According to André⁹ it feeds almost exclusively on the excreta of large aphides which it rears in the galleries of the nest; Lubbock¹⁰ says it devotes itself principally to the aphides which live on the bark of trees; and Schenck¹¹ mentions large grey plant lice which are found with it, and when disturbed the ants at once take them into the galleries. The marriage flight is said to occur in June and July, and Schenck¹¹ says it takes place between five o'clock and eight o'clock in the morning. The following myrmecophiles have been found with A. (D.) brunnescens on the continent:

**Coleoptera:** Homoeusva acuminata, Mark.²¹; Microglossa pulla, Gyll.²⁹; Hyobates glabrireventris, Rye²⁹; Myrmedonia lugens, Gr.²⁹; Atheta nitidula, Kr.³¹; Euryusa laticollis, Heer.²⁹; E. sinuata, Er.²⁹; Clariger auralil, Sauley³³; Batrisus formicarius, Aubé³³; Batrisodes delaportei, Aubé³³; B. adnexus, Hmpe³³; B. venustus, Reich³³.

**Araneina:** Platyarthrus festivus, C.K.³¹; Dysdera cambridgei, Thor.³¹

**Acarina:** Trachyuropoda bostocki, Mich.³⁴

**Crustacea:** Platyarthus hoffmannseggii, Brdt.³⁰

This is the second species of ant that has been discovered in Britain since the publication of my book on British Ants in 1915. The first of these was Myrmica schencki, Emery, discovered by Mr. H. M. Hallett at Sully, Glamorgan, and introduced as British by myself [Ent. Rec., 27, 265-6 (1915)]. A description of the ³ of M. schencki may be found in the Record for 1917 [Ent. Rec., 29, 82 (1917)].

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**On the Geographical and Seasonal Variations of Pararge megera, L.**

By ROGER VERITY, M.D.

(Concluded from vol. xxxiv., p. 214.)

Grade III. : As I have mentioned in connection with filipluma, the summer characters of the latter get more and more accentuated as one proceeds southward, and the difference between them and those of the spring generation increase proportionately. One thus comes to a region where a distinct grade is discernible in the main line of variation, as compared with nymotypical filipluma of Belgium, England, etc., and where other features contribute to produce races perfectly different from it, transitional to those of the extreme south. Besides belonging on an average to grade III. by the underside of the hindwings, the shape of the wings is seen to be narrower, more pointed at apex and with a straighter outer-margin, culminating in form porrecta, Vrty. (Ent. Rec., xxxi., p. 126), the upperside markings are less extensive, the basal black patch of hindwings is very much lighter in tone and often nearly obliterated by the abundance of fulvous scales, the fulvous is brighter and notably so in some females. In the materials I have at hand I detect two primary races:—

Race vivum, mihi, can be described as simply being the grade which follows filipluma on the main line of variation. Roughly its distribution may be said to include the greater part of the Iberic zone, the south of France (specimens I possess from Chautonnay in Vendée are already clearly a transition to this race), and the north of Italy; probably it is found even north of the Alps in particularly warm localities (certainly, for instance, in some parts of the Rhone valley). Remarkably large individuals appear now and then, especially in the female sex, and there are localities, such as the valleys of South Tyrol,
where they are so abundant that one has the impression of a distinct secondary race, which might well be named grandescens, mihi. Oberthür mentions twice in his Études de Lép. Comp., vol. iii., p. 364, and x., p. 862, the race of Lectoure (Gers) as being remarkable, because of its strong tendency to an increase in the number of eye-spots, such as he has observed nowhere else. This race seems worthy of being recorded by a name, and I propose that of oscillatior, mihi.

Race praenustralis, Vrty., II. and III. generations paeuinsulitalica, mihi, exhibits all the features of vividior, but in addition to them it possesses others which include it in the south-eastern lyssa line of variation. These consist in the silvery white ground-colour of underside of the hindwing, instead of the yellowish tinge of filipluma and vividior, and in the pearly grey tone of its diffused scaling. In vividior and in vividissimiq, to be described in grade IV., this scaling is broken up into more or less narrow bands and patches, but these are dark and they stand out sharply on the yellowish ground-colour. In paeninsulitalica these bands and patches are only slightly darkened and they shade off into the white ground-colour. It constitutes the summer generations of race praenustralis, and it spreads over the whole of the Peninsula from the first (June) generation, and the third (September), from the locality of my "typical" praenustralis. It will be observed that they are but a grade further along the same line of variation as the latter and also that they differ less from it than does vividior from its own first generation. The size of paeninsulitalica is, on the whole, smaller than that of vividior and the very large individuals, found so frequently in the latter, are quite scarce here.

Under the name of tigeliiformis I have described in the Bull. Soc. Entom. Italiana, xlii., p. 269 (1911), a series of specimens I had collected near Piteglio, in. 700, in the Pistoiese Apennines (Tuscany) at the end of August of that year. They are very striking on account of the reduced extent of all the black markings above and especially on account of the total obliteration of the band which precedes the eye-spots on the hindwing, so that by these characters they might at first sight be mistaken for tigelius, their small size also contributing to increase the resemblance. A more accurate comparison, however, soon shows that they are not even transitions to it, because they show no signs of the chief characteristics of tigelius on the underside, and a further proof is that even the most extreme examples could not be mistaken for it, whilst no tigelius ever exactly resembles tigeliiformis; there is always a distinct gap between them. Since 1911 I have found this form to be largely prevalent, mixed with a few individuals bearing traces of the band mentioned, in other localities, such as the extremely parched one of Quercianella on the Tuscan coast, south of Leghorn. In these localities it thus constitutes a remarkable secondary aberrative race. As an individual form occurring occasionally it is mentioned by Zeller, Calberla, Oberthür and others and in fact it is not infrequent as an individual variation of paeninsulitalica in all sorts of localities, and I even possess a small specimen of praenustralis, with the features in question well marked on the upperside, collected in Florence on March 30th, showing it is produced by unsuitable conditions of various sorts.
Grade IV.: By the name of race *vividissima*, *mihi*, I should distinguish the striking summer generations of the race of the south of Spain and of some localities of Palaeartic Africa, larger in size than any other of the species and more brilliant in colouring on the underside, especially in the female sex; some specimens are of a beautifully intense reddish fulvous, others, on the contrary are of a light yellowish fulvous, but usually very bright; the dark pattern is more slender than in *vicidior* and the black is often mixed with chestnut, which gives it a reddish tinge rather than a deep black one; in some females it is quite pale on this account. (This form *castaneopta*, *mihi*, is frequent also in Italy in *paeinsulitallica.*) The underside of *vividissima* can, on the whole, be described as a grade further than *vividior*, but there exists a greater amount of individual variation than in other races, some specimens resembling *vicidior* and others *depulverata* of grade V.

Race *lyssa*, Hübner, *Fur. Schmett.*, I., pl. 186, figs. 914 to 917: Kirby in his Catalogue only mentions Hübner in connection with this name. All the other writers, on the contrary, attribute it to Boisduval (*Fur. Hist. Lep.*, I., p. 222, pl. xlv., figs. 4, 5), on account of the wrong dates in connection with Hübner. As Hübner's plate 186 is amongst those issued from 1823 to 1833 and Boisduval's book was published from 1832 to 1841, it seems, on the strength of these new dates, all probabilities are in favour of the former having appeared before the latter, but how it came about that Boisduval used the same name as Hübner, without quoting him, remains a mystery. The only conjecture I can make is that the name was used in litteris by other entomologists and that specimens were sent to both labelled with it, as in the case of *E. jurtina* race *hispulla*, published at about the same time by Esper and by Hübner, and as in other instances of the sort, which are quite surprisingly numerous in entomological literature. The features characteristic of the *lyssa* line of variation exist both in Hübner's and Boisduval's figures. The latter effectively described them as conferring on these *megera* a look very similar on the underside of hindwings to that of *maera*, L. At a closer inspection I find that what produces this is their more uniform tone, as also the darker and sharper streaks and circles round the eye-spots standing out more boldly and these circles being broader; the more uniform tone is due to the diffused scaling being either entirely absent, in extreme examples, or very pale and shadowing off in the silvery white ground-colour, so that no distinct bands and patches are to be seen, precisely as in *maera*; this character exists also on the basal half of the wing; here, in the forepart of the space between the two central streaks and between them and the base, there survive traces of some darker patches than the rest of the diffused scaling, even in the greater number of the *paeinsulitallca* individuals which resemble *lyssa* most, whereas these darker patches never appear in *lyssa*, just as they are never seen in *maera*. Hübner's figures of *lyssa* by no means represent the most extreme and characteristic form along this line of variation; on the underside the dark pattern is as extensive as in nymotypical *megera* of the north of Europe; on the underside the diffused scaling is, on the whole, more like grade III. than like the well characterised *lyssa* in extent, but, notwithstanding this, the *maera*-like aspect is unmistakably there. Boisduval figures specimens from Dalmatia in which all the dark markings
of both surfaces are very much less extensive. Standinger in his notes on the Lepidoptera of Greece had observed as early as 1871 (Horae Soc. Ent. Rossicae, vii., p. 78) differences of this sort in the _lyssa_ of various localities in the Balkans, and finds it worthy of attention that specimens of the first generation from the Parnassus are lighter beneath than are June ones from Naxos and others from Smyrna. This is due to the fact that in _megera_ seasonal dimorphism increases from north to south as far as the region of race _vividor_, because, as I have pointed out, the summer generations gradually change aspect, and that south of this region, in the Eastern Mediterranean, that dimorphism decreases again, because the first generation begins to follow in the same track of variation and ends up, in the southern Balkans and in Sicily, by acquiring the same aspect as the summer generations. The light and the dark forms are thus produced by all the generations and it is chiefly a matter of local conditions when one prevails markedly, as observed by Standinger.

Race _australis_, Zeller (Isis, 1847, p. 140): This author collected _megera_ at Messina from the end of January onwards and got a few specimens at Syracuse in July. He too, who was so keen on seasonal polymorphism and describes it so well in many species, makes no remark about it in this one, but he describes the Sicilian race by the following words: "Wings more broadly ochreous, streaks on underside of forewings thinner, underside of hindwings light grey." I possess series from the neighbourhood of Palermo, collected during the spring, and one series from the Ficuzza (in the hinterland south of this town) collected in August. Both series contrast markedly on the upperside with Hübner’s figures of _lyssa_ by the limited extent of the black markings, and also with Boisduval’s, although to a lesser degree; they are as reduced as the species can exhibit them normally, except for _tigelius_. In the spring series none of my specimens have the band of the hindwing obliterated, as in _tigelius_ and _tigeliiformis_, but all my August males have it entirely cancelled. As to the underside, it constantly exhibits the features of the _lyssa_ line of variation. I find that most specimens of both generations are quite alike, i.e., with diffused scaling a little less extensive than in Hübner’s figure and a little more so than in Boisduval’s, but that variation in the first generation tends to produce forms culminating in a uniform pale grey scaling on the ground colour, which recalls the darkest northern races of _maera_, whereas in the summer generations it culminates in the disappearance of all grey scaling, so that the ground colour remains of a perfectly pure silvery white. I think that one is quite justified in selecting as the nymotypical form of Zeller’s _australis_ the characteristic spring form just described, both because his description of either surface suits it admirably and because one understands that nearly all his specimens were collected at Messina in the spring. The features he mentions also separate well his Sicilian race from _lyssa_. His name can thus be used for the first generation of Sicily. As to the summer generations one must conclude that they have remained to this day undescribed and unnamed. To them, no doubt, belonged the Sicilian specimens mentioned by Oberthür as particularly interesting because the male scarcely differs from _tigelius_, although the female always has the upperside pattern more developed than in the latter. I too, in fact, find no _tigeliiformis_ amongst my females. I should not,
III.

H.&l.\l.g.vividior.

IIiegera, P. have tigelh/ssa Hiibner’s “ and which the scarcely but Boisduval’s), however, and distribution that the same rank it distinguish or Boisduval’s, but Seitz, but no mention of their dates of capture is made. I think one can safely infer from the description that it applies to the summer generations, because the African winter one is, to my knowledge, distinctly dark on the underside, whereas this is evidently the culminating degree in the reduction of the dark diffused scaling. The light coloured underside also distinguishes this race from viridisima, Vrty., of other African localities. It will be interesting to know how these various African races and forms stand to each other and what their distribution is exactly.

Form infratersa, mihi: I have already stated that amongst the Sicilian summer individuals there occur frequently some with the ground-colour of the underside of the hindwings clear silvery white or very pale pearl-grey, on account of the total or nearly total absence of grey diffused scaling. This form is parallel to the African depulverata, in which the ground-colour is, instead, yellowish. Seitz in his Gross-schmett. figures a specimen of this sort as lyssa, but, now we want to carry analysis further, we must note that it is very different from that of Hübner, although it represents the superlative degree on the same line of variation. I think it will be found necessary to distinguish it by the name of infratersa and I venture to forecast that it will be found to predominate in some localities and that it will rise to the rank of race. As a matter of fact, there remains to establish what distribution and what seasonal connections lyssa, infratersa and tigellyssa have in the Balkanic zone and in Asia Minor. In the Ent. Rec. for 1919, p. 126, I named emilyssa, from specimens collected on the Bosporus, a form with heavy black markings on the upperside and “total lack of grey scaling on the underside of hindwings.” Now that Hübner’s dark lyssa must be considered nymotypical, my emilyssa is scarcely worth distinguishing from it (I then compared it to Boisduval’s), but the name can still be useful to designate the form in which the upperside has very extensive markings, whilst the underside is the very light infratersa one.

The following little Table shows how the different primary races of P. megera, L., and their generations, stand to each other:—

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<th>B</th>
<th>C</th>
<th>D</th>
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<tr>
<td>I.</td>
<td>I. g. infrapallens.</td>
<td>I. g. megera.</td>
<td>I. g. tigellina.</td>
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<tr>
<td>II.</td>
<td>II. g. filipoma.</td>
<td>II. &amp; III. g. tigellus. I.g.pracaustralis.</td>
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<td>III.</td>
<td>II. &amp; III. g. vividior.</td>
<td>II. &amp; III. g. paenia-sulitalica.</td>
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IV.

<table>
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<tr>
<th>A</th>
<th>B</th>
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<tr>
<td>II, &amp; III. g. <em>vividissim.</em></td>
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<td>{I. g.?lyssa.}</td>
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<td>{I. g. <em>australis.</em>}</td>
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<td>{II. &amp; III. g. *tigeli.*lyssa.}</td>
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V.

II. & III. g. *depulverata.*

The Roman figures in the first column stand for the successive grades of the main line of variation described at the beginning of this paper. The four other columns are characterised by the following features on the underside of hindwings:

A: Ground-colour yellow or reddish-yellow.
B: Ground-colour yellowish; diffused scaling blackish in tinge.
C: Ground-colour mostly white; diffused scaling of basal half of wing much more extensive and intense than that of outer half.
D: Ground-colour silvery-white or pearl-grey; diffused scaling grey in tinge.

The blank spaces in the above table correspond to features which to my knowledge, have not for the present been observed to prevail in any locality, so that they are not characteristic of any race or generation, but they simply occur as variations. If it be found necessary to designate them, the following names may be useful:

In the A line of variation, grades II. III. and IV. might be called respectively: *luteafilipluma,* *luteavividior,* *luteavividissima,* as they resemble the corresponding grades of line B, but they have a more decided tinge of yellow or reddish-yellow on the underside. They are to be met with in Palaearctic Africa.

In the B line of variation, grade V., of a paler yellow on underside than *depulverata,* might be called *pallidepulverata.* Found in Africa and southern Spain.

In the C line of variation, I only know of the existence of grade III. as the form with the lightest underside markings in the summer generations: *tigeli.*

In the D line of variation, grade I. is exhibited by individuals of I. gen. *praecaustralis* from Peninsular Italy, with the darkest undersides: the diffused scaling, however, is always of a paler tinge than in nymotypical *megera,* and they might well be called *infracanens.* As to grade V., it is the form I have described above under the name of *infraterea.*

The races of *Pararge megera,* L., and their generations can be summarised as follows:

Race *megera,* L.: I. gen. *megera,* L.; II. gen. *filipluma,* Ball. Described from "Austria and Denmark," it probably extends to the whole of northern and central Europe, with local variations such as the following:

Secondary race *caledonia,* Vrty.: Described from the northern coast of Scotland, is presumably produced in many particularly damp localities.

Secondary race *alticola,* Vrty.: Described from the Baths of Valdieri, m. 1875, in the Maritime Alps, is produced in surroundings unsuitable to the species, and chiefly in extremely dry and hot ones.

Secondary aberrative race *mediohigens,* Fuchs: Middle Rhine, locally.

Secondary aberrative race *ocellator*, Vrty.: Lectoure (Gers).
Secondary race *grandescens*, Vrty.: Described from South Tyrol, but presumably in all the regions of *vividor* locally.
Secondary aberrative race *tigeliiformis*, Vrty. Described from Piteglio, m. 700, in Tuscan Apennines, is produced locally in extremely parched surroundings.
Race *lyssa*, Hüb.: generations still undefined. Balkanic zone and Asia Minor.
Note.—Not being acquainted with the two Asiatic forms *meagrina*, H. S., and *transcaspica*, Stdgr., I cannot establish their position in the variations of the species.

Myrmecological Notes.
By W. C. CRAWLEY, B.A., F.E.S., F.R.H.S.

*Cerapachys*. LAMEIRNI, sp. nov.

♀ L. 5 mm. Black; mandibles, antennae with the insertions, tarsi and trochanters, joints of coxae, the extremities of femora and tibiae and apex of gaster, russet. Whole body with a moderately long semi-adjacent pilosity.

Head a fraction longer than broad, slightly broader behind than in front, the sides feebly convex, the occipital border slightly concave, the posterior angles not sharp.

Mandibles broad and triangular, the terminal border, which is slightly concave, is nearly twice as long as the internal, its basal half armed with a few minute blunt teeth. Clypeus short, concave from back to front, the anterior border feebly convex; the frontal carinae, one with the clypeus, form a lobe on each side between the articulations of the antennae; they converge behind, and are wider in front than in *cribrinodis*; the anterior part of each carina, which carries the insertion of the antenna, is narrow and not bilobed as in *cribrinodis*. The carinae on cheeks are low, straight, and the anterior portion is raised in a blunt knob.

Eyes slightly behind the middle of sides. Scapes very thick, reaching a little beyond half the distance to occiput. All joints of funiculus broader than long except the apical, which equals the 4 preceding.

Dorsum of thorax slightly contracted in the middle, the epinotum broader than the pronotum, the whole feebly convex in both directions; faint indications of both sutures barely visible. Declivity of epinotum finely bordered. Node nearly twice (1.7) as broad as long, truncate behind and before, very slightly broader behind, convex above, underneath with a blunt triangular tooth. Postpetiole (first segment of gaster) wider than petiole, wider behind, straight in front and at back, considerably wider than long.

Whole body shining; mandibles punctured, head smooth and shining with scattered punctures. Mesonotum similarly punctured, but front of pronotum and the base and sides of epinotum coarsely rugose-punctate. Declivity smooth and