birmingham.

ACROLEPIA PERLEPIDELLA, **56**, 54, several taken, VI and e.VIII, flying in the sunshine round a privet bush, surrounded by oaks and birches, in Leigh Wood, near Bristol.

A. BETULETELLA, **58**, 107, described; one taken at Castle Eden Dene, b.VIII; **60**, 145, one taken at Castle Eden Dene, x; **63**, 152, one taken at Castle Eden Dene; **67**, 24, occurrence at Castle Eden Dene, e.IX. Confounded by Herrich-Schäffer and Wocke with the Continental onion and leek feeder, *A. assectella*, but abundantly distinct.

A. MARCIDELLA, Curtis, **61**, 88, recent capture by Mr. Mitford.

A. VESPERELLA, **67**, 23, l. first mines and then gnaws externally the leaves of *Smilax aspera* III at Cannes and Mentone; open network cocoon of brown silk; i. m.IV.

A. ARNICELLA, **68**, 28 (v. H.), described; l. mines leaves of *Arnica montana* m.v, forming long irregular, yellowish tracks; when full fed e.v it quits the mine and bores beneath the epidermis of the underside of another leaf, forming an elongate oval burrow, scarcely perceptible from the upper side; in this it changes to pupa, in a slight white cocoon, *not* made with open meshes. For the *A. cariosella* found on the Bernina, which appears distinct from the German *Cariosella*, having the brown-yellow central fascia standing perpendicularly on the inner margin of the ant. w., the name *Adjectella* is proposed.

RÜSLERSTAMMIA ERXLEBELLA, 57, 125, occurrence in plenty, e.v. b.VI, on lime trees near Bristol; E. M. M. iii. 79, bred at Hanover from l. which fed on the leaves of the lime; when young they are miners, but when about half-grown they quit their mines and gnaw the underside of the leaf. There are two broods in the year.

R. PRONUBELLA, W. V., 55, 44 (67), described; 1 specimen v in Sutherlandshire; ["the exact spot" was "a birch wood on the banks of the River Shin;" "beaten from beech." E. C. Buxton, Entomologist, iii. 24].

GLYPHIPTERYX CLADIELLA, Stainton, 59, 153, n. sp.; a brief diagnosis; allied to *G. Thrasonella*, but with no silvery streaks; collected at Wicken Fen near Cambridge, flying singly over the tall hedge.

G. HAWORTHANA, 56, 54, l. during the winter in the prostrate heads of cotton-grass (ERIOPHORUM); E. M. M. iii. 80, occurrence at Haslemere, and in a marshy place near Meseritz, in Posen.

G. SCHENICOLELLA, Boyd, 59, 153, n. sp., briefly described; taken at the Lizard in Cornwall, amongst *Schoenus nigricans*, also bred from the seed heads of that plant e.v.

G. FISCHERIELLA, 62, 131, 132, bred v. from l. feeding VIII in the seeds of *Dactylis glomerata*. [In August, 1869, this larva came before me as a most mischievous little pest, the following letter having been written by an agriculturist in Westmoreland to the Editor of the Gardener's Chronicle: "I shall be much obliged by your telling me the name of the small maggots which I enclose. To insure its being pure, I have for several years collected my own cock's-foot grass seed. Last year, I am told there were a few, this year the sacks are covered with the maggots and the close white web which they have spun, and of which I enclose some. Do they feed on the seed? Curious to say they are not in the sacks with the seed, but outside, having left the seed." These "small maggots," of which I received several hundreds, were undoubtedly the larvæ of *Glyphipteryx Fischeriella*, then about fed up.]

ÆCHMIA DENTELLA, 70, 10, bred from l. feeding VII in the seeds of *Angelica*; a somewhat allied but browner and narrower-winged insect, bred from seeds of *Laserpitium*.

HEYDENIA (ASYCHNA) PROFUGELLA, Zeller, 56, 38, n. sp., described; one taken near Kemsing, Kent, VII; another of unknown

English locality; a third taken in Germany, at Hermsdorf, VII; **64**, 167, bred from l. feeding e.VII, b.VII, on the seeds of *Heracleum sphondylium*, *Egopodium podagraria* and other *Umbelliferæ*; **70**, 17, occurrence at Witherslack, VII, VIII, on yew; also beaten from fir, VIII, at Darlington; the i. sat like *Glyphipteryx fuscoviridella*, with its wings meeting over its back at a very acute angle, and it was rather lively in the net.

H. (CECOPHORA) DEVOTELLA, **68**, 24 (v. H.), described; l. e.VIII, b.IX, in umbels of *Heracleum sphondylium*, spinning the seeds together with a slight web and boring into them; i. VI.

H. (CECOPHORA) STATARIELLA, **68**, 25 (v. H.), described; twice taken m.VII on the Alp Laret, near St. Moritz; allied to *Devotella*, but much smaller, tips of the antennæ whitish and four faint spots on the ant. w.

PERITIA OBSCUREPUNCTELLA, **55**, 54 (77), l. VII making blotches in honeysuckle, quitting the leaf when full fed and changing to a singularly flat pupa.

ANTISPILA (ELACHISTA) TREITSCHKIELLA, **55**, 55 (78), bred from l. mining VII—X large greenish blotches in leaves of dogwood, and cutting out small, flat, oval cases.

A. (ELACHISTA) PFEIFFERELLA, **56**, 58, *apparently* bred from case-maker-miners of the dogwood; **57**, 128, l. makes blotches in leaves of dogwood similar to those of *Treitschkiella*, but both l. blotch and case are larger; head and 2nd seg. pale brown in *Pfeifferella*, black in *Treitschkiella*; E. M. M. iii. 80, l. buries itself and its case underground; none of the l. of the closely-allied *A. Treitschkiella* (bred by hundreds) went beneath the surface of the mould.

A. RIVILLEI, **72**, 124, l. b.X in vine leaves at Massa di Carrara in Italy. There is no record of these l. having been met with since 1750.

HELIOZELA SERICIELLA or STANNEELLA, **70**, 11, an oak leaf found at Marktstett, in Bavaria, with an oval case cut out close to the foot-stalk; the l. had fed up inside the foot-stalk, and had then simply mined into the surface of the leaf a sufficient distance to allow of its cutting out its oval case.

H. (TINAGMA) RESPLENDELLUM, **58**, 108, bred from the singular mine on alder leaves, on which the l. mines along a lateral rib a short distance, then crosses over from one lateral rib to another, along which it mines to the mid-rib, down which it mines for an inch or more, then



turns and mines up the mid-rib, then quits the mid-rib and mines a blotch, from which it cuts out an oval case and descends to the ground; **64**, 166, l. collected in numbers 15 and 25VII at Reigate; mine commences whilst the alder leaf is quite small, and as the leaf grows it gets a twist from the operations of the l., so that by searching for the leaves that are rather crooked, and especially by looking to the penultimate and ante-penultimate leaves of the alder twigs, we may collect these l. in any quantity. L. at Stettin e.IX; l. at Haslemere b.VIII; i. bred in a warm room e.X. Professor Frey once found an oak leaf, with an oval hole cut out near the mid-rib; this should have been the work of *T. sericiellum*; **68**, 144, l. common at Dunkeld, Pitlochrie and Blair Athol, VIII, especially on one individual alder bush at the latter place; **70**, 10, not a single i. bred from the numerous l. collected in Scotland, VIII, '67.

DOUGLASIA OCNEROSTOMELLA, **57**, 125, bred from dead stems of *Echium vulgare*.

ARGYRESTHIA SPINIELLA, **65**, 137, l. v boring down the stems of the flower shoots of *mountain ash* [the food was accidentally omitted], whence some of the central buds assume a withered and brownish appearance, thus betraying the whereabouts of the larva.

A. CONJUGELLA, **56**, 54, l. IX in the berries of mountain ash; **70**, 12, occurrence of a most extraordinary variety of this species (or else something new to us) at Scarborough, VI, on the flowers of mountain ash. Ant. w. entirely without markings, perfect unicolorous brown, much darker than in *Semitestacella*, and with no purple tinge as in *Semifusca*.

A. ÆRARIELLA, Stainton, **71**, 100, n. sp., described; several beaten from oaks, b.VI; plenty of mountain ash near, but none were beaten from it. [Is not this the var. of *Conjugella*, above mentioned?]

A. GLAUCINELLA, **56**, 54, taken sitting on the trunks, &c. of very old decayed oaks; **57**, 126, l. feeds under the bark of oak and Spanish chestnut; only found at the base of trees of enormous size; **58**, 109, l. IV in the sound bark of oak and horse-chestnut trees, revealing their retreats by protruding a little reddish *frass* from the hole.

A. LITERELLA, **62**, 132, referred as an aberration to *A. Goedartella*; one captured at Lewisham among alders, e. VII.

A. ARCEUTHINA, **56**, 55, l. v. (IV?) in shoots of juniper.

A. AURULENTA, **58**, 109, l. mines leaves of juniper, e.IV.

CEDESTIS FARINATELLA, 57, 126, l. III mining in leaves of *Pinus sylvestris*, from the tip downwards, leaving the mined portion full of excrement.

C. GYSSELENIELLA, 55, 54 (77), occurrence in Scotland; 56, 55, l. between leaves of *Pinus sylvestris* in a white web; 68, 31 (v. H.), l. not scarce on *P. sylvestris*, at Frankfort, m.v; i. b.vi.

OCNEROSTOMA PINIARIELLA, 56, 55, l. mine the leaves of *P. sylvestris*; 57, 126, l. III mining in leaves of *P. sylvestris*, from the tip downwards, leaving the tip of the leaf full of excrement, but ejecting it from the lower portion of the mine; 68, 31 (v. H.), l. IV, b.v, in the needles of *Pinus sylvestris*, which it eats from the tip downwards, leaving its excrement behind it; i. m.vi, also b.viii, perhaps a second brood. The l. feeds only on the needles of the previous year.

ZELLERIA HEPARIELLA, 57, 126, beaten from yew trees in three different localities; 70, 12, l. of this yew-frequenting i. still undiscovered.

Z. PHILLYRELLA, 68, 145, l. b.iii, beaten from flowering bushes of *Phillyrea angustifolia* at Cannes; it makes webs amongst the flowers on which it feeds; i. b.iv. May not the l. of our *Z. hepariella* feed on privet blossom, though the i. does not frequent yews?

Z. FASCIAPENNELLA, 56, 55, occurrence in Switzerland, in the Engadine [This notice was erroneous, the insect in question having been *Zelleria saxifragæ*]; 70, 12, the South German and Swiss species allied to this bred from l. feeding under a web in the hearts of *Saxifraga aizoon*; occurrence of the true *Fasciapennella* near Munich, ix.

Z. SAXIFRAGÆ, Stainton, 73, 48, occurrence at Braemar VII, amongst *Saxifraga aizoides*; also on the precipices of Maol Ghyrdhy in Glen Lyon, flying about the ledges.

GRACILARIA FALCONIPENNELLA, E. M. M. iii. 80, occurrence of 3 specimens at Haslemere, beaten from thatch in autumn.

G. HEMIDACTYLELLA, 68, 31 (v. H.), l. on *Acer platanoides* and *Pseudo-platanus* at Darmstadt, more rarely on *A. campestre*, e.viii, b.ix, in a cone formed at the edge of the leaf; i. e.ix.

G. SEMIFASCIA, 57, 126, bred from l. making cones on leaves of maple. [Since then I have collected these l. very abundantly e.vi at Mickleham; the insect is however local, not occurring on maple everywhere.]

G. FIDELLA, 67, 25, l. b.viii in cones formed on the leaves of the

hop, at Ratisbon; i. e.IX, b.X; **68**, 32 (v. H.), l. e.VIII on hop, at Freiburg in the Breisgau and at Speyer, first mining a pale spot in the fork between 2 ribs of the leaf, afterwards feeding beneath a piece of the edge of the leaf, turned down towards the underside, and which has more or less of a conical form; i. m.IX.

G. ELONGELLA, **56**, 55, bred from l. making large cones on *birch* leaves; E. M. M. iii. 80, cones of the l. on birch found on the Lickey Hills, near Birmingham.

G. SIMPLONIELLA, **62**, 132, occurrence in Belgium; flies in open places along hedges of oaks VIII, IX, among the heaths of the Campine.

G. LIMOSELLA, **68**, 33 (v. H.), l. m.IX, at Mombach on *Teucrium Chamædryis*; it mines the leaves, which hence appear swollen on the upperside, while the underside is drawn together in folds; i. e.VI, b.VII.

G. KOLLARIELLA, Zeller, **62**, 113, occurrence in England, a specimen having been found in the collection of *British* insects in the British Museum; **68**, 34 (v. II.), l. m.VI and m.IX, b.X, mines the leaves of broom (more rarely those of *Genista Germanica*) near Frankfort; the mine is a large grey-brown spot, which often covers an entire leaf; the l. quits one leaf to enter another; i. v and e.VII.

G. PHASIANIPENNELLA, **55**, 54 (77), l. in cones on leaves of *Rumex acetosella*, produced also the var. *G. quadruplella*; l. also on *Rumex obtusifolius*. [L. usually found on *Polygonum hydropiper*.]

G. OMISSELLA, **57**, 126, l. found abundantly at Reigate, IX; occurrence at Brighton.

G. PAVONIELLA, **62**, 132, l. VIII in leaves of *Margarita bellidistrum*, near Zürich; mine on the upperside from the tip towards the base, first red, then brown and puckered; l. also in leaves of *Aster amellus* at Frankfort-on-the-Main; **68**, 33 (v. II.), l. m.X at Jugenheim, mining the leaves of *Aster amellus*; the mine is large, often an inch long, generally occupying the entire breadth of the leaf towards the tip; the mine is reddish-brown, and more or less inflated in the middle; plants shaded by trees are preferred; i. m.v.

G. ONONIDIS, **58**, 109, l. found making flat Dipterous-looking blotches in leaves of clover.

G. SCALARIELLA, **64**, 167, bred from l. mining the leaves of *Echium vulgare*, in winter, making slightly-puckered blotches.

G. (IMPERIALELLA) HOFMANNIELLA, **61**, 110, one captured near

Worcester, e.v, by sweeping the grass by the side of a path in a wood in a damp place; **62**, 132, bred from l. mining leaves of *Orobus niger*, VII, at Muggendorf; the mined leaf is slightly curved and quite bladder-like. [Subsequently the insect was found to be distinct from the original *Imperialella*, and has been named *Höfmanniella*; I presume the Worcester capture is referable to *this* species.]

G. IMPERIALELLA, **68**, 147, two species confused under this name—the l. of the true *Imperialella* mines the leaves of comfrey (*Symphytum officinale*), VIII. For the species bred from l. on *Orobus niger* VII the name *Hofmanniella* is proposed; **70**, 12, occurrence of the *Symphytum*-mining l. in Wicken Fen, e.IX.

CORISCIVM BRONGNIARDELLUM, **58**, 109, l. excessively abundant on oaks between Woking and Guildford.

C. CUCULIPENNELUM, **56**, 55, bred from a pupa in a rolled-up *ash*-leaf; **62**, 133, bred from l. found in cones, e.VIII, b.IX, on one privet bush at Folkestone.

ORNIX LOGANELLA, **57**, 126, bred from mountain ash.

O. SCUTULATELLA, **62**, 134, bred from l. on *Betula torfacea*, in swampy places near Zürich, e.VI, b.VII. [Micro-larvæ certainly show a preference for *downy-leaved* birches.]

O. FAGIVORA, Frey, **62**, 134, the *Deconiella* of Frey (Tineen u. Pteroph. d. Schweiz, p. 252), but not *Deconiella*, Stainton; l. turns down the edge of the leaves of beech, near Zürich. [L. on beech have occurred in various parts of England, but I am not aware that the i. has ever been reared with us.]

ORNIX, sp. ?, E. M. M. iii. 80, cones of an *Ornix* found on *Pyrus torminalis*, IX, in Epping Forest and near Teignmouth.

O. PFAFFENZELLERI, **62**, 133, l. VII in rolled-up leaves of *Cotoneaster vulgaris* in the Engadine, i. b.VIII; **68**, 34 (v. II.), l. e.VI, b.VII, at St. Moritz on *C. vulgaris*; it folds a leaf together upwards, devouring the upper surface of the leaf; i. e.VII-X.

O. CAUDULATELLA, **70**, 12, occurrence in the S. of France; i. always amongst *Salix alba* or *S. caprea*.

COLEOPHORA JUNCICOLELLA, **56**, 56, occurrence at West Wickham, b.VII; l. on young shoots of *Calluna vulgaris*, v; **58**, 110, l. abundant in spring at West Wickham, also at Scarborough and near Manchester.

C. BADIIPENNELLA, **61**, 111, b. on elm VI; cases short, with the mouth turned abruptly downwards.

C. LIMOSIPENNELLA, F. v. R., 55, 45 (67), described; l. VII, VIII, on elm and alder.

C. OLIVACELLA, 61, 111, l. on *Stellaria holostea*; case cylindrical ochreous-brown, with the mouth turned slightly downwards and with a distinct ventral keel; the feeding l. reposes nearly prostrate on the surface of the leaf.

C. UNIPUNCTELLA, 65, 137, l. VIII feeding on the seeds of *Chenopodium hybridum* at Jena; case quite unlike those of *C. annulatella* and *C. flavaginella*, being formed of pieces of seed-husk fastened together, and has a most irregular and nubbly appearance.

C. FUSCEDINELLA, 58, 110, bred from l. feeding on mallow, by the side of an elm hedge. Is the l. which feeds on *Ribes sanguineum* the same species?

C. WILKINSONI, Scott, 62, 113, a unicolorous grey *Coleophora*, l. on birch VIII, IX, Scarborough; case made of a piece of leaf, dark-brown, not bicoloured, longer than that of *Politella*, but shorter than that of *Viminetella*.

C. VITISELLA, Gregson, 57, 106, n. sp.; l. on *Vaccinium Vitis-Idæa* in a case, not unlike a miniature case of *C. anatipennella*.

C. SICCIFOLIA, Stainton, 56, 37, n. sp.; described; l. VII, VIII, on hawthorn in large cases formed of pieces of leaf unnecessarily large, looking like dried leaves; i. VI.

C. BICOLORELLA, Stainton, 61, 89, l. on alder near Hackney; case something in the style of that of *Viminetella*, and distinctly of two colours, but much stumper and stouter than any *Viminetella* case I ever met with. The nut-feeding *C. politella* of Scott may, perhaps, be the same insect.

C. ORBITELLA, 57, 127, two specimens beaten from birch, e.VI; bred from a case found on the trunk of a birch tree.

C. PARIPENNELLA, 56, 55, autumnal l. successfully reared through the winter and i. bred.

C. (ASYCHNA) FUSCOCUPRELLA (FUSCOCILIELLA), 58, 111, a true *Coleophora*; l. autumn on hazel, winters full fed and eats nothing further in spring; case very different to that of *C. paripennella*, being much larger behind; 60, 145, occurrence of l. on nut-bushes at High-gate.

C. DEAURATELLA, 70, 13, bred; l. probably a seed-feeder; cases apparently identical found b.VIII in heads of *Trifolium arvense*.

L. of *C. Fabriciella* will be some day discovered in the heads of a *Trifolium*.

C. MELILOTELLA, Scott, **61**, 88, allied to *C. Frischella*; bred from l. feeding on the seeds of *Melilotus officinalis* VIII in a case formed of one or two seed-husks; i. VII.

C. CHALCOGRAMMELLA, Zeller, **58**, 93, described; bred VI from l. on the leaves of *Cerastium arrense* V, near Scarborough, young l. XI.

C. IBIPENNELLA, Heyden, **58**, 92, described; bred e.VI from l. on birch V in *Anatipennella*-like cases, which lie prostrate, not standing erect.

C. ARDEÆPENNELLA, Scott, **61**, 89, allied to *C. ibipennella*; case similar to that of that species, but erect, not prostrate, on oak, e.VI, b.VII; i. e.VII.

C. PALLIATELLA, **61**, 111, notice of an instance of this insect assembling on a tuft of *Aira Cœspitosa*, till every blade of grass was alive with them.

C. CURRUCIPENNELLA, **58**, 109, one l. on a willow leaf, VI.

C. ALBICOSTA, **55**, 54 (77), l. on *Ulex*; case much resembling an unexpanded bud.

C. CONSPICUELLA, **56**, 55, two specimens in Headley Lane, b.VIII; two young l. same time on *Centaurea nigra*; **57**, 127, three or four captured in Headley Lane; **61**, 112, several l. in Headley Lane, e.V; few imagos appeared till August was well advanced; **68**, 35 (v. H.), l. full fed m.VII on *Centaurea scabiosa* at Frankfort and Darmstadt; i. b.VIII.

C. CONGERIELLA, Staudinger (Stett. Ent. Zeit. 1859, p. 254), **65**, 138, l. *Doryenium suffruticosum* b.IV in the south of France; case made of pieces of leaves, not very unlike that of *C. genistæ*; the l. bleaches out the small leaves of *Doryenium*, by eating out the entire parenchyma.

C. GALLIPENNELLA, **62**, 134, l. found feeding VIII on the green seeds of *Astragalus glycyphyllus* at Ratisbon in cases very similar to those of *C. coronillæ*—are probably referable to this species.

C. VIBICELLA, **58**, 109, l. again met with in Trench Wood, Worcestershire.

C. LIXELLA, **68**, 149, the young l. feeds on thyme in a case formed of a dry calyx of a thyme blossom inverted, the long points sticking out behind; afterwards the l. eats grass, mining long blotches from

which it cuts out the ordinary, elongate, grass-made *Lixella* cases, e.IV, leaving the empty thyme-calyx case attached to the grass leaf. *Coleophora ornatipennella* has, no doubt, a similar habit; case of young l. evidently the calyx of a labiate plant.

C. OCHREA, 56, 55, b.VI. on leaves of *Helianthemum vulgare*.

C. BINOTAPENNELLA, 60, 145, bred from l. boring into the stems of *Salicornia*. [This has since been recognized as a distinct species from the true *Binotapennella*, and Professor Zeller has suggested for it the name of *C. salicorniæ*]; 61, 112, bred from l. collected *two years* ago.

C. WOCKEELLA, 56, 55, l. b.VI, on *Stachys hirta*; not scarce, IV, V, on *Betonica* and *Ranunculus* [the last plant named surely in error]; 57, 127, l. IV on *Betonica officinalis* near Canterbury.

C. SATURATELLA, 56, 56, l. b.VII on broom; 60, 145, bred from l. found on broom at Wanstead, VI; 61, 112, l. in profusion on leaves of broom, V, causing brownish blotches; the l. appear to attach to their cases the skins of all the broom leaves they have ever eaten.

C. GENISTÆ, Stainton, 57, 104, n. sp., described; l. V on *Genista anglica*, making white blotches in the leaves; case greyish-ochreous, formed of little bits of leaves alternately added in front and behind.

C. ARENARIELLA, 62, 135, l. VI on *Astragalus arenarius*; in the i. the white costal streak goes further into the cilia at the apex of the wing than in *C. serenella*.

C. NIVEICOSTELLA, 65, 138, bred from l. feeding on *Thymus serpyllum*, VI, at Brunswick; case very similar to that of *C. albitarsella*, but shorter; the l. eats out the whole of the parenchyma of the small thyme leaves, which then drop off; i. e.VII.

C. MUSCULELLA, 62, 134, l. V on the leaves of *Dianthus superbus* at Frankfort on the Main, in cases similar to those of *C. saponariella*, but smaller.

C. INFLATÆ, Stainton, 57, 105, n. sp.; described; bred from l. which fed on capsules of *Silene inflata*.

C. THERINELLA, 56, 56, one taken at West Wickham, b.VII; 58, 109, a thistle-feeding l. in a long case, somewhat allied to that of *C. troglodytella*, should probably be referred to this species. [Subsequently the insect was bred from these long-cased l., which feed on thistles, IX, b.X.]

C. GRAMINICOLELLA, Heinemann in litt., 67, 164, specimens cap-

tured in tolerable plenty amongst long grass at Haslemere, e.v, appear referable to this species; 70, 13, suggestion that l. may feed on ragged robin (*Lychnis Flos-cuculi*.)

C. APICELLA, Stainton, 58, 93, n. sp.; described; several taken in the the Fens of Cambridgeshire, VII; E. M. M. iii., 81, bred VI from l. feeding in autumn on the seeds of *Stellaria graminea*.

C. VIRGAUREÆ, Stainton, 57, 105, n. sp., described; l. x on seeds of *Solidago virgaurea*; i. VIII.

C. ARTEMISIELLA, Scott, 61, 89; l. VIII, IX, on *Artemisia maritima* in an elongate, soft, ochreous-grey-green case.

C. ALBICANS 62, 134, the blossom-like cases collected IX in plenty near Meseritz on *Artemisia campestris*; some cases not blossom-like, but tubular, seemed at first sight different; but the l. in a box collected together in a heap so rubbed one another that most of the cases lost their blossom-like appearance.

C. SQUAMOSELLA, Stainton, 56, 37, n. sp., described; 2 taken near Mickleham, VIII.

C. SALINELLA, Stainton, 59, 154, n. sp.; briefly described; several taken VIII at Seaford amongst *Atriplex portulacoides*; 60, 145, bred from l. feeding on the seeds of *A. portulacoides*, b.x.

C. MURINIPENNELLA, 57, 127, l. in a vandyked case on seeds of *Luzula*; 58, 110, l. on seeds of wood-rush (*Luzula*), collected freely, VI.

GONIODOMA AUROGUTELLA, F. v. R., 55, 46 (68), described; i.VIII, banks of the Yar, Yarmouth, Isle of Wight, by sweeping. [This differs rather from Continental specimens, being darker and larger. The Continental insect feeds on seeds of *Atriplex*, using an empty seed as a case. I am assured by Mr. Bond, who has often collected in the Isle of Wight, that where this insect occurs there *Atriplex* is wanting.]

BEDELLIA SOMNULENTELLA, 55, 55 (77), though so abundant in 1852, for the two following seasons seems entirely to have disappeared; 56, 56, again tolerably common; at Bideford on almost every plant of *Convolvulus*.

STATHMOPODA PEDELLA, 61, 112, occurrence in plenty among alders by the Ravensbourne at Lewisham; hind legs doubled under and stuck out sideways, projecting nearly at right angles between the ant. and middle legs; 62, 135, l. not yet found; occurrence of i. at Hampstead; 67, 29, l. IX in alder berries at Ratisbon, supposed to be referable



to this species; **68**, 151, bred in plenty at Ratisbon, e.VII, from l. collected IX in the berries of alder.

S. (?) GUERINII, Stainton, **58**, 152, n. sp., described; bred IX from a large gall on the pistachio; **67**, 25, l. b.X in elongate, pod-like galls, formed by Aphides on the ends of the branches of *Pistacia terebinthus* at Celles-les-bains, France; i. e.X, XI, in repose it erects its hind legs and sticks them out laterally, just as is done by *S. pedella*, though the difference in structure of the antennæ and form of the hind wings is very great in the two species.

COSMOPTERYX (ZIEGLERELLA) EXIMIA, **68**, 35 (v. H.), l. e.VII, m.VIII, mines the leaves of the hop; the mines are mostly linear, but divided into several branches and are pale brown; they run along the ribs on the upper side of the leaves; i. b.VI. Local, but very abundant.

C. ORICHALCEA, Stainton, **61**, 90, n. sp.; taken in the open fen near Cambridge and in the New Forest; ant. w. with entire base brassy, apical streak interrupted, forming two spots; **64**, 168, several taken near Stettin; a *Cosmopteryx* l. found (precisely in the same locality) VIII, mining the leaves of *Festuca arundinacea*; [afterwards bred from these l.]; **70**, 16, the grass-mining l. found near Merton in Norfolk, IX; name of grass not ascertained.

C. LIENIGIELLA, **64**, 168, 2 specimens captured near Stettin, 16VI, 23VII, amongst *Calamagrostis epigejos*, flying about 7 p.m.; **70**, 13, l. IX in the Island of Oesel and at Wicken Fen mining flat elongate blotches in the leaves of *Arundo phragmites*.

BATRACHEDRA PRÆANGUSTA, **67**, 28, bred from pupæ found on the trunks of willows; **68**, 151, a full fed l. described; received 19VI.

B. SALICIPOMONELLA, **67**, 27, bred in America from a Tenthredinidous gall on willow-leaves; l. VIII; i. v.

CHAULIODUS ILLIGERELLUS, **56**, 56, l. v on *Egopodium podagraria*. in moist places in woods, drawing the leaves together; **57**, 127, l. found in a wood near Cardiff on *E. podagraria*.

C. DAUCELLUS, Peyerimhoff, **73**, 49, occurrence in the Isle of Wight, e.X, b.XI, at Freshwater and Ventnor; l. in the S. of France on wild carrot, I, II; i. III. L. in the Isle of Wight, probably e.VIII and b.IX.

LAVERNA LASPEYRELLA, **70**, 17, closely allied to, but quite distinct from, *L. festivella*; occurrence of numerous specimens amongst *Orobus* near Prague.

L. CONTURBATELLA, Hübner, **57**, 107, described; l. amongst terminal leaves of *Epilobium angustifolium* on Box Hill.

L. PROPINQUELLA, **57**, 127, bred from *Epilobium hirsutum* or *alsinifolium*; i. VII partial to flowers of ragwort; **59**, 158, bred from l. mining II the young leaves of *E. hirsutum*.

L. LACTEELLA, **56**, 56, l. on *Epilobium hirsutum*.

L. RASCHKIELLA, Tischer, **57**, 108, described; l. e.VII mining leaves of *Epilobium angustifolium* on Box Hill, i. VI and VIII; **68**, 36 (v. H.), l. m.VI, b.VII and m.IX, m.X, mining the leaves of *E. angustifolium*; when young the mine is narrow, more or less serpentine, but afterwards becomes broader, often occupying the entire half of the leaf; i. v, b.VI and e.VII, b.VIII.

L. OCHRACEELLA, **57**, 127, l. mines the stems, from the root upwards, of *Epilobium hirsutum*; young l. v.

L. PHRAGMITELLA, **58**, 110, described; captured by dozens in the fens; **59**, 158, l. in the heads of *Typha*, secreting itself in the woolly down; **68**, 36 (v. H.), l. e.III at Pfungstadt in last year's heads of *Typha latifolia*, living gregariously in the wool amongst the seeds; i. VI.

L. DECORELLA, **61**, 113, bred from *Epilobium hirsutum*. [Also stated to have been bred from *Lythrum salicaria*, which was an error, as we now know that the insect bred from that plant was *Gelechia subdecurtella* (Intelligencer, vol. x. p. 22).] **62**, 135, bred from l. feeding in gall-like swellings on stems of *Epilobium (alpinum)*; a gall found m.X produced i. the following day; **65**, 139, galls containing l. and pupæ found e.VIII on *E. parviflorum*, *montanum* and *palustre* at Haslemere; **68**, 152, bred from stems of *E. montanum* at Exeter, which showed hardly any appearance of galls, but only here and there a slight thickening; the protruding ends of the white cocoons (looking like little white spots on the stems) leading to the discovery of the pupæ; **68**, 37 (v. H.), l. in a more or less rounded gall-like swelling, sometimes as large as a pea, on the stem of *E. alpinum*, generally at the base of a leaf-stalk, VIII; i. e.VIII-X.

L. ATRA, **55**, 55 (77)—the dark variety bred from apple shoots, l. mining in the bud and in the alburnum of the *bearing spur* of the apple—amongst many scores bred from apple-trees not a single light variety was seen; **56**, 56, dark var. bred from apple at Berlin; white var. bred from l. in the berries of hawthorn. [White var. bred e.VI

from l. descending from a hawthorn bush b.x; dark var. bred b.vii from l. feeding in apple shoots e.v; clearly then we have here two distinct species, for which it will be desirable to adopt the names *Hellerella*, Duponchel, and *Vinolentella*, Herrich-Schäffer respectively (see Nat. Hist. Tineina, xi. pp. 132, 134).]

L. RHAMNIELLA, 67, 29, l. b.v. in the shoots of *Rhamnus catharticus*, feeding on the young, scarcely-expanded leaves, which they slightly roll up; i. m.vi.

CHRYSOCLISTA FLAVICAPUT, 62, 136, l. in the wood of twigs of hawthorn of last year's growth; the twigs show a little slit or opening about an inch from a fork, the pupæ just at the fork, iv; i. v.

C. SCHRANKELLA, 55, 55 (78), l. again found near Renfrew, also at Fochabers, Banffshire; two specimens of a dark var. in which the entire central orange patch is replaced by black; 68, 38 (v. H.), l. e.vii at Rippoldsau in the leaves of *Epilobium parviflorum* mining great blotches; i. viii. [Bred m. to e.vi from l. found b.vi mining leaves of *Epilobium* at Ambleside.]

C. BIMACULELLA, 57, 128, one taken amongst willows, on Leith Hill.

OCHROMOLOPIS ICTELLA, 62, 137, l. b.v in webs in terminal shoots of *Thesium montanum*, at Ratisbon; i. e.v; 65, 140, l. in terminal shoots of *T. montanum* v at Jena.

ANYBIA LANGIELLA, 56, 57, bred from l. mining leaves of *Circæa lutetiana*, vii, in North Devon.

ASYCHNA ÆRATELLA, 56, 57, l. ix-v in a pod-like gall on *Polygonum aviculare*.

A. TERMINELLA, 57, 128, l. makes spiral mines in leaves of *Circæa lutetiana*, ix; i. vi.

CHRYSOCORYS FESTALIELLA, 55, 55 (78), reared from raspberry leaves; 56, 57, l. on upper or under-side of bramble leaves, ix eating the leaf half through and making conspicuous blotches; [in Scotland I have often found the wild raspberry leaves very prettily blotched by the operations of this l.]; 70, 17, l. b.viii at Strathglass, Invernessshire on *Rubus chamæmoris*. [I believe I have nowhere mentioned the very characteristic open net-work, brown cocoon spun by this l.; Lord Walsingham found that a North American species of the genus made quite a similar cocoon to that of our *Festaliella*.]

STEPHENSIA (ELACHISTA) BRUNNICHELLA, 56, 58, l. vii, b.viii,

mining dark-brown blotches in leaves of *Clinopodium vulgare*; **68**, 38 (v. H.), l. b.VII mines the leaves of *C. vulgare*; the mine begins at the tip of the leaf and often extends to the middle, it has a brown crumpled appearance; i. e.VII, b.VIII.

STAGMATOPHORA POMPOSELLA, **68**, 38 (v. H.), l. b.V mining yellowish blotches in the leaves of *Gnaphalium arenarium* at the same time as *Bucculatrix Gnaphaliella*, which latter spins an elongate white cocoon outside the mine, whereas *St. pomposella* changes to pupa within the mine; i. e.VI, b.VII.

S. ALBIAPICELLA, **62**, 137, bred from pupa found v in last year's seed-heads of *Globularia vulgaris* at Ratisbon; i. e.V, l. found IX in the interior of the dried seed-heads.

ELACHISTA TRAPEZIELLA, **58**, 111, bred from l. mining leaves of *Luzula pilosa*, at Zürich, VI; **59**, 158, l. mines leaves of *L. pilosa*, IV; i. e.V, b.VI.

E. MAGNIFICELLA, **59**, 158, l. mines the leaves of *Luzula pilosa*, IV, v; **61**, 113, occurrence of the l. in South Wales.

E. NOBILELLA, **62**, 138, bred from l. found III in a species of *Festuca* at Freiberg in Saxony and at Zürich.

E. GLEICHENELLA, **55**, 56 (78), l. in a grass and in a *Carex*, III, IV, making small whitish blotches on the upper side of the leaf. [Specimens bred from l. collected in the Norfolk Fens were unusually large.]

E. APICIPUNCTELLA, **63**, 152, bred from l. found I, II, spun up under fallen oak leaves, near Falkirk. [Bred in Holland by M. Albarda of Leeuwarden from l. mining the leaves of *Holcus lanatus* and *Festuca elatior*, XI-III; both the mine and the habit of the l. seem very similar to those of *E. rufocinerea*.]

E. ALBIFRONTTELLA, **55**, 56 (78), l. in upper part of leaves of *Holcus mollis*, IV. [This l. is also very partial to *Aira cæspitosa*.]

E. CINEREOPUNCTELLA, **55**, 56 (78), the beautiful red-spotted l. mines down the leaves of *Carex glauca* in spring, preferring those plants which grow in the shelter of bushes, III.

E. FLAVICOMELLA, Stainton, **56**, 39, 2 taken at Howth, Ireland, VII, among grass under brambles, but other captures neglected under the idea the insect was only *E. luticomella*.

E. KILMUNELLA, **55**, 56 (78), bred VII from l. in a species of *Carex* near Fochabers, Banffshire; *E. alpinella* probably only a form of this species.

E. GREGSONI, Stainton, 55, 48 (70), n. sp., described; l. III in leaves of *Poa*.

E. (CONSORTELLA) STABILELLA, 55, 56 (79), occurrence at Headley Lane. [These specimens were afterwards described as a new species, *E. stabilella* (Trans. Ent. Soc. Lond., 2nd series, iv. p. 303), "well distinguished by the whiteness of the head, the obliqueness of the fascia, and the spots being exactly opposite."] 57, 128, not uncommon in Headley Lane, VI; 59, 154, name of *Stabilella* given to the Headley-Lane *Consortella*, "distinguished by the whiteness of the head and the obliqueness of the fascia."

E. BEDELLELLA, 57, 128, l. in tips of leaves of *Avena pratensis*, III, IV.

E. PULCHELLA, 55, 56 (79), proves to be the ♀ of *E. obscurella*; taken in company with both broods of *Obscurella*, and both bred VII from the same l. in *Holcus* and other grasses.

E. PERPLEXELLA, Stainton, 59, 155, allied to *Subnigrella* and hitherto confounded with it, but ant. w. blacker and spots more nearly opposite; l. in leaves of *Aira cæspitosa* (see Trans. Ent. Soc. iv, 2nd series, p. 308).

E. POÆ, Douglas, 55, 47 (69), n. sp., described; l. IV, VIII, in leaves of *Poa aquatica*; 63, 39 (v. H.), l. full fed e.III, b.IV, mining the leaves of *Glyceria spectabilis* [a synonym of *P. aquatica*]; the long mine, sometimes reddish, is not easily perceived in the red-brown leaves; i. e.IV.

E. BIFASCIELLA, Treitschke, 62, 138, many bred from l. found III in a species of *Festuca* at Freiberg, in Saxony. [Subsequently received b.V, l. in *Festuca* from Frankfort-on-the-Main; i. e.V.]

E. ADCITELLA, 57, 128, bred from l. making very white mines m.V in the leaves of *Sesleria cærulea*; *E. abruptella* is the ♀ of this.

E. ZONARIELLA, 55, 56 (79), bred VIII from l. in *Aira cæspitosa*; 62, 138, Professor Fritzsche suggests that in N. H. Tin. vol. iii., the l. figured as that of *Megerlella* is truly that of *Zonariella*, and that the l. figured as that of *Zonariella* does not belong to that species,—a remark to which we cannot in any way assent, as we fancy we know the l. of *Megerlella* very well [having collected it year after year for several years].

E. CINGILLELLA, Fischer, 59, 155, dark head, fascia white and slender; occurrence in the north of England (see Trans. Ent. Soc. vol. iv., 2nd series, p. 312).

E. GANGABELLA, 55, 57 (79), bred from l. making long puckered mines (*Lithocolletiform*) in leaves of *Dactylis glomerata* near Beckenham; l. XI-IV; a few l. found in *Holcus mollis*.

E. TÆNIATELLA, Zeller, 57, 109, n. sp., described; l. XI in a rather coarse grass (probably *Arrhenatherum avenaceum*), forming large brownish mines; hibernating as l. and changing to p. in spring; i. IV.

E. SERRICORNIS, 63, 152, a specimen in a collection of insects *mostly captured in Wales*; 70, 17, occurrence on Witherslack moss, m. VII, flying over or swept from cotton grass (*Eriophorum*). [At Stettin this species has been bred from l. mining in the leaves of *Carex ciliata*, VIII.]

E. RHYNCHOSPORELLA, 55, 57 (79), bred VI from l. mining down the tops of the leaves of *Eleocharis*, v; 59, 158, this and *E. eleochariella* both bred from l. in *Eriophorum angustifolium* (cotton grass), and both from l. in a *Carex*.

E. (CARICIS) PALUDUM, Stainton, 59, 155, n. sp.; briefly diagnosed; l. e. IV in leaves of *Carex paniculata* and *C. paludosa* at Ranworth. [Specimens of this insect were sent to Professor Frey under the name of *E. paludum* (I had for some time hesitated which name to adopt), and his reprint of my description, sent him in a letter, under the latter name in the 13th vol. of the *Linnaea Entomologica*, p. 283, gave priority to that name over the *Caricis* of the *Annal.*] 61, 113, occurrence of l. near Beccles, VII; all specimens bred preserved their distinctive characters; 70, 18, i. bred from l. found near Darlington; occurs also near Dresden and Stettin.

E. BIATOMELLA, 55, 57 (80), l. IV makes whitish blotches in leaves of a *Carex* on Box Hill.

E. TRIATOMEA, 60, 145, bred from l. mining the tips of a fine grass (*Festuca*?) v.

E. POLLINARIELLA, 57, 128, bred but l. not distinguished; 58, 111, l. in *Brachypodium sylvaticum*, making a large *Lithocolletiform*-mine.

E. RUFOCINEREA, 55, 57 (80), l. abundant II, III, in leaves of those plants of *Holcus mollis* which grow under hedges and on the sides of ditches; mines broad and whitish, with very little excrement.

E. (TRISERIATELLA) DISPUNCTELLA, 55, 57 (80), occurrence of a specimen at Howth, Ireland; 58, 111, occurrence in North Wales, VII.

E. CYGNIPENNELLA, 55, 57 (80), collected in great numbers v

amongst (and evidently attached to) *Festuea duriuscula* at Dawlish, under the idea that these specimens might prove to be Zeller's *E. festucicolella*—they were not however distinguished from *E. cygnipennella*; 57, 129, l. found mining in 6 different grasses, and l. of *E. albifrontella* mining in the same 6 grasses at the same time.

*E. OCHREELLA*, 57, 128, occurrence at West Wickham, at Pembury and at Preston; *E. M. M.* iii. 81, l. collected at Stockton Forest, near York, VIII, in a species of *Poa* (?), making long, flat (or only very slightly puckered), whitish-brown mines, were *expected* to produce this species, but none were reared.

*TISCHERIA DODONÆA*, 68, 39 (v. H.), l. IX mines brown blotches, which have eccentric darker rings in the leaves of oaks at Frankfort; sometimes the mines of *T. complanella* and *T. dodonæa* occur in the same leaf; i. b.v. [I found these mines *very* common at Wilhelmsbad, near Frankfort, IX, 1865.]

*T. COMPLANELLA*, 55, 58 (80), bred from the large white blotches in oak leaves.

*T. ANGUSTICOLLELLA*, Heyden, 58, 94, described; occurrence in England; l. makes slightly puckered blotches on the upperside of rose leaves; 60, 146, reared from l. collected near Manchester and Sheffield; l. plentiful in one lane near Sheffield, IX.

*T. GAUNACELLA*, 68, 39 (v. H.), l. e.vi and IX, X in the leaves of plum trees at Frankfort and Mayence; the mine forms a long blotch on the upperside, generally at the edge of the leaf; i. VII and v.

*LITHOCOLLETIS AMYOTELLA*, 57, 129, freely bred from oak leaves at Scarborough.

*L. HORTELLA*, 57, 129, occurrence at Guildford.

*L. NIGRESCENTELLA*, *E. M. M.* iii. 81, considered a form only of *L. Bremiella*, the light specimens copulating with the dark ones, but the difference in colour not sexual—in one specimen the left wing is *Bremiella* and the right wing *Nigrescentella*.

*L. IRRADIELLA*, 55, 58 (81), bred from oak leaves, near Beckenham; also taken near Dublin in a mixed hedge; 57, 129, several bred at Scarborough; 58, 111, again bred at Scarborough.

*L. BREMIELLA*, Zeller, 56, 40, described; occurrence in England, l. being found in leaves of *Vicia Sepium* IX in plenty near Bexley; 62, 138, bred at Ratisbon from l. on *Orobus*; *E. M. M.* iii. 81, *L. nigrescentella* (see above) considered only as a form of this species.

L. INSIGNITELLA, 62, 139, a leaf, *Ononis spinosa*, mined by a *Lithacellus* l. found near Mombach, c.VII, produced an i. very nearly allied to *L. stylatella*, if indeed it be not that species.

L. CAPELLA, Zeller, 55, 49 (71), described; l. IX in birch leaves. [The mine of this species is very much larger than that of the common birch *Lithacellus*, *albatrellella*.]

L. TORMINELLA, Frey, 57, 109, described; l. mines the underside of leaves of *Spiraea terminalis*; 62, 139, bred from l. found in the leaves of a Morella cherry tree at Exeter.

L. LUTEOGRAPHELLA, 64, 168, a *Lithacellus* l. mining the upper side of the leaves of *Quercus pyrenaica* III at Florence is probably referable to this species. [Subsequently freely bred from the l. in the leaves of *Q. pyrenaica* collected c.II at Florence.]

L. VACCINIELLA, Scop., 55, 48 (70), described as a new species, but the *L. montana* of Heller (848), l. V (and VIII) in leaves of *Vaccinium* or *Vitis Liana*; 62, 139, l. and i. found on the Carinthian Alps. [I have observed the mines of the l. in the Engadine more than once.]

L. QUINQUEFUTTELLA, 57, 129, bred from l. on *Salis phasari*, near Liverpool; 58, 111, bred from leaves of *Salis phasari*, from Scarborough. [Since then it has been freely bred on the Continent from the same plant.]

L. SCOPARIELLA, 60, 146, occurrence at Forest Hill. [Though repeated search was made there for the l. it could not be found; at Cannes and Mentone I have met with it, XII-II, mining the upper side of the small leaflets of the *Cladonia s. l. s. s. l. III*.]

L. CALYDNIELLA, 58, 111, bred from l. mining the upper side of hawthorn leaves, at Scarborough.

L. SUBURVIVELLA, 64, 178, bred from a leaf of *Quercus sp.* collected at Naples, c.III: said to feed on *Q. s. l. s.*

L. FRETCHIELLA, 56, 38, mine of l. much longer than that of *L. albatrelli*; cocoon extraordinarily large.

L. STETTINENSIS, 55, 38 (81), l. observed in great plenty in terminal leaves of alder twigs, near Beckenham, X; 56, 38, bred freely from l. mining the upper side of alder leaves, X.

L. TRISTIGELLA, 58, 111, bred from elm leaves, from Exeter; cocoon pale-brown, not bluish-green as in *Schneberella*.

L. COMPARELLA, 56, 38, bred from l. mining underside of leaf of Lombardy poplar, b.VIII; 62, 139, l. at Lee, mining the underside of the leaves of *Populus alba*.



LYONETIA CLERCKELLA, 58, 112, l. very polyphagous; bred from birch and mountain ash, mines observed in quince and laurel leaves; occurrence in elm leaves recorded.

L. PADIFOLIELLA, 56, 58, bred VIII from broad mines in sloe leaves; also from the same mine *L. prunifoliella*; the pupæ suspended as in *Clerckella*; 58, 112, bred from birch.

L. FRIGIDARIELLA, 68, 40 (v. II.), l. e.VII mines large, long, brown blotches in the leaves of smooth-leaved willows by the Lake of St. Moritz; it spins a cocoon beneath the leaf like that of *Cemiosstoma scitella*, so that the pupa is not suspended in a hammock like those of *Lyonetia prunifoliella* and *L. Clerckella*.

PHYLLOBROSTIS (DAPHNEELLA) HARTMANNI, 65, 141, l. e.III at Ratisbon, mining the small leaves of *Daphne cneorum*, of which they ate out the entire substance. [This insect, at first mistaken for Staudinger's Spanish *Daphneella*, was afterwards recognized as distinct, being a smaller and darker insect, and described by Standinger (Stettin. Ent. Zeit. 1867, p. 212), under the name of *P. Hartmanni*.]

PHYLLOCNISTIS SUFFUSELLA, 55, 58 (81), l. met with IX near Castle Rising, in Norfolk; 56, 59, l. in great profusion b.VIII on aspen, at Micklemham, mining either upper or under-side, but leaving no distinct tracts; the leaves, however, viewed obliquely appear shining and reflect prismatic colours, as though a snail had crawled over them.

P. SALIGNA, 55, 58 (81), l. met with IX near Castle Rising, in Norfolk.

CEMIOSSTOMA SUSINELLA, 68, 41 (v. II.), l. gregarious VII, VIII, mining large brown blotches in the leaves of aspen (*Populus tremula*), near Frankfort; more rarely it occurs in the leaves of *Populus Italica*; i. v.

C. WAILESELLA, Stainton, 59, 156, n. sp.; allied to *C. Laburnella* and *spartifoliella*, but smaller and with a faint bluish tint; l. in leaves of *Genista tinctoria*; 61, 113, occurrence in plenty near Liverpool; 62, 139, l. found at Dresden in leaves of *Genista tinctoria*; mine at first spiral, forming a round blackish blotch, then a long slender gallery, eventually forming a long irregular blotch, occupying nearly the whole leaf; 68, 41 (v. II.), l. m.VI, b.VII, mines the leaves of *Genista tinctoria*, the mine at first a small, round, brown spot, from which issues a fine linear track, which gradually expands to a larger mine, ultimately occupying the entire tip of the leaf and indeed often covering the whole leaf; i. VII.

C. LATHYRIFOLIELLA, **66**, 170, bred from l. in leaves of *Lathyrus sylvestris*; the i. allied to *Wailesella*, hence quite distinct from *Lotella*, though the appearance of the mine and the conspicuously shining egg-shell recall those of that species; *Lathyrifoliella* is the size and colour of *Wailesella*, but the anal dark spot is much larger, and the two costal spots are closer together, diminishing the white space between them.

C. OROBI, Stainton, **70**, 158, n. sp.; differential characters pointed out; a white species bred from l. feeding at Scarborough in the leaves of *Orobis tuberosus*; closely allied to *C. Lathyrifoliella* and *C. Wailesella*, but the angle between the two last radiating dark lines of the cilia much smaller.

C. SCITELLA, **68**, 42 (v. H.); this is double-brooded in Germany, though only single-brooded in England; l. VI, VII and e.IX, X; i. V and VII, VIII. [On two separate occasions I have had the l. of this species sent to me by Micro-Lepidopterists from the Great Orme's Head, where they found it in the leaves of *Cotoneaster vulgaris*.]

C. LOTELLA, Stainton, **59**, 156, described; closely allied to *Scitella*; l. in leaves of *Lotus major* near Scarborough, e.VI, b.VII; **62**, 139, l. of a *Cemistoma* found b.VIII near Teignmouth in leaves of *Lathyrus sylvestris*. Are these *Lotella*? [These proved to be the white species noticed above under the name of *Lathyrifoliella*.]

C. LUSTRATELLA, **68**, 42 (v. H.), l. m.VI and m.IX, m.X, near Frankfurt in the leaves of *Hypericum montanum*, more rarely in those of *H. perforatum*, where frequently several individuals from a common blotch take radiating mines towards the edges of the leaf; the cocoon is spun within the mine, very rarely outside; i. b.V and b.VII. It is curious that the mode of life of this insect is almost identical with that of *Nepticula Septembrella*, which likewise mines *Hypericum* leaves.

OPOSTEGA RELIQUELLA, Zeller, **68**, 131, occurrence near Thetford m.VI, and at a gas lamp at Hampstead, b.VIII, along with *O. salaciella*. Possibly *Reliquella* and *Salaciella* may only be extreme forms of one species. L. of *O. auritella* once found near Stettin, v, in the flower-stalk of *Caltha palustris*.

O. SPATULELLA, Guenée, **60**, 135, described; capture of 4 specimens at Southend, in Essex, VIII.

BUCCULATRIX AURIMACULELLA, **56**, 59, l. IV on *Chrysanthemum leucanthemum*, when young mining the leaves, afterwards feeding on them externally; cocoon ribbed.

B. NIGRICOMELLA, 56, 59, l. IV on *Chrysanthemum leucanthemum*.

B. CIDARELLA, 56, 59, l. VII on alder leaves; 57, 129, generally abundant amongst alders; taken freely at Scarborough, and tracks of l. plentiful at Reigate; 68, 43 (v. H.), l. b.X gnawing blotches on the underside of alder leaves; i.VI.

B. DEMARYELLA, 57, 129, l. on birch, VIII.

B. MARITIMA, 57, 129, l. on *Aster tripolium*, v; 60, 146, l. in profusion VIII, in salt marshes, near the Taw below Barnstaple; the cocoons generally on grass or rushes near the tip; 68, 44 (v. H.), l. on *Aster tripolium* at the salt works at Salzhausen b.VII, the young l. mines the leaves in narrow, expanding, slightly-curved galleries; casts its skin under a flat, white cocoonet outside the mine, and then gnaws externally the underside of the leaf; i. b.VIII very variable in the sharpness of the makings of the ant. w.

B. BOYERELLA, 62, 139, l. collected near Frankfort-on-the-Main, m.IX; 68, 45 (v. H.), l. e.VIII gnaws the leaves of elm; i. VI.

B. HIPPOCASTANELLA, 57, 129, l. on a lime tree at Llangollen.

B. CRISTATELLA, 58, 112, l. v first mining and then gnawing externally the leaves of yarrow (*Achillea millefolium*).

B. ARTEMISIELLA, 70, 159, bred from l. on yarrow found VI at Folkestone. Can the insect be an extreme aberration of *B. cristatella*?

B. FATIGATELLA, 68, 43 (v. H.), described; captured near St. Moritz, on larch, near *Alnus viridis*; 3 i. bred from ribbed cocoons found m.VII under stones on the Bernina, near *Chrysanthemum alpinum*, which is doubtless the food of the l.

NEPTICULA POMELLA, Vaughan, 59, 157, allied to *N. pygmælla*, but ant. w. broader and more purple; l. makes orange-coloured blotch mines in apple leaves, VII, and X, XI; i. v and VIII.

N. BASIGUTTELLA, E. M. M. iii. 82, mines of the l. not scarce e.IX, at Wilhelmsbad, near Frankfort-on-the-Main. Oak leaf once found in this country apparently mined by the l. of this species, the whole width of the mine being entirely filled up with dark-green excrement.

N. TILLE, Frey, 60, 136; described; l. in leaves of lime, near Bristol, IX; i. bred v, VI.

N. MINUSCULELLA, 70, 159, occurrence near Exeter, and bred from l. feeding in pear leaves VIII at Cheshunt; i. readily distinguished by small size, pale-green colour and black head. *Aucupariæ*, which somewhat resembles it, has a yellow head.

N. CRYPTELLA, Frey, 53, 41, n. sp., described; occurrence in England; 3 specimens VI by sweeping grass in Headley Lane; 57, 129, bred from l. in leaves of *Lotus corniculatus*; l. common, VI; 58, 112, l. very abundant in Headley Lane, but i. difficult to rear. One bred v from l. collected the previous VII.

N. INTIMELLA, 64, 170, bred from blotch-like mines on *Salix caprea* at Frankfort-on-the-Main.

N. HEADLEYELLA, 57, 129, 3 taken in Headley Lane VI; 58, 112, one taken near Mickleham, VI.

N. WEAVERI, Douglas, 55, 49 (71), n. sp., described; l. v in leaves of *Vaccinium Vitis Idæa*, forming cocoon within the puckered leaves; 62, 140, occurrence of the l. near Meseritz.

N. BIS-TRIMACULELLA, 68, 49 (v. H.), described; l. in the leaves of birch, mines a blotch very similar to that of *N. subbimaculella*, b.X at Hofheim in the Taunus Mountains; i. e.v.

N. ARGYROPEZA, 60, 146, l. X, XI, mining close to the foot-stalk in leaves of *Populus tremula*, near Bristol; 63, 50 (v. H.), l. m.X in great numbers mining the leaves of the white poplar (*P. alba*); the mine an elongate brownish-yellow blotch at the base of the leaf, close to the foot-stalk, between two ribs; i. IV. [Subsequently v. Heyden stated that the name of this insect should have been *Sericopeza*, which is clearly an error, as *Sericopeza* is a maple-feeder.]

N. APICELLA, 68, 50 (v. H.), l. X mining leaves of *Populus tremula*, forming an elongate black-brown blotch from the leaf-stalk between the edge of the leaf and the first side rib, or between the first side rib and the mid rib; the egg is laid at the end of the leaf-stalk, along which the l. mines till it enters the leaf; i. (in the room), e.IV.

N. SERICOPEZA, 64, 170, bred from l. feeding in the seeds of *Acer platanoïdes*, VI at Santigny, France; i. e.VI. b.VII; capture of a specimen at Lewisham, e.VI. [Since then bred rather freely e.VI from cocoons collected on the trunks of sycamore (*A. pseudoplatanus*) at Frankfort-on-the-Main; the statement, 61, 113, that "l. mines leaves of *Populus tremula*, X, XI; mine very similar to that of *N. argyropeza*,"—clearly does not apply to this insect; it would be interesting to learn how this error of Woëcke, subsequently repeated by Von Heyden (see above, under *Argyropeza*), has arisen. Can there be a *Nepticula* closely allied to *Sericopeza* feeding on poplars?]

N. DECENTEELLA, E. M. M. iii. 82, cocoons received as that of this

species, collected in the crevices of the bark of sycamore trees at Frankfort-on-the-Main, produced the yellow-headed *N. sericopeza*. [Subsequently I bred the black-headed *Decentella* from cocoons on the trunks of sycamores received from Frankfort-on-the-Main, from Freiberg, in Saxony, and from Paris.]

*N. TRIMACULELLA*, 55, 58 (81), l. forms a long gallery in leaves of several species of poplar.

*N. QUINQUELLA*, 60, 146, occurrence in plenty at West Wickham, e. VI.

*N. MYRTILLELLA*, Edleston, 58, 95, described; l. X, XI, in leaves of *Vaccinium Myrtillus*; mine rather broad and considerably contorted.

*N. LUTEELLA*, Stainton, 57, 110, n. sp., described; l. makes long, not much contorted galleries, in birch leaves; the black excrement forms merely a central line.

*N. IGNOBILELLA*, 55, 59 (81), l. forms blotch-formed mines near the edge of the leaf [of hawthorn], excrement entirely black.

*N. ARCUATA*, 57, 131, bred from l. in leaves of *Potentilla fragariastrum*; 58, 97, described; occurrence in England, bred from l. in leaves of *P. fragariastrum*.

*N. ANGULIFASCIELLA*, 55, 59 (82), bred from the pale greenish l. making large blotches in rose leaves; 56, 59, freely bred VII by keeping the l. out-of-doors all the winter; this specimen is only single-brooded; 61, 113, apparently bred from l. in bramble leaves in Pennsylvania; l. closely resembling that of *N. angulifasciella* found in bramble leaves at Brussels. [Subsequently the bramble-feeder was described as a distinct species under the name of *N. rubivora*.]

*N. ATRICOLLIS*, Stainton, 57, 112, described; bred from l. mining in leaves of wild apple and hawthorn, X; head and 2nd seg. almost black; mine at first a gallery gradually expands to a blotch.

*N. POTERII*, Stainton, 58, 96, n. sp., described; bred from l. mining leaves of *Poterium sanguisorba*, VI.

*N. ARGENTIPEDELLA*, 57, 130, bred from the l. which makes brown blotches in birch leaves; 68, 48 (v. H.), l. X, b. XI, in leaves of birch, forming a more or less rounded black-brown blotch with paler edges; sometimes we find a number of these blotch mines in one leaf; i. e. v, a second brood not observed; mines often found in countless numbers around Frankfort, Wiesbaden, &c.

*N. FREYELLA*, 68, 47 (v. H.), l. m. VIII, m. XI, mines the leaves of

*Convolvulus Sepium*, more rarely than those of *C. arvensis* near Frankfort; the mine begins very narrow and generally twists about backwards and forwards so as to form a small blotch; i. e.v, b.vii. Empty mines also seen VII, so that it is certainly double-brooded.

NEPTICULA AGRIMONIÆ, **68**, 47 (v. H.), l. x, b.xi, in the individual pinnate leaves of *Agrimonia Eupatoria*, mining long, tortuous, rather broad, brown galleries, which often expand to a large blotch; cocoon spun within the mine; very abundant in shady woods at Frankfort and Offenbach; i. e.v.

N. ACETOSÆ, **55**, 59 (81), described; l. near Dublin VII, produced i. VIII; l. IX in the Isle of Wight.

N. BETULICOLA, Stainton, **56**, 42, n. sp., described; bred from amber-coloured l. with green dorsal vessel, making small contorted galleries in birch leaves, x.

N. CASTANELLA, Edleston, **60**, 135, bred from Spanish chestnut; allied to *Tityrella*, but the fascia straighter and nearer the hind margin.

N. GLUTINOSÆ, Stainton, **58**, 96, n. sp., described; bred from alder leaves at Scarborough; mine and l. not yet distinguished from those of *N. alnetella*.

N. CENTIFOLIELLA, **67**, 163, occurrence in England; bred IV from l. collected in autumn at Cheshunt; **70**, 18, i. bred from l. found at Cheshunt.

N. PRUNETORUM, Stainton, **55**, 50 (72), l. IX in sloe leaves; l. green, making contorted visceriform mines.

N. REGIELLA, Frey, **57**, 111, described; bred from a yellow hawthorn-feeding l.

N. CONTINUELLA, Stainton, **56**, 42, n. sp., described; bred VI from l. making long galleries in birch leaves, entirely filled up with dark-green excrement, IX.

N. ALNETELLA, Stainton, **56**, 43, n. sp., described; bred from pale amber l. making small irregular galleries in alder leaves, x; **57**, 130, l. not scarce on Reigate Heath, IX; plentiful near Beckenham, x.

N. ULMIVORA, Frey, **62**, 114, bred from l. in elm leaves from West Wickham; also taken on palings near Clapham Common, VIII.

N. ÆNEOFASCIATA, **68**, 48 (v. H.), l. m.x in the woods of Offenbach, mining the leaves of *Agrimonia Eupatoria* along with *Nep. Agrimonix*; the mine forms an irregular, large, yellowish blotch; the l.

quits the mine to spin its cocoon, not changing within the leaf like *N. agrimoniae*, i. b.v.

**N. FRAGARIELLA**, 68, 45 (v. H.), described; ant. w. extraordinarily long and narrow; l. e.X at Jugenheim on wild strawberry (*Fragaria vesca*); the mines are very long, many times twisted here and there; sometimes 2 or 3 l. mine in the same leaf, and then the mines form a dense tangle; i. (in the warm room) e.III.

N., n. sp.?, 64, 171, mines of a *Nepticula* (all empty) observed in the leaves of *Quercus Ilex*, 15III, at Villa Pamfili-Doria at Rome.

**TRIFURCULA PALLIDELLA**, 62, 140, occurrence on the Carinthian Alps 4,500 feet above the sea, amongst *Genista sagittalis*.

**T. PULVEROSELLA**, 59, 159, bred from the "Nep." l. making large blotches in apple leaves.

**BOHEMANNIA (NEPTICULA) QUADRIMACULELLA**, 55, 59 (82), described by Boheman from specimens taken in the south of Sweden amongst nut bushes.

## OUR UTTER IGNORANCE.

BY H. T. STAINTON, F.R.S.



THE reader of the foregoing pages will perhaps have been (if a Micro-Lepidopterist) purring complacently at the progress made in our knowledge during the past twenty years, so it may be serviceable to turn his attention for a few moments to *our utter ignorance* of the early states of many of the TINEINA—of many, indeed, of the very commonest species.

LAMPRONIA LUZELLA.—One would be disposed to expect the habit of this species should be similar to that of *L. prælatella*, feeding in flat cases on the underside of leaves; but it may be a shoot-borer like *L. Rubiella*.

MICROPTERYX CALTHELLA, ARUNCCELLA, SEPPELLA and MANSUETELLA.—It is extremely probable that the discovery of the larva of any one of these would lead to the detection of others. Copulated specimens of *Calthella* are not at all uncommon in flowers of *Caltha* and *Ranunculus*; but where are the eggs deposited?

M. ALLIONELLA and THUNBERGELLA.—The last named certainly ought to be a beech-feeder, and, according to the observation noticed at p. 6, *Allionella* should be sought on *Vaccinium*.

DEPRESSARIA CINIFLONELLA.—The larva of this should be sought for at Rannoch a month before the perfect insect appears, but whether it would be more likely to occur on



*Umbelliferae, Compositae, Leguminosae*, or some other natural order of plants, it would be hard to say.

GELECHIA CINERELLA.—This insect, though not rare, never seems *very* common; indeed the Alpine *G. tripunctella*, which so closely resembles it, is a far commoner insect and probably the Alpine larva will be discovered before that of the more universally distributed *Cinerella*.

G. INORNATELLA, DIVISELLA and PALUSTRELLA.—These three fen species probably all occur in the larva state at the end of April or in May.

G. GERRONELLA and VILELLA.—The last-named species is probably an internal feeder.

G. HUMERALIS, DISTINCTELLA and LITTORELLA.—No clue to any of these.

G. SUFFUSELLA, LUCIDELLA and LUTULENTELLA.—No clue to these.

G. GEMMELLA.—Reported to have been bred from oak buds.

CLEODORA CYTISELLA.—The imago frequents localities where *Pteris aquilina* grows.

CHELARIA HÜBNERELLA.—Having little faith in the rumour that the larva of this species feeds on birch, I feel we are still completely ignorant as to its habits.

SOPHRONIA PARENTHESSELLA.—It seems not a little strange that we should know nothing of the early stages of this common species. I have sometimes fancied the imago was attached to *Ulex* or broom; it occurs far up the Alps, as I met with it at the entrance of the Val da Fex, above Maria.

ŒCOPHORA TRIPUNCTA.—This imago differs in many respects from its allies, and I scarcely expect that its larva will be a wood feeder.

ŒGOCONIA QUADRIPUNCTA.—Probably a refuse feeder.

PANCALIA LATREILLELLA and LEUWENHOEKELLA.—Here we have a very distinct genus, of which the larvæ are entirely unknown; the habits of copulated individuals, and, if possible, of ovipositing females, should be observed.

ACROLEPIA PERLEPIDELLA and BETULETELLA.—From what we know of the larvæ of the genus *Acrolepia*, these ought not to be difficult to find.

RÖSLERSTAMMIA PRONUBELLA.—We have no clue to the habits of this very rare insect.

GLYPHIPTERYX FUSCOVIRIDELLA.—This insect, so common with us in flowery meadows at the end of May, is unknown in Germany; the larva ought to be findable.

G. THRASONELLA.—From the habit of the imago this larva must feed on or in rushes.

ZELLERIA HEPARIELLA, INSIGNIPENNELLA and FASCIAPENNELLA.—Though I bred *Hepariella* more than twenty years ago from a white cocoon on an *ash* leaf, we are still ignorant how to find the larva. *Fasciapennella* has hardly been taken for the last 20 years I believe; it is an autumnal insect.

CORISCIUM SULPHURELLUM.—There is something mysterious in the larva of this species still escaping the observation of all the Micro-Lepidopterists of Europe.

BATRACHEDRA PINICOLELLA.—The imago is often plentiful amongst fir trees, but where and when does the larva feed?

CHAULIODUS INSECURELLUS.—I fear the locality where this used to occur near Stoa's Nest, beyond Croydon, in 1846 and 1847, is now all brought into cultivation. The larva should be sought, at the end of June or beginning of July, on *Umbelliferae* growing on the chalk-downs.

CHRYSOCLISTA BIMACULELLA.—The larva probably feeds beneath the bark of some tree, perhaps of willow.

LITHOCOLLETIS ULICICOLELLA.—Now that *Scopariella* has

been bred in the south of France, cannot we complete our knowledge of the genus by breeding *Uliciolella*?

OPOSTEGA SALACIELLA, AURITELLA, CREPUSCULELLA, RELIQUELLA and SPATULELLA.—As already noticed, p. 42, *Auritella* was *once* bred from a flower stem of *Caltha palustris*. A larva mining in a *Caltha* leaf, which I received from Lord Walsingham as being probably that of an *Opostega*, was carefully figured, but produced a—*Cncphasia subjectana*!

NEPTICULA QUINQUELLA.—Never yet bred. The first time I met with the insect it was plentiful on the trunk of an oak tree at West Wickham, so that I should suspect the larva to be an oak-feeder.

TRIFURCULA ATRIFRONTTELLA.—The perfect insect is so rare with us that we have not had sufficient opportunities of learning what plant it frequents. Herr Glitz, of Hanover, writes me that the larva of *Trifurcula immundella* burrows under the bark of broom, is full fed in April or early in May, and assumes the pupa state within its burrow, the imago not appearing before the middle of July.

BOHEMANNIA QUADRIMACULELLA.—As this larva has hitherto escaped us, and as the insect only occurs, I believe, in wet places, is it possible that the larva can feed on some water plant?

December 1, 1873.

## COLEOPTERA.



NEW BRITISH SPECIES, CORRECTIONS OF NOMENCLATURE, ETC., NOTICED SINCE THE PUBLICATION OF THE ENTOMOLOGIST'S ANNUAL, 1873.

BY E. C. RYE.

THE 20 years lease originally granted to this unpretending (but, I hope, not altogether useless) little work expiring by effluxion of time with the present volume, I should have liked, in accordance with the classic fable attributing to the expiring swan its sweetest strains, to have been in a position to successfully emulate that moribund member of the *Anatidæ*. But, confusing metaphors, I am this year asked to make bricks without straw; and, instead of the bird renowned in "*Carmina jam moriens canit exequialia cygnus*," I fear that the aquatic fowl of lesser dignity indicated in "*—sed argutos interstrepere anser olores*" will be suggested by my humble record.

Following the example of former years, I mention at once that of the 40 species noticed hereafter in detail, only 15 possibly represent additions to our list. Of these 15, only 10, viz., a *Dromius*, a *Harpalus*, two species of *Anisotoma*, a *Ptilium* and a *Trichopteryx*, a *Ptinus*, two species of *Liosomus* and one of *Bagous*, seem above suspicion; and an *Acidota*, a *Geotrupes*, a *Tribolium*, an *Orchestes*, and an *Agapanthia* are doubtful, either as possibly introduced or of dubious specific value. The number of recorders of

the genuine additions is but 4, as last year; viz., Rev. T. Blackburn and Dr. Sharp, 1 each, Rev. A. Matthews 2, myself 6. And of the 10 species noted, 5 have been described as new, 2 by Mr. Matthews, and 3 by myself.

The remaining notices relate to genera erected for species already recorded, changes of names, elucidations of difficulties, corroborations, indications of new species, omissions in former "Annuals," or varieties.

To the 1101 good species mentioned in Ent. Ann. 1872, must now be added the 21 of Ent. Ann. 1873, and the above 10, raising the whole to 1142 species (all most probably certain) recorded in the "Annuals" from their commencement to their end.

It cannot be denied that this and the last "Annual" have not equalled their predecessors in the quantity of work recorded. But it by no means follows, either that our country is exhausted of novelty, or that we have no more good workers. As an answer to any suggestion of exhaustion even the meagre list above chronicled, containing two Geodephagous insects, two species of *Anisotoma*, and three of the *Curculionidæ*, is sufficient; and it must be noted that one-half of the genuine additions are new to science. And, as to workers, I believe that English Coleopterists have at no time for very many years been held in such high estimation as they are at present. It is precisely because some of our best men have not found enough to satisfy their abilities and energies in the fauna of this country, that we have to lament a diminishing account of late. Others, also, have in the natural course of events gradually ceased to work hard at their former favourite pursuit. Death has not deprived us (in this country, at least) of many; though two once ardent collectors (Thomas Parry of Merthyr, and R. S. Edleston of Manchester) have recently passed away.

Reverting to the work of the past year, I will first mention the captures of certain species doubtful as British.

The North American *Clytus erythrocephalus* has been again taken in England. See *postea*, No. 39.

*Monohammus sartor*, bred from a larva found in American spruce, *M. sutor*, taken alive on one of the pine supports of a coal-mine, and the North American *M. dentator* (well known to be locally established here), taken among pine-logs in a wharf, are recorded by Mr. J. Chappell from the Manchester district (Ent. Mo. Mag., ix, p. 270).

*Cerambyx (Hammaticerus) heros* is recorded as captured alive in Kentish Town in July last by Mr. A. Cates; two other recent examples are noted, one in Camden Town, the other at Wood Green; and a dead specimen, dug out of hornbeam some years ago, by Mr. E. W. Janson, at Colney Hatch, and another, said by the late Mr. Abel Ingpen to have been taken at the same place, are also put upon record:—all by Mr. F. Smith (Ent. Mo. Mag., x, p. 111).

Mr. Smith renews the question as to the claims of this species and of *Monohammus sartor* and *sutor* to be considered truly indigenous; and, personally, evidently inclines to the opinion that *heros* at all events is one of the genuine autochthones. Seeing, however, the ready way in which the *Longicornia* are transmitted, and noting, as one cannot fail to do, that all these captures are absolutely in, or in the vicinity of, the metropolis itself, I do not suppose that many modern "hero-worshippers" will result from the appeal of Mr. Smith, however interesting it may be as chronicling the occurrence of so many examples of a rare insect.

The Australian *Tropis dimidiata* has been taken on the wing, in South Kensington. R. Cooper, Ent. Mo. Mag., x, p. 83.

Mr. R. Lawson has shown how an insect may readily

be imported, by recording enormous quantities of *Bruchus rufimanus* coming from a ship driven on shore near Scarborough (Ent. Mo. Mag., ix, p. 217).

In connection with the above-mentioned remarks, the following observations by Mr. J. Gardner of Hartlepool may not be uninteresting:—"As an instance of how certain insects get naturalized in this country, last June a cargo of pit-props was discharged here from France, and I noticed that the bark was literally swarming with Coleopterous larvæ. To-day (2nd Septr.), whilst walking along the quay, near to where the props were piled, I noticed something fly and then settle; and, judging from its flight that it was a beetle, I followed and took it, and, on looking on a wooden shed in close proximity, I collected half-a-dozen more fine specimens" (the insect was *Astynomus ædilis*; as it happens, an indigenous species). "No doubt exists in my mind that they had been bred in the timber discharged as above mentioned, since they were evidently fresh out of pupa. The wood is what in England is commonly called Scotch fir, but with very thick bark, which, when landed, was decayed, as if the trees had been felled six months or more. Of course, for anything I know to the contrary, the insect may be common in this country; but, if *not*, how easy for it to get into our list on false pretences, by some young collector getting specimens without knowing the circumstances under which it was introduced." "The beetles are now (10th Septr.) coming out in strong numbers: hardly a day but I am brought half-a-dozen. There is no doubt they were bred in the timber mentioned, as I have taken 6 or 7 off the wood itself, evidently just out."

Of captures of undoubtedly indigenous species, I have, although Messrs. Lawson and Moncreaff have been quiescent,

and Dr. Power has made no sign, some good things to chronicle.

Mr. J. J. Walker, of Sheerness, seems likely to rival the above-mentioned "Leviathans" (and, if it be possible, with even less of interested motives than those gentlemen, as he keeps absolutely no collection) in his successful energy and discrimination as a collector. Good things too numerous to specify are recorded by him from the Isle of Sheppy, and other parts of North Kent (Ent. Mo. Mag., ix, pp. 216 and 269; x, pp. 83 and 159), of which, however, I may specially note *Polystichus*, *Throscus obtusus*, *Platynaspis villosa*, *Crepidodera pubescens*, *Homalota elegantula*, *Leptinus* (at entrance of nest of a *Bombus*, ? *subterraneus*) in numbers, *Aleochara sanguinea*, *Homalota pulchra* and *orphana*, *Atomaria peltata*, *Phalacrus Humberti*, *Engis humeralis*, *Mycetophagus 4-guttatus*, *Apion Schænherri*, *Trogophlæus foveolatus*, *Trachys troglodytes*, *Mycetoporus nanus*, *Oxytelus clypeonitens*, *Monotoma 4-foveolata*, *Scydmenus præteritus*, Rye, *Antherophagus silaceus*, *Colon viennense*, *Gymnetron rostellum*, *Staphylinus latebricola*, *Saprinus metallicus* and *Ceuthorhynchus vicinus*.

Mr. Walker has also (*l. c.*, x, p. 159) recorded some captures on Holy Island, Northumberland, where *Serica brunnea* and *Anisotoma dubia* (40 in one afternoon!) appear to be unusually abundant.

Some of the following species, with others, have been recorded in Ent. Mo. Mag., x, pp. 39 and 159, by Mr. G. C. Champion:—

*Aëtrophorus imperialis*, in quantities, *Silis ruficollis*, *Ceuthorhynchus viduatus*, and other good things, near Ilford, Essex; *Homalota rufotestacea* (possibly not a *Homalota*, and certainly belonging to another species than that named, and probably new, according to Dr. Sharp),



and *Colon rufescens*, *Zebei*, *dentipes*, *viennense*, and, of course, *brunneum* (all in one little spot) at Caterham; *Xantholinus glaber* and *Megapenthes tibialis* (again), in Richmond Park; *Homalota splendens*, *Salpingus aratus*, *Euplectus Kunzei*, at Dorking; *Scydmaenus Godarti* and *Prionus* at Loughton (the latter giant, *testibus* H. T. Stainton et W. C. Hewitson, abounds near Weybridge, and must look like a cocked-hat flying about); *Cryptophagus ruficornis*, again in black fungus on ash, and in company with *Diphyllus*, at Chatham; *Stenus major* at Darent; *Lathridius testaceus* and *Dromius 4-signatus* at Peckham; *L. carinatus* and *Anthonomus Chevrolati* at Shirley; *Gyrophæna pulchella*, *Stenus brevicollis*, *Silvanus similis*, *Atomaria badia*, *Bagous lutulosus*, and *Nanophyes gracilis* at Esher (the latter has also been again taken by myself, and is now known to occur in three different localities, at an interval of a mile. See Frontisp., fig. 5).

Mr. Champion has also chronicled (*l. c.*, x, p. 158) the capture of many good things already known to occur at Braemar, of which *Bryoporus rugipennis*, varying extremely in the punctuation of its elytra, and including examples similar to that mentioned in Ent. Ann. 1871, p. 33, and a dark race of *Podabrus alpinus*, with entirely dark legs, are very interesting.

The Rev. H. S. Gorham writes to me that the following species have occurred to him :—

At Rusper, *Hypulus quercinus*, out of "wet stuff," with no old stumps near, *Cryptocephalus frontalis*, *Dromius 4-signatus*, *Anchomenus livens*, *Achenium humile* (in the churchyard), and *Lycoperdina bovistæ*, a few specimens, on puff-balls at the root of an ash tree, whither they had come, probably, to deposit ova, as there were no larvæ or beetles inside the puff-balls; on alders, on Leith Hill,

*Anoplus roboris*; at Faygate, *Dorcatoma bovistæ*, *Badister peltatus*, in wet stuff, almost in the water itself, among dead *Typha*, *Rhinoncus subfasciatus* (leaping), and those old Hammersmith Marsh friends *Eirrhinus scirpi*, *Stenolophus Skrimshiranus*, &c.

*Cænopsis fissirostris*, *Abdera bifasciata*, *Orchesia undulata*, and *Gymnetron rostellum*, from Devonshire; *Catops colonoides*, *Throscus carinifrons*, *Eirrhinus tremulæ* (♂, with toothed front femora), from Glanville's Wootton; *Trichonyx Mærkeli*, from Lyndhurst; and *Ancyrophorus aureus*, from the Isle of Wight, are recorded by Mr. T. V. Wollaston (amongst other species), Ent. Mo. Mag., x, p. 112.

*Donacia obscura*, *Athous rhombeus*, *Dorcatoma chryso-melina*, *Otiorhynchus maurus*, and *Aphodius foetidus*, are noted from the Manchester district. J. Chappell (Ent. Mo. Mag., ix, p. 270).

To *Cryptocephalus 10-punctatus* and *Cryptophagus serratus*, Midland reproductions of supposed Scotch species, may now be added the first and two last of these, and also *Epuræa angustula*, which I have recently observed among some insects of Mr. Chappell's.

Five specimens of *Leistus montanus* taken on Skiddaw, *Onthophagus nutans* at Walthamstow, and two of *Mordella aculeata* at Rusper (both the latter taken many years ago), by the Rev. H. S. Gore, have not before been recorded; neither has a specimen of *Bembidium nigricorne*, taken by Mr. W. C. Marshall at Ilkley, Yorkshire; nor a "genuine" *Ludius ferrugineus*, which I recently saw in the collection of Mr. T. Brown of Cambridge, concerning which that gentleman writes to me as follows:—"My specimen of *Ludius* was taken by a school-lad on going to bathe in the Cam, between Cambridge and Grantchester. This bathing-

“ place is surrounded with old poplars and willows. He  
 “ found it upon a poplar, and I well recollect his bringing  
 “ it to me, and my going back with him to the place in the  
 “ hope of seeing others (but did not). It was in July, 1858.  
 “ Others have been found about here, and came into the  
 “ possession of the Rev. L. Jenyns, whose cabinet is now  
 “ in the Cambridge University Museum. One was found  
 “ at Chesterton, near Cambridge, upon a walnut tree; and  
 “ one or two others at Bottisham, on walnut. I believe  
 “ these have been already recorded.” Mr. Brown, in answer  
 to my inquiries, has also given me the following particulars  
 concerning *Cantharis vesicatoria*, of which an isolated  
 colony appears to exist near Cambridge:—“ The *Cantharis*  
 “ has come under my observation regularly for 10 years  
 “ past, and it was known before that specimens of it were  
 “ taken now and then. It is obtained freely by beating ash  
 “ trees with a long pole over a large cloth. The beetles  
 “ fall quietly, and feign death,—head and legs being drawn  
 “ together. They appear about the second week in June,  
 “ but do not last more than three weeks. The locality is on  
 “ the chalk hills between the old Roman road and Gog  
 “ Magog Hills, near Cambridge.”

*Atemeles paradoxus*, out of a chance tuft of grass on  
 the “Lees” at Folkestone, has fallen to Mr. George Lewis,  
 when listening to the band on that promenade: the same  
 gentleman has found near the “Warren” *Staphylinus ful-*  
*vipes* more than once, and families of the most fair *Callistus*.

Of *Stenus glacialis*, introduced by myself on the autho-  
 rity of a rubbed example from the Grampians, 2 fine spe-  
 cimens have been taken near Braemar, by the Rev. T.  
 Blackburn, to whom I am extremely indebted for one of  
 them.

*Homalium Allardi*, taken in a parrot-cage, hung outside  
 a house near Manchester, by Mr. T. Morley (Ent. Mo. Mag.,

ix, p. 268), has also been found in the heart of London by Dr. Sharp (E. C. Rye, *ibid.*).

*Pediacus dermestoides* is evidently not extinct yet at Loughton, judging by Mr. J. S. Allin's captures (Ent. Mo. Mag., x, p. 19).

Another ♀ of *Drilus flavescens* has been found at Folkestone, this time by Mr. George Lewis. The capture is very interesting, as showing that snail-shells, apparently quite empty and dry, may still contain this *rara avis in terris* (Ent. Mo. Mag., x, p. 68).

*Lymexylon navale* is evidently indigenous, having again occurred to Messrs. Sidebotham and Chappell in Dunham Park, Cheshire, both on the wing, at rest, and, as larvæ, in solid oak. I am indebted to Mr. Chappell for the imago, and to Mr. Sidebotham for a part of the tree, neatly drilled with very small circular burrows, and containing some larvæ. The larva is very curious, like that of one of the *Elateridæ*, but with a hood-like swelling over the head, as in some *Lepidoptera* (Ent. Mo. Mag., x, p. 83).

The capture of *Cleonus nebulosus* so near London as Shirley, by Mr. A. Müller (Ent. Mo. Mag., x, p. 19), is, perhaps, noteworthy.

*Magdalinus carbonarius*, found on birch in Northumberland in early June, by Mr. J. Hardy, is recorded by Mr. T. J. Bold (Ent. Mo. Mag., x, p. 83).

*Molorchus minor* has been found crawling on a fence at Hampstead by Mr. Black; and Mr. S. Stevens has taken 2 specimens of the same rarity in June last, at Black Park (after an interval of about 20 years).

On the genus *Meligethes*, especially noticed of late years, the following observations occur (and have partly been elsewhere recorded):—

The third British specimen known to me of *Meligethes coracinus*, taken by Mr. Weston (I do not know when, or

where), has been lately observed by me among some beetles sent for examination.

*Meligethes symphyti* is corroborated by a dozen different captures in various localities as occurring on *Agraphis nutans*, and not on *Symphytum officinale*, by Mr. G. C. Champion (Ent. Mo. Mag., x, p. 39).

M. Ch. Brisout entirely agrees with me in objecting to Herr Reitter's union of *M. Kunzæi* and *M. difficilis* as one species, as the sexual characters of each are quite different; the male of the former having a wide and very deep excavation occupying the whole length of the metasternum, but narrower and less deep in the anterior third; whilst in the latter the male metasternum has two rather projecting and tubercular elevations. M. Brisout considers that *lugubris* and *gagathinus* belong to one variable species, and so names for me my two "races" of *lugubris*, of different size; and he has identified a female of his *bidentatus* (the 2nd known British example) from my collection.

Our *Meligethes memnonius* is the *morosus* of Erichson, according to M. Brisout, who considers the true *memnonius* to be intermediate between this species and *M. difficilis*, if it be not a variety of one of them (Ent. Mo. Mag., x, p. 138). M. Brisout demurs to Herr Reitter's reference of *M. niger*, Bris., to *memnonius*; he considers this collocation impossible, as the two insects are very dissimilar according to the descriptions, and Herr Reitter has never seen his type of *M. niger*. The following is an extract from Mr. G. R. Waterhouse's notes, taken at the time of his comparing our then known species with Erichson's types at Berlin:—"Mo-  
 "rosus and *memnonius* very much alike, and difficult to  
 "distinguish; *morosus*, however, has rather a shorter form,  
 "and the antennæ are pale throughout, whilst in *memnonius*  
 "they are dusky at base and apex. My '*morosus*,' I have  
 "little doubt, is the true *memnonius* of Erichson. Both

“species have considerable resemblance to *M. difficilis*, but “are rather more thickly punctured.” Consequently, if *M. Brisout* be right, it would appear that Mr. Waterhouse’s original determination from Erichson’s descriptions, before seeing his types, was the correct one.

Last, and least, but perhaps most interesting, is the present record of the capture by Mr. T. V. Wollaston, late during the past autumn, at Barmouth, of several examples of the very rare (as British) *M. exilis*, which occurred there exclusively on *Thrinicia hirta*, Roth., “a common *Leontodon*-looking plant, covering the sub-littoral sand.” This insect is also found at the Cape of Good Hope, *teste* Reitter.

Aberrant individuals of *Notiophilus palustris*, *Amara trivialis*, and *Harpalus æneus*, immaculate *Aleochara cuniculorum*, and *Corymbites quercûs* abounding on rocks, are recorded by myself from the Isle of Man (Ent. Mo. Mag., ix., p. 243). And on the Frontispiece of the present “Annual,” fig. 8, will be found the representation of a variety of *Panagæus 4-pustulatus* from my own collection, in which the usual transverse black marking on the elytra is so abbreviated as to leave an irregular longitudinal streak of light colour on each elytron, instead of the usual two spots. I fail to observe any record of such a peculiarity in this species. Snellen van Vollenhoven (Bidr. Faun. Nederl.; Naamlijst van Schildvl. Ins., p. 9) remarks that his Dutch specimens of *P. crux-major* are intermediate between that species and *P. 4-pustulatus*, and infers that the latter is only a var. of the former!

*Aphodius sus* flies to light at Deal, in some numbers. J. W. Douglas, Ent. Mo. Mag., ix, p. 193.

*Balaninus brassicæ*. Mr. Albert Müller (Ent. Mo. Mag., ix, p. 192) adds some particulars to his former account (*ibid.*, vi, p. 137) of the œconomy of this species in its earlier stages. The larva has been observed by him to make its

exit from a gall of *Nematus Vallisnerii*, Hartig, on a leaf of *Salix fragilis*, seven feet from the ground, which it reached by spinning a very fine silken thread of that length.

Mr. J. J. Walker (Ent. Mo. Mag., ix, pp. 216 and 217), records from Kent *Ceuthorhynchideus frontalis* (common), *Thyamis absinthii*, and *Mordellistena pusilla* on *Artemisia maritima*, and *Trachyphlæus spinimanus* and *squamulatus* (also *T. alternans*, Rev. W. Tylden, *ibid.*, p. 290), at roots of *Helianthemum vulgare*. The two first, with *T. scaber*, *aristatus*, and *myrmecophilus* have been found in connection with *Lotus corniculatus* by Mr. Moncreaff,—*ibid.*, x, p. 158,—who has also bred *Tychius squamulatus* from its seed-pods, and found *T. hæmatocephalus* (Ent. Ann. 1873, p. 7, Frontisp. fig. 6) at its roots; Ent. Mo. Mag., x, p. 158. *T. lineatulus* occurs on *Anthyllis vulneraria*: J. J. Walker, Ent. Mo. Mag., x, p. 84.

*Bruchus*. The external male characters of most of the recorded British species have been compendiously pointed out by the Rev. H. S. Gorham (Ent. Mo. Mag., ix, p. 191).

The dark violet-blue *Graptodera* from Wimbledon, mentioned in Ent. Ann. 1869, p. 56, has been taken in some numbers near Manchester by Mr. J. Chappell, on *Epilobium angustifolium*. I am unable to find a ♂ among specimens kindly sent to me by him, which I dissected because Dr. Sharp had failed to find that sex among his own specimens and those in my collection. Dr. Sharp finds sufficient character in the male intromittent organ to separate *G. pusilla* and *montana* satisfactorily; so that it is particularly desirable that the ♂ of this insect should be found.

Our *Trachyphlæus myrmecophilus* has been corroborated by Dr. Seidlitz, the author of the species, who tells me that some of Mr. Moncreaff's specimens sent to him by me agree exactly with others from Spain. (Ent. Mo. Mag., x, p. 138).

The elegant little *Ceuthorhynchideus* (apparently still un-

described), often noticed of late in England as *Chevrolati*, has been identified with Gyllenhal's *Rynchænus troglodytes*, var. d. (Ent. Mo. Mag., x, p. 18).

Our *Phlæophagus æneopiceus*, according to Mr. Wollaston, Trans. Ent. Soc. 1873, p. 540, note, is a less typical member of its genus than the various other species which that careful investigator has examined; for not only does it recede in outline from the latter, but it has also manifest indications of a scutellum. Mr. Wollaston hints its possible connexion with his new genus *Pseudophlæophagus* (type, *P. tenax*, from the Azores).

Referring to the suit of "Pinning *versus* Carding," reported in Ent. Ann. 1873, p. 17, Mr. Justice Bold has summed up strongly in favour of the defendant (Ent. Mo. Mag., ix, p. 219). See also Wollaston, Trans. Ent. Soc. 1873, p. 514, note. A new method of manipulating specimens is indicated by Dr. R. C. R. Jordan, in Ent. Mo. Mag., ix, p. 273, as follows:—"The lesser *Staphylinidæ* might be advantageously mounted" in microscope slides, with gum or cement and the usual talc or glass cell-lid. In connexion with specimen preparation, &c., it may interest English Coleopterists to know that the entomological uses of laurel leaves and phenic acid have just been *discovered* by our enterprising Gallic neighbours. (Leprieur, Bull. Soc. Ent. France, 1872, pp. xxxi and xciv; Ragonot, *ibid.*, p. 212, &c.)

Of works on *Coleoptera* recently published, the "Fauna Baltica" of Dr. Seidlitz, of which a considerable portion has now appeared, may interest English Entomologists, as treating of species either occurring or likely to occur in this country. And it will also give some employment to those who feel inclined to re-arrange their collections, judging from the following list of families, &c.:—Carabidæ [*sic*], Dytiscidæ, Gyrinidæ, Palpicornia, Heteroceridæ, Parnidæ, Georyssidæ, Lucanidæ, Scarabæidæ, Buprestidæ, Eucnemidæ,



Elateridæ, Dermestidæ, Byrrhidæ, Histeridæ, Micropeplidæ, Nitidulidæ, Peltidæ, Byturidæ, Mycetophagidæ, Phalacridæ, Rhysodidæ, Cucujidæ (including *Hypocoprus* and *Lyctus*), Colydiidæ (including *Monotoma*, *Lathridius*, *Corticaria*, *Symbiotes*, *Mycetæa*, *Alexia*, *Leiestes*, *Myrmecoxenus*, and *Myrmidius*,—from which *Ceuthocerus advena* is supposed to be distinct,—&c.), Cryptophagidæ (including *Aspidophorus*, *Engis* and *Sphindus*), Cissidæ, Telmatophilidæ (consisting of *Diphyllus*, *Diplocælus*, *Psammæchus*, and *Telmatophilus*), Erotylidæ, Endomychidæ, Coccinellidæ, Corylophidæ, Trichopterygidæ, Scaphidiidæ, Sphæriidæ, Clambidæ, Anisotomidæ. From the table it is evident that the work will be continued thus:—Silphidæ, Seydmænidæ, Paussidæ, Pselaphidæ, Staphylinidæ, Malacodermata, and Teredilia (with seven families). The work is on the same dichotomous scheme as Redtenbacher's well-known "Fauna Austriaca," rendered more difficult to follow by the copious use of abbreviations and symbols.

A fourth fasciculus of Thomson's "Opuscula Entomologica" has appeared (Lund: 1871, pp. 361—452), from which I have (Ent. Mo. Mag., x, pp. 137 and 138) extracted the following points especially interesting to English Entomologists:—*Bembidium velox*, Er., is re-named (see *postea*); *Calathus nubigena*, Hal., is considered a good species; *Agabus sexualis*, Reiche, is stated to be *Gaurodytes alpestris*, Heer, and *G. Solieri*, Aubé, according to a type from the late Dr. Schaum, is *tarsatus*, Zett. [if so, Aubé's name stands, his "Iconographie," v, being published in 1836, and the first part of Zetterstedt's "Insecta Lapponica," containing the *Coleoptera*, not having appeared, *teste* Hagen, till 1838,—the *whole* work bearing date 1840. Thomson, Scand. Col., i, p. 64, identifies *A. melanarius* of Aubé with *tarsatus*, and is followed in this by subsequent authors: if he be right,

*melanarius* should apparently be preferred to *Solieri*, which it precedes both in the Iconogr. and Spec. Gen. Hydroc.]; *Homalota londinensis*, Sharp, is identified with *Atheta Gyllenhali*, Thoms.,—the *terminalis* of Gyl., and not of Grav., with which latter Dr. Sharp compares his insect; *H. ignobilis*, Sharp, is identified with *fungicola*, Thoms., Dr. Sharp's *fungicola* being the *sericans* of Thomson (if this be so, everyone, from Kraatz to the present day, has equally been misled). As I have in Ent. Ann. 1872, pp. 31—33, given an abstract of the third fasciculus of Thomson's work, it may be as well here to give a corresponding notice of the fourth, above mentioned, which consists of article XX, a second contribution to the Swedish Insect-fauna. This contains, i, COLEOPTERA, pp. 361—394; in addition to the insects above named, differential characters for or descriptions of *Bembidium concinnum* and *B. Hasti*, *Amara curvicrus*, sp. n. (next *similata*, but with black tibiæ, and the last ventral segment of the ♂ having only two setigerous punctures!), *Amara alpina*, *Feronia strenua*, var., queried as a species (black, with pitchy-brown legs and antennæ, the base of the latter and tibiæ of the former pitchy-ferruginous), *Harpalus nigritarsis*, *Hydroporus subalpinus*, sp. n. (near *glabellus*, *acutangulus*, and *geniculatus*), *H. incrassatus*, sp. n. (near *umbrosus*, but smaller, and *pygmæus*), *Gaurodytes Thomsoni*, *Othius longicornis*, sp. n. (larger and wider than *O. melanocephalus*, with the head almost dilated behind the eyes, and longer antennæ, of which the penultimate joint is scarcely transverse), *Stenus Rogeri* (distinct from *providus*), *S. stigmula*, *Atemeles excisus*, sp. n. (a little larger and darker than *A. paradoxus*, with the posterior margin of the thorax sub-excised before the scutellum), *Gymnusa variegata*, *Microglotta gentilis* and *picipennis*, *Gnypeta cærulea*, *Aloconota rivulorum*, sp. n.

(near *currax*), *Liogluta crassicornis*, *L. 6-notata*, sp. n. (with shorter and thinner antennæ than *crassicornis*, rather longer elytra, &c.), *Bessobia occulta*, *Atheta breviceps*, *Homalota nigricans*, sp. n. (rather larger than *plana*, with darker elytra and legs, longer thorax, which, with the head, is scarcely channelled), *Deliphrum crenatum*, *Mylæchus latus*, *Meligethes hebes* and *corvinus*, *Epuræa angustula*, *Trox hispidus*, *Ptinus dubius*, *Ernobius canaliculatus*, sp. n. (with thorax like *nigrinus*, but the antennæ as in *abietis*: the specific name is badly chosen, as the author's genera are not accepted by all, and he has a *Hadrobregmus canaliculatus*, now stated to be *Anobium nitidum*, Stm.), *Lathridius variolosus*, *Enicmus brevicornis*, *Corticaria flavescens*, sp. n. (size, build, and pubescence of *crenulata*, but differently punctured on the elytra, and with no pit on the last ventral segment: this is Crotch's *C. fulva*, but not Mannerheim's, teste Thomson), *C. melanophthalma*, *foreola*, Gyll., *foreola*, Thoms., re-named *depressa*, *C. spinulosa*, sp. n. (like *elongata*, but with the sides of the thorax more strongly denticulate-spinose, and the apex of the elytra not obtuse), *C. truncatella* and *latipennis*, *Cryptophagus parallelus*, sp. n. (preoccupied by Brisout, and probably for the same species), the Swedish species of *Elater* with red elytra, *Buprestis splendida*, *Apion penetrans*, *Sitones cribricollis* (for which he sinks the prior *cambrica* of Stephens), *S. punctiger*, Thoms. (= *puncticollis*, Steph), *Trachyphlæus alternans*, *Ceuthorhynchus unguicularis*, sp. n. (*floralis*, with 7-jointed funiculus, a shorter apical joint to the tarsi, bifid claws, and the elytra evenly squamose), *C. Stenbergi* (Thoms., = *melanostictus*, Marsh.), *Rhamphus æneus*, *Anthonomus bituberculatus* (Thoms., = *ulmi*), *Cryphalus granulatus*, *Polygraphus subopacus*, sp. n. (less than *pubescens*, with a shorter thorax, more densely and delicately squamose-pubes-

cent elytra, &c.). ii, HEMIPTERA: pp. 394—397, observations upon a few added species, including, as new, *Hebrus ruficeps*, *Sigara foveifrons* and *Agramma femoralis*; pp. 398—402, an account of the Swedish species of *Orthostira*, seven in number, of which three, *O. cylindricornis*, *biseriata* and *recticosta*, are treated as new; pp. 403—409, the like of the Swedish species of *Salda*, 20 in number, of which one, *S. pilosella*, is described as new; pp. 410—452, the like of the Swedish *Capsina*, viz., 11 species of *Miris*, and 121 of *Capsus*, which is made to include too many recognized genera to be here enumerated, and in which no new species are described, though some changes in nomenclature are made.

A good opportunity occurs for quoting the Phoenix fable, since, almost simultaneously with the termination of the existence of the bird represented by the present little volume, a new “Annuaire Entomologique” has sprung up, evidently founded upon the English predecessor. It is published by M. A. Fauvel, at Caen,—and I hope it may flourish. Commencing with an almanac, in which references to all the Saints in the Calendar alternate with notices of the days of meeting of the French Entomological Society, each month having a short note as to the methods of collecting best fitted for it, this “Annuaire” has a Directory of French, Belgian, Dutch, Rhenish and Swiss Coleopterists, an account of the publications, &c. of the various Societies, and of books, &c. recently published, a list of species recently described as new from France, a chapter on synonymy, an index of names of some doubtful *Brachelytra*, and accounts of species new to France, excursions, economy, and collecting apparatus, &c., and ends with obituary notices, exchanges and divers useful memoranda.

Those who of late have taken umbrage at the defence of

the law of priority in nomenclature upon its present basis, will, I fear, not derive much comfort from the various attempts recently made to regenerate the whole scheme of zoological nomenclature. Thus Harting, in the *Archiv für Naturgeschichte*, vol. xxxvii, p. 24, *et seq.*, has published an elaborate scheme, entitled “*Skizze eines rationellen Systems der zoologischen Nomenclatur*” (lately analyzed by von Harold in *Col. Heft. x*, pp. 234—240), by which (some-what after the system employed in artificial mnemonics) a series of symbolic syllables is to be used, irrespective of the now recognized meanings of words: *e. g.* any word ending in *ares* represents a vertebrate animal; the prefix of *p* indicates a mammal; of *l*, one of the *Placentalia*; of *ar*, one of the *Rodentia*; and of *R*, one of the *Murina*, which group thus becomes “*Rarlpare*”! The *reductio ad absurdum* (according to our now prevalent ideas of nomenclature) by v. Harold of *Geotrupes* to “*Gescalerderes*,” using the author’s own formula, seems to cast a doubt on the propriety of the word “rationellen” used by Harting in his title. But even that generic name is not, perhaps, more objectionable than the nonsense names and anagrams which we are compelled to tolerate. Viewing it as having any meaning, no prior education in those languages, which, being the common possession of every person of culture, whatever his nationality, are rightly employed as the medium for scientific information, could possibly eliminate that attribute: the only way to profit by the scheme would be to learn by rote the various keys to the process, without which, the connection between Alfred the Great and a cucumber frame is not easy to perceive. I quote this apparently irrelevant matter, because I have a dim recollection that (*remembering the key*) the garden utensil somehow gives the date during

which the Monarch flourished, according to a system in vogue when I was *in statu pupillari*.

A somewhat more feasible idea is suggested by Lichtenstein, in the "Petites nouvelles Entomologiques," 1870, No. 17, p. 65, viz., that of a trinomial system, in which the old name of the genus is to be retained as well as the modern (Ragonot, *ibid.*, No. 18, p. 70, objects to this, and would prefer to use as a generic name an equivalent for the "subdivision" in which any species is placed; *e. g.*, "*Carabus*" *spinibarbis* for *Leistus id.*,—*Leistus* being in the *Carabidæ*). This scheme of Lichtenstein's is practically repeated in the pamphlet on "The Object and Method of zoological Nomenclature" recently (Nov. 1873) published by Dr. Sharp, whose good work in connection with British *Coleoptera* has so often been recorded in former "Annuals," but who is now, unfortunately for us, too engrossed in the study of exotic forms to continue his share of the elucidation of our species as heretofore. In connection with such works as this (remarkable for its freedom from personality, and for the evidently good and earnest purpose of its author), the first idea suggested to the reader appears to me to be their hopeless and entire want of practical utility. If their authors could have been consulted when the system now universally adopted and most firmly established was about to be promulgated, any benefits to be derived from their opinions could have been secured; but now, when the binomial system, based, or supposed to be based, upon languages understood by all educated beings (and which are incapable of further change, being now dead languages, save for such purposes), is so deeply rooted in all countries, any attempt to eradicate it seems as little likely to succeed as the (equally praiseworthy) modern endeavour to establish a Phonetic system

of the English language, by which all redundancies were to be avoided.

Dr. Sharp, in his pamphlet, apparently discards the mononymic system heretofore defended by him; but he still (p. 3) thinks the species name the basis of nomenclature. He considers names without meaning the best, and would never permit any blunder in a name, however obvious and gross, to be amended, adducing as a parallel argument to that likely to be used by any one correcting such blunders, viz., that such correction was done to ensure permanency, the exculpatory plea of a brigand, after cutting a man's throat, that if he had not, some one else would have done it. One would have thought that the idea of a skilful surgeon removing an obnoxious facial tumour by which the subject was so disfigured as *to be incapable of recognition*, and which, if left alone, might prejudice his existence, would have, professionally, occurred to Dr. Sharp, in preference to the operation of the irregular practitioner to which he refers. To put the matter in another light:—the correct *locality* being surely of as much importance as the *name* of a species, would anyone hesitate to alter "Brittany" to "Britain," or "New York" to "York," if the latter places were found to be those intended? or, if "England" were written "Ingländ," would not everyone amend the spelling of the latter word? The matter seems too evident for serious argument.

Differing from some of Dr. Sharp's ideas on points of detail, (especially from his assumption at p. 38, that we are *at present* in a position justifying us in attempting to establish a series of permanent names,) and thinking the main idea of his work incapable of practical use, I still believe that the majority of the opinions promulgated in his pamphlet are, if properly taken to heart, likely to produce good results;





## [ANN. &amp; MAG. OF NAT. HIST.]

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|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------|
| 1. <i>Notes on the Culicopterus genus of Insects,</i><br>Rhychnites of Herbst.. .. .                                                                      | Vol. xiii. (1844) pp. 81—89; separate copy, pp. 1—11.                                           |                                                                |                    |
| 2. <i>Notes on British species of the genus Bruchus,</i><br><i>with Descriptions of two species not hitherto</i><br><i>recorded as indigenous</i> .. .. . | .. .. . pp. 206—212; .. .. .                                                                    | .. .. . pp. 11—17.                                             |                    |
| 3. <i>Notes on the Synonymy of the genus Apion,</i><br><i>with Descriptions of new species, &amp;c.</i> .. .. .                                           | .. .. . pp. 441—457; .. .. .<br>xv. (1845) pp. 331—342; .. .. .<br>.. .. . pp. 392—401; .. .. . | .. .. . pp. 17—30.<br>.. .. . pp. 30—41.<br>.. .. . pp. 41—50. |                    |
| 4. <i>Notes, &amp;c. on the genera of Insects Oxy-</i><br><i>stoma and Magdalis</i> .. .. .                                                               | .. .. . xvi. .. .. . pp. 221—227; .. .. .                                                       | .. .. .                                                        | .. .. . pp. 50—57. |
| 5. <i>Notes, &amp;c. on the genera of Insects Phyllo-</i><br><i>bius, Polydrosus and Metallites</i> .. .. .                                               | .. .. . xvii. (1846) pp. 12—20; .. .. .                                                         | .. .. .                                                        | .. .. . pp. 57—66. |
| 6. <i>Notes on the genus of Insects Sitona, with</i><br><i>descriptions of two new species</i> .. .. .                                                    | .. .. . .. .. . pp. 227—235; .. .. .                                                            | .. .. .                                                        | .. .. . pp. 66—73. |
| 7. <i>Notes, &amp;c. on the genera of Insects Cneo-</i><br><i>rhinus and Strophosomus, with descriptions</i><br><i>of two new species</i> .. .. .         | .. .. . .. .. . pp. 304—310; .. .. .                                                            | .. .. .                                                        | .. .. . pp. 74—79. |
| 8. <i>Notes on the genus of Insects Trachyphloeus,</i><br><i>with descriptions of new species</i> .. .. .                                                 | .. .. . xix. (1847) pp. 217—223; .. .. .                                                        | .. .. .                                                        | .. .. . pp. 79—85. |

9. *Notes on the genus of Insects Omias, with descriptions of new species* . . . . . } Vol. xix. (1847) pp. 314—317; separate copy, pp. 85—87.
10. *Notes on the genus of Insects Otiorhynchus, with descriptions of new species* (Plate 15). } " " pp. 445—453; " " pp. 88—95.
- [ANN. & MAG. OF NAT. HIST., 2nd Series.]
11. *Notes, &c. on the genera of Insects Pissodes, Hypera, &c.; with descriptions of several new species* . . . . . } Vol. i. (1848) pp. 295—303; separate copy, pp. 95—103.
12. *Notes, &c. on the genus of Insects Anthonomus, with a description of one new species\** } " " pp. 416—419; " " pp. 104—107.
13. *Notes, &c. on the genera of Insects Erihinius, Notaris and Procas; with descriptions of two new species* . . . . . } " ii. " pp. 166—169; " " pp. 108—111.
14. *Notes on the British species of Curculionidae belonging to the genera Dorytomus and Elleschus* . . . . . } " vii. (1851) pp. 310—318; " " pp. 111—118.
15. *Descriptions of two new British genera of Insects, and of two new species, belonging to the family Curculionidae* . . . . . } " ix. (1852) pp. 204—206; " " pp. 118—120.

\* Hagen, who omits reference to the plate accompanying No. 10 of the above titles, confuses No. 12 with No. 11, and repeats for it the pagination of No. 13: *Bibl. Ent.* p. 258, E. C. R.

1. *NOTIOPHILUS QUADRIPUNCTATUS*, Dejean, Spec., ii, p. 280, Icon., ii, p. 138, pl. 87, fig. 3; Stephens, Mand., ii, p. 190, Manual, p. 60; Dawson, Geod. Brit., p. 57; Fairmaire & Lab., Faune Ent. Fr., i, p. 9; Schaum, Naturg. Ins. Deutschl., i, p. 67.

Lacordaire first (Faune Ent. Paris, i, p. 185), noting only the difference in the elytral punctuation, appears to have treated Dejean's insect as a mere variety; and Dawson, *l. c.*, who also only emphasizes the same character, says "probably only an uncommon variety" of *N. biguttatus* (it is curious that the latter author should, after swallowing such a camel as *substriatus*, probably the most distinct of all the species, hesitate about the present really very closely connected insect). In Mr. Waterhouse's Catalogue it is placed as a variety of *biguttatus*, Fab., an opinion at first hesitatingly followed by Mr. G. R. Crotch, who finally considers it a "sub-species" of the latter. I have hitherto, chiefly from insufficient material, thought Lacordaire right; but, seeing that Dr. Sharp has treated *quadripunctatus* as a distinct species in his Catalogue, I have again examined my insects, and come to the conclusion that he is decidedly right in so doing. Apart from the additional puncture between the 2nd and 3rd lateral striæ of each elytron, which, though of usual occurrence, appears to be sometimes wanting on one side, there are other characters, pointed out by Schaum, viz.:—the shape is longer, and more parallel; the disc of the thorax is rather less wrinkled, and its impressed middle line terminates posteriorly in a deeper depression; there is an evident pit-like depression on each side of the disc, close to the front margin, merely indicated in *biguttatus*; the sides of the thorax are straighter, not so contracted behind, and with the posterior angles not pointed, though rectangular; and the second interstice from the smooth broad disc of the

elytra is (as in *substriatus*) distinctly wider than the rest. Other characters of colour and punctuation mentioned by Schaum are apparently not constant: but I observe that the frontal rugosities in *quadripunctatus* are finer and more numerous, the middle of the thorax is rather more produced in front, and the scutellum is more triangular. Fairmaire observes that there is sometimes another large accidental puncture a little beneath the above-mentioned additional puncture, but not always appearing on each elytron.

I believe Dr. Power has on more than one occasion found *N. 4-punctatus* in one particular locality, unaccompanied by *N. biguttatus*.

2. DROMIUS VECTENSIS (Frontisp., fig. 7), Rye, Ent. Mo. Mag., x, p. 73 (1 Sept., 1873), described.

*sigma*, Rossi (*bipennifer*, Babington), var., Dawson, Geod. Brit., p. 11.

*oblitus*, Crotch, Cat. Brit. Col., and Sharp, Cat. Brit. Col. (*nec* Boieldieu).

*fasciatus*, Dej., v. ? *oblitus*, Rye, Cat. "British Beetles," 1866, p. 241 (*nec* Boieldieu).

Found on the Banks of the Medway at Chatham, of the Thames at Gravesend and Sheerness, and on other parts of the south coast, especially in the Isle of Wight, and differing from the inland fen-frequenting *D. sigma*, Rossi, in being more robust, with shorter and stouter antennæ, rather more prominent eyes, a wider head and more transverse thorax (both of which are not so shining, being very minutely coriaceous), and wider and comparatively shorter elytra, of which the sides are more rounded. The transverse indented fascia on the elytra is wider, nearly always reaching more broadly up the suture towards the scutellum, so as to leave a pale humeral spot of less area, and invariably extending down-

wards on the outer side, almost (if not quite) to the apex, leaving only a small pale spot on each elytron at the apex next the suture (Frontispiece, fig. 7a; elytra of *D. sigma*).

Its differences from the allied Canarian *D. elliptipennis*, Woll., and from *D. nigriventris*, Thoms. (*fasciatus*, Dawson), with which *oblitus*, Boield., is synonymous, are pointed out by me, *l. c.*, and need not be recapitulated here.

### 3. CYMINDIS HOMAGRICA (AXILLARIS, *olim*).

var. *lineata*, Dejean, Spéc. gén. des Cols. &c., i (1825), p. 207; Fairmaire et Lab., Faune Ent. Franç., Col., i, p. 31; Schaum, Naturg. d. Ins. Deutschl., i, p. 298, note; E. C. Rye, Ent. Mo. Mag., x, p. 83.

? *lineata*, Schönherr, Syn. Ins. i (1806), Chaudoir.

? *lineola*, Dufour, *fasciipennis*, Küster.

? ? *angularis* & *macularis*, Stephens.

I have observed a specimen (from Box Hill) among my own series of ordinary facies, agreeing with one form of this interesting variety in having a narrow longitudinal isolated yellowish streak in the apical third of the elytra, not quite reaching the apex, and running obliquely across the 3rd and 4th interstices. In the most fully coloured examples, this streak starts from the humeral spot and runs obliquely to the apex.

*C. lineata* is hitherto recorded from Lyons and Dordogne, in the South of France, associated with the type (as was my example); and (if the synonyms be correct) from Spain and South Russia.

A further colour variety (not noticed in the ordinary text-books) exists in some of my otherwise ordinary specimens, which have the suture more or less yellowish.

4. *HARPALUS QUADRIPUNCTATUS*, Dejean, Spéc. gén. des Col. &c., iv (1829), p. 326; *id.* Iconogr. &c., iv. (1834), p. 185, pl. 191, fig. 6; Heer, Fauna Col. Helv., p. 108; Fairmaire et Lab., Faune Ent. Franç., Col., i, p. 136; Redtenbacher, Fauna Austr., edn. 2, p. 59; Schaum, Naturg. d. Ins. Deutschl., i, p. 595; Rev. J. Blackburn, Ent. Mo. Mag., x, p. 68; E. C. Rye, *ibid.*; G. C. Champion, *ibid.*, p. 158.

*seriepunctatus*, Gyllenhal, Ins. Suec., iv (1827), p. 434; Thomson, Scand. Col., i, p. 280; *nec* Sturm, Deutschl. Ins., iv (1818), p. 63.

*lævipes*, Zetterstedt, Faun. Ins. Lapp. (1828), p. 26 [*teste* Thomson]; *id.* Ins. Lapp. (1838), p. 38.

Two or three examples of this interesting addition to our list were found by Mr. Blackburn under stones near the edge of a small loch high up on a mountain at some distance from Braemar, in the early part of the past summer; and Mr. Champion, some little time after, also found it near Braemar, crawling about the roads (but, unfortunately, mistook it for *latus*, and so neglected the opportunity of laying in a supply). I believe Mr. J. S. Allin also took an individual of it, under similar circumstances, at the same time and place.

The insect is very like the common *H. latus* (*fulvipes*, olim), but is rather longer, and of more parallel form. Its thorax is proportionally shorter, without the testaceous edge, and it has considerably deeper foveæ at the base, which is more obsoletely punctured. The striæ of the elytra are apparently somewhat deeper, and on the apical half of the third interstice of each elytron are 2 or 3 large punctures. The number is not always constant; one of Mr. Blackburn's specimens having 2 of these large punctures on one wing-case and 4 on the other.

The species appears to have a wide range in temperate Europe, reaching as far north as Lapland.

Schaum points out that Dejean had Gyllenhal's *seriepunctatus* from that author, so that there can be no doubt as to its identity with *H. 4-punctatus*; though both Gyllenhal and Erichson (Col. March., p. 53) confused the former with Sturm's species of the same name (= *impiger*, Dufts., 1812). He admits that (more rarely) 3 punctures are found in the 3rd interstice; and, as there are sometimes 4, as proved by Mr. Blackburn's capture, above mentioned, the difficulty as to Gyllenhal mentioning 4 or 5 is materially diminished. Thomson evidently considers, that, as Sturm's prior *seriepunctatus* sinks to the still prior *impiger*, Gyllenhal's *seriepunctatus* should stand. He alone quotes Zetterstedt's *lævipes* as from that author's "Fauna Insecta Lapponica," instead of the "Insecta Lapponica Descripta." Zetterstedt himself does not in describing that species in the later work refer to the earlier (which I do not possess); but, if Thomson be right, *lævipes* would have to stand, having a year's priority over *4-punctatus*, and *seriepunctatus* (*pace* Thomson) being inadmissible.

5. BEMBIDIUM UNICOLOR, Chaudoir, Bull. Mosc., 1850.

iii., p. 176.

*Mannerheimii*, Schaum (1860), *nec* Sahlberg.

Supposing Schaum to be right in referring Chaudoir's insect to his own *Mannerheimii*, the name *unicolor* must stand, since, according to W. F. Mäklin, Stett. Ent. Zeit. xxxiii, p. 245, the eight exponents of *B. Mannerheimii* in Sahlberg's own collection are composed of seven individuals of *B. guttula* and one *B. obtusum*!—and *B. Mannerheimii*, Sahlb., is therefore non-existent as a species. From Sahlberg's description (Ins. Fenn., i, p. 202), it is tolerably

evident that Schaum's insect is not what was intended by the former. Sahlberg says that its colour is "*nigro-subæneum*," as against the "*nigro-subvirescens*" of his *guttula* (whereas *Mannerheimii* of Schaum is "*nigrum*," and his *guttula* "*nigro-subæneum*"); that its thorax is truncate fore and aft, with rounded angles, omitting any mention of the sub-emarginate posterior angles; and that its elytra are oblong-ovate and moderately convex ("*ovatis, convexioribus*," Schaum);—with all of which characters Mäklin's statement is consistent.

Schaum originally recorded his species from England.

6. BEMBIDIUM 14-STRIATUM, Thomson, Opusc. Ent., iv, p. 361; E. C. Rye, Ent. Mo. Mag., x, p. 137.  
*velox*, Er., Schiödte, Crotch; Ent. Ann. 1867, p. 107;  
*nec* Linn.

Thomson thus names as a good species the insect usually considered to be a variety of *B. lampros*; Erichson's *velox* clashing with Linnæus's "*Carabus*" of the same name. The characters already recorded for this insect are its average larger size, its having a distinct 7th stria on the elytra, somewhat more acuminate hinder angles to the thorax, and the base of the antennæ and the whole tibiæ darker in colour. To these, Thomson adds that it is rather wider, that its elytra are scarcely rotundate at the sides and are more flattened on the back, that the striæ are more delicate, the interstices flat and wider, and the thorax more strongly transverse.

Whether these further diagnostics are to outweigh the connecting individuals mentioned by Duval and Schaum (Ins. Deutschl., i, p. 718), which are of intermediate size, with 7 striæ, rectangular posterior angles to the thorax, red



legs, and sometimes the 7th stria merely indicated by a few punctures, must be left to the judgment of the reader.

7. *ACTOCHARIS READINGII*, Sharp (1st May, 1870); Ent. Ann. 1872, p. 142, 1873, p. 15; E. C. Rye, Ent. Mo. Mag., x, p. 138.

Vol. v. of the 2nd series of the Bulletin de la Société Linnéenne de Normandie, which, at p. 19, contains the first publication of *Actocharis marina*, for which M. A. Fauvel claims priority, is at last accessible. It is stated to be for "Année 1869—70," and bears on its inner title the date 1870, and on its wrapper the date 1871. For reasons before given by me, I do not believe this volume was actually published at the very earliest before the end of 1871 (it had not come to hand at the end of 1872). In it, in an account of the proceedings at the meeting of the Society of 8th Nov., 1869, are (pp. 17—21) the descriptions of *Actocharis marina* and some other species, for which, in the livraison of the same author's "Faune Gallo-Rhénane," forming a part of the identical volume, priority is claimed as from the last-mentioned date, and not from the actual date of publication, the author apparently considering that the act of reading a paper privately to the members of his society is a publication to the world. The Bulletin is (or should be) published *annually*, according to Art. 20 of the Society's Rules. See Bull. Soc. L. Norm. (2) iv, p. 12. The following remarks by de Marseul ("Nouvelles et Faits divers," 3rd sér., No. 2, p. 8) may throw some light on the question of dates:—"Simple question à M. Fauvel:—La Société linnéenne de Caen ne publie-t-elle pas de *Bulletin* depuis deux ans?"

There can, of course, be not the shadow of a doubt that Dr. Sharp's publication is at least two years anterior in date to M. Fauvel's; and it is equally certain that my *Calodera* 1874.

(*Oxypoda*) *glabriventris* has an equally valid priority over M. Fauvel's *C. Bonnairii*. I observe, by the way, in M. Fauvel's "Annuaire" above noticed, that, at p. 66, he signalizes the capture of the 2nd known French example of this species (for which he, of course, sinks my name), which he states to be the third existing in collections. My original record (Ent. Mo. Mag., i, p. 212) referred to "several examples" taken by Dr. Power; in fact, I believe upwards of a dozen.

8. *SCOPÆUS SUBCYLINDRICUS*, Scriba, Berl. Ent. Zeitschr., 1868, p. 156; Fauvel, L'Abeille, viii (1872), p. 326; E. C. Rye, Ent. Mo. Mag., x, p. 138.

Scriba's insect is described by him as occurring in Spain, but, in attributing it as a synonym to *rubidus*, Muls., M. Fauvel (to whom the synonymy and observations upon the *Staphylinidæ* of the "Répertoire des Coleoptères d'Europe décrits isolément depuis 1864" in L'Abeille are due, according to M. de Marseul's statement in that work) refers it only to Great Britain. I can give no attempt at explanation of this reference: the insect is not *S. Ryei*, Woll.

9. *ACIDOTA FERRUGINEA*, Erichson, Gen. et Spec. Staph., p. 862; Kraatz, Naturg. d. Ins. Deutschl., ii, p. 937; Hochhuth, Bull. Mosc., xliv, pt. 2, p. 169; E. C. Rye, Ent. Mo. Mag., ix, p. 190.

? *ferruginea*, Boisd. et Lacordaire, Faune Ent. Par., i, p. 477; Fairmaire et Lab., Faune Ent. Franç., Col., i, p. 634; Fauvel, Faune Gallo-Rhénane, iii, p. 89.

Five examples of this most interesting and very rare insect were taken, unaccompanied by typical *cruentata*, Mann., in flood-refuse, by Mr. R. Lawson, in the autumn

of 1872, at Scarborough, near which town, however, the typical form has been taken by the same gentleman in some numbers out of moss. There is also another Yorkshire specimen in the collection of the Marquis of Ripon.

I have (*l. c.*) discussed the opinions of various authors upon this insect, of which Mr. Lawson has apparently taken more than all other collectors put together; and the impression upon my mind still remains that it cannot be considered specifically distinct from *cruentata*, a modification of habit in which has apparently caused a curtailment of its elytra, resulting in an apparently different scheme of punctuation, due, in my opinion, to the necessary abbreviation of that portion which in *cruentata* proper is most regularly punctured. But, if I be correct in this view, the contemporaneous existence of stem-form and branch in the same neighbourhood is much more interesting than the addition to our Fauna of another species, however well-marked.

I am corroborated in my opinion as to the relations of *A. ferruginea* and *cruentata*, by observing that a British example of *A. rufa*, Grav., given me by the Rev. T. A. Marshall, occupies an analogous position with regard to *A. erenata* (of which it is universally recognized as a colour-variety), its elytra being shorter and less regularly punctate-striate.

10. HOMALIUM TESTACEUM, Er.; Ent. Ann. 1864, p. 63;  
Fauvel, Faune Gallo-Rhénane, iii, p. 67.

I have never until the past autumn seen a British example of this species, of which (as indigenous) I was only aware of the three specimens taken by Mr. Matthews 11 years ago in Leicestershire. A specimen observed by myself among some insects belonging to Mr. G. C. Champion (to whom it was given by Mr. R. E. Bull, who took it in the London

district, most probably near Highgate) is, however, clearly to be referred to *H. testaceum*. It is rather smaller than *H. concinnum*, rufo-testaceous, with the head and apex of abdomen more or less darkened; the antennæ are longer, the head duller, being more closely and almost strigosely punctured, the thorax is duller, more closely punctured, wider, with the sides not so evidently contracted behind, and the punctures of the elytra not running so clearly into striæ. In the original record of the species as British, the thorax, compared with that of *O. concinnum*, is stated to be much smaller and narrower; a description which, if it be not accidentally wrong, would almost throw a doubt as to its correct identification. Erichson says of both *testaceum* and *concinnum*, "thorax coleopteris parum angustior," adding, as regards *testaceum*, "latitudine plus dimidio brevior," and, as regards *concinnum*, "latitudine dimidio brevior," which would have the effect of making the thorax of *testaceum* look comparatively the *wider* of the two. The testaceous "*Heeri*" var. of *vile* is somewhat suggested by the narrower thorax. *H. testaceum* is recorded by M. Fauvel from various parts of France, and stated to occur under leaves, moss, and oak bark, in forests, both in plains and mountainous districts.

11. *PTILUM CÆSUM*, Erichson, Naturg. d. Ins. Deutschl., iii, p. 26; Fairmaire et Lab., Faune Ent. Fr., Col., i, p. 335; Matthews, Trichopterygia, &c., p. 100, Pl. xxii, fig. 6; *id.*, Ent. Mo. Mag., ix, p. 179.

*Trichopteryx lata*, Gillmeister, *nec* Motschoulsky.

Six examples were taken by Mr. G. R. Crotch in 1870, in the Cambridgeshire fens. The insect formerly in our lists under the above name (Ent. Ann. 1860, p. 110), has been referred to *inquilinum*, Er., = *myrmecophilum*, Allib. (Ent.

Ann. 1867, p. 126). The true *P. cæsum* appears to be distinguishable by its wide form, large head, and the convergence towards the front of the lateral lines of its thorax. From its ally *P. affine*, it may be known also by its much smaller size, its more cordate thorax, and the finer, closer, and more regularly asperate-punctuation of its elytra.

12. TRICHOPTERYX CARBONARIA, A. Matthews, Ent. Mo. Mag., ix, p. 179, *described* (1 January, 1873).

Allied to *T. picicornis*, Mann., but with paler and more slender antennæ, of which the 8th joint is linear and not incrassate, and in the punctuation of the thorax and elytra, the former being covered with minute but distinct tubercles arranged in wavy rows, with the interstices reticulate and shining, and the latter being deeply and very closely asperate.

A single example was taken in August, 1868, in Thoresby Park, Nottinghamshire, by the Rev. A. Matthews, in whose collection it still remains unique.

13. ANISOTOMA GRANDIS, Fairmaire; Ent. Ann. 1872, p. 65; E. C. Rye, Ent. Mo. Mag., x, p. 135.

Further localities (Loughton, Caterham and Esher), sexual characters, and variations in size, have been recorded for the insect dubiously brought forward by myself under this name; and, the discrepancies between the original British specimens and Fairmaire's description of *A. grandis* (the main one being that the thorax cannot possibly be said to be not contracted behind, but is, compared with *A. cinnamomea*, distinctly less contracted in front) being, if anything, increased by the additional individuals examined, I have provisionally attached the name *anglica* to our species, in case it should turn out to be distinct from that characterized

by Fairmaire. Recently, wishing to clear up the point, I asked M. C. Brisout, whose brother captured the specimen from which Fairmaire's description was drawn up, if he could allow me to examine that type. M. Brisout courteously answers, expressing his regret that he cannot send it to me, as his brother has but this single specimen, which he does not dare to trust to the tender mercies of the post; but that, having himself studied with care my description of our English insect, with the type of *A. grandis* before him, it is quite evident to him that the two are identical. The proposed name *anglica*, and any expression of doubt, must, therefore, be withdrawn.

14. ANISOTOMA PALLENS, Sturm, *Deutschl. Ins.*, ii, p. 39, Pl. xxiv, figs. b, B, C; Schmidt, *Germ. Zeitschr. f. d. Ent.*, iii, p. 171; Erichson, *Naturg. d. Ins. Deutschl.*, iii, p. 66; Fairmaire et Lab., *Faune Ent. Franç.*, Col., i, p. 317; Redtenbacher, *Faun. Austr.*, edn. 2, p. 291; E. C. Rye, *l. c.*, p. 135.

Three specimens of this interesting species were taken, by sweeping, at Deal, on 19th September last, by that successful collector Mr. J. J. Walker, to whom (*viâ* Mr. G. C. Champion) I am practically indebted for one of them. The insect belongs to that peculiar and rare little group of very convex insects with short antennæ, usually found on dunes or sand-hills, and of which we now possess all the three known European species. This one is readily distinguished from *furva* and *ciliaris* (the other two), by its smaller size, the much finer and less close punctuation of its thorax, and the finer punctuation of the striæ and much less close punctuation of the interstices of its elytra, the outer margins of which are not set with short cilia.

15. *ANISOTOMA MACROPUS*, E. C. Rye, Ent. Mo. Mag., x, p. 133, *described* (1 Novr. 1873).

Three females and two males of this new species were taken on various occasions during the past summer and autumn (and not in the same precise locality on each occasion), near Claremont, Surrey, by Mr. G. C. Champion, to whom I am much indebted for both sexes of it. M. Chas. Brisout de Barneville immediately after the publication of my description above quoted, has written to me that he perfectly recognizes the species, of which he found both sexes in the forest of St. Germain, in July, about eight years ago, and that he has always considered it to be a new species.

Allied to *calcarata* in its linear anterior tibiæ and the small apical joint of its antennæ, this rather distinct species may, in the male, be readily known from all others except *A. Triepkii* by having its posterior femora suddenly and obliquely contracted on the under side towards the trochanter, the commencement of the contraction being nearer the base than the middle, and forming a distinct and minutely denticulated angle: the outer apical angle is entirely rounded off, and the inner angle has a rounded prominence; the hind tibiæ are very long and thin, slightly incurved and very slightly widened before the apex.

From *Triepkii*, its smaller size, longer, narrower, and less convex build, thin anterior tibiæ, scarcely bisinuated thoracic base, non-bisinate posterior tibiæ, &c., readily separate it.

The ♀ may be known from ♀ *calcarata* (its nearest resemblance) by its uniform clear ferruginous colour, rather longer build, and shorter antennæ; the more evenly rounded sides, more evident posterior angles, and much less conspicuous basal situation of its thorax; and the rather less

posteriorly acuminate shape and more strongly punctured striæ of its elytra.

16. *STILBUS*, Seidlitz, Fauna Baltica, p. 35 (generic synopsis); E. C. Rye, Ent. Mo. Mag., x, p. 138.

*Olistherus*, Seidlitz, *l. c.*, p. 157, *nec Olisthærus*, Er.

A new genus proposed by Dr. Seidlitz for the reception of *Olibrus geminus*, *piceus*, and *oblongus*, and distinguished from *Olibrus proper* by its metasternum not reaching in front beyond the middle coxæ and being separated from the prosternum by a distinct short mesosternum; by its front femora not being hollowed out on the under margin, the apical spur of its tibiæ being distinct, the 2nd joint of its hind tarsi only slightly elongate and narrower than the third, and by its elytra having only an impressed sutural stria.

17. *CATHARTUS* (?) *ADVENA*.

*Cryptophagus americanus*, Dejean, Catalogue des Col., &c., edn. ii, p. 123 (1821), edn. iii, p. 338 (1836).

„ *ferrugineus*, Sturm, Catalog m. Ins. Samml., Abtheil. iii, p. 127 (1826); Catalog der Käfersamml., p. 235 (1843).

„ *advena*, (Kunze, MS.) Walzl, Gistel Faunus, i, Heft iii, p. 169 (1832, *teste* Gemminger & von Harold, Catalogus, &c., iii, p. 878; 1834, *teste* Hagen, Bibl. Ent., p. 257); Silbermann's Revue Entom., ii, p. 256 (1834). (Kunze) Sturm, Catalog der Käfersamml., p. 92 (1843).



- Cryptophagus quadricollis*, Guérin-Méneville, Iconographie du Règne Animal, &c., vii, p. 198 (? 1840).
- „ *musæorum*, D. Ziegler, Proc. Acad. Nat. Sci. Philadelphia, ii, p. 270 (1844).
- „ *Guerini*, Allibert, Revue Zool., x, p. 12 (1847).
- Silvanus advena*, Erichson, Naturg. d. Ins. Deutschl., iii, p. 339 (1846). Sturm, Deutschl. Fauna, Ins., xxi, p. 100, pl. 390, fig. B (1851). Bach, Käf. Preuss., i, p. 243 (1851). Wollaston, Insecta Maderensia, p. 168 (1854); Cat. Mader. Col., p. 54 (1857); Col. Atlantidum, p. 136 (1865).
- Silvanus advena*, Redtenbacher, Fauna Austr., edn. 2, p. 357 (1858).
- Cathartus* (?) *advena*, Kraatz, Berl. Ent. Zeitschr., vi, p. 131 (1862).
- Cathartus advena*, Stein, Cat. Col. Eur., p. 50 (1868).

Some observations upon this practically cosmopolitan species may not be uninteresting. From the above quoted authorities, and the Catalogues of Schaum, Grenier, De Marseul, and others (none of which appear to doubt the propriety of including it in the European lists), it appears to have been recorded from North America, Carolina, China, Madeira, Teneriffe, Spain, Germany, and France (Hyères; Pascoe); and a single specimen of it has occurred to Mr. George Lewis in Japan. Erichson, *l. c.*, says it occurs in rice and other vegetable produce, and is distributed through commerce over the greater part of the earth; Kraatz, *l. c.*, also considers that it was probably first disseminated with rice over the north of Europe, and

Allibert, *l. c.*, describes his species from grain from Canton. Wollaston (Ins. Mad.) thinks it is evidently of more northern regions than either *Silvanus surinamensis* or *Nausibius dentatus*, and that perhaps the Southern Mediterranean limits may be regarded in all probability as one of its original areas of diffusion: it appears, from the same author's experience, to be not uncommon under garden-refuse and about houses in Madeira proper (especially at Funchal), though only one specimen is known to him from Teneriffe, out of thatch. The name "*musæorum*" attributed to this insect by Ziegler suggests a widely different habit; and I may observe that I have recently had an individual of it brought to me to be named that was found in the interior of a blown egg of an Australian bird. Mr. E. W. Janson tells me that he has found it in great numbers, among rotten Orchids received from South America.

As regards its claims to a place in our list, it was first introduced by Mr. G. R. Waterhouse in his "Catalogue," on the authority of a specimen labelled as received from Mr. Samuel Stevens (who, however, writes to me that he does not recollect anything about it, and has no other specimen in his cabinet under that name). I have never met with it; but have occasionally heard of its being found, dead, in coffee, or under equally dubious circumstances. But, during the preceding year, three living specimens of it have been taken at large, at different times, under cut grass, with other and undoubtedly indigenons beetles, by Messrs. F. H. and E. A. Waterhouse, near West Hill, Wandsworth, close to Wimbledon Park,—a locality sufficiently open and rural to produce more than one *Homalota elegantula* (I have, in like manner, found the introduced *Læmophilæus ferrugineus* under bark, on Wimbledon Common; and Mr. E. W. Janson informs me that he also has found it under bark in Darent

Wood). The species is considered by Mr. Crotch, in both editions of his Catalogue, to have been accidentally introduced (in the 2nd edn., coupled with *S. similis*, Er., a species most certainly indigenous, having again occurred under fir trees near Esher after an interval of 4 years, and the first record of which "In sugar. Introduced," by Messrs. Adams and Baikie, was in all probability erroneous), and it is omitted from Dr. Sharp's Catalogue. It has, in company with some few other species, never been included in any of the prior Ent. Annuals, having apparently escaped observation through being merely introduced by name in Mr. Waterhouse's Catalogue, unaccompanied by any special notice in some other publication.

As regards the generic characters of the insect,—peculiar, if only for the tendency to bilobation of the penultimate joint of its tarsi, it is well remarked by Dr. Kraatz (*l. c.*) that it differs from all species of *Silvanus* in its entirely different facies, shorter and slighter antennæ, of which the club is more distinct, and the colour, sculpture and pubescence of its elytra. He points out its various points of affinity (especially the elytral characters, ligula, mentum, scutellum, head, insertion of antennæ, and tarsal structure) with *Cathartus*, a genus characterized by M. Reiche in Ann. Soc. Ent. France, 1854, p. 77, for the reception of a species originally from Cuba and Mexico (*C. cassiæ*), but now, having been taken at Marseilles and elsewhere, accepted as an introduced European. Kraatz himself considers both this species and *advena* as firmly established in Europe, and also that the latter must be removed from *Silvanus* and either associated with *Cathartus* or in a new genus to be founded expressly for it. Stein appears to have adopted the former opinion; but as yet has obtained no follower in it.

It will be gathered from the names first above quoted that this insect more resembles a *Cryptophagus* than a *Silvanus*: it is, in fact, not unlike a small example of *C. distinguendus*, with the thorax more quadrate and not toothed in the middle, more finely punctured, and of flatter and less robust build.

18. ELMIS (LIMNIUS) TROGLODYTES, Gyllenhal; Thomson, Scand. Col., ii., p. 132; Ent. Ann. 1867, p. 77.

As the characters assigned to this species by its introducer to our lists (Mr. G. R. Crotch) are at variance with those mentioned for it by Erichson and Thomson, and it has not been generally recognized here (I was only hitherto aware of two examples, in Dr. Sharp's collection and my own), I may observe that Mr. Wollaston on his last excursion to Slapton Ley, S. Devon, found many specimens of it, on the edges of the Ley, along with *Hydroporus minutissimus*, and could evidently have captured almost any number, if the specific differences of the little creature had been recognized at the time. From some of these, kindly sent to me by that gentleman (and named by Dr. Sharp), I am enabled to give the following characters for *E. troglodytes*, as compared with the common *tuberculatus*:—it is on the average decidedly smaller (the largest is quite the size of the smallest *tuberculatus*), and apparently slightly lighter in colour, with more slightly built antennæ and tarsi; its thorax is not so long, with the disc more closely (though very minutely) punctured, so that it is not so shining, and the sub-lateral lines straight, (*i.e.*, parallel with the margin, and not sub-flexuous); its elytra have the three discal striæ very obsoletely punctured, the 4th (not the 6th, as Gyllenhal says), which continues the thoracic sub-lateral line, formed of smaller and closer punctures, and the space

between that and the most external striæ with no perceptible row of smaller irregular interstitial punctures.

### 19. GEOTRUPES STERCORARIUS AND ITS ALLIES.

Even if Dr. Sharp had not, in the specimen of a proposed novel Catalogue of British *Coleoptera*, at p. 39 of his pamphlet on Zoological nomenclature above mentioned, given a place to "*Scarabæus spiniger*, Marsh.," and "*Scarabæus foveatus*, Marsh.,"—I should still have had to include in this Record the species to which he refers, as they have been rescued from Marshamian limbo by that astute student of *Coprophaga*, Baron E. von Harold, to whose courtesy I am indebted for a "Separat-abdruck" of Col., Heft. xi., pp. 87—101, containing the result of his labours upon *G. stercorarius* and its allies.

It has, before this, been noted here that the two insects originally known to us as *G. stercorarius* and *putridarius* are abundantly specifically distinct, and that Thomson, finding the insect known by the latter name to be really the *stercorarius* of Linnaeus, re-named the first one *mesoleius* (from one of the various characters which he, *more suo*, first\* appears to have perceived in it).

But Baron von Harold, from an examination of specimens of the insects known by these names from various parts of Europe, comes to the conclusion that our countryman Marsham was in advance of his age, and that his definition of three species, *stercorarius*, Linn., and two species described as new, *spiniger* and *foveatus*, is correct and must be adopted,—*mesoleius*, Thomson, sinking to *spiniger*.

\* This testimony is pleasant to reproduce (E. v. H., *l. c.* p. 92, note):—"Mit Recht bezeichnet Herr L. Bedel, selbst eine unserer tüchtigsten Kräfte, Herrn Thomson als einen der ersten, wenn nicht als den ersten, lebenden Entomologen (Ann. Soc. France, 1872, p. 397.)"  
E. C. R.

The synonymy of these three species is thus given by Baron von Harold (omitting full references):—

1. *G. STERCORARIUS*, Linnæus, Marsham, Sturm, Stephens, Thomson, Mulsant.  
*putridarius*, Erichson, Seidlitz.
2. *G. SPINIGER*, Marsham, Ent. Brit., i., p. 21.  
*puncticollis*, Von Malinowsky, Stephens, Mulsant.  
*stercorarius*, Erichson, Seidlitz.  
*mesoleius*, Thomson.
3. *G. FOVEATUS*, Marsham, *l. c.* ; Stephens.  
*punctatostriatus*, Stephens.  
*stercorarius*, var. *minor*, Erichson.  
*intermedius*, Ferrari.  
*stercorarius*, var. ♂, Thomson.  
*putridarius*, Mulsant.

The differential characters pointed out for these three are literally as follows (the tibial keel and femoral tothing being only applicable to the ♂):—

1. The abdomen longitudinally smooth in the middle, neither punctured nor pubescent; the antennæ pitchy, with an ashy-brown club; the body black above, metallic only at the margins; the anterior tibiæ longitudinally keeled in the middle beneath; the keel being more or less distinctly toothed, ending in a sharp tooth at the base of the third inflexed marginal tooth, and not enlarged before that tooth; the posterior femora and the apex of their trochanters strongly toothed, the femoral tooth somewhat the stronger of the two, and sub-recurved. . *spiniger*.
2. The abdomen entirely (even in the middle) punctured

and pubescent; the antennæ red or pitchy-red; the body more shining, more or less metallic.

- a.* The anterior tibiæ longitudinally keeled beneath; the keel smooth (*i. e.*, not denticulate), approximated to the outer margin, ending in an acute toothlet at the base of the third marginal tooth (which is scarcely inflexed), enlarged outwardly in a curve before this toothlet; the (hind) trochanters and femora toothed, with teeth equal in size. . . . *stercorarius*.
- b.* The anterior tibiæ altogether as in *G. spiniger*; the body shining above, more or less brightly metallic, especially at the margins; the scutellum very often bluish. . . . *foveatus*.

Baron Harold considers Marsham's *spiniger* to be " ganz unzweifelhaft charakterisirt" by that author's mention of its entirely black colour, fuscous or pitchy funiculus and blackish club, of its having two stout teeth to the posterior femora, of which the outer tooth is the larger, and of its anterior tibiæ having the 3rd tooth from the apex more prominent and straight ("*inflexi:*" Harold). He might have added, its sub-punctate elytral striæ. These characters (mixed up with others quite irrelevant and superficial) certainly at least suggest some of the minor and one of the major points of *G. mesoleius*; but others not mentioned by v. Harold (*e. g.*, the 7-toothed front tibiæ, which are stated to be 6-toothed in *stercorarius*;—both species being alike in this respect), do not corroborate the idea of the identity of the two; and it must not be forgotten that the really important characters are quite ignored by Marsham; and

that his best feature, that of the tooting of the posterior femora, is really only *sexual*, though he treats it as specific.

*G. foveatus* is stated by Marsham to be most like *spiniger*, but to have 4 excavated punctures on the thorax (*inde nomen*), the disc of which is more remotely and the sides more thickly punctured; a violet scutellum; the margins of the sulcate elytra and thorax blackish-blue; the posterior femora with one or two denticles; the anterior tibiæ 6-dentate, the tarsi pitchy; and to be 7 lines long. The smaller size, violet scutellum, blackish-blue margins, sulcate elytra, and occasionally single-toothed hind femora of this description, cause it to be "ausreichend gekennzeichnet," *teste* Harold.

In my own small series of British examples of this group, I have no difficulty whatever in quadrating both sexes of *stercorarius* and *spiniger*; but I find nothing agreeing with *foveatus* (Harold). I have a very small race, with bright thorax, bluish-green scutellum, bright greenish and deeply sulcate elytra, with the middle of the abdomen strongly punctured, and only one appreciable posterior femoral tooth, and which so far accords with the last named insect: but the male most distinctly has the anterior tibiæ keeled and constructed beneath precisely as in *stercorarius*, like which it also has the mandibles with only one external flexure, and of which I think it is nothing but a small form. I have also a still smaller form of *spiniger* (but only females), in which, instead of being dull black, the surface, and especially the thorax, is very bright.

I strongly suspect that "*foveatus*" is a myth; and, indeed, Baron Harold's own remarks on it (p. 92, in connection with possible crossings between the opposite sexes of the other 2 species) almost prepare one for that conclusion.



There are, of course, no Marshamian types of any of these insects.

Whether the proposed change of name in Thomson's *mesoleius* is to be adopted on the evidence adduced, is another matter.

20. *ELATER POMONÆ*, G. R. Waterhouse, Trans. Ent. Soc., v. (n. s.), p. 90; Candèze, Mon. Elat., ii, p. 455; E. C. Rye, Ent. Mo. Mag., ix, p. 268; Seidlitz, Fauna Baltica, p. 119.

? Stephens, Man. Brit. Col., p. 179.

*præustus*, Schiödte, *nec* Fab.

*pomorum*, Thomson, Opusc. Ent., fasc. iv, p. 388, *nec* (Geoffr.) Germ.

I have briefly pointed out the characteristics of this somewhat rare and very distinct species, found by the late Charles Turner "in the New Forest," and more recently dug by Mr. J. Ray Hardy out of birch at Sherwood Forest; and noted discrepancies between Stephens's description and that of Waterhouse and Candèze. According to Seidlitz, this is almost the commonest of the genus in Livonia.

21. *PTINUS TESTACEUS*, Olivier, Entom., Col., ix, p. 8; De Boieldieu, Mon. des Ptinoires, Ann. Soc. Ent. France, 3me sér., iv, p. 654; Wollaston, Cat. Mad. Col., p. 89, Cat. Can. Col., p. 239, Col. Atlant., p. 213; D. Sharp, Ent. Mo. Mag., ix, p. 268.

*hirtellus*, Sturm, Deutschl. Fauna, Ins., xii, p. 80.

*advena*, Wollaston, Insecta Maderensia, p. 261.

*Ptinus* 5 *sp.*? Waterhouse, Cat. Brit. Col., p. 58; E. C. Rye, Ent. Mo. Mag., iii, p. 233.

Dr. Sharp records the existence of *P. testaceus* in his British collection, adding Boieldieu's statement that it inhabits temperate Europe, and is rather common in wheat granaries. If I be right in referring Mr. Waterhouse's insect to this species, it may be noted that it is somewhat allied to *P. fur*, but is smaller and shorter, with no tuft of white pubescence at the back of the thorax, and the elytral ashy markings almost entirely wanting, so that the insect seems uniformly testaceous. The joints of its antennæ are also decidedly much shorter and comparatively broader.

Mr. Wollaston says that *P. testaceus* occurs sparingly, about houses and stores, both in the Madeiras and Canaries, where it has doubtless become established accidentally through the medium of commerce. It is unquestionably a mere importation, or at the utmost naturalized from *more northern latitudes*.

22. *TRIBOLIUM CONFUSUM*, Duval, Gen. Col. Eur., iii, p. 181, note; D. Sharp, Ent. Mo. Mag., ix, p. 268.

*ferrugineum*, Mulsant, Col. de Fr., Hétérom., p. 244, *nec* Fab.

Dr. Sharp notes the existence of this species in his own British collection; I, also, find it in mine, and have observed it mixed with *T. ferrugineum* in that of Mr. Champion. Compared with the latter species, *T. confusum* is rather larger, broader and flatter, with the thorax more rounded outwardly in front, the front tibiæ not so acutely produced externally, the elevated clypeal ridge carried further back along the eye, which, therefore, looks smaller; the elytra more shining, with the minute interstitial punctures less regular, and the antennæ with stouter and shorter basal joints, and gradually dilated towards the apex, instead of

having the three last joints decidedly broader than the preceding.

Bearing in mind the strong sexual differences in *Gnathocerus* and other allied genera of the *Utomides*, the idea may arise that these are male and female of one species; but, without having dissected any examples, I feel tolerably sure that I have both sexes of *T. ferrugineum*.

23. OTIORHYNCHUS TENEBRICOSUS, Walton (see Ent. Ann. 1872, p. 186, for references).

? *lugdunensis*, Boh., Schön., Stierlin, Marseul, E. C. Rye, Ent. Mo. Mag., ix, p. 269.

As *O. lugdunensis*, which appears to replace *tenebricosus* in France, has no frontal foveola, and the anal segment of the abdomen in the ♂ foveolate as well as coarsely striated,—characters agreeing with my exponents of *tenebricosus*,—I have been tempted to add somewhat to the already more than sufficiently “*rexata questio*” as to the correct specific names of our two larger black species of *Otiorhynchus*, by suggesting the application of the above quoted Bohemannian name to the larger of them. I now increase the embroglio by mentioning that Dr. Seidlitz of Dorpat (well known as a monographer of the family), to whom I lately sent both sexes of the Waltonian *tenebricosus* and *pseudo-fuscipes*, with both sexes of a form of the latter in which the ♂ anal segment is very deeply “gouged out” in the middle, replies to me:—“Your Otiorhynchen hold I all for *tenebricosus*”! I believe that Dr. Sharp, who has lately applied with the like elucidatory intention to another authority on the group, has also been unable to obtain any satisfactory solution of this question.

24. OTIORHYNCHUS BLANDUS, Gyllenhal, in Schön. Gen. et Spec. Curc., ii, p. 603; Stierlin, Rev. Eur. Otiorh., Berl. Ent. Zeitschr. (Beih.), 1861, p. 174; Thomson, Scand. Col., vii, (1865), p. 121; de Marseul, "L'Abeille," x, Mon. Otiorh. (May, 1872), p. 261; D. Sharp, Ent. Mo. Mag., ix, p. 290.

*laevigatus*, Gyll., Stephens (Illustr.), *nee* Fab.

*monticola*, Stephens (Manual), Walton, Wat. Cat., *nee* Germar.

*monticola*, Schönh., var.  $\beta$ ? Stierlin, *l. c.*

Dr. Sharp has pointed out that our Scotch insect, hitherto known as *monticola*, is to be referred to the species first above quoted, and notes that, although Stierlin apparently did not recognize it, and merely follows Schönherr in giving *blandus* and *monticola* as distinct (as does de Marseul after him), he evidently, from his localities for and remarks on the latter, had both species before him. As Dr. Sharp himself speaks of the two insects as "species (or races);" it would almost, at first sight, seem as if Stierlin's subsequent dubious reference, as above, might not be altogether wrong. He says of *monticola*, "the elytra are at times more strongly and at others more gently punctured in the striæ. Specimens from the north, especially from Iceland and Sweden, of which I have a tolerable number before me, are almost all very finely punctate-striate, so that the striæ become indistinct (var.  $\beta$ )," and suggests that perhaps *O. blandus* is founded on such examples; noting that small specimens from the Pyrenees also present this sculpture; but Dr. Sharp says that his Scotch specimens differ from Pyrenean *monticola* just as Thomson states the two species should differ. The original differential characters are that *blandus* is somewhat the larger of the two, with scarcely perceptible elytral striæ, a rugose-punctured rostrum, and

the punctuation of the elytra in front and on the disc vague, and on the sides and behind very thick. Thomson (who does *not* blindly follow other authors) considers the two as very strongly separable, on account of *O. monticola* having transverse second and triangular third joints to the tarsi, a more closely punctured rostrum (which is broader in the middle), more dorsally depressed elytra, and, in the ♂, an evident fovea before the apex of the 5th ventral segment, the tibiæ more pubescent on the inner side, and with a stronger mucro at the apex.

It may not be out of place to note here the existence in Scotland (both at Rannoch and Braemar) of a pretty variety of the variable *O. maurus* (not exactly answering to the recognized vars. *comosellus* and *demotus*, Schön., or *Bructeri*, Ill., but very near them), in which the thorax is more rounded outwardly than usual, the tibiæ are pitchy-red, the elytra are much more finely and rather more remotely punctate-striate, and with wider and flatter interstices, which exhibit scarcely a trace of transverse rugosity, and are adorned with conspicuous patches of greyish-yellow pubescence.

25. LIOSOMUS OVATULUS, Clairville; var. *collaris*, E. C. Rye, Ent. Mo. Mag., ix. p. 242.

This insect, although from its lighter colour (the thorax, especially, is often clear red) it may seem only to be an immature stage of the type, is, however, apparently always smaller, with fuscous or rufo-testaceous legs, with darker tips to the femora, the legs themselves rather longer and of more feeble build, having the femoral tooth not so much developed, rather longer antennæ, and the punctuation of the thorax apparently not quite so close.

It is not uncommon near London; and Mr. John Scott

tells me that he used to find it in moss near Renfrew, where it was the commoner of the two forms.

26. *LIOSOMUS OBLONGULUS* (Frontisp., fig. 6, ♂), Boheman, in Schönherr's Gen. et Spec. Curc., vi (Suppl.), p. 316; E. C. Rye, Ent. Mo. Mag., ix, p. 242; J. J. Walker, *ibid.*, x, p. 84; E. C. Rye, *ibid.*, x., p. 138.

A single immature ♂ example in my own collection, two others, of the same sex, taken by Mr. Walker near Chatham, and two females found at Caterham by Mr. G. C. Champion, substantiate beyond doubt the claims of this interesting species to be considered indigenous. M. Jekel's type in the British Museum collection (the only one to which I have access) being only *L. ovatulus*, I have taken the precaution of sending one of the above-mentioned British specimens to M. Charles Brisout de Barneville, who corroborates it as *L. oblongulus*. He has it from the French Alps and the neighbourhood of Lyons (the only localities given in De Marseul's Catalogue are France and Switzerland).

*L. oblongulus*, compared with the corresponding sex of *ovatulus*, is rather smaller, very decidedly longer and narrower, with longer legs (and especially longer and more curved anterior tibiæ), a more coarsely and less closely punctured rostrum, longer antennæ (the scape being especially long), which are inserted nearer the apex of the rostrum, straighter sides to the thorax, larger punctures on the elytra, forming striae, but not apparently placed in impressed lines, untoothed femora, and stronger and more remote punctuation beneath. In the male, which is, as usual, longer and narrower than the female, the rostrum is rather longer and narrower, the front tibiæ have no protuberance above the middle of the inner side, and the metasternal depression is wider and better defined.

27. *Liosomus troglodytes*, E. C. Rye, Ent. Mo. Mag., x., (1 Nov. 1873), p. 136 (*described*).

Since the publication of the above description, drawn up from two ♀ examples, five more, of both sexes, have been taken by Mr. J. J. Walker (the original captor), at the same place, Faversham, Kent, in moss. All of these agree *ad punctum* with each other; save that the ♂ appears, as usual, to be somewhat thinner and longer.

M. Ch. Brisout, to whom, as a describer of many European species of this genus, I sent the insect for identification, if known, considers it certainly new, and most allied to his *L. pyrenæus*. Its very small size ( $1\frac{1}{4}$  line, rostrum included) at once separates it from our other species; but, apart from that, its untoothed femora at once remove it from the common *ovatus*, and its *opaque* and almost rugose-punctate thorax, shorter and broader build, more marked striæ, and the insertion of its antennæ being not so near the apex of its rostrum, equally readily distinguish it from the rare and recently added *oblongulus*, which, also, has untoothed femora.

I am indebted to Mr. Champion for both sexes of this highly interesting species; and also for the opportunity of depositing a type in M. Brisout's collection.

28. *Bagous brevis*, Gyllenhal, in Schönherr's Gen. et Spec. Curc., iii., p. 550; Thomson, Scand. Col., vii, p. 187; E. C. Rye, Ent. Mo. Mag., ix, p. 242.

Several specimens of this interesting addition to our list were taken by Dr. Power, I believe in 1872 or 1873, and in Surrey.

Of our species, it can only be compared with *B. frit*, which it rather exceeds in size, but is readily distinguishable by its thorax being very strongly constricted before the apex,

and having a dorsal channel ending in the middle one of three foveæ situated in the anterior transverse constriction. The interstices of its elytra are slightly elevated, the 5th having the usual callus behind, which is scarcely perceptible except in abraded individuals; and the tibiæ are stout, much thickened internally below the base, and strongly curved internally towards the apex.

29. *BAGOUS* SP. —. J. J. Walker, Ent. Mo. Mag., x, p. 84.

Mr. Walker has recorded the capture by himself in the Isle of Sheppy, during the past summer, of a species of *Bagous* near *B. frit*, which, as he rightly mentions, was taken the year before in the same place, and in some small quantity, by the Rev. H. S. Gorham, who at once put it aside as probably new to our list. I sent specimens given to me by Mr. Gorham to M. Charles Brisout de Barneville, who returned them to me as being a well-known variety of *B. frit*. But I cannot agree with this opinion; as, apart from being of decidedly smaller size, and less "squab" form, and utterly wanting the characteristic markings of *B. frit*, Mr. Gorham's insect has distinctly longer and thinner tarsi than that species, with the penultimate joint not in the least dilated, and the second joint most decidedly not inclined to be transverse. It is, in fact, more closely allied in its tarsal structure to *B. subcarinatus*; but, considering the number of new species of *Bagous* recently described (especially by Thomson), and which are unknown to me, I do not think it advisable to run the risk of increasing synonyms by describing this one as new.

30. *ORCHESTES SEMIRUFUS*, Gyll., Ins. Suec., iv, p. 597 (*Rhynchænus*); Schön., Gen. et Spec. Curc., iii,



p. 492; Thomson, Scand. Col., vii, 1865, p. 286; H. Brisout, Ann. Soc. Ent. Fr. (4), v, 1865, p. 270; E. C. Rye, Ent. Mo. Mag., ii, p. 225; *id. ibid.*, x., p. 10.

Two specimens of this insect, superficially very distinct from *O. scutellaris*, were taken some years ago by Mr. S. Stevens at Weybridge. It has been considered indigenous to this country by Stephens (Illust. Mand., iv, p. 60, Manual, p. 230), and M. Brisout, in his Monograph, adopts the Stephensian reference, and also attributes the *nigricollis* of Marsham and Stephens to it as a variety, though Mr. Walton, in 1856 ("List of British Curculionidæ," one of the Brit. Mus. Catalogues, p. 32) had expressly referred *semirufus* of Stephens's Collection to *quercus*, Linn., and *nigricollis* to *melanocephalus*, Ol., and this synonymy is repeated in Mr. Waterhouse's "Catalogue" (p. 77, Sheet L 2, about 1860,—not 1858, the first date mentioned, and adopted for the whole by Hagen). Thomson unhesitatingly attaches *semirufus*, with *suturalis*, Zett., *pubescens*, Schön., *pilosus*, Gyll., and other insects, forming no less than six colour varieties, to *scutellaris*, Schön., which appears to range from rufo-ferruginous with the apex of the rostrum black, to black with ferruginous antennæ and tarsi, and five spots of black hairs on the elytra. M. Brisout, who does not quote these, acknowledges *albopilosus*, Reiche, and *rufus*, Schrank, as colour-varieties: he also states that the thorax of *semirufus* is less rounded at the sides than in *scutellaris*, and that the femora are differently toothed in the two insects, being "obsolètement denticulées" in *semirufus*, and armed with "4 denticules très fins et obsolètes, le dernier plus saillant," in *scutellaris*. These structural characters, if they exist, have escaped the lyncean eye of the Swede, who on more minute points finds a new genus

or sub-genus "*Threcticus*" for *O. scutellaris*! Those, in fact, who are acquainted with Thomson's normally disjunctive habits will surely think him right whenever (which is seldom enough) he is synthetic. I observe that the original describer of *semirufus* (Gyllenhal), who does not usually miss structural points, merely says of his insect, "*Statura et affinitas R. scutellaris, sed fere duplo minor.*" An examination of Mr. Stevens's specimens, one of which accords exactly with Gyllenhal's description in being about half the average size of *scutellaris*, has convinced me that Thomson is in all probability right in referring *semirufus* to the latter species, from which they exhibit no structural differences; they merely have the head and thorax pitchy-black, and the legs darker than usual.

31. ORCHESTES FERRUGINEUS, Marsham, Ent. Brit., i, p. 260 (1802); H. Brisout, *l. c.*, p. 269; E. C. Rye, Ent. Mo. Mag., ii, p. 225.

*melanocephalus*, Olivier, Entom. Col., v, Gen. 83, p. 100, Pl. xxxii, fig. 483 (1807); Walton; E. C. Rye, *l. c.*, x, p. 18.

M. Brisout relies wholly on differences of colouration for the separation of this insect from *O. alni*, "en compagnie duquel on la trouve aux environs de Paris," the sole structural character mentioned by him being in describing the posterior femora as "*ut in Orch. alno [!] denticulatis.*" This superficial distinction is weakened by his allowing *ferrugineus* itself to have four colour-varieties, viz., "1, *Colore pallidiore*; 2, *femoribus basi dimidiato-nigris*; 3, *thorace in medio dorsi, maculâ transversâ fuscâ*; 4, *etiam rostro fere toto nigro.*" *O. alni* is in like manner described by him (p. 267) as having the first and third of these varieties, in precisely the same words, and another,

“*maculis elytrorum minoribus, aut obsoletis, vel majoribus coadunatis.*” The remark by myself, *l. c.*, ii, as to *ferrugineus* being “sometimes referred by beginners as a variety” to *O. alni*, was intended to apply to myself as well as others; and my case is a further proof of the maxim “On revient toujours à ses premiers amours,” for I cannot now see any sufficient character by which to separate these two insects. As M. Brisout admits that *O. alni* sometimes has the usual elytral spots obsolete (“the spots on the elytra are but rarely wanting:” Stephens, *Man.*, p. 230), there is nothing left for *ferrugineus* to stand upon. Structural differences there are none, and he himself admits to taking the two in company on elm (Marsham, by the way, attributes his insect to the oak). I do not know why Walton adopted Olivier’s posterior name; Marsham quotes up to the 4th vol. of the latter’s work.

32. “\*20. C. [EUTHORHYNCHUS] CRASSIDENTATUS (*Marshall, in litt.*), *Mus. Marshall*”; Walton, List of British Curculionidæ (one of the Brit. Mus. Catalogues), 1856, p. 40; E. C. Rye, *Ent. Mo. Mag.*, x, p. 18.

The meaning of the prefixed asterisk is not given in the list quoted: it does not signify that the insect is or is not in the Museum collection (the letters “B.M” after the first line of any species signify the former alternative, and the want of them the latter); and, being shared by *C. urticæ*, “*Mus. Walt.*,” cannot mean that it was a desideratum of the author’s. Possibly it may be intended to designate a species new to Britain.

This undescribed species is in still worse plight than the “\*3. A. [malus] minimus (*Walt. in litt.*), *Mus. Brit.*” of the same list, of which a few characters from Mr. Walton’s own pen have been posthumously published by myself. But

the *insects* have both disappeared. There was, I believe, but one "Marshall" with a "Mus." in Walton's time, viz., Thomas Marshall, Esq., of Trinity Cottage, Leicester; and to that gentleman I have applied through his son, my friend the Rev. T. A. Marshall. Mr. Marshall, sen., has most courteously responded, both in writing, expressing his utter ignorance of any such insect or name, and practically, by sending me all his unknown or unnamed *Ceuthorhynchi* to examine, and which were all referable to well-known species.

*C. crassidentatus* is, of course, in every way non-existent.

33. PENTARTHURUM HUTTONI, Woll.; T. V. Wollaston, Trans. Ent. Soc., 1873 (Oct.), p. 514, note.

*Rhyncolus* (!) *Hervei*, Allard, L'Abeille, v (1869), p. 475.

Mr. Wollaston, noticing the occurrence of members of *Pentarthrum* in such remote countries as Western Europe, the Island of Ascension, the Malayan and Japanese Archipelagos, New Zealand, Chili and Brazil, gives the above synonymy concerning its original and still typical species, of which he notes the three British localities (Exeter, Teignmouth, and Plymouth).

Allard's examples appear to have been captured at Rennes, and the locality for his insect in Gemminger and von Harold's Catalogue is the department of Finisterre; so that the extreme western portion of Brittany, exactly opposite to Devonshire, is the only place out of England where *P. Huttoni* has as yet occurred. Mr. Wollaston justly censures the gross mistake\* of describing a *Pentarthrum* as a *Rhyncolus*; and charitably ascribes it to the slovenly way in which most continental entomologists mount their specimens.

\* The expression, a "blooming error," has crept into the London vernacular; but it is most probable that the expression "fragrant" blunder, line 4 from bottom, in Mr. Wollaston's note (*l. c.*), is to be attributed to a *lapsus typographicus*.

34. RHOPALOMESITES, T. V. Wollaston, *l. c.*, p. 555 (*characterized*).

Mr. Wollaston has founded this new genus for the reception of certain species of which our *Mesites Tardii* (which extends to the Azores) is the type. These differ from *Mesites* proper in being often delicately sericeous, with more approximated eyes, longer antennæ, of which the club is much larger and abrupt, and with the 3rd joint of the tarsi (minutely) bilobed.

In the male, the rostrum is considerably longer and more slender, and proportionately a little more widened at the insertion of the antennæ, which is either at or before the middle, instead of behind it. Other characters are also given by the author.

35. COSSONUS FERRUGINEUS, Clairville, Ent. Helv., i, p. 60, pl. 1, figs. 3 and 4; Gyll., Ins. Suec., iv, p. 603; Boheman, in Schön. Gen. et Spec. Cure., iv, p. 996; Redtenb., Faun. Austr., 2nd edn., p. 821; Thomson, Scand. Col., vii, p. 340; T. V. Wollaston, Ent. Mo. Mag., ix, p. 243.

Mr. Wollaston has pointed out that his metropolitan examples representing *C. linearis*, Fab., are in reality to be referred to the species above named; and suggests that *C. linearis* may not be British. The latter is very much flatter, and more deeply and coarsely sculptured, with its rostrum a little shorter, thicker, and more dilated towards the tip, its scutellum distinctly larger and its tibiæ less sinuated internally.

*C. ferrugineus* appears to have a more northern range than *linearis*, being recorded by Thomson from East Gothland and Sweden. I have not the least doubt that we do not

possess the latter, which was introduced by Stephens, apparently.

36. STEREOCORYNES, T. V. Wollaston, Trans. Ent. Soc. 1873 (Oct.), p. 588 (*characterized*).

A new genus erected for the accommodation of our *Rhyncolus truncorum*, which differs from *Rhyncolus* proper in being more strictly cylindrical and obtusely rounded behind, with a short and subparallel rostrum in the ♂ (shorter and subtriangular in the ♀), the antennæ abbreviated and glabrous, with a solid, compressed and obtriangular club, extremely depressed eyes, unconstricted thorax, thickened femora, which have a faint indication of being obtusely toothed beneath, and the 4 anterior coxæ nearly contiguous.

37. BRUCHUS ATOMARIUS, Linnæus, Fauna Suecica, p. 183 (1746); Thomson, Scand. Col., vii, p. 7; Rev. H. S. Gorham, Ent. Mo. Mag., ix, p. 191; E. C. Rye, *ibid.*, note.

Mr. Gorham follows Thomson in adopting this name for the insect hitherto known to us as *seminarius*, Linn., which is distinct from Gyllenhal's species of the same name (1813). Linnæus appears to have redescribed his insect under the name *seminarius* in Syst. Nat., ii, p. 606; and, as the 10th edition of that work is the first that consisted of two volumes, of which vol. ii. was published in 1759, *atomarius* should stand. Gyllenhal, who wrongly identified his *seminarius* with that of Linnæus, appears to quote the 12th edition (vol. ii, 1757).

38. BRUCHUS LATHYRI, (Kirby) Stephens, Ill. Mand. iv (1831), p. 214; *id.*, Manual, p. 266; Walton, Ann. &

Mag. of Nat. Hist. xiii (1844), p. 210, sep. copy, p. 15.

? *oxytropis*, Gebler, in Schön. Gen. et Spec. Curc., i (1833), p. 67; Allard, Petites Nouvelles Entomologiques, No. 6; *id.* Berl. Ent. Zeitschr., xiii, p. 330; E. C. Rye, Ent. Mo. Mag., ix, p. 191, note.

M. Allard, supplementing his "Étude sur le groupe des Bruchites," observes that the true *Bruchus loti*, Payk., (Fabr.) Sch., does not exist in French collections, or, indeed, in any collection that he has seen; and it is to be inferred from his remarks that *B. oxytropis* usually represents it. *B. loti*, according to him, is to be distinguished from the latter by its punctiform scutellum being covered with very dense pubescence, which is continued on the suture, and by its general pubescence being more sparse.

As far as British examples go, I may observe that none of my own supposed exponents of *B. loti* are reconcileable with M. Allard's characters above mentioned; and, on referring to the late Mr. Walton's notes (*l. c.*), I find that *B. loti*, Payk., is only quoted with a note of interrogation, and *B. lathyri* adopted for the insect. Our common British species, from *Lathyrus pratensis*, is certainly rightly referred to *B. lathyri*; but Stephens, *l. c.*, records *both* it and *loti* as British, especially quoting the dense patch of griseous pile near the scutellum of the latter, which he states to occur on *Lotus corniculatus* at Hampstead, Bristol, and Hertford. Unfortunately it was too frequent a habit of this author to affix the right characters to the wrong insect. It remains to be seen whether we really possess the true *B. loti*, and whether *oxytropis*, Schön., and *lathyri*, Steph., are identical; but, of the two last, under any circumstances, *lathyri* has priority.

39. *CLYTUS ERYTHROCEPHALUS*, Fab., Ent. Syst., ii, p. 350; Olivier, Entom., Col., iv, p. 70, pl. 5, fig. 60; Stephens, Illustr. Mand., iv, p. 245, note; *id.*, Manual, Introd., p. vi, and p. 276; E. C. Rye, Ent. Mo. Mag., ix, p. 215; H. Doubleday, *ibid.*, p. 268.

A single example of this North American species was taken by Mr. Thorpe of Middleton. in a grassy place, at rest, about a mile or two from that town, and is only noticed here to show how easily an undoubted foreigner may come among us provided with apparently trustworthy introductions. Mr. Doubleday once took it in his garden at Epping, and is of opinion that it came over as a pupa in the wood of some boxes received during the previous winter from North America. This is, doubtless, the individual referred to by Stephens, p. 276, "Old timber: Epping Forest, 6; doubtless introduced from N. America."

The species is less bulky than *C. arietis*, with longer and much thinner legs; and is entirely ferruginous, except four yellow bands on the apically more or less darkened elytra.

40. *AGAPANTHIA MICANS*, Panzer, Faun. Ins. Germ., Heft xxxv, p. 14 (1796), *Saperda*; Mulsant, Ann. Soc. Linn. Lyon (2), 1863, p. 364; E. C. Rye, Ent. Mo. Mag., ix, p. 190.

*violacea*, Olivier, Entom., iv, 68, 34 (1795), Fab., Syst. Eleuth., ii, p. 331 (1801), *nec* Fröhlich, Krit. Verz. Oesterr. Schneckenkäfer (1793), Mulsant, *l. c.*, p. 366.  
*cærulea*, Schönherr, Syn., Ins. iii, p. 437; Mulsant, Hist. Nat. Col. Fr., Longic., p. 177.

*smaragdina*, Krynicki, Enum. Col. Ross. merid.; Falderman, Faun. Ent. Transcauc., ii, p. 301.

I have recorded the detection of an example of this species



in my collection, mixed with *Stenostola ferrea*, and which, so far as my memory goes (for I have no definite record of it), was given to me by a correspondent in one of the midland counties, years ago, as the latter insect. *A. micans* is recorded from France, Germany, Italy, Dalmatia, the Caucasus, Russia, and elsewhere in Europe. It is of the size and somewhat of the facies of *S. ferrea*, but purple or dark violet in colour, with shorter elytra, 12-jointed antennæ, and the claws of the tarsi not cleft at the base.

PARKFIELD, PUTNEY, S.W.

*December, 1873.*

## HYMENOPTERA.



NEW BRITISH SPECIES, CORRECTIONS OF NOMENCLATURE,  
ETC.

(*Cynipidæ*, *Ichneumonidæ*, *Braconidæ*, and *Oxyura*.)



BY THE REV. T. A. MARSHALL, M.A., F.L.S.

BEING requested, at rather short notice, to contribute to the "Annual," for the first time, any fresh information I may possess on the non-aculeate Hymenoptera, I have limited the subject to the above four families, to the exclusion of the *Tenthredinidæ* and *Chalcididæ*. Even after this deduction about four-sixths of the order remain, comprising several thousands of insects more or less obscure and unfamiliar, a mass of material with which no one single-handed should attempt to deal. Nor should I presume to do so, if it did not appear that otherwise they would remain unnoticed, and that the little I can effect is probably better than nothing. If I could have examined, for the purposes of this paper, the stores of unnamed specimens in my own boxes, the results would have been more satisfactory. But the occupation of compiling catalogues has for some time obliged me to attend more to printed books than to the book of Nature; and has also required a diffusion of labour upon several subjects, instead of the concentration favourable to progress. Hence

it happens that the number of new British species I am able to report is not perhaps what might be expected, and certainly far from satisfying my own wishes. Other disadvantages are inseparable from an attempt like the present. It is not easy to conform to the method adopted by other contributors to the "Annual," who treat of more popular subjects. For instance, no copious records of daily observations, suggestions, descriptions and rectifications can be referred to; no "Annual" of 1872 can be assumed as a starting-point, with information on the best authority posted up to that date; and no large circle of readers look forward with interest to a summary of progress to which their own labours have mainly contributed. Having just alluded to these things, in order that they may appear in their true light, as extenuating circumstances, I shall proceed to some remarks upon the above four groups seriatim, and afterwards give a list of new British species.

CYNIPIDÆ.—The connection of one tribe of these insects with galls, and the curiosity kept up by the annual appearance of those bodies, conspicuous and not to be ignored, seem to be reasons why the *Cynipidæ* have partially escaped that extinction in which the study of some other *Hymenoptera* has long been plunged. To find the last, and indeed the only, attempt ever made to enumerate the British species, we must go back to the second edition of Curtis's "Guide," published in 1837. And by comparing the state of knowledge then with our present facilities, we shall easily observe a certain progress, which however applies only to the gall-making genera. The number of names given by Curtis, *lib. cit.*, is 56, from which 18 are to be subtracted as being MSS., or referring to insects of other families,—leaving 38. The descriptions of most of these are enigmatical, so that

unless taken in conjunction with some gall, or other collateral evidence, their identification must have been more than doubtful,—to say nothing of the substitution of *Synergi* for gall-makers, a mistake inevitable until the habits of the former were ascertained. From such insufficient data it was only possible to arrive at a small portion of the truth. This was the nascent state of Cynipideous knowledge in this country. We are now, in 37 years, so far advanced as to have a much increased number of good descriptions, many of which appeared in England, in the Gardener's Chronicle, &c., and more on the Continent,—a considerable body of detached notes on galls and the economy of their inhabitants,—and last, not least, a generic system begun by Hartig and now corrected and amplified by Förster, at least equal to anything that can be found in other departments of Hymenopterous science. At the ordinary rate of progress it would be sanguine to expect the adoption of this system in England very soon;—but it will probably at some time make its way, and we, or our posterity, shall then have the *Cynipidæ* exhibited in an intelligible form, likely to attract fresh workers from the ranks of entomologists.

I am glad to see the recognition of this system commenced by Mr. A. Müller in a paper on galls in the "Annual," 1872, and that he has increased the British list by some new discoveries, as well as pointed out some errors in nomenclature. I was in hopes of finding in his paper a reference to Giraud's description of *Cynips Kollari*, which name Mr. Müller says I have sunk in favour of *lignicola*, Hart. It is true that I have always called the insect *lignicola*, Hart., for the reason that Hartig (Germ. Zeit. iv. 403) describes a different species as *C. Kollarii*. I have frequently heard our insect (*lignicola*) called *C. Kollari*, Gir., but have not succeeded in finding Giraud's description. And if I had succeeded, the

case would not be altered ; for the earliest of Giraud's writings (1845) is of later date than Hartig's descriptions in *Germ. Zeit.* (1840—1843).

In addition to the rectifications of nomenclature pointed out by Mr. Müller, I can add the following :—

**HOLELEXIS NERVOSA.**—*Cynips nervosa*, Curt., B. E. pl. ccxx ; *Rhodites nervosus*, E. M. M. iv. 173.

I have taken several of this insect, especially in Devonshire, and have no hesitation in referring it to Förster's *Hololexis*, *Verh. z.-b. Ges.* 1869, p. 333. Curtis's figure, from which conclusions can be drawn almost as well as from the insect itself, seems unnoticed on the Continent, and the species is not described by Hartig, Giraud, Schenck, or Förster.

**AMERISTUS POLITUS.**—*Neuroterus politus*, Hart., *Germ. Zeit.* ii. 193 ; E. M. M. iv. 125.

**DRYOTERAS TERMINALE.**—*Cynips terminalis*, Fab. ; *Teras terminalis*, Hart., *Germ. Zeit.* iii. 193.

It has been pointed out more than once that *Teras* is pre-occupied in *Lepidoptera* ; moreover, both *Teras* and *Dryoteras* are of the neuter gender. *Spathogaster* ought to be spelt *Spathogaster*.

**LIPSTHENES GLECHOMATIS.**—*Aulax glechomæ*, Hart., *Germ. Zeit.*, iii. 342.

**NESTOPHANES POTENTILLÆ.**—*Cynips potentillæ*, Vill. ; *C. brevicornis*, Curt., B. E. 320 ; *Aulax splendens*, Hart., *Germ. Zeit.* ii. 196.

The short descriptions of species given by Curtis are at least as good as those of others, and ought not to be ignored. I had three or four of this easily recognized insect,

which I named from Curtis before I had seen the other descriptions.

At this point my notes in the E. M. M. vol. iv. terminated, for the same reason which has in all probability deterred others from proceeding. The descriptions of the genus *Synergus* (with which we are next confronted) are not sufficient for the determination of species, small and numerous, of uniform black or pitchy hues, seldom relieved with a little red, and offering but slight differences of sculpture. The empirical mode of guessing at them from the galls which they inhabit, though practised successfully in the case of the Linnaean descriptions of *Cynips*, fails in this genus, since the same *Synergus* may or may not be found in different galls. The only identification which I can regard with certainty is that of *S. incrassatus*, Hart., of which I have ♂ ♀, given to me by a correspondent. Mr. Parfitt once sent me specimens which, from the structure of the antennæ, appeared to be *C. thauma*[to]cera, Dalm., An. p. 96, = ? *C. crassicornis*, Curt., B. E. 320, n. 22, = ? *Synergus Klugii*, Hart., Germ. Zeit. ii. 199. Perhaps also *S. nervosus*, Hart., ii. 197, *erythroneurus*, Hart., ii. 198, *vulgaris*, Hart., l. c., and *socialis*, (Koll.) Hart., 413, are British. A species with rugulose thorax and rufous face common in oak-apples might be *facialis*, Hart., ii. 199, iii. 346, = *Diplolepis gallæ urnæformis*, Fonsc., Ann. Sci. Nat. 1832, only the face of the ♀ is not black, as it should be, according to Hartig. A large species from the galls of *C. lignicola* seems not to be mentioned. Curtis, in Morton's Cycl. of Agric. s. v. *Cynips*, describes a species as *C. quercus inferus*, "larger than *C. fulviceps* [Curt., = *Allotria*]: bred from Aphides, and at the same time causing globular red excrescences upon oak-leaves,"—in which remark we seem to have a confusion

between an *Allotria* and a *Cynips* or *Synergus*, which I am not able to explain. The name *quercus gemmæ* has been restored by Prof. Schenck (Nass. Naturw. Jahrb., Hft. xvii. and xviii. p. 180) and Mr. Müller (Annual, 1872, p. 5), who coincide in thinking that the Linnæan insect is not a *Synergus*, but the real upheaver of the gall, = *C. fecundatrix*, Hart., Germ. Zeit. ii. 189. It appears difficult to believe that the two following diagnoses can refer to the same insect:

LIN.—Grisea seu testacea, oculi fusci; antennæ subfusca, longitudine corporis.

HART.—Fusco-nigra; geniculis, maculis 2-basalibus lateralibus abdominis anoque rufis.

In any case the only safe course is to retain *C. fecundatrix*, Hart. A monograph of the genus *Synergus*, written from a new point of view, and independent of the doubts which at present surround it, is much to be desired.

The *Allotriides*, *Eucelides*, *Megapelmides*, *Onychiides*, and *Figitides*, being (after *Synergus*) the rest of the "After Gall-Wespen" of Hartig, have been too little studied at any time, and of late years wholly ignored in England; for which reason I was induced some time ago to endeavour to look them up, by collecting species and procuring their literature. The results of that inquiry, imperfect and interrupted as it was, now enable me nearly to treble the number of indigenous species reported in Curtis's Guide (1837)—from which date to the present I cannot find that any mention of these insects has been made among us, except in Westwood's Introduction, vol. ii.

The species of *Allotria* are parasitic upon *Aphides*, in the same manner as the Braconids of the genus *Aphidius*, and of fourteen species which I possess, the greater part was obtained by sweeping nettles. Notwithstanding their small

size, each being neatly adapted to fill up the inside of the swollen cuticle of its victim, they present more tangible characters than many of the larger *Cynipidæ*. The other groups, so far as is known, are parasites of *Diptera*, and the difficulty of discriminating them is not great, owing to the variations of structure offered by their antennæ, abdomen, and wings.

I have taken *Psilodora maculata*, Hart., upon cow-dung, where it was probably in search of the larvæ of *Scatophaga*. It tallies exactly with the description of Mr. Newman's *Figites syrphi*, Ent. Mag. ii. 515, reared from *Syrphus ribesii*, L. Two minute species with imperfect wings, allied to *Clidotoma*, occur amongst decaying sea-weed on the coasts, where *Cælopa* and other littoral *Diptera* abound. One of these is noticed by Mr. Walker, Ent. Mag. ii. 117, as occurring at Torquay, and I found it at Milford Haven; the males I believe are able to fly, and frequent flowers, but the specimens I formerly had are destroyed. The other is described by Thomson, and I found it at Polperro in Cornwall. The singular little *Glauraspidia*, their inland analogue, is found rarely under rotten vegetable matter in woods. The species of *Ægilips* are often to be seen on windows and in gardens, being attached to *Muscidæ*. *Diceræa*, Först., is found gregariously, but not often, on nettles. An undescribed species of *Onychia*, Hal. (indicated as *biusta* in Westw. Int. ii. Synops. p. 56), is British, and I believe I have one in bad condition; it belongs to Förster's *Homalaspis*. *Cynips ediogaster*, Panz., is given as British (Curt., Guide, p. 126), but it was not in Curtis's collection, and is nowhere reported to my knowledge as taken in England. It is common near Ajaccio, on umbelliferous flowers, and is also described as Swedish, with some other fine species, which might probably be discovered in this country, if there were any explorers.



It may be useful here to exhibit most of the literature of the *parasitic* Cynipidæ, marking with a \* the monographs:—

- Panzer, F. G. lxxxvii. 16 (*Cynips ediogaster*).  
 Latreille, H. N. xiii. 210 (*Figites*).  
 Dalman, Anal. Ent. 95 (*Anacharis*).  
 Westwood, Loud. Mag. 1833, p. 494 (*Allotria, Eucoila, Anacharis, Kleidotoma, Figites*);  
 „ „ 1835, p. 178 (*Eucoila rapæ*);  
 and Int. vol. ii. p. 132.  
 Bouché, Naturg. 1834 (*Psilogaster anthomyiarum*).  
 Walker, Ent. Mag. ii. 117 (*Figites maritimus*); 518  
 spp. of *Anacharis*; iii. 159 (Generic characters).  
 Newman, Ent. Mag. ii. 515 (*Figites syrphi*).  
 \*Hartig, Germ. Zeit. ii. 199, etc.; iii. 350, etc.  
 Zetterstedt, Ins. Lapp. (*Cynips, Figites*).  
 Dahlbom, Onychia och Callaspidia, Dissert. Lund, 1842.  
 „ Skand. Hym.-Fauna, Lund, 1846 (*Figites, Eucoila*).
- \*Giraud, Verh. z.-b. Ges. 1860, pp. 123—176 (Énumér.  
 d. Figitides de l'Autriche).  
 \*Reinhard, Berl. ent. Zeit. 1860, pp. 204—245 (Die  
 Figitiden des mittleren Europa).  
 Förster, Verh. pr. Rheinl. 1855, p. 256 (*Eucoila*, spp).  
 Ruthe, Stett. Zeit. 1859, p. 310 (*Eucoila simulatrix*).  
 \*Thomson, Öfversigt, 1861, pp. 395—420 (Försök till  
 uppställning och beskrifning af Sveriges Figiter).  
 \*Förster, Verh. z.-b. Ges. 1869, p. 329; pp. 338—370  
 (Genera).  
 Mayr, Verh. z.-b. Ges. 1872, p. 669 (*Synergus, Sapholytus, Ceroptres*).

ICHNEUMONIDÆ.—This and the two succeeding families having lately appeared in the Catalogue published by the

Entomological Society, I can only make a few additions from my store of unnamed specimens, or from those sent by correspondents. And here I may perhaps be allowed to express my gratitude for many boxes of Ichneumons which from time to time have been forwarded to me for inspection, and the contents of which have contributed to enrich the pages of the Catalogue. Owing to the embarrassment of these riches I have been unable to get through the work up to the present time, some boxes containing an involved problem, if not an insoluble difficulty, in almost every insect. I beg to assure those who may think their contributions forgotten that this is not the case, and that their safe return is only an affair of time.

Progress in Ichneumonology requires a large staff of workers, and a division of labour. The subject in these latter days has become a "little mixed." Gravenhorst's work was the foundation upon which a superstructure of intricate corrections and annotations was erected by Wesmæl—and these were constantly undergoing changes and improvements during their author's lifetime. His purpose of rearranging the whole was unfortunately never fulfilled. So that these commentaries, as we have them, require for their right use a degree of patience and an expenditure of time that few can command. Holmgren's "*Ichneumonologia Suecica*" has simplified the subject as far as the Swedish species of *Ichneumon* are concerned, and his work is of primary importance to any one examining British species. The same simplification of the genera immediately connected with *Ichneumon* is not yet effected. The *Cryptides* are somewhat less advanced than the *Ichneumonides*. The most important improvements are Taschenberg's revision of the Gravenhorstian types, and Förster's Monograph of *Pezomachus*. But here much remains to be done in the way of generic division. The three great genera

*Cryptus*, *Phygadeuon* and *Hemiteles* are extremely ill-defined. Male insects, whose females are unknown, may often be referred to *Cryptus* or *Phygadeuon* indifferently. And *Hemiteles* is a receptacle for all species, however otherwise dissimilar, which have an imperfect areolet, a character prevailing extensively also in *Phygadeuon*. I have seen some MSS. genera of Förster intended to remedy these defects, but they were unfortunately names only, without characters, which could only be conjectured from the types assigned to each. The *Ophionides*, *Tryphonides* and *Pimplides*, thanks to the Swedish monographs, are much better elucidated. If some of the genera, as notably among the *Tryphonides*, rest upon very minute characters, it is because this is inevitable throughout the *Ichneumonidæ*. Unobserved British species, described by Holmgren, turn up at every fresh examination; and indeed there seems no reason why any members of the Scandinavian Fauna should be strangers to Great Britain, or at least to the Highlands, which are the exact counterpart, if they are not a continuation, of the Norrska Fiellen.

Mr. Scott has kindly lent me a box containing nearly 300 parasites (*Ichneumonidæ*, *Braconidæ*, and *Chalcididæ*), with a list of the *Lepidoptera*, &c. from which they were bred. Many small species are indeterminable from age or other causes, and of them and the *Chalcididæ* I can give no account. But of the rest I shall here give a list, with additions furnished by other correspondents, including a number bred by Mr. D'Orville of Alphington, Mr. Fletcher of Worcester, the Rev. J. Hellins of Exeter, and others.

#### ICHNEUMONIDÆ.

|                          |           |                               |
|--------------------------|-----------|-------------------------------|
| Ichneumon quæstorius, L. | bred from | Nonagria geminipuncta, Hatch. |
| „ deliratorius, L.       | „ „       | Dicranura vinula, L.          |
| „ luctatorius, L.        | „ „       | Dicranura bicuspis, Bork.     |

|                                                                                                                                                                                                                                                                                        |           |                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------|
| Ichneumon fabricator, F.                                                                                                                                                                                                                                                               | bred from | Notodonta dromedarius, L.        |
| „ gasterator, Ste.                                                                                                                                                                                                                                                                     | „ „       | Depressaria heraciella, Geer.    |
| Amblyteles Proteus, Chr.                                                                                                                                                                                                                                                               | „ „       | Cherocampa Elpenor, L.           |
| „ castigator, F.                                                                                                                                                                                                                                                                       | „ „       | Gortyna flavago, W. V.           |
| „ palliatorius, Gr.                                                                                                                                                                                                                                                                    | „ „       | { Smerinthus ocellatus, L.       |
|                                                                                                                                                                                                                                                                                        |           | { Acherontia Atropos, L.         |
| „ armatorius, Först.                                                                                                                                                                                                                                                                   | „ „       | { Saturnia carpini, Bork.        |
|                                                                                                                                                                                                                                                                                        |           | { Agrotis segetum, Ste.          |
|                                                                                                                                                                                                                                                                                        |           | { Vanessa Atalanta, L.           |
| Eurylabus dirus, Wesm.                                                                                                                                                                                                                                                                 | „ „       | Eriogaster lanestris, L.         |
| „ torvus, Wesm.                                                                                                                                                                                                                                                                        | „ „       | Lithosia rubricollis, L.         |
| Trogus lutorius, F. ..                                                                                                                                                                                                                                                                 | „ „       | Smerinthus populi, L.            |
| Cryptus rufiventris, Gr.                                                                                                                                                                                                                                                               | „ „       | Cemiostoma lotella, Staint.      |
|                                                                                                                                                                                                                                                                                        |           | { Bombyx quercus, L.             |
| „ migrator, F. ..                                                                                                                                                                                                                                                                      | „ „       | { Cimbex lucorum, L.             |
|                                                                                                                                                                                                                                                                                        |           | { Macroglossa stellatarum, L.    |
|                                                                                                                                                                                                                                                                                        |           | { Dicranura vinula, L.           |
| „ assertorius, Gr.                                                                                                                                                                                                                                                                     | „ „       | Depressaria nervosella, Haw.     |
|                                                                                                                                                                                                                                                                                        |           | { Dianthœcia capsicola, W. V.    |
| „ obscurus, Gr. ..                                                                                                                                                                                                                                                                     | „ „       | { Tenthredo instabilis, Kl.      |
|                                                                                                                                                                                                                                                                                        |           | { Tæniocampa cruda, W. V.        |
| „ tricolor, Gr. ..                                                                                                                                                                                                                                                                     | „ „       | Simyra venosa, Bork.             |
| Hemiteles fulvipes, Gr. ..                                                                                                                                                                                                                                                             | „ „       | Apanteles glomeratus, L.         |
| Reared by myself. Hyperparasitic. The cocoons of <i>A. glomeratus</i> were taken from the larva of <i>P. brassicæ</i> , L.; from every one of them was produced a ♀ <i>Hemiteles</i> . This <i>Hemiteles</i> has also been reared from spiders' eggs, like <i>H. rufocinctus</i> , Gr. |           |                                  |
| Hemiteles oxyphimus, Gr.                                                                                                                                                                                                                                                               | „ „       | Cymatophora ocellaris, L.        |
| * „ furcatus, Tasch.                                                                                                                                                                                                                                                                   | „ „       | Laverna decorella, Ste.          |
|                                                                                                                                                                                                                                                                                        |           | { Coleophora therinella, Staint. |
| „ areator, Panz.                                                                                                                                                                                                                                                                       | „ „       | { „ anatipennella, Hüb.          |
|                                                                                                                                                                                                                                                                                        |           | { Gelechia albipalpella, H. Sch. |
| Aptesis nigricincta, Gr.                                                                                                                                                                                                                                                               | „ „       | Hibernia defoliaria, L.          |
| Phygadeuon quadrispinus, Gr.                                                                                                                                                                                                                                                           | „ „       | Eristalis (sp. ?)                |
|                                                                                                                                                                                                                                                                                        |           | { Dianthœcia capsicola, W. V.    |
| Ophion luteus, L. ..                                                                                                                                                                                                                                                                   | „ „       | { „ cucubali, W. V.              |
| „ ventricosus, Gr.                                                                                                                                                                                                                                                                     | „ „       | Bombyx quercus, L.               |
| Anomalon cerinops, Gr.                                                                                                                                                                                                                                                                 | „ „       | Agrotis ripæ, Hübn.              |
|                                                                                                                                                                                                                                                                                        |           | { Demas coryli, L.               |
| „ ruficorne, Gr.                                                                                                                                                                                                                                                                       | „ „       | { Odonestis potatoria, L.        |
|                                                                                                                                                                                                                                                                                        |           | { Notodonta dromedarius, L.      |
| „ clandestinum, Gr.                                                                                                                                                                                                                                                                    | „ „       | { Eupithecia albipunctaria, Haw. |
| Paniscus testaceus, Gr. ..                                                                                                                                                                                                                                                             | „ „       | Smerinthus populi, L.            |
| Campoplex mixtus, Gr.                                                                                                                                                                                                                                                                  | „ „       | Pygæra bucephala, L.             |
| „ ebeninus, Gr.                                                                                                                                                                                                                                                                        | „ „       | Goniopteryx rhamni, L.           |
| * „ nitidulator, }<br>Holmgr.                                                                                                                                                                                                                                                          | } „ „     | Eupithecia venosaria, F.         |

|                                                                                |           |                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * <i>Limneria erucator</i> , Zett.                                             | bred from | <i>Penthina gentianana</i> , Hübn.                                                                                                                                                                      |
| „ <i>ruficincta</i> , Gr.                                                      | „ „       | <i>Heliothis peltigera</i> , W. V.                                                                                                                                                                      |
| * <i>Mesochorus pectoralis</i> , Ratz.                                         | „ „       | { <i>Pterophorus tephrodactylus</i> ,<br>Hübn.                                                                                                                                                          |
| <i>Banchus moniliatus</i> , Gr.                                                | „ „       | <i>Anarta myrtilli</i> , L.                                                                                                                                                                             |
| * <i>Polyblastus hilaris</i> , Holmgr.                                         | „ „       | <i>Eupithecia succenturiaria</i> , L.                                                                                                                                                                   |
| Probably hyperparasitic; for the<br>of <i>Hymenoptera</i> .                    |           | <i>Tryphonidae</i> are mostly parasites                                                                                                                                                                 |
| <i>Exochus curvator</i> , Gr. ..                                               | „ „       | <i>Eupithecia assimilaria</i> , Dbl.                                                                                                                                                                    |
| * „ <i>alpinus</i> , Zett. ..                                                  | „ „       | <i>Tinea parasitella</i> , Hübn.                                                                                                                                                                        |
| <i>Bassus insignis</i> , Gr., ♂ ♀, of<br>which the ♂ is un-<br>described .. .. | } „ „     | <i>Depressaria angelicella</i> , Hübn.                                                                                                                                                                  |
| <i>Pimpla instigator</i> , Panz.                                               | „ „       | { <i>Ptilodontis palpina</i> , L.<br><i>Cymatophora ocularis</i> , L.<br><i>Liparis salicis</i> , L.<br><i>Pontia brassicæ</i> , L.<br><i>Smerinthus tilia</i> , L.<br><i>Arctia menthastri</i> , W. V. |
| „ <i>examinator</i> , F. ..                                                    | „ „       | { <i>Cymatophora ocularis</i> , L.<br><i>Noctua plecta</i> , L.                                                                                                                                         |
| „ <i>turionella</i> , L. ..                                                    | „ „       | <i>Tenthredo instabilis</i> , Kl.                                                                                                                                                                       |
| * „ <i>ovivora</i> , Boh. ..                                                   | „ „       | <i>Cymatophora flavicornis</i> , L.                                                                                                                                                                     |
| „ <i>brevicornis</i> , Gr.                                                     | „ „       | <i>Leucophasia sinapis</i> , L.                                                                                                                                                                         |
| <i>Glypta ceratites</i> , Gr. ..                                               | „ „       | <i>Penthina gentianana</i> , Hübn.                                                                                                                                                                      |
| „ <i>incisa</i> , Gr., ♂ ♀                                                     | „ „       | <i>Retinia turionana</i> , L.                                                                                                                                                                           |
| „ <i>flavilineata</i> , Gr.                                                    | „ „       | <i>Minoa euphorbiaria</i> , W. V.                                                                                                                                                                       |
| * <i>Lissonota polyzonias</i> , Först.                                         | „ „       | <i>Notodonta Chaonia</i> , W. V.                                                                                                                                                                        |
| „ <i>hortorum</i> , Gr.                                                        | „ „       | <i>Ephestia artemisiella</i> , Ste.                                                                                                                                                                     |
| * <i>Meniscus pimplotator</i> , Zett.                                          | „ „       | <i>Sesia culiciformis</i> , L.                                                                                                                                                                          |

BRACONIDÆ.

|                                     |     |                                                                               |
|-------------------------------------|-----|-------------------------------------------------------------------------------|
| <i>Rhogas circumscriptus</i> , Nees | „ „ | <i>Agrotis agathina</i> , Dup.                                                |
| „ <i>bicolor</i> , Spin. ..         | „ „ | { <i>Pterophorus tephrodactylus</i> ,<br>Hübn.                                |
| <i>Colastes braconius</i> , Hal.    | „ „ | <i>Lithocolletis lautella</i> , Zell.                                         |
| <i>Ascogaster varipes</i> , Wesm.   | „ „ | <i>Penthina gentianana</i> , Hübn.                                            |
| <i>Apanteles lacteus</i> , Nees     | „ „ | <i>Lithocolletis vacciniella</i> , Scott.                                     |
| „ <i>rubripes</i> , Hal.            | „ „ | <i>Geometra papilionaria</i> , L.                                             |
| „ <i>lateralis</i> , Hal.           | „ „ | <i>Eupithecia assimilaria</i> , Dbl.                                          |
| „ <i>lacteipennis</i> , Hal.        | „ „ | <i>Penthina gentianana</i> , Hübn.                                            |
| „ <i>candidatus</i> , Hal.          | „ „ | { <i>Gracilaria syringella</i> , F., and<br><i>Abraxas grossulariata</i> , L. |
| „ <i>placidus</i> , Hal.            | „ „ | <i>Pœcilocampa populi</i> , L.                                                |
| <i>Microplitis alvearia</i> , F. .. | „ „ | <i>Boarmia rhomboidaria</i> , W. V.                                           |
| „ <i>dorsalis</i> , Spin.           | „ „ | { <i>Tœniocampa miniosa</i> , W. V.<br><i>Eupithecia subfulvaria</i> , Haw.   |

|                                                                                   |           |                                                                                  |
|-----------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------|
| Microplitis spectabilis, Hal.                                                     | bred from | Dianthœcia capsincola, W. V.                                                     |
| „ ingrata, Hal., ♂ ♀                                                              | „ „       | Smerinthus ocellatus, L.                                                         |
| Orgilus obscurator, Nees                                                          | „ „       | Coleophora discordella, Zell.                                                    |
| Perilitus obfuscatus, Nees                                                        | „ „       | Orchesia micans, Panz.                                                           |
| Eubadizon pectoralis, Nees                                                        | „ „       | Depressaria nervosella, Haw.                                                     |
| Pygostolus sticticus ..                                                           | „ „       | { Depressaria angelicella, Hübn.<br>Ptilodontis palpina, L.                      |
| Macrocentrus linearis, Nees, }<br>♂ ♀, of which the ♂ is }<br>undescribed .. .. } | „ „       | Phycis roborella, W. V.                                                          |
| Macrocentrus marginator, Nees „                                                   | „ „       | { Depressaria angelicella, Hübn.<br>Sesia culiciformis, L.<br>„ tipuliformis, L. |
| „ thoracicus, Nees „                                                              | „ „       | Depressaria appanella, F.                                                        |
| Diospilus nigricornis, Wesm. „                                                    | „ „       | Ceuthorhynchus sulcicollis, Gyl.                                                 |
| Opius irregularis, Wesm. „                                                        | „ „       | Agromyza primula, Desv.                                                          |

Reared by Mr. Inelbald from larva of a minute black fly which mines the leaves of the primrose. This, I believe, is the second time that the economy of the extensive genus *Opius* has been observed. In both cases the object of their attack was Dipterous.

|                              |   |                                                                                                                               |
|------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------|
| Alysia manducator, Panz. „ „ | { | “From the contracted larva-skin of a species of Muscidae found beneath the dead body of a green woodpecker,” by Mr. Fletcher. |
|------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------|

The species marked \* in the above list have already been published as new to Britain. Comparing the results with those collected by Ratzeburg and Rondani, I see many new facts which make the whole worth recording, although for the purpose of generalization much more extensive tables are desirable. One obvious remark is that several common species (e. g., *P. instigator*) are polyphagous, not even confining their attacks to the same order of insects. The *Ophionides*, according to Mr. Fletcher's remarks upon species reared by him, make themselves strong oval cocoons, a practice extending also to the small species of *Limneria*, &c. *Pimpla*, on the other hand, undergoes its transformations without any other covering than the skin of the victim. A parasite which I found in January in a pupa of *P. brassicae*

— a naked maggot within the dry shell—lived in that state without food till the spring, when it changed to a pupa, and afterwards emerged as *Pimpla instigator*—although I twice opened its case to see the contents, and afterwards repaired it with a piece of paper. The contents of Mr. Scott's box are particularly interesting, and not yet exhausted, though the condition of the small specimens is bad. Among them are two specimens of *Pezomachus*, ♂ ♀, bred together, and I believe undescribed. They are both testaceous, with some darker bands, and apterous. The great difficulty of obtaining real pairs of these insects renders me anxious to describe the above, if by any possibility they can be cleaned. According to Förster, the males are invariably apterous like the females. But his opinion does not agree with facts observed by Ratzeburg, Smith, and others. Apterous males are rare, but I have taken altogether some dozen to hundreds of females. Of one species (*Hemimachus avidus*, Cat. p. 47) I took several males on the shores of a reedy pond in Leicestershire, and one of these was winged. Of course I set this down as a distinct species at the time, but am now confirmed in the opposite opinion. And in a wood near Milford Haven, frequented by me, a small pale *Pezomachus* occurred in numbers, together with a winged form which I was led to regard as its male, though certainly without any positive proof. Some of these males were fully winged; in others the wings were more or less shortened, but never entirely wanting. They correspond to the females in all the usual particulars. They are too small for any described *Hemiteles*. The apterous female is also undescribed. It may be that the males of *Pezomachus* are much commoner than is supposed, that they are only occasionally apterous, and, when so, are of paler colours, which, in conjunction with a weaker thoracic structure, prevents them from being iden-

tified with their winged relatives. Apterous and winged forms are well known to co-exist in other orders of insects, as the *Delphacidæ*, &c. And among the *Ichneumonidæ* of higher grade than *Pezomachus* a tendency of some individuals to the apterous state has been noticed. A species of *Ichneumon* (*latrator*, F.) frequently shows this peculiarity. And Mr. Desvignes described as *Cryptus brevipennis* a large specimen of that genus which I sent him, and which I am now certain is only the common *migrator*, F. (Cat. p. 41). The observations which tend to throw light upon a question of this kind are so few and far between that it is unlikely the *Pezomachus*-difficulty will ever be cleared up. The Lepidopterists meet with the sexes of that genus occasionally by breeding, but probably few of them are preserved. And unless they receive the best attention in the way of setting, they are useless as specimens. Any small winged Hymenopteron, if left to itself, is sure to dry with the wings doubled up, or concealing the characters of the abdomen, &c., in some way that renders its identification or description impossible. Much has been said against carding specimens intended for examination, but the objections apply less to parasitic *Hymenoptera* than to most other kinds of insects. The parts of the mouth are only of secondary value, and the leading characters are nearly always taken from the upper surface. Without knowing what others may be able to do, I can say for myself that I rarely succeed in naming small obscure specimens unless neatly displayed upon cards. As to running pins through the thorax or scutellum, obliterating the most characteristic parts of the body, it is generally throwing away all chance of identification. When a small insect of this kind is carded, the legs should be stretched sufficiently to allow a side glance at the coxæ, which are often important, and if the head is prevented from resting,



forehead downwards, on the card, so that the face can be seen, the maximum of convenience will be attained.

In the Catalogue of *Ichneumonidæ*, published last year, I wish to point out that the word *Enicospilus* (p. 50) accidentally escaped correction. It should of course be *Henicospilus*. And in reply to Mr. Dunning's inquiry (E. M. M. 1873, p. 222) why *I. periscelis* is left unchanged, while *caloscelis* is changed to *caloscelus*, I should explain that the former, being a Greek substantive, "an anklet," is invariable; but the latter is an adjective, and must agree with the generic name. I was not fortunate enough to think of any probable origin for the word *Ophion*; and, being also aware of the Fabrician practice of inventing words without meaning, I paid no special attention to this. Mr. Dunning, however, has found out an explanation which may be regarded as settling the matter; and specific names under *Ophion* should be masculine. The words *leptogaster* and *appendigaster* on p. 132 I left, because I saw no reasonable mode of changing them. And the same remark applies to *Anomalon xanthopus*. I endeavoured on a former occasion to show that such words as *xanthopus*, treated as substantives, have a somewhat silly nicknamish sort of sound in scientific writing, about on a par with "daddy-long-legs" in English. Still they are defensible, and have been defended, which is more than could be said of my emendation, if I had written *xanthopum*. On p. 65, *Homalopi* is correct. If Mr. Dunning had continued his researches, he would have found *Prosopi*, &c., and would at once have seen that these words refer to the *face*, and not the *foot*. On p. 121, *hæmorrhous* is also correct, and not—*rrhæus*. And, lastly, I must confess that words like *Ruddii* seem to me unworthy of the powder and shot of criticism that may be spent upon them. In the middle ages, and since, men have latinized

their names according to fancy, without regard to the principles to which Mr. Dunning refers. Groot called himself *Grotius*, and Rumph *Rumphius*, while Buchanan and Pocock became *Buchananus* and *Pocockius*.

The subject of the Ichneumonidæ will conclude with a description of one of the largest novelties with which I am acquainted. After comparison with every species of *Metopius* of Gravenhorst, Wesmael, Förster, and Holmgren, I am obliged to conclude this one to be new; and it has been some years in my collection unnamed.

#### METOPUS PELTATOR, n. sp.

*M. niger, scuti frontalis lateribus, lineis 2 humeralibus, scutello postice, abdominis cingulis 5, tibiis tarsisque, flavis; scutelli angulis obtusiusculis; alis subfulvo-hyalinis, antice apicem versùs saturate fuscis; areolâ quadrangulari.* ♀ Long. 8 lin.

The only British species with infuscated wings is *dissectorius*, Panz., which has no yellow bands on the first 3 segments, the abdomen cœrulescent, &c.

Head, with the antennæ and palpi, black, the facial shield only being narrowly bordered with yellow at the sides and top. Thorax black, with a short yellow line before the wings; hinder edge of the scutellum yellow, depressed and sinuated, the angles prominent, flattened and obtuse. Abdomen black, not cœrulescent, rugose, opaque, the rugosity slightly diminishing posteriorly, so that the two last segments are somewhat shining, the last being merely punctured; all the segments except the first have the hind margin narrowly glabrous. Segment 1 with a yellow basal band as broad as one-fourth of its length, 2—5 with a yellow apical band, that of the 4th being narrower, and

of the 5th merely linear ; segment 2 with the hinder angles produced, dentiform and yellow. Coxæ and femora black, the latter yellow at the base and apex ; the rest of the legs yellow, the hind tarsi darker, fuscous. Wings fulvescent, the costa rather darker, the radial cell and the 3rd cubital occupied with a much darker indeterminate brown spot ; tegulæ black ; radius and stigma fulvous. First segment longer than the second, with a bifid elevation at the base, which is black, in the middle of the yellow fascia ; the apices of this tubercle are glabrous. Segments 2—5 with a faint longitudinal carina. Areolet with 4 angles, trapeziform, the outer nerve curved. Apex of the terebra just visible.

Found in a wood of young oaks near Milford Haven, in May, settling on blossoms of the whitethorn. It approaches nearest to *fuscipennis*, Wesm.

I shall reserve such few remarks as may occur respecting the Braconidæ, so lately catalogued, to the list of new British species at the end of this paper.

OXYURA.—In order to draw up the list of these insects now in the press, I was obliged to trust to my own efforts to fill certain gaps, where little or nothing has been recorded by English writers. It is probable, therefore, that, so far as regards the number of indigenous species, these are the weakest portions of the work. The *Bethylides*, *Ceraphronides*, *Diapriides* and *Belytides* are the groups to which this remark applies. The first group is small, but the difficulty of procuring specimens of any species except the common one is considerable. The *Ceraphronides* have been untouched, except in one or two brief notices, and the only course to pursue was to collect and name the specimens

after Boheman and Thomson, a task much more easily planned than carried out. For the *Diapriides* and *Belytides* we have some indications in Haliday's generic revision and in Curtis's British Entomology, but very few specific descriptions; and these constitute the whole English literature of those tribes. I had, however, the advantage of Mr. Haliday's advice and of Mr. Walker's collection in aid of my endeavours. As the general subject would be much too long, I must confine myself to these more neglected families.

An inquiry into the *Bethylus*-group (excluding *Epyris*), by the aid of Curtis, Förster, and the Entomological Magazine, shows that there is evidence, more or less obscure, of the existence of four species in England; and to these I shall be able here to add a description of a new one taken by myself in Hertfordshire.

1. *Bethylus cenopterus*, Curt., B. E. dccxx, n. 1. "Wings somewhat nerveless." This may be either *B. cenopterus*, Latr., = *Tiphia cenoptera*, Panz., or *Ateleopterus Færsteri*, Kirchn., or a new species. The only thing certain is that Curtis has taken in England one of the forms without a stigma.

2. *B. formicarius* Curt., *lib. cit.* n. 5 (*nec* Panz.) is a second indication of one of these forms, with the "stigma obsolete." Not *formicarius*, Panz., which has a stigma, and seems, according to Audouin's "Pyrale de la Vigne," &c., to be a *Perisemus*.

3. *Perisemus triareolatus*, Först., = *Episemus variabilis*, Thoms., = *B. fuscicornis*, Walk., Ent. Mag. (*nec* Latr., Spin., and Nees), = *B. punctatus*, *fuscicornis*, and *fulvicornis*, Curt., B. E. *l. c.* This is the common species of Sweden and England, and the only one, till last summer, which I have ever met with. *Perisemus cephalotes*, Först., sent me

by a correspondent, seems to be nothing but a large-headed variety.

4. *Goniozus claripennis*, Först. (?=*G. distigmus*, Thoms.) A Bethyloid insect of this genus is in Mr. Dale's collection, as I was informed by the late Mr. Haliday, who sent me a drawing of its wing. The insect I have not seen, and Mr. Haliday was not absolutely sure that it was not *G. fuscipennis*, Först.; but the wing is certainly that of a *Goniozus*.

PERISEMUS HYALINUS, n. sp.

*P. niger, nitidus, antennis medio, tibiis anticis, tarsisque omnibus, testaceis; capite et thorace alutaceis, vage punctulatis, subopacis; metathorace suprâ AREOLÂ TRIANGULARI; alis CLARE HYALINIS, stigmatibus et radio fuscis, nervo basali angulato, extus ramifero; abdomine lavisimo.* ♀ Long.  $1\frac{1}{3}$  lin.

Equal in size to the smaller individuals of *triareolatus*, which it much resembles, but differs from (1) in having hyaline wings and (2) in the structure of the metathorax. This is bisected by a carina originating at the base of the petiole, and forked at three-fourths of its length, so as to enclose a smooth triangular space which rises slightly to meet the scutellum and is emarginated to receive its apex, the two appearing almost soldered together. The common species is without this structure, having merely a glabrous line from the scutellum to about the middle of the metathorax. The upper half of the metathorax is aciculated and obscure in both species, except in the glabrous spaces above indicated. There is one more described species, *Episemus* (read *Perisemus*) *nitidus*, Thoms., Öfv. 1861, p. 452, but this is characterized as "capite non alutaceo," &c.

Taken near St. Albans, June, 1873.

The genera likely to be found in England may be at once discriminated as follows, but it appears that all except the first are uncommon :—

- i. Antennæ 12-jointed, ♂ ♀ ..... PERISEMUS.
- ii. Antennæ 13-jointed, ♂ ♀
  - † Wings with a stigma ..... GONIOZUS.
  - †† Wings without a stigma.
    - \* Wings with a ramus marginalis BETHYLUS.
    - \*\* Wings without a ramus marginalis ATELEOPTERUS.

I have taken, in the Ile de Camargue, near Arles, the sexes of Förster's *Isobrachium dichotomum*, Verh. pr. Rheinl. 1851, p. 13, pl. i. f, 6, = (*H*)*omalus nigricornis*. Nees, Mon. ii. 392, ♂, = (*H*)*omalus fuscicornis*, Nees, l. c. ♀. This is the insect with which our *Perisemus* was formerly confounded, but it is much larger, and the ♂ has 13-jointed antennæ, &c. The possession of these specimens was a great help towards identifying the English form. To the genus *Isobrachium* belong *Scleroderma mutilloides*, Costa, and *Epyris pulchellus*, Lucas.

The following new species belongs to the *Ceraphronides*, and if the genera were less minutely defined, it should be placed under *Ceraphron*, *sensu str.* But, as this cannot be done without disregarding some leading characters of that genus, I am obliged to form a new one.

#### TRIOGMUS, n. g.

*Antennæ* ♂ 11-articulatæ. *Mesothorax lineis* 3 longitudinalibus impressus. *Metathorax brevissimus*, spinâ sub scutello, spinulisque 2 lateralibus armatus. *Alarum stigma lineare*, subnullum; *radius elongatus*, curvatus. *Abdomen sessile*, segmento 2do maximo, *petiolum abscon-*

*dente, basi 3-carinato, carinis distantibus, interstitiis lævibus; gastrocælis conspicuis. Cætera ut in Ceraphrone, sensu Færsteriano.*

TRIOGMUS FURCIFER, n. sp.

*T. nigro-piceus, nitidus; antennarum scapo, collo suprâ, abdomine basi, gastrocælis linearibus pellucidis, pedibusque cum coxis, rufo-testaceis; femoribus suprâ fuscolineatis; alis abdomine longioribus, fulvescentibus, costâ (fere ad apicem alæ productâ) radioque pallidis, concoloribus.*

♂ Long.  $\frac{2}{3}$ ; alar. exp.  $1\frac{1}{2}$  lin.

Facies of *Ceraphron*, but with three distinct longitudinal sutures on the mesothorax. Head and thorax with thin pale pubescence, very minutely punctulate, hardly shining. Antennæ as long as the body, filiform, fuscous, the scape testaceous. Metathorax perpendicular, the hinder angles spiniform, and a long stout spine immediately beneath the scutellum. Scutellum large, subtriangular, obtuse, laterally depressed. First segment of the abdomen concealed; 2nd segment constricted near the base, from thence to the base cylindrical, the basal margin elevated; three longitudinal carinæ, distant from each other, and, slightly diverging hindwards, extend from the base to one-fourth of the abdomen, their interstices glabrous. The gastrocæli are visible, forming on each side an oblong pale red spot. Base of the abdomen broadly red; the rest shining, and somewhat pitchy black. The costæ prolonged to near the tip of the wing, and not ceasing (as in *Ceraphron*) at its junction with the radius. Legs testaceous; hind coxæ subinfuscated; all the femora with a dark spot or line above.

Taken in North Devon.

Apterous individuals occur among the *Ceraphronides*, causing a difficulty of the same kind as *Pezomachus*, but less in degree, owing to the smaller number of species. *Lagynodes pallidus*, Boh., ♀ (= *Microps rubi*, Hal., MS.) is invariably apterous, and the ♂ therefore unobserved in England, though Förster seems to have been acquainted with the sexes of his species. Several *Megaspili* are liable to be more or less apterous. *M. rufipes*, Nees, exhibits wings of various development; and both sexes of *M. halteratus*, Boh., and *cursitans*, Nees, are common in a wingless state. Observations upon this group might be made without great difficulty, and would probably throw some light upon *Pezomachus*.

Of *Idiotypa rufiventris*, Thoms. (*Diapriides*), I have taken both sexes in Devonshire; the ♀ only is described by Thomson. Haliday was acquainted with both sexes of his undescribed *Mionopria maritima*, which is doubtless the same insect.

♂ *Antennæ corpore paulo longiores, nigræ; articulis 1—2—3 testaceis; articulo 4o subincrassato, quam tertius longiore; 5—13 subæqualibus. Caput latius quam ♀; abdomen angustius, nigrum. Statura paulo minor. Cætera ut in ♀.*

I described *Spilomicrus hemipterus* ♀ (E. M. M. iv. 202) from a single example. Since that time nine more have occurred in Hertfordshire, agreeing exactly with the description and confirming the species.

The ♀ of Westwood's *Basalys fumipennis* is undoubtedly *Diapria antennata*, Nees. The identity is queried in my Catalogue, owing to a remark of Förster in the Hym. Stud. But a fresh examination of the insects, agreeing in size and largest of their kind, together with the analogy of the



known males and females of *Loxotropa* (only an artificial section of *Basalys*), convinces me that the query should be erased.

Some time ago I collected materials for a monograph of the British *Belytides*, but circumstances have hitherto prevented its completion. Nees described 13 species under *Belyta* and 2 under *Cinetus*. But, as he seldom mentions the characters upon which Förster's genera are founded, it is not easy to refer the species to their proper places. *B. petiolaris*, Nees, = *Cinetus*; *B. bisulca*, Nees, = *Oxylabis*; *B. bicolor* and *rufopetiolata*, Nees, = *Xenotoma*; *B. brevis*, *obscura*, and *abdominalis*, Nees, = *Zygota* (?); *B. anomala*, Nees, = *Ismarus*. *B. sanguinolenta*, Nees, = *Belyta*, Först., and is the only one of the Neesian species which can now be referred to that genus. *C. picipes* and *Jurinei*, Nees, = *Oxylabis*, and according to Haliday are the same as *C. armatus*, Curt.

Thomson's paper (Öfv. 1858, pp. 155—180), the only other authority for the *Belytides*, makes no reference to Förster's system, published two years before, and of the 31 spp. described, only 6 belong to *Belyta* (*sensu str.*). All of these I have identified in this country. *Belyta*, Först., excludes all species that have not the longitudinal carina of the metathorax bifurcate near the apex, enclosing a triangular space. *Belyta*, Thoms., on the other hand, includes *Psilomma*, Först., = *Opazon*, Hal., and *Zygota*, *Aclista*, and *Pantoclis*, Först. Under *Cinetus* and *Acoretus*, Thoms., are arranged the rest of Förster's genera, except *Synacra*, which, following Mr. Haliday's advice *in litt.*, I have referred in the Catalogue to the *Diapriides*. *Lyteba*, Thoms., = *Oxylabis*, Först. *Xenotoma*, Först., is richer in species than the other British genera, and most of them are undescribed.

In the following list *new* British species are denoted by numbers prefixed :—

### CYNIPIDÆ.

1. SYNERGUS INCRASSATUS, Hart. Germ. Zeit. ii. 199. The identifications of other British species of this genus being extremely doubtful, I think it better to omit them.
2. PEZOPHYCTA BRACHYPTERA.—*Xystus brachypterus*, Hart. Germ. Zeit. ii. 200; *Allotria brachyptera*, Gir. Verh. z.-b. Ges. Wien, 1860, p. 131, ♂ ♀; Thoms. Öfv. 1861, p. 410.
3. ALLOXYSTA MACROPHADNA.—*Xystus macrophadnus*, Hart. Germ. Zeit. iii. 352; *Allotria macrophadna*, Gir. p. 130; Thoms. p. 408.
4. ALLOTRIA MINUTA.—*Xystus minutus*, Hart. ii. 200; *A. minuta*, Gir. p. 127; Thoms. p. 407. *X. heterocerus*, Hart. iii. 351.
5. ALLOTRIA APERTA.—*Xystus apertus*, Hart. iii. 353; *A. aperta*, Thoms. p. 410.
6. ALLOTRIA OBSCURATA.—*Xystus obscuratus*, Hart. ii. 200; Ruthe, Stett. Zeit. 1859, p. 310.
7. ALLOTRIA LONGICORNIS.—*Xystus longicornis*, Hart. ii. 199.
8. ALLOTRIA CIRCUMSCRIPTA.—*Xystus circumscriptus*, Hart. iii. 351; *A. circumscripta*, Gir. p. 127.
9. ALLOTRIA FLAVICORNIS.—*Xystus flavicornis*, Hart. iii. 352; *A. flavicornis*, Gir. p. 129.
10. ALLOTRIA DEFECTA.—*Xystus defectus*, Hart. iii. 352; *A. defecta*, Gir. p. 130. ? *A. xanthocephala*, Thoms. p. 409.

11. ALLOTRIA TRAPEZOIDEA.—*Xystus trapezoideus*, Hart. iii. 352. ? *A. citripes*, Thoms. p. 410.
12. ALLOTRIA CASTANEA.—*Xystus castaneus*, Hart. iii. 352.
13. ALLOTRIA HALTERATA, Thoms. p. 410. The smallest of the *Cynipidæ*.  
ALLOTRIA PEDESTRIS.—*Cynips pedestris*, Curt. B. E. 320, n. 32. *Xystus cursor*, Hart. ii. 200 ; *A. cursor*, Gir. p. 131. If this identity be wrong (which is not likely), then *X. cursor*, Hart., must be reckoned a new British species.
14. MICROSTILBA HETEROGENA.—*Eucoila heterogena*, Gir. p. 137 ; *Cothonaspis heterogena*, Thoms. p. 401.
15. COTHONASPIS GRACILIS.—*Eucoila gracilis*, Dahlb. Sk. Hym. Fn. p. 30 (table), n. 15 ; Thoms. p. 404. Easily confounded with no. 22, *Aglaotoma codrina*, Hart.
16. CLIDOTOMA BREVICORNIS.—*Kleidotoma brevicornis*, Thoms. p. 400.
17. CLIDOTOMA GENICULATA.—*Cothonaspis geniculatus*, Hart. ii. 201 ; *Kleidotoma geniculata*, Thoms. p. 399. This makes the third species of *Clidotoma* noticed in England, while the Swedish species number fourteen.  
NEDINOPTERA SUBAPTERA.—*Figites subapterus*, Walk. Ent. Mag. ii. 117. *Kleidotoma maritima*, Thoms. p. 398.
18. NEDINOPTERA HALOPHILA.—*Kleidotoma halophila*, Thoms. p. 398.

19. GLAURASPIDIA SUBTILIS.—*Eucoila subtilis*, Dahlb. Sk. Hym. Fn. p. 32. *Glauraspidia microptera*, Thoms. p. 401. Found in Swithland Wood, Leicestershire; also taken by Mr. Walker. Förster separates this insect from *Cothonaspis micropterus*, Hart. ii. 201, with which it was united by Thoms., and forms of the latter the new genus *Apistophyza*.
20. PSILODORA BOIENII.—*Cothonaspis Boienii*, Hart. ii. 200. Taken near Milford Haven. Not common. This and the following are distinguished by having a fuscous blotch upon the wings.
21. PSILODORA MACULATA.—? *Figites syrphi*, Newm. Ent. Mag. ii. 515. *Eucoila crassinervis*, Dahlb. Sk. Hym. Fn. n. 20 (*nec Eucoila crassinerva*, Westw.) *Eucoila Guerini*, Dahlb. Onych. och Callasp. pl. ii. f. 8. *Cothonaspis maculatus*, Hart. ii. 201; *Eucoila maculata*, Gir. p. 134; Thoms. p. 405. The doubt attaching to the first name, and the sketchy nature of the indications given by Dahlbom, render it advisable to prefer the name *maculata*.
22. AGLAOTOMA CODRINA.—*Cothonaspis codrinus*, Hart. iii. 357; Gir. p. 146.
23. TRYBLOGRAPHA SCUTELLARIS.—*Cothonaspis scutellaris*, Hart. ii. 200; *Eucoila scutellaris*, Gir. p. 140. *Figites foveator*, Dahlb. Sk. Hym. Fn. p. 30. I am almost sure that this is Westwood's *Eucoila crassinerva*, the original type of the genus *Eucoila*, notwithstanding Dahlbom's opinion to the contrary. If this be so, the name *Eucæla* should be reserved for it.
24. TRYBLOGRAPHA DIAPHANA.—*Cothonaspis diaphanus*, Hart. iii. 356.

25. PSICHACRA LONGICORNIS. — *Cothonaspis longicornis*, Hart. ii. 201.
26. EUCÆLA CUBITALIS. — *Cothonaspis cubitalis*, Hart. iii. 356 ; Gir. p. 135.
27. EUCÆLA MANDIBULARIS. — *Figites mandibularis*, Zett. I. L. 410 ; *Eucoila mandibularis*, Thoms. p. 404. ? *Eucoila basalis*, Hart. ii. 201.
28. EUCÆLA TRICHOPSILA. — *Eucoila floralis*, Dahlb. Sk. Hym. Fn. p. 31. *Cothonaspis trichopsilus*, Hart. iii. 356 ; Gir. p. 140.
29. EUCÆLA PARVULA. — *Eucoila parvula*, Thoms. p. 403. Upwards of 50 species have been referred to the genus *Eucæla*, and only a few of these are taken away by Förster's genera. A considerable number of English species therefore remain to be discovered.
30. ÆGILIPS DALMANNI. — Reinh. Berl. ent. Zeit. 1860, p. 220.
31. ÆGILIPS RUGICOLLIS, Reinh. *l. c.* Seems to be only distinguished by the slight rugosity of the sides of the thorax. Probably only a variety of the preceding.
32. LONCHIDIA MACULIPENNIS. — *Figites maculipennis*, Dahlb. Onych. och Callasp. pl. ii. f. 1 ; *L. maculipennis*, Thoms. p. 413. Both sexes have a small opaque spot in the middle of the wings. Rare. Found at Milford Haven, and also by Mr. Walker.
33. FIGITES NITENS. — *Psilogaster nitens*, Hart. iv. 418 ; Gir. p. 149 ; Reinh. Berl. ent. Zeit. 1860, p. 235.
34. FIGITES CONSOBRINUS, Gir. p. 153 ; Reinh. p. 232 ; Thoms. p. 415.

35. PYCNOTRICHIA URTICARUM.—*Figites urticarum*, Dahlb. Sk. Hym. Fn. 16; Thoms. p. 414. *Figites lævigatus*, Reinh. p. 233.
36. SAROTHRUS CANALICULATUS.—*Amphithectus canaliculatus*, Hart. ii. 203; Reinh. p. 226. *Cynips tibialis*, Zett. I. L. 409. Common.
37. DICEREA URTICETI.—*Figites urticeti*, Dahlb. Onych. och Callasp. (table), p. 3, pl. ii. f. 2; *Melanips urticeti*, Thoms. 417.
38. MELANIPS LONGITARSUS.—*Amblynotus longitarsus*, Reinh. p. 224; Thoms. p. 416.
39. MELANIPS OPACUS.—*Scytodes opacus*, Hart. ii. 202; *Amblynotus opacus*, Reinh. p. 223.

#### ICHNEUMONIDÆ.

40. ICHNEUMON VULNERATORIUS, Zett. I. L. 364, ♀; Holmgr. Ichn. Succ. i. 118, ♂ ♀. Var. *I. Dahlbomi*, Wesm. Bull. Ac. Brux. 1857, p. 383, ♀. ? Var. *I. hæmatonotus*, Wesm. Mém. couron. Ac. Belg. 1859, p. 89, ♀.

Several specimens were lately sent to me by Mr. Bold, taken on the Cheviot hills.

41. HEMITELES BIANNULATUS, Gr. I. E. ii. 846, ♀; Tasch. Zeit. Ges. Nat. 1865, p. 123, ♀. One of the largest species of the genus. A single ♀ taken at St. Albans.

HEMITELES ÆSTIVALIS, Gr. The article on this species (Cat. p. 44, n. 28) should be rectified as follows:—

*Hemiteles æstivalis*, Gr. I. E. ii. 805, cf. i. Suppl. 712; Ratz. Ichn. d. Forst. i. 152; Tasch. Zeits. Ges. Nat. 1865, p. 129, ♂ ♀. Var. *H. modestus*, Gr.

I. E. ii. 858, ♀. Var. *H. ruficollis*, Gr. I. E. ii. 853, ♀.

The varieties differ only in having more or less of red on the thorax, and I found several of these forms in Hertfordshire : see *Tasch. l. c.*

42. CAMPOPLEX ANCEPS.—? *Campoplex pugillator*, var. 7, Gr. I. E. iii. 610, ♀. *C. anceps*, Holmgr. Sv. Ak. Handl. 1858, n. 8, p. 35, ♀.

A specimen from Devonshire exactly corresponds with Holmgren's description of *anceps*, the doubt implied in whose name is whether it is a structural variety of *pugillator*. It is probably distinct, differing at least as much as congeneric species are wont to differ.

43. LIMNERIA ALBOVINCTA, Holmgr. Sv. Ak. Handl. 1858, n. 8, p. 56, ♀.

From the Dee-side marshes, Braemar. The antennæ are semi-annulated with white.

LIMNERIA CRASSICORNIS, Gr. (Cat. p. 55). Last summer I took the undescribed ♂, together with several ♀s, on the banks of the canal near Leicester. The description of the ♀ serves equally well for the ♂, *mutatis mutandis*.

I have 161 specimens of *Limneria* still unexamined, from which many novelties may be expected.

44. MESOLIUS NOBILIS, Holmgr. Sv. Ak. Handl. 1855, p. 178. A single specimen from St. Albans.

TRYPHON CALCATOR (Cat. p. 74) is a *Polyblastus*.

TRYPHON SCOTOPTERUS (Cat. p. 75), placed by me alphabetically, like the preceding, as a doubtful member of the genus, and not known to Holmgren, is a

genuine *Tryphon*. It is common in England, but I was nevertheless without specimens until last summer, when I found them at St. Albans.

45. *PIMPLA ANGENS*, Gr. I. E. iii. 162 (part); Ratz. Ichn. d. Forst. iii. 101, ♂; Holmgr. Sv. Ak. Handl. 1860, p. 22, ♂ ♀; Tasch. Zeits. Ges. Nat. 1863, pp. 259 and 265, ♂ ♀.

To this species I refer a ♀ sent from Northumberland by Mr. Bold. The circular spiracles, lobated tarsi, &c., leave no room for doubt.

46. *THERSILOCHUS GEMINUS*, Holmgr. Sv. Ak. Handl. 1858, n. 8, p. 137, ♀. Both sexes from Darenth Wood. The ♂ is undescribed, but differs from the ♀ only sexually.

#### BRACONIDÆ.

47. *BRACON LARVICIDA*, Wesm. Nouv. Mém. Ac. Brux. 1838, p. 41, ♀. Taken at Barnstable.
48. *BRACON COLPOPHORUS*, Wesm. *lib. cit.* p. 46, ♀. St. Albans.
49. *BRACON FUSCICOXIS*, Wesm. *lib. cit.* p. 32, ♂ ♀. Leicestershire.
50. *CŒLOIDES MELANOTUS*, Wesm. *lib. cit.* p. 61, ♂ ♀. I have seven specimens of both sexes sent from S. Wales, I believe by Dr. Chapman, who reared them from some wood-boring beetle.
51. *PERILITUS ALBICORNIS*.—*Meteorus albicornis*, Ruthe, Berl. ent. Zeit. 1862, p. 34, ♀. Both sexes are common near St. Albans. The antennæ of the (undescribed) ♂ are entirely black; in other respects it corresponds with the ♀.



52. CALYPTUS ATRICORNIS.—*Brachistes atricornis*, Ratz. Ichm. d. Forst. ii. 28 ; *C. atricornis*, Reinh. Berl. ent. Zeit. 1867, p. 371, ♀.

Two ♀s and one ♂ from Mar Forest, Braemar. They are large for the genus, and differ from *ruficoxis*, Wesm., in the terebra, which is hardly as long as the abdomen. Another large cognate species I am unable to name at present ; the terebra is longer than the body ; only the 1st segment rugose ; and the 2nd cubital cell indicated by two short branches forming the two ends of the outer nerve :—characters which approach *Aspidogonus*. To this last genus certainly belongs *Bracon analis*, Nees (Cat. p. 120), of which I have taken a single specimen. The other species, *diversicornis*, Wesm., which I have not seen, is introduced as British on the authority of Westwood, Int. ii. Synopsis, p. 62.

UTETES TESTACEUS, Wesm. (Cat. p. 123), occurs not unfrequently in June near St. Albans, and is a fine addition to the British list.

CHÆNON ANCEPS, Curt. (Cat. p. 130). The head quarters of this rare insect are the marshes of the Dee, about three miles from Braemar, near the bridge leading to Mar Forest and Ben-Muc-Dhu.

### OXYURA.

DRYINUS FORMICARIUS, Latr., figures in the British Catalogue on the authority of its capture by Mr. Baly, near Cobham. My attention was drawn to this fact by Prof. Westwood, who possesses the specimen.

CHELOGYNUS LAPPONICUS, Thoms., is common in England, near St. Albans, &c. Hitherto confounded with *lucidus*, Hal.

53. MEGASPILUS NORVEGICUS, Thoms., Öfv. 1858, p. 297, ♀.  
I presume that this insect is rightly named; but the description is rather laconic.
54. CERAPHRON SCUTELLARIS, Thoms., Öfv. 1858, p. 303, ♀.
55. ANEURRHYNCHUS LONGICORNIS, Thoms., Öfv. 1858, p. 376, ♀.
56. BELYTA ABRUPTA, Thoms., Öfv. 1858, p. 168, ♂ ♀.  
Common in North Devon and elsewhere.
57. PANTOCLIS PUBIVENTRIS.—*Belyta pubiventris*, Thoms., Öfv. 1858, p. 174, ♂. Leicestershire.
58. PANTOCLIS FOSSULATA.—*Belyta fossulata*, Thoms., Öfv. 1858, p. 177, ♀. St. Albans.
59. ACLISTA CLAVISCAPA.—*Belyta claviscapa*, Thoms. Öfv. 1858, p. 175, ♂ ♀.
60. CINETUS BREVIPETIOLATUS, Thoms. Öfv. 1858, p. 160, ♀.

GRANGE, LASTINGHAM, PICKERING,  
December, 1873.

## ON HERMAPHRODITISM IN ANTS.

BY FREDERICK SMITH.



A SINGULAR specimen of *Myrmica lævinodis* was captured in Dunham Park, Cheshire, by Mr. Joseph Chappell, who presented it to Mr. Benjamin Cooke, of Sunnyside Cottage, Bowdon, near Manchester. It combines characters of male, female and worker: the right side is entirely worker; on the left side the head is female, hence we see an ocellus, and antenna exhibiting the characters of the female; but the left side of the thorax is certainly male, and consequently the mesothorax has, in front, a deeply-impressed oblique line—in an ordinary male of this species there are two such lines which form a V-shaped space, which is not found in either the female or the worker—the metathorax, on the left side, is destitute of the spine which characterizes both the female and the worker, the legs on the same side are all male, being longer and much more slender than those of the other sexes. See Frontispiece, fig. 3. This is the first instance of the kind, to my knowledge, that has been observed in England.

Dr. Roger has recorded in the Berlin Entom. Zeitschrift, 1857, p. 15, a case of simple hermaphroditism in an ant belonging to the *Myrmicidæ*, found in pine-apple houses and probably a tropical importation, which he described as a new genus and new species under the name of *Tetrogmus cal-*

*darius*; in his case the left side is male, the right side female; the mandibles, antennæ, wings and legs, being quite different in the two sexes—indeed the female side, has no wings; it is a very small species, about two lines long; he gives an enlarged figure of the insect Pl. I. fig. 2a, as well as a separate immensely-magnified figure of the head, fig. 2b. Klug has also described a hermaphrodite ant in the Stettin Entom. Zeitung, 1854, p. 102.

## LEPIDOPTERA.


 NOTES ON NEW AND RARE BRITISH LEPIDOPTERA  
 (EXCEPTING TINEINA) FOR 1873.

BY H. GUARD KNAGGS, M.D., F.L.S.

ON taking up my pen, as usual at this period of the year, for the purpose of reckoning up the doings of the past season, it is rather perplexing to find that although three Butterflies, a *Bombyx*, two *Noctuæ*, a *Tortrix* and an *Ephestia* have been brought forward as British, I am under the painful necessity of rejecting more than half the number. Everybody who knows my supposed *penchant* for swelling out the list of our Lepidoptera, will understand the feelings of mortification with which, under these circumstances, I feel myself compelled to forego this pleasure. I am afraid our readers must content themselves with the following additions:—

*Thalpochares paula*, Hübner ;

*Halonota grandævana*, Zeller ;

*Ephestia Roxburghii*, Gregson ;

and even the last named appears, from all descriptions, to be a great deal too closely allied to *E. interpunctella*, to be pleasant.

Meteorologically speaking, the year has not been bad, especially as compared with 1872, but the captures have been

below the average, and as for discoveries of larvæ, there appear to have been but two, namely, those of *Miana literosa* and *Phycis* (?) *davisellus* (or *Pempelia albariella*, whichever it is); the former described, as well as captured and discovered, by Mr. Porritt, the latter described by Mr. Buckler from larvæ forwarded by Mr. Henry Bartlett, and found by that gentleman upon furze, concealed in a fine, loosely-spun, open web. For an account of these interesting larvæ the reader is referred to pages 88 and 89, respectively, of the Entomologist's Monthly Magazine, vol. ix.

The rarities secured in 1873 may be summed up as follow. *Vanessa Antiopa* has of course occurred, and in respectable numbers, though not in the profusion in which it exhibited itself in 1872. It has not only shown itself in autumn and spring but also in the winter, in January, when it fell fainting, one Sunday morning, on to the hat of a good young lady who was passing under some trees on her way home from morning service somewhere in Norfolk. I do not believe an artist or a poet could conceive a prettier scene—the frosty weather—the landscape in general, and *the* trees in particular—the church in the distance [I can fancy I see it now]—the lady, young, good, and, I feel certain, beautiful—the handsome butterfly, all form a *tout ensemble* combined to charm and cheer.

*S. convolvuli* has again been conspicuous for its scarcity; it has been met with only at Walthamstow and at Huddersfield. Of *C. celerio* a few autumnal captures have been made. *Sesia allantiformis* has been recorded as having occurred at Greenhithe in July, 1872, and *Deiopeia pulchella* at Littlehampton in 1870. (Why *will* people risk public disbelief as to the authenticity of their captures by so long delaying the publication of their good fortune?) *Acronycta alni* has been bred of course; it always is bred,

or, perhaps, more properly I should say it is taken in the larval state and *not* bred; it is rarely recorded as having been taken in the perfect state, though the imago undoubtedly does visit sugar.

British collectors seem to be beginning to know and to box *Leucania albipuncta* when they see it, but, so far as I am aware, Folkestone and the Isle of Wight are the only localities which have produced it during the past season. A score or more of *Nonagria brevilinea* have been secured at Horning. *Pachnobia alpina* has been bred from a pupa taken under moss by Mr. Allin near Braemar. *X. conspicularis* has occurred. *Cucullia gnaphalii* has been taken at Darenth and Deal, *Ophiodes lunaris* near Lewes. *P. smaragdaria* has been rediscovered, and *Eubolia mœniata* is said to have turned up at East Grinstead last August. *Spilodes palealis* has shown itself at Whittlesford and at Folkestone; but *Agrotera nemoralis* is perhaps the "lion" of the season, for this hitherto exceedingly rare species has occurred in considerable numbers both at Lewes and at a suburban locality, supposed to be Willesden, on the uncongenial clay, reminding one of former seasons in which such species as *Acidalia rubricata*, *Sterrha sacraria*, *Camptogramma fluviata*, *Lithostege grisearia*, *Lemiodes pulveralis*, and a lot of others, have figured; one collector, I am informed, says that he saw *nemoralis* in abundance, but that he only took a few because he wanted to make up his set of some twopenny-halfpenny Fritillary which happened to be fluttering about at the time! Well, well!! there's an old couplet which runs,—

" If we will not when we may,  
When we will we shall have nay."

Instances of neglecting to seize the opportunity are of every-day occurrence, and it is not everybody who thinks

of his friends nor who recognizes the rarity of his capture on the spur of the moment. I'll just tell the reader, with Mr. Stainton's permission—in confidence, mind, “it must not go any further”—that about fifteen years ago I took a new species which was looked on at the time as “a variety” of ———, and was accordingly placed in the cabinet of a friend who doted on varieties. It remained there as an aberrant form, until of late years it has turned out to be a novelty. But—whist—I have not till the present moment breathed a word concerning my ill fortune to a soul, so I trust that the reader will preserve the secret. I wipe my eye and proceed.

Amongst the more noticeable papers connected with the study of Lepidoptera are Mr. C. G. Barrett's continuation of his able Notes on the *Tortricina*, Mr. Birchall's Supplement to his Lepidoptera of Ireland, Messrs. Hellins' and Buckler's Elucidation of the earlier Stages of the *Lithosidæ*, Mr. Dale's Enumeration of the Species (24 in all) discovered by his late respected father; but, as Alice would say, the “curiousest” paper of all is devoted to the subject of controlling the sexes by a process of starvation (the starvelings being males, and the healthy well-fed examples females). When it is taken into consideration that the writer is a lady, the whole affair looks very like a satire on the male sex generally.

A black variety of *Dianthæcia conspersa* has been bred in Morayshire, *Lithosia griseola* and *stramineola* have been proved to be one and the same species, *Gonepteryx Rhamni* has coquetted with a ball of rose-coloured paper, and *Macroglossa stellatarum* has taken to flying by moonlight.

#### VANESSA ANTIOPA in 1873.

The unusual abundance of this handsome species last year



has afforded much food for meditation. Many wise heads have been puzzled to explain the phenomenon. Mr. Bold, of Newcastle, one of our most able entomologists, in a recently published pamphlet, declines to adopt the "flown over" theory at any price; he will not have it that they came over to us from Holland, a distance of only one hundred miles, in spite of the fact that the species was unusually common in that country previous to its occurrence in this.

It is worth noting that during the past season the bulk of the spring captures of *V. Antiopa* were made in the north of England, while the autumn manœuvres of the insect were performed in the south, looking as if the pretty creatures, having had a taste of our climate, were desirous of making tracks for a more congenial land.

#### APATURA ILIA *versus* A. IRIS.

After due consideration, I cannot help agreeing with Mr. Doubleday in supposing that there must have been some mistake respecting the occurrence in this country of *Apatura ilia*, a larva of which, feeding on oak, is alleged to have been taken a few years ago by Mr. Tritton. That gentleman, however, though he can vividly describe the larva, appears to have no remembrance whatever of the singular chrysalis from which he ultimately reared the perfect butterfly, notwithstanding his having watched it anxiously day by day for a considerable period of time in the hope that the imago would make its appearance. Of course, had Mr. Tritton been dishonestly inclined, he might easily have extracted from published works an exact account of the appearance of the pupa in question, but he has chosen the more straightforward course of admitting by silence his ignorance in the matter.

The startling announcement that this *A. ilia* was raised

on oak has stirred up our friends, Messrs. Doubleday and Butler. The latter considering that it is within the bounds of possibility that *A. iris* might have been transformed into *ilia* through the agency of this unusual diet, the former denying that food of any kind whatever exerts any influence on the tints or markings of the future imago, but insisting that soil has a very decided effect; and he instances the pale variety (*dilucidaria*) of *Gnophos pullata*, when reared in a chalky district, as an example. My own impression is that both food and soil do modify the future results, but that their action is exceedingly slow. There is another agency to account for the occurrence of pale varieties in chalky districts, namely, that the more closely an insect approximates to the colour of the ground, the greater will be its chances of avoiding its natural enemies.

#### ARGYNNIS NIOBE *versus* A. ADIPPE.

A fritillary, which Mr. Doubleday considers to be *Niobe*, but which others have regarded as merely *Adippe*, has been captured. No doubt the female *Niobe* does differ very considerably from the corresponding sex of *Adippe*, but we have as yet no evidence of the occurrence of the female in this country.

In this case also there has been another little passage of arms between our respected friends Messrs. Doubleday and Butler, the latter contending that because he has met with the two species or forms flying together and copulating, they must on that account belong to the same species. Mr. Doubleday holds an opposite opinion, and, in order to refute Mr. Butler's theory, instances cases where widely different species have paired.

In another case however, namely, that of *Tortrix ribeana* and *cerasana*, Mr. Doubleday adduces Mr. Butler's argument

to prove their specific identity. He writes, "*I have seen the two varieties in copulation*; these and other varieties swarm on a cherry tree in my yard." Now I have myself taken either *ribeana* or *heparana in copulâ* with *Tortrix viridana*, but should hardly on that account say that they were identical; for if this rule were to be observed,—in the case of *Cosmia trapetzina*, for instance,—ever so many species would have to be included under one.

Copulation certainly does not prove either identity or non-identity, nor does it prove in one case and disprove in another; but, taken in connection with corroborative facts, it adds considerable weight to other evidences of specific identity.

#### ARGYNNIS DIA again and CNETHOCAMPA PROCESSIONEA.

A Mr. Batchelor states that he has found a magpie's nest stuffed with about half a hundred cocoons of *C. processionea*, and that he captured *Argynnis dia* in Kent last July. Last year he figured as the discoverer of the South European species *Syntomis phegea*; next year he will probably treat us to *Saturnia pyri* and *Sphinx Carolina*. Let us hope that the cocoons of the "Processionary" paid him out.

#### LEUCANIA COMMOIDES, *Guenée*.

It was Tom Ingoldsby, I think, who made the remark that it was not generally known that the earth was divided by the best geographers into five quarters, the first being Europe, the second Asia, the third Africa, the fourth America, and the fifth Romney Marsh. It was in the latter quarter that he laid the scene of one of his most interesting legends, and Mr. Parry has followed his example with another legend laid in the same half-civilized locality. The story runs that he captured four specimens of *L. commoides*

in the beginning of August at a spot bordering on Romney Marsh. Now, if Mr. Parry had only stated that he had captured his prizes in the fourth and not in the fifth quarter of this mundane sphere, no one would have thought corroborative evidence necessary : but, in the present state of the public mind on the subject of sophistication, it takes a good deal to convince us as to the genuineness of any article, more particularly if it happens to hail from the State of New York.

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## NEW BRITISH LEPIDOPTERA IN 1873.

### THALPOCHARES PAULA, *Hübner*.

At page 19, vol. x., of the "Entomologist's Monthly Magazine," Mr. C. G. Barrett brings forward as new to Britain this pretty little *Noctua*, on the strength of a specimen captured by Mr. Moore in the Isle of Wight, backed up by two specimens in the cabinet of the Rev. Henry Burney ; one of the latter having been obtained from the collection of the late Mr. Carter of Manchester, the other believed to have been taken by a schoolboy who used to collect several years ago during his holidays on the south coast.

Mr. Moore made his capture in an open cornfield close to the cliffs at Freshwater, and, considering it a *Tortrix* at the time, "took little notice of it" [worse luck !], but placed it along with his unset insects, from amongst which, on his return home, a friend (Mr. Meek, I believe) at once picked it out, and suggested that it was *Micra parva*, under which name, after being relaxed and set out, it was exhibited at a

meeting of the Haggerston Society. Abroad *paula* is the commonest of the genus *Thalpochares*.

Mr. Barrett, having already given an excellent description of *paula*, it will be quite unnecessary here to redescribe it; but, as another new British species was some years since recorded under the name *parva*, it may be as well to give a diagnosis of the two, in order that (especially as there seems to be some doubt as to whether our *parva* is *ostrina*, or *paula*, or itself) the possessors of the so-called *parva* may form an opinion as to whether or not they actually own that species.

Luckily I happen to possess two fair specimens of *parva*, taken some years since in the south of France, and named by Dr. Staudinger. These, with an example of *paula* kindly lent to me by my friend Mr. Barrett, will enable me to point out how different are the two, each from the other.

The first thing that would strike a casual observer is that *paula* has a Tortriciform cut, while he would probably refer *parva* to the genus *Hypænodes*, or thereabouts; at any rate, no ordinary British collector would suspect either to belong to the *Noctuæ*.

The texture of *paula* is much softer in appearance than that of *parva*, a peculiarity which is due partly to the fact that the insect is more densely clothed with scales, partly to the character of the markings and irrorations, but chiefly perhaps to the contrast presented by the fuscous shading of the outer two-thirds of the fore-wing with the white (or nearly white) head, base of wing, and inner edging of the second line, which in the specimen before me forms a conspicuous *cornu* on the inner margin, and, after being for a short distance nearly lost, expands upon the costa into a whitish blotch. Then the basal portion of the fore-wing in *paula* occupies less than a third of the wing, and is bounded

by a straight, oblique, ill-defined fascia, fuscous with a reddish tint, especially at the lower half; there is also a short blackish transverse streak above the middle of the fascia. Moreover, as already stated, the basal portion is nearly white. Now in *parva* the basal portion occupies about half the wing, and is bounded by a distinctly undulated line (*pæce*, M. Guenée), and the colour of the basal portion is ochreous (or reddish fuscous-ochreous in one example), the colour being intensified towards the boundary line. Again, the shape of the second line in *paula* is a line once angulated, but that of *parva* (I must again ask M. Guenée's pardon) more resembles a note of interrogation (?) than anything else I can think of.

There are plenty of other characters, but these will be ample sufficient to separate the two species.

HALONOTA GRANDÆVANA, *Zeller* (Ent. Mo. Mag.  
vol. ix. p. 272).

This fine large *Tortrix* was brought forward as British by Mr. C. G. Barrett, who, by the aid of well-marked Alpine specimens received from Prof. Zeller, has made a careful description of it in the ninth volume of the Entomologist's Monthly Magazine.

*Grandævana* expands from an inch to an inch-and-a-half, is broad-winged, of an ashy colour, much irrorated with pale-brown streaks and dots, and has the costæ and hind margins spotted with pale brown. A single example of it was captured on the wing by Mr. C. Eales, of South Shields, in July, 1872. This specimen measures only an inch across the wings, and is consequently below the average size of the insect.

*Grandævana* seems to be widely distributed throughout west Europe, occurring in the Alps, north and west Germany,

and Livonia ; it is, therefore, not necessarily an Alpine species, since the latter province is flat and marshy. It feeds on the roots of *Tussilago* and *Petasitis* ; hence Herrich-Schäffer has depicted (240) a variety of it under the name *Tussilaginana*.

Although Dr. Wocke places *grandævana* in his very extensive and extremely heterogenous genus *Grapholitha*, in a sub-genus *Cacochroa*, Ld., Mr. Barrett considers, with Dr. Heinemann, that its affinities, in spite of its ample wings, more correctly connect it with *Halonota*, especially with *turbidana* and *inopiana*.

EPHESTIA ROXBURGHII, *Gregson* (Entom. No. 113, p. 318.)

Not having seen this proposed new species, I can offer no opinion respecting its specific merits. Mr. Gregson, who, as everybody knows, is a 'cute entomologist, observes that several specimens of this *Ephestia* were bred by Mr. Roxburgh from larvæ, which fed on *débris* of *Lepidoptera*, that it is larger than *E. interpunctella*, and that it has full rounded costæ ; and he adds that "its short curved palpi lead him (Mr. G.) to think that he may have a word to say on this point another time."

I give Mr. Gregson's description *in extenso*, fearing that by condensation much of the pith of it might be lost :—

"EPHESTIA ROXBURGHII, *Gregson*.—7 to 9 lines. Form broad, costæ rounded, wings obtuse ; head, face and palpi grey ; first third of fore-wings grey ; then a broad, distinct, slightly-waved silvery line across the wing, pointing inwards, followed by a rich, deep, brownish-grey (darkest outside the light line), extending to the cilia, but cut beyond the second third of the wing by a well-defined light-grey streak, pointing outwards, which streak is edged with suf-

fused lines ; then, near the cilia, is a well-defined dark streak, and on the disc of the wing are two dark spots, one under the other ; cilia broad, grey, intersected by a light line in it inclined to be ochreous. Hind wings ample, obtuse, light silvery grey, darkest towards the cilia, which springs from a light ochrey line outside the dark inner edge of the wing, giving the appearance of a double cilia.”



## LEPIDOPTERA.



## NEW BRITISH TINEINA.

BY H. T. STAINTON, F.R.S.

THE only novelties I have to chronicle on the present occasion are a new *Ornix* and a new *Coleophora*, both bred from the larva, and the latter in considerable plenty—

1. *Ornix fragariæ*, Sang in litt.
2. *Coleophora obtusella*, Moncreaff in litt.

## ORNIX FRAGARÆ, Sang.

Bred by Mr. Sang, of Darlington, from larvæ found on wild strawberry. Mr. Sang writes:—"When gathering larvæ of *Nepticula arcuosella* amongst wild strawberry, I had often found a small larva feeding between leaves slightly spun together, or under a very small fold, but took them for hybernatating *Tortrix*-larvæ of some kind. Last year, however, I determined to try them, and to my astonishment they spun up and changed to pupæ no larger than a *Lithocolletis* pupa, and very like one."

From the pupæ thus obtained Mr. Sang bred, at the beginning of June, two specimens of the perfect insect, which, as might be assumed from the food of the larva, appears to be quite distinct from every other known *Ornia*. It is further interesting as the first of the genus bred from a low plant, all the others being on trees or shrubs; at the same time the food belongs to one of the two Natural Orders, to which the larvæ of this genus seem exclusively attached.

Mr. Sang had hoped to have met with the larva again last autumn, but was unsuccessful.

From the two specimens bred I have made the following brief description :—

Palpi white, with a grey spot at the end of the second joint, and another in the middle of the terminal joint. Head grey, mixed with white. Anterior wings rather dark grey, between the colours of *Betulae* and *Scoticella*, but the costal markings more oblique than in the former species. The anterior wings are decidedly narrower than in either of those species, and the apex of the wing has a more pointed appearance than in any *Ornix* I know. There are two entire dark lines in the hinder marginal cilia.

#### COLEOPHORA OBTUSELLA, Moncreaff.

At the end of last May, Mr. Moncreaff, of Portsmouth, sent me some *Coleophora* larvæ feeding on the seeds of *Juncus maritimus* in a salt marsh. The case being very different from that of the ordinary rush-feeding *Cæspitiella* at once attracted my attention, and at my request Mr. Moncreaff collected a considerable quantity of these larvæ, from which I reared several dozens of the perfect insect. It is allied to *Murinipennella* and *Cæspitiella*, but is smaller than the latter, the average exp. al. being only 5 l. ; only occasionally do we find individual specimens attaining  $5\frac{1}{2}$  l. Anterior wings much less acuminate than in *Murinipennella* and *Cæspitiella*, and hence appearing broader ; rather glossy, pale brownish, more or less distinctly streaked with whitish and with faint indications of a few scattered dark scales. Antennæ white, annulated with dark fuscous.

The best character of the species is, however, that furnished by the case of the larva, which, though feeding on a *Juncus*, has a case more like that of the *Luzula*-feeding

*Murinipennella*. The case is, however, much shorter than that of *Murinipennella*.

The larvæ, as already mentioned, were received towards the end of May, and the perfect insects began to appear on the 6th of July, and continued to emerge for more than a fortnight.

During the past season I have had the pleasure of becoming personally acquainted with the larva of *Eidophasia Messingiella*, having received several from Mr. Threlfall, of Preston, the first week in May, feeding on *Cardamine amara*. They were full fed about the 18th of May, and spun open network cocoons similar to those of the genus *Plutella*. As the larva simply eats the edges of the leaves, and does not in any way discolour or distort the plant, and as its green colouring almost exactly accords with that of the leaves on which it feeds, it is not an easy larva to find, and a successful searcher must be both sharp-sighted and possessed of considerable perseverance. Not having any *Cardamine amara* growing near me, I offered these larvæ *C. pratensis*, which they ate readily.

Mr. Hodgkinson has had the good fortune to breed *Heydenia (Asychna) profugella* from the seed-heads of gentian collected in September; previously it had only been bred from larvæ feeding on the seeds of various Umbelliferæ (see *ante*, p. 24).

## AN ENTOMOLOGIST'S VISIT TO DALMATIA IN 1873.



THE long strip of coast on the eastern side of the Adriatic, known as Dalmatia, but cut into three parts by Turkish territory, is kept in regular communication with the rest of the Austrian empire by the service of the Austrian Lloyd's steamers. These are fairly good vessels, well managed, and quite equal to a similar class on our coasts. It is, however, intended to extend the railway, now being constructed between Trieste and Pola, from some point in its course to Spalatro, which is perhaps the most important commercial town in the country.

Byron sings of "stern Albania's hills;" so of its neighbour Dalmatia. A more hopelessly barren line of coast, as seen from the sea, it is difficult to imagine; nor, on the whole, is the interior very dissimilar; and, although the vine, olive, and other fruit trees are widely cultivated, the only fertile land is, it is said, confined to three spots round the little villages of Dernis, Miecich, and Sign. Covered with large masses of grey limestone rock, with little or no soil between them, and baking through a long summer under a pitiless sun, the country is unfavourable to vegetation, and what there is has not much of a southern character. Even at Cattaro such plants as ragwort, mallow, blackthorn, white-thorn, and bramble—the three latter, however, alternating in the lowlands with pomegranate and *Paliurus australis*

and occasionally with *Asparagus acutifolius*—formed the predominant vegetation. *Cistineæ*, *Labiatae*, and *Leguminosæ*, few in species, together with the ilex-oak, lentisk and *Erica Mediterranea*, were very scarce. The olive in France is mostly accompanied with a southern flora, but here and through Istria to Trieste it is found only in connection with northern forms. But the vegetation is said to change between Sebenico and Spalatro. Judging, however, from the notices published by General von Welden,\* formerly military governor of the province, the plants belonging to the Mediterranean region are very few, and, as it appeared to me, very sparsely distributed.

With a poor vegetation animal life is never numerous in species, though, on the other hand, a rich flora is not always accompanied with a corresponding fauna. The month of May, when we were in Dalmatia [I was accompanied by my daughter], may have been late in some respects, although it was wet and not very warm, and spring plants such as *Ajuga reptans*, *Geranium Robertianum*, *Ranunculi*, and even *Saxifraga tridactylites*, were in full flower at Cattaro; nor scarcely as yet had that early harbinger of spring in the south, the large handsome green lizard, made its appearance,—we saw only three. Later on the sun is so powerful that everything is quickly dried up. Germar† indeed tells us not to expect much in so barren a country. Still *Lepidoptera*, and especially *Orthoptera*, might have been abundant; now they were scarcely to be seen. The finest of European butterflies, *Papilio Jasius*, is found at Lessina, and once we saw, near Ragusa, the upper wing of that

\* Botanische Zeitung, 1830. Translated in Hooker's Journal of Botany, i. p. 67, et seq.

† Reise nach Dalmatien, p. 162, 1817.

noble moth *Saturnia pavonia*, but the ravages of caterpillars were in many places obvious enough.

Most of my captures were made by hand. We rarely found any suitable spot for sweeping, and when we did, as at Zara, the number of snails was so great as to make it unpleasant. Nor was beating attended with much success; the ilex-oak, however, at Cattaro, harboured the pretty little *Phyllobius picus* in abundance, besides *Rhynchites obscurus*, *Cionus unguulatus*, and a few others; and at the same place a small longicorn, *Deilus fugax*, was occasionally beaten out of Genistas. These insects do not appear to have been met with by Germar in Dalmatia. Wherever we went the species of *Otiorynchus* were the most numerous, but only individually; rarely did we see two on the same spot. Among them were *Ragusensis*, *planatus*, *perdix*, and some others, whose names I have not ascertained. Under stones, Myriopods of southern forms were common. One of them—*Cermatia coleoptrata* (?)—was less frequent; it is very agile, and has no hesitation in leaving in your hand, whilst making its escape, any number of legs you may have grasped. Species of the genera *Glomeris* and *Lysiope-talum* were, on the contrary, very sluggish, just coiling themselves up and patiently waiting the result—a few *Carabidæ*, the widely-spread *Harpalus caspius*, among them; and such southern genera as *Stenosis*, *Scaurus*, *Pedinus*, and *Hopatrum*, were only found occasionally,—*Chrysomela vernalis* commonly, all under stones. *Procrustes coriaceus* occurred once, but no *Carabus*, nor were any met with by Germar. It is not unlikely that many species frequent the Dinaric Alps in the interior, and the mountains of Montenegro, where the rare *Omphreus morio* is found. One plant, which is rather common on waste ground—*Momordica elaterium*—is much frequented by a pretty ladybird, *Epilachna*

*chrysomelina*, which, from its bright-red colour with black spots, is seen conspicuously dotting the large dark green leaves, and would probably be quickly exterminated by birds, were there many; but here again, except a few sparrows in the towns, we rarely saw any. We were told that the blue thrush, *Turdus cyaneus*, abounded in the hills. Once we saw *Lanius minor*, and two or three times *Saxicola stapazina*. A *Silvia*, and a few swallows and magpies, comprize pretty nearly all the land-birds that came under our observation.

To the traveller Dalmatia will never be attractive; in its physical aspects in many respects like Greece, and, although some of its towns played no unimportant part in history, it lacks the "scenes our earliest dreams have dwelt upon," that will long continue to make us "hail the bright clime of battle and of song" with interest and delight. At present there is not an hotel in the whole country; the two or three, if so many, little restaurants, which are called albergos, at Zara, Spalatro, and Ragusa, may or may not be able to furnish the traveller with a bedroom, but generally the owners know where to find one in their neighbourhood. This is not pleasant; we got, however, clean and tolerably comfortable accommodation, all things considered, and have nothing but praise to accord to what they gave us to eat and drink. It is possible that other travellers may be more fastidious. The men are a fine race, still dressed in eastern style—the belt, full of yatagans and pistols, the countryman generally carrying a long gun in addition. If the women are not very pretty, they at least seem a kindly set. Once at Cattaro we were surrounded by a bevy of them, who discussed our appearance and possible nationality, without rudeness indeed, though not without causing us some embarrassment; but, on discovering that we were English, it was gratifying to see

from the altered manner that our countrymen were not unpopular. I may say here that Italian is the language of the towns, an inheritance of the Venetian occupation, and Slave the country. The language of official life is of course German. One day, at the dinner-table on board the steamer, an Austrian naval officer whispered to me that of nine persons sitting at the opposite side, all Austrian subjects, seven spoke different languages; these were in addition to the three just mentioned—Polish, Magyar, Czech, and Morlach.

For the antiquarian, Spalatro may be the most interesting of the towns. It contains the remains of a palace of Diocletian, where the column was first used to support the arch, and the ruins of two or three temples. Ragusa is a fortress (like Zara and Cattaro), with well-built houses within the walls, and is the residence of the foreign consuls, but it is frequently subjected to the shocks of earthquakes. Outside the walls there are a number of country-houses, many of them roofless, such as they have been since 1813, when the place was taken from the French by English and Austrians. Why they should be simply roofless, or why they should be allowed to remain so, are questions to which I have not heard any answer. About a mile or less from Ragusa is the wooded island of Lacrova, once the residence of the unfortunate Emperor Maximilian.

It was while at Ragusa that one day, whilst my daughter was making a sketch from the hill between that place and Gravosa, we were pounced upon by two gendarmes, who, after having in the mildest manner got hold of the sketch-book, insisted on taking us before the "Behörden" for taking plans (?) without permission of the military governor. There was nothing for it but to go quietly, and so, to our intense annoyance, we were marched to the town, and then through its whole length to the old Venetian palace,



now doing duty as government offices. We were not long before we were ushered into the magistrate's room, our captors remaining outside. The magistrate, a benevolent-looking old gentleman, received us more as guests than our friends outside, if they were looking in, might have anticipated, and, after seating us comfortably on his sofa, he entered into a rather long apologetic explanation of the conduct of the gendarmes, &c., and ended by restoring us to liberty and our book, accompanied with an offer to obtain the requisite permission from the governor. We afterwards heard that it was supposed we might be Prussian spies; some were said to be in the country.

The place that most interested me was Cattaro. Its lake-like harbour, with deep narrow inlets, is surrounded by grand stern mountains, in many places with just room enough between them and the water for little villages nestling at their feet, and so overhung that one of them, I was told, never saw the sun for more than six months in the year. Cattaro itself is a mere village, with very narrow streets, too narrow indeed for any wheeled vehicle, even if there were any, but with a noble esplanade just outside the walls and abutting on the sea, and with pleasant walks round the shores of the deep inlet at the end of which the town is placed. A castle, built on a very steep rock, dominates over the neighbouring land and water, except at the back, where a precipitous mountain rises high above castle and town. A little to the left, where it is less elevated and not so vertical, a zig-zag road of sixty-two slopes has been formed; a very rough road indeed it is, only practicable for mules or possibly horses, though we saw neither. This is the road to Cetinje, the capital of Montenegro, distant from Cattaro about six hours. After a very fatiguing walk, we once got to the summit of the pass only to find ourselves surrounded by rocky heights,

among which the road rose and fell amid scenes of the most cheerless desolation. In this excursion we met with many specimens of *Helix ligata*, peculiar, I believe, to this district, and one of the finest land-shells of Europe. A large *Planorbis* also occurred. Wherever there was moisture there were numerous *Bulimi*, *Pupæ*, and other *Helicidæ*. Of insects, a few *Otiorhynchi* were the only ones we saw.

In all our excursions we were never annoyed by dogs. Knowing their character in Albania and Greece, they had been my dread on entering the country. Near Marathon, I, with two companions, all on horseback, were once pursued by two ferocious brutes, which we had disturbed while glutting themselves on a dead horse ; and a few times, when on foot, I have had to sit down and face the enemy till its owner arrived. Once I was a prisoner in this way nearly two hours. The dog is quiet as long as you are seated, eyeing you at a distance that you would gladly increase. I believe the plan of sitting down is alluded to by Homer, and was not quite understood until it was explained by a traveller some years ago. I never cared to try throwing a stone at them, which is so efficacious with dogs in general. I noticed that the owners struck them over the fore-legs when refractory. In one of my walks I recollect having to pass one not far from the road, and it struck me I would try another plan. Before the dog noticed me I began talking to it in English, and in the most soothing tones I could command. At first it looked puzzled, then, lifting up its head and dropping its tail, it poured out a long howl, during which I passed quickly on. English must have been a novelty that astonished it. I had no opportunity of trying this plan a second time.

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