

IV. *Another Entomological Excursion to Spain.* By GEORGE CHARLES CHAMPION, F.Z.S., and Dr. THOMAS ALGERNON CHAPMAN, M.D., F.Z.S.; *with descriptions of two new species of Hemiptera*, by Prof. O. M. REUTER.

[Read February 1st, 1905.]

PLATE VII.

THE Puerto de Pajares is by no means unknown to naturalists, and even entomologists have visited the district, but so far as we know no lepidopterists have examined it. Herr Lucas von Heyden gives a rather full note on it in the account of his journey in Spain in 1865, in company with other entomologists (all coleopterists), which was published in 1870 by the Berlin Entomological Society. He especially dwells on the amenities of his quarters at Arbas, which was his *pied-à-terre* for the region, which reads very humorously. He found adequate quarters in the muleteers' cabin opposite the priest's residence, where men and beasts shared the lodging, and, the door being open, sudden charges of cats, fowls, and pigs were matters of course throughout the night. Arbas, Albas, Arvas, Abbas, seem to be varied spellings, of which Arbas is probably most correct and Arvas would give in English nearly the correct pronunciation. This place is about a mile to the south of the Puerto by the roadside, and consists of an old church or chapel with a priest's residence, a variety of cowsheds, of which one long row has living-rooms over and looks like a row in a colliery district. The Puerto de Pajares is at an elevation of about 4500 ft. and we selected it for our excursion, hoping to get lodgings at Arbas or at Busdongo (the town and railway station to the south of the Pass is at about 4200 ft.), or perchance at Pajares (the station to the north side of the Pass, the town being, however, below the station and rather below 4000 ft.).

On arrival at Busdongo, we heard we might perhaps be put up at the "tienda" of Señor Francisco Alonzo, at the Puerto itself, and it turned out that this establishment possessed three bedrooms for travellers, and though small and over the stables and piggeries, they served our purpose,

with less call on our philosophy than Herr von Heyden must have suffered. We remained here from July 3th—22nd.

Coming up from the south at Leon, the railway follows the valley, and has to make hardly any twists or spirals, to reach the Perruca tunnel, by which it pierces the col. But on the north face it emerges on a steep slope, and has to make many curves and zigzags to fall some 2500 ft. in half-a-dozen miles, running in fact over twenty actual miles of line. At the Puerto the road south follows the bottom of the valley at a regular and easy gradient. On the north side the floor of this valley is some 2000 ft. below and looks as if one could throw a stone into it. The mountains on the north side have very steep slopes, with bold outlines and rocky and precipitous summits, and there are many picturesque rocky outcrops. Although there are some bold rocks here and there in the southern valleys, generally speaking the hills are rounded and grassy, but often with very steep flanks. They have very little wood on the south side. On the north there is much beech wood, mixed with birch in the higher ground, little larger than coppice towards the Puerto, but with actual timber lower down. The region seems to be destitute of pine forests.

The general aspect of the country, as to physical features and vegetation, was more like portions of the Scotch Highlands than anything in the central portion of Spain that we visited. The country is, in fact, Atlantic and not Mediterranean, and has a rainfall that is not lacking at any season of the year, more than occasionally happens even in Scotland. Going into detail, however, the flora of course presented many plants unknown in the north, though heather, gorse, various pasture and bog grasses and other plants, such as *Senecio*, etc., were actually or nearly identical.

During most of our stay, we were much interested for practical as well as other reasons in a curious daily cycle that obtained. The early morning would be brilliantly fine, but by 8 or 9 o'clock, though it continued so to the south, the northern valleys would be filled by a sea of fog to within 500 or 1000 feet of the level of the Pass, with mountains and ridges standing out of it like islands, a light south wind blowing over the col; gradually the fog would rise like a flowing tide, and at length would reach

the level of the col, when it would pour over and down the valley with a north current. This would take place about 1 or 2 o'clock, earlier or later on different days. The fog would still rise with a steady north wind, gradually covering everything; in an hour or so the fog would be very wetting, and a little later would be actual rain, and this would usually continue till late in the night. The change of wind from south to north when the fog reached the level of the Pass was quite sudden and remarkable.

On the north side, an easy walk took us down to quite low ground, affording such insects as *M. galathea*, *E. hyperanthus*, *L. argiades*, and other low-level species, but we did not find anything of note. It was not therefore an attractive excursion, and, easy as it was to go down, the return was a very different matter.

In any other direction, one could not descend more than two or three hundred feet and then only to Busdongo, and usually we went up the valleys, on to the cols and hill tops above them, that ran down towards the main valley, of which there were several joining near Arbas, which was, in fact, very centrally situated for the best of these.

Apart from *Erebia stygne*, *E. evias*, and *E. palarica* noted elsewhere, we met with *E. epiphron*, *E. euryale*, and *E. tyndarus*; of the latter some specimens were of fairly normal (Swiss) form, but a fair proportion had more than the usual twin eye-spots, and one or two were larger and made a fair approach to var. *ottomana*. Of twenty-six specimens brought home, thirteen have more than the twin eye-spot, sometimes the one beneath these, sometimes the next lower, sometimes on one side only. Two specimens have both these spots and one of these measures 44 mm. in expanse. In six specimens these extra eye-spots are white-pupilled. The normal double spot has large white pupils in all specimens.

The *E. euryale* are 45 mm. in expanse (42 mm. smallest, 48 mm. largest). In two (out of twenty-two all ♂♂) there is a trace of white pupils to the eye-spots, two have four eye-spots in fore-wings and one has only two, the rest have the usual twin spots, one or two have the orange-red much as in var. *circellaris*.

The *E. epiphron* are rather close to var. *cassiope*, but are large for that variety.

Amongst the moths observed was *Cleogene peletieraria*

the white female of which was rare, but the nearly black males were frequent enough at various points near the Puerto amongst gorse and heath. This species has previously been recorded apparently only from the Pyrenees and on the French side.

Platyptilia isodactyla was common in the bogs near the Puerto, and some larvæ were reared from the egg to nearly full-grown, but died of starvation at La Granja.

Parnassius apollo was seen in many places, but was common on the *débris* from the railway tunnel at about 4200 feet. It was rather over (July 11th).

The abundance of a *Psyche* larva on certain slopes and pastures at about 6500 to 7000 feet was phenomenal, the cases were very like those of *Pachytelia villosella*, but are believed to be *Amicta febretta*; a number were brought home, but none have been reared, the larvæ moult into a colourless instar, preliminary to (hibernation and?) pupation. One became a pupa. The package containing these larvæ was lost on the way home and turned up three weeks later; it is comforting to attribute our want of success with them to this circumstance, but it is not perhaps certain. Perhaps they meant hibernating, and we may have some still alive doing so. It was a remarkable sight to see forty or fifty of these large cases within a square yard or so, either on the grass or on shrubs of *Cytisus purgans*; the larvæ did not seem very particular as to what they ate.

Mecyna polygonalis was one of the commonest moths seen, and varied from having the upper wings very dark, almost black, to pale yellowish, and some specimens were beautifully marked.

The following is a list of some of the species of Lepidoptera observed at Puerto de Pajares, and it will suffice to show the absence of specially Spanish forms.

<i>Melanargia galathea</i>	<i>Vanessa polychloros</i>
<i>Erebia palarica</i>	<i>Argynnis selene</i>
„ <i>stygne</i>	„ <i>aglaia</i>
„ <i>evias</i>	„ <i>lathonia</i>
„ <i>euryale</i>	<i>Colias edusa</i>
„ <i>tyndarus</i>	„ <i>hyale</i>
„ <i>epiphron</i>	<i>Pieris rapæ</i>
<i>Pararge mæra</i>	„ <i>napi</i>
<i>Cænonympha arcanius</i>	„ <i>brassicæ</i>
„ <i>pamphilus</i>	„ <i>daplidice</i>
<i>Aphantopus hyperanthus</i>	<i>Leptidia sinapis</i>
<i>Epinephele tithonus</i>	<i>Parnassius apollo</i>

<i>Polyommatus gordius</i>	<i>Cyaniris argiolus</i>
„ <i>phlæas</i>	<i>Hesperia malvæ</i>
„ <i>virgaureæ</i> , var.	„ <i>alvens</i>
„ <i>miegii</i>	<i>Carcharodus alceæ</i>
„ <i>dorilis</i>	<i>Adopæa actæon</i>
<i>Lampides telicanus</i>	
„ <i>bætica</i>	<i>Procris geryon</i>
<i>Lycæna astrarche</i>	<i>Nemeophila plantaginis</i>
„ <i>hylas</i>	<i>Lasiocampa quercus</i>
„ <i>corydon</i>	<i>Plusia iota</i>
„ <i>arion</i>	<i>Heliothis peltigera</i>
„ <i>argiades</i>	<i>Catocala conversa</i>
„ <i>icarus</i>	<i>Hepialus velleda</i>

At La Granja (San Ildefonso, July 23rd—Aug. 3rd) we were too late for most things, but the impression left was that it was a most prolific station for many interesting species, and varieties, some of which are not very common but would be regarded as rarer but for their abundance in this fairly well-known locality. *Argynnis adippe*, var. *chlorodippe* and *cleodippe*, and *A. paphia*, var. *anargyra*, were both abundant but nearly over. *Melanargia lachesis*, var. *cataleuca*, perhaps a dozen seen. *Polyommatus virgaureæ*, var. *miegii*, rather a brilliant form. *Læxopis roboris*, common in the Palace grounds. *Cænonympha iphioides*, at 5000—6500 feet.

Satyrus actæa abundant at Navacerrada and on a slope of Peñalara at nearly 7000 feet. At this station one very large specimen (rather worn while the others were fresh) was taken, that suggested (in size) *cordula* much more than *actæa*.

Orgyia aurolimbata, larvæ, pupæ, and imagines were common at the Puerto de Reventon (7000 feet).

Erebias and *Heterogynis* have been elsewhere referred to.

Cledeobia angustalis and *Rhodaria sanguinalis* were in many places perfect pests making it difficult to detect amongst them any other species.

On obtaining eggs of *P. virgaureæ*, var. *miegii*, we found that its food-plant, *Rumex acetosa*, was over for the season and growing material was obtained with difficulty. The butterflies, however, avoided the green plant and laid their eggs on the most mature and actually dead stems. This habit accords with the fact that though the larva develops in the egg in the autumn, the latter does not then hatch, but remains over till the spring.

The following are some of the butterflies seen at La Granja:—

<i>Argynnis aglaia</i>	<i>Cænonympha arcanius</i>
„ <i>lathonia</i>	„ <i>iphioides</i>
„ <i>paphia</i> , var. <i>anargyra</i>	<i>Thecla ilicis</i>
„ <i>adippe</i> , vars. <i>chloro-</i>	„ <i>quercus</i>
„ <i>dippe</i> and <i>cleodippe</i>	<i>Læosopis roboris</i>
„ <i>niobe</i>	<i>Polyommatus hippothoe</i>
„ <i>daphne</i>	„ <i>gordius</i>
<i>Melanargia lachesis</i>	„ <i>phlæas</i>
„ var. <i>cataleuca</i>	„ <i>virgaurea</i> , var.
„ <i>iopygia</i>	„ <i>miegii</i>
<i>Erebia stygne</i> , var. <i>peñalaræ</i>	<i>Lampides bætica</i>
<i>Epinephele tithonus</i>	„ <i>telicanus</i>
<i>Satyrus semele</i>	<i>Lycæna icarus</i>
„ <i>actæa</i>	„ <i>astrarche</i>
„ <i>statilinus</i>	„ <i>argyrognomon</i>
<i>Cænonympha pamphilus</i>	<i>Argiades comma</i>

Amongst the Coleoptera observed at the Puerto de Pajares, *Lytta vesicatoria* (which is usually of a cupreous tint in these southern localities) was perhaps the most in evidence, this insect swarming in places on the flowers of the *Genista*, as did two or three species of *Zonabris*. On this plant, too, or on broom, there were also to be found, *Corymbites hæmatodes*, var., *Athous reynosæ*?, various *Telephori*, *Rhagonycha*, and *Dasytes*, *Cryptocephalus lusitanicus* (varying to almost entirely black, and sometimes seen on heath also), *C. vittatus*, *Gynandrophthalma concolor* and *G. reyi*, *Anthophagus muticus* and sp.? (in numbers, insects not seen on the Bejar or the Guadarrama, or on Moncayo), *Anthobium* spp., *Phyllobius tuberculifer*, *Strophosomus* spp., etc. About the patches of snow, under stones, etc., were, *Bembidium pyrenæum* (which seems to be scarcely more than a form of the Alpine *B. glaciale*), in abundance, *Baris nivalis*, *Deltomerus nebrionides* (very rarely), *Zabrus neglectus*?, *Steropus lacordairei*, *Cymindis melanocephala*, *Stenus guynemeri*, etc. On a mountain ridge, or Puerto, at about 6500 feet elevation, amongst short turf, under dry dung, etc., many interesting insects occurred, as *Homa-pteris punctulatus* (taken by us previously on the Bejar), *Pedilophorus metallicus*, in abundance, but mostly dead, *Helophorus porculus*, *Hypera biglobosa* (singly), *Otiorrhynchus asturiensis*, a *Timarcha*, *Chrysomela rufefemorata* and *C. cantabrica*, etc. Under stones in various places on the mountains, were *Carabus macrocephalus* (very rarely), *Harpalus cardioderus*, *Nebria sobrina*, various *Calathi*, *Synuchus nivalis*, *Amara equestris*, *Notiophilus aquaticus*, etc.; and on the paths, or amongst the heath, *Cicindela*

sylvatica, two species of *Dorcadion* (one of them worn and nearly over), *Platycerus spinifer* (one specimen, probably knocked off the *Genista*), and others. In dung, various *Aphodii* were to be found, as *A. obscurus*, *A. scrutator*, *A. bonvouloiri*, and others, also *Ammœcius frigidus*, *Geotrupes pyrenæus*, *Emus hirtus*, and *Staphylinus pubescens*. Boggy places on the heath produced *Elaphrus uliginosus*, *Anchomenus sexpunctatus*, *Carabus arvensis*?, etc. On the Pass, two species of *Rhizotrogus*, *R. felicitanus* and *R. fuscus*, were occasionally seen in abundance on the wing in the forenoon, disappearing after midday. A descent into the valley on the northern side resulted in the capture of *Perileptus areolatus*, on the banks of the river, *Aromia moschata*, var. *thoracica*, *Leptura fontenayi*, *Strangalia attenuata*, etc. As usual, in all these Spanish mountains, a *Henicopus* (*H. heydeni*) abounded, the males clinging tightly to the grass stems and sometimes accompanied by individuals of the opposite sex.

List of COLEOPTERA found at the Puerto de Pajares.*

Cicindela sylvatica, L., not rare, and once seen captured by a large Asilid; *C. campestris*, L. *Carabus macrocephalus*, Dej., three specimens, on the mountains; *C. deyrollei*, Gory (? = *arvensis*, L.), in the marshy ground near the road; *C. lineatus*, Dej.?, fragments of a single specimen found on the mountains. *Notiophilus aquaticus*, L., and *N. palustris*, Duft. * *Elaphrus uliginosus*, F., one specimen, in the marshy ground near the road: we have not seen a record of this species from Spain. *Nebria sobrina*, Schauf., rarely. *Bembidium lampros*, Herbst; *B. pyrenæum*, Dej., in abundance, at the edge of the snow on the mountains; *B. stomoides*, Dej.; *B. nitidulum*, Marsh.; *B. sp. n.* *Perileptus areolatus*, Creutz., on the banks of the river below Pajares. * *Deltomerus nebrionides*, Vuillefr., two specimens, on the mountains, near running water, issuing from the lowest patches of snow. * *Platynus sexpunctatus*, L., not rare in the marsh by the road. *Synuchus nivalis*, Panz., *Pterostichus nigrata*, F.; *P. cristatus*, Duf., var. *cantabricus*, Schauf. *Haptoderus cantabricus*, Schauf. *Orthomus barbarus*, Dej. *Pœcilus cupreus*, L. *Steropus lacordairei*, Putz. *Amara equestris*, Duft. * *Zabrus neglectus*, Schaum, var.?, not rare,

* The species marked with an asterisk are not included in v. Heyden's Asturian list.—Deutsche ent. Zeitschr. xxiv, pp. 281–304 (1880).

under stones on the mountains; *Z. asturiensis*, Heyd., one specimen. * *Harpalus cardioderus*, Putz.; *H. honestus*, Duft.; *H. rubripes*, Duft.; *H. psittaceus*, Fourcr., etc., under stones, on the mountains. * *Chlænius velutinus*, Duft. *Licinus planicollis*, Fauv. *Cymindis melanocephala*, Dej.

Limnebius nitidus, Marsh.? * + *Helophorus porculus*, Bedel, at roots of grass, high up on the mountains; *H. glacialis*, Villa, a species occurring on many of the mountains in Spain.

Aleochara fuscipes, F. * *Staphylinus pubescens*, De G. * *Emus hirtus*, L. * *Leistotrophus murinus*, L. * *Actobius prolixus*, Er. *Philonthus splendens*, F., in dung; * *P. fulvipes*, F., var. *varipes*, Rey, in a marshy place. * *Stenus guynemeri*, Duv., one specimen, near running water, as usual; *S. carbonarius*, Gyll. *Oxytelus laqueatus*, Marsh. * *Anthophagus muticus*, Kies., and *A. n. sp.?* (near *pyrenæus*, Bris.), both in numbers, on *Genista*, etc., females only of the second species obtained. *Omalium florale*, Payk.; *O. cæsum*, Grav. *Lesteva longælytrata*, Goeze. *Philorhinum nigriventre*, Rosenh. *Anthobium torquatum*, Marsh., and *A. adustum*, Kies., in plenty on *Genista*.

Silpha nigrita, Cr. *Pedilophorus metallicus*, Chevr., in numbers (but mostly dead) on a grassy mountain ridge, under dry dung, stones, etc. *Byrrhus pilula*, L., and *B. depilis*, Graells: this latter seems to be nothing more than an abraded form of *B. pilula*. *Hister unicolor*, L.; *H. carbonarius*, Ill. *Saprinus æneus*, F.

* *Platycerus spinifer*, Schauf., one specimen: apparently very rare in the Cantabrian Mountains, as it is not mentioned by v. Heyden. *Onthophagus fracticornis*, Preysl., *O. lemur*, F., *O. furcatus*, F., *Aphodius fossor*, L., *A. scrutator*, Herbst, *A. fætens*, F., *A. hæmorrhoidalis*, L., *A. rufescens*, F., *A. obscurus*, F. (in profusion), *A. rufipes*, L., *A. depressus*, Kug., *A. bonvouloiri*, Harold, more or less common in dung on the mountains. *Ammæcius frigidus*, Bris., in abundance, with the preceding. *Geotrupes pyrenæus*, Charp.; *G. typhæus*, L. *Rhizotrogus felicitanus*, Reitt., and *R. fuscus*, Scop., both in profusion on the wing in the hot sun in the forenoon, apparently males only obtained; *R. solstitialis*, L. * *Hymenoplia chevrolati*, Muls. * *Anisoplia bætica*, Er.

Betarmon vittatus, Cand., six specimens on *Genista*.

† This insect also occurs at Albarracin. It has been recorded by Bedel from Scotland!

Melanotus tenebrosus, Er. *Athous reynosæ*, Bris.?, *A. cervicolor*, Heyd., and various other species of the genus. *Limoniæ nigripes*, Gyll. *Corymbites latus*, F., *C. pyrenæus*, Charp.?, and * *C. paulinoi*, Desbr., rarely. *C. hæmatodes*, F., var.?, about a dozen specimens, all females, varying greatly in size. *Hydrocyphon deflexicollis*, Müll., two specimens, by the stream in the valley.

* *Lampyrus noctiluca*, L., females only obtained. *Telephorus abdominalis*, F., *T. rufus*, L., *T. bivittatus*, Mars., *Rhagonycha cantabrica*, Heyd., *R. genistæ*, Kies., *R. hesperica*, Baudi, and others, mostly on *Genista*. *Antholinus amictus*, Er., on *Genista*. *Henicopus heydeni*, Kies., in plenty, on grass-stems: there seem to be two forms of the female of this species wherever it occurs—one with black, the other with grey hair. *Dasytes* spp.?, *Danacæa* spp.?

Heliopates lusitanicus, Herbst. ? * *Cteniopus sulphureus*, L. *Isomira hispanica*, Kies.?, *I. murina*, L., var., both on *Genista*. *Mordella aculeata*, L. *Anthicus antherinus*, L. * *Meloe brevicollis*, Panz. *Zonabris sobrina*, Graells, and * *Lytta vesicatoria*, L., in profusion, on *Genista*. *Cedemera nobilis*, Scop., * *O. podagraræ*, L.

Otiorrhynchus asturiensis, Chevr., not rare on the mountains; *O. pyrenæus*, Gyll., one specimen. * *Homapterus punctulatus*, Bris., not rare, on a mountain ridge, under dry dung, etc.; we had previously met with this insect on the Sierra de Bejar.† *Phyllobius tuberculifer*, Chevr., on *Genista*. *Strophosomus* spp. *Barynotus pyrenæus*, Bris., one worn specimen. *Sitones regentsteinensis*, Herbst. *Hypera biglobosa*, Kirsch, one specimen. *Cleonus nigrosuturatus*, Goeze. *Anisorrhynchus hespericus*, Desbr. * *Baris nivalis*, Bris., one specimen. *Ceuthorrhynchus ericæ*, Gyll. *Cionus blattariæ*, F. *Apion ulicis*, Forst. *Rhynchites betulæ*, L.

Leptura fontenayi, Muls., *Strangalia attenuata*, L., and *Aromia moschata*, L., var. *thoracica*, Fisch., on the road to Puente de los Fierros. *Dorcadion castilianum*, Chevr.?, and *D.* sp.? (mostly rubbed and over), occasionally on the mountain paths.

Lema lichenis, Voet. *Labidostomis lusitanica*, Germ. * *Gynandrophthalma concolor*, F., common, and * *G. reyi*, Bris., rarely, on *Genista*. *Cryptocephalus lusitanicus*, Suffr., many specimens, on *Genista*, etc., all belonging to dark varieties, some of them wholly black, with the exception of two minute spots on the head, the lateral margins of the

† Recorded by us from Bejar under the name of *H. affinis*, Chevr.

prothorax and the scutellum; **C. vittatus*, F.; *C. sericeus*, L.; *C. tibialis*, Bris.; *C. mystacatus*, Suffr.; *C. moræi*, L., and vars. *Gastroidea janthina*, Suffr., with its larva, on *Rumex*, along the roadside, at the summit of the Pass. *Timarcha asturiensis*, Kr. *Chrysomela hæmoptera*, L., *C. rufofemorata*, Heyd., *C. cantabrica*, Heyd., on the mountains; *C. menthastri*, Suffr. **Orina cacaliæ*, Schr., two specimens. **Phytodecta variabilis*, Oliv., *P. olivacea*, Forst. *Phyllodecta vitellinæ*, L. *Luperus nigrofasciatus*, Goeze, common on *Genista*. *Luperus* sp. **Malacosoma lusitanicum*, L. *Haltica* sp.?, common on heath.

List of HEMIPTERA-HETEROPTERA found at Puerto de Pajares.

Carpocoris purpuripennis, De G. *Therapha hyoseyami*, L. *Lygæus equestris*, L., *L. pandurus*, Scop. *Geocoris ater*, F., under stones, on the mountains. *Orthostira macrophthalma*, Fieb., with the preceding. *Nysius senecionis*, Schall. *Stygnocoris fuliginæus*, Fourcr. *Emblethus angustus*, Mont. *Aphanus pini*, L. *Heterogaster artemisiæ*, Schill. *Harpactor iracundus*, Poda. *Nabis rugosus*, L. *Calocoris sexguttatus*, F. *Pachytomella cursitans*, Reut., n. sp., in profusion, amongst short grass on the mountains. *Capsus scutellaris*, F. *Strongylocoris leucocephalus*, L., var. *steganoides*, Sahlb. *Heterocordylus tibialis*, Hahn.

In the immediate vicinity of La Granja there were but few beetles to be found at the end of July, and even on the mountains the characteristic *Dorcadions* were almost over. We obtained, however, an interesting *Cryptocephalus*, *C. 5-punctatus*, and *Cnecorrhinus pyriformis*, on young oaks, on the "flat" east of the Palace Gardens. At the sources of the small streams, in the upper part of the pine forest, under chips and stones, we found the very local *Leistus constrictus*, *Carabus ghilianii*, *C. quadarramus*, and *C. helluo*, *Steropus ghilianii*, *Haptoderus nemoralis*, and others. Higher up, above the pine forest, at or near the sources of the streams issuing from the patches of melting snow, we again met with the *Leistus*, and here accompanied by *Nebria vuillefroyi* (mostly immature), *Zabrus seidlitzii*, *Otiorrhynchus truncatellus*, *Bembidium ibericum*, *B. laterale*, etc. Around the Laguna de los Pajaros, on the south side of the Peñalara, on which there were various patches of snow, a variety of interesting species were obtained,

including a *Pedilophorus* (apparently new), *Bembidium carpetanum* (at the edge of the melting snow, in abundance), *Dichotrachelus graellsii*, *Trechus pandellei*?, *Cathormiocerus chevrolati*, etc., and in the lagoon itself *Esolus angustatus*, *Lareynia carinata*, *Deronectes griseostriatus*, and others. Myriads of winged ants were sometimes found floating on the surface of this lagoon, probably carried there by the wind. On the short turf hereabouts, from which a large number of vultures (looking like a flock of sheep, as seen from the ridge above) were disturbed on one of our visits, a *Timarcha* abounded, and the two local *Dorcadions* (so abundant in early summer) were still represented by a few worn examples. Near the Puerto de Reventon the brilliant *Geotrupes coruscans* was seen in numbers, flying in the hot sunshine, and at the Puerto de Navacerrada *Cyrtonus montanus*, *Misolampus scabricollis*, etc., occurred under stones. The pine stumps and logs produced three species of *Liodes* (as in Scotland), *Læmosthenes pinicola*, *Spondylis buprestoides*, *Sphindus dubius*, a *Bothrideres*, a *Plegaderus*, *Paromalus flavicornis*, *Enicmus rugosus*, *Lygistopterus sanguineus*, etc. About a waterfall, on the way to the Reventon, *Geodromicus nigrita* was taken, in company with various species of *Hydroporus*, *Helophorus*, *Bembidium*, etc. *Chlænium dives* was occasionally seen, and a *Thylacites* occurred not uncommonly, as usual under stones exposed to the full glare of the sun. On flowers but few insects were to be found beyond *Cerocoma schreberi*, one or two *Zonabris*, and *Leptura stragulata*. Though too late for most of the beetles, we were, however, at the right time for the Capsidæ, various interesting species of *Phytocoris* being plentiful on oak, etc., though very difficult to catch when beaten into an umbrella. Part of our success here was due to the kind assistance of our old friend Señor Ignacio Bolivar, whom we were fortunate enough to meet on one of our excursions to the Sierra.

List of COLEOPTERA found at La Granja (including the Peñalara).

Carabus ghilianii, Laf., *C. guadarriamus*, Laf., and *C. helluo*, Dej., under stones, especially about the sources of the small streams, at the upper limits of the pine forest, the first-mentioned species the most common. *Leistus constrictus*, Schauf., a few specimens, at the sources of the small streams, and also about the lowest patches of snow; it is exceedingly active, and difficult to secure in

perfect condition ; on one occasion about a dozen examples were found under the bark of a pine stump, on the banks of a small stream, but few of them, however, were captured without injury. *Nebria vuillefroyi*, Chaud., not rare, but mostly immature at this season, under stones and moss, in the streams issuing from near the melting snow. *Tachypus cyanicornis*, Pand. *Bembidium pyrenæum*, Dej. (var. *carpetanum*, Sharp), abundant, at the edges of the snow patches on the Peñalara ; *B. decorum*, Duft. ; *B. ibericum*, Pioch. ; *B. laterale*, Dej. ; *B. hypocrita*, Dej. ; *B. toletanum*, Perr. *Tachys parvulus*, Dej. *Trechus pandellei*, Putz. ?, plentiful, at the edges of the snow on the Peñalara. *Platyderus montanellus*, Graells. *Haptoderus nemoralis*, Graells, plentifully, with the *Leistus*. *Læmosthenes pinicola*, Graells. *Steropus ghilianii*, Putz., not rare, under stones. *Zabrus seidlitzii*, Schaum, common on the mountains. *Chlænium dives*, Dej., on the mountain slopes, running about in grassy places.

Deronectes griseostriatus, De G., *Hydroporus flavipes*, Oliv., etc., *Agabus heydeni*, Wehncke, *A. guttatus*, Payk., *A. conspersus*, Marsh., *Helophorus glacialis*, Villa, *Hydræna* sp., *Esolus angustatus*, Müll., *Lareynia carinata*, Perez, *Limnius* sp., etc., in the Laguna de los Pajaros, on the Peñalara, or in the streams lower down.

Echidnoglossa glabrata, Kies., one specimen, on the mountains. *Atheta luctuosa*, Rey, and others of the genus, at the edges of the snow, on the Peñalara. *Baptolinus alternans*, Grav., in the pine stumps. *Geodromicus nigrita*, Müll., at the edge of a waterfall near La Granja.

Liodes humeralis, Kug., *L. castanea*, Herbst, and *L. glabra*, Kug., *Agathidium piceum*, Er., *Enicmus rugosus*, Herbst, *Bothrideres interstitialis*, Heyd., *Plegaderus saucius*, Er., *Paromalus flavicornis*, Herbst, under bark of pine stumps. *Phalacrus maximus*, Fairm. *Olibrus bisignatus*, Mén., *O. bimaculatus*, Küst., *O. pygmæus*, Sturm, on flowers, near La Granja. *Pedilophorus* n. sp. (belonging to the sub-genus *Trichobyrrhulus*, Ganglb.), two specimens, near the snow, Peñalara.

Copris lunaris, L., *Aphodius foetens*, F., *A. scrutator*, Herbst, *A. bonvouloiri*, Harold, *A. obscurus*, F., *Ammæcius frigidus*, Bris., *Onthophagus schreberi*, L., *Oniticellus flavipes*, F., *Gymnopleurus flagellatus*, F., *Geotrupes coruscans*, Chevr., etc., in dung on the mountains, the *Geotrupes* frequently taken on the wing in the hot sun. *Rhizotrogus pygialis*, Muls. *Serica mutata*, Gyll.

Coræbus æneicollis, Vill. *Anthaxia millefolii*, F. *Melanotus dichrous*, Er.

Lygistopterus sanguineus, L., on the pine stumps. *Trichodes ammios*, F., *T. apiarius*, L. *Sphindus dubius*, Gyll., in powdery fungus on pine stumps.

Micrositus ulyssiponensis, Germ., under stones. *Misolampus scabricollis*, Graells, under stones, Puertode Navacerrada. *Lagria rubida*, Graells (*parvula*, Perr.). *Mordellistena neuwaldeggiana*, Panz. *Zonabris hieracii*, Graells, *Z. 4-punctata*, L., *Z. variabilis*, Pall., *Z. dejeani*, Gyll., *Z. geminata*, F., etc., and *Cerocoma schreberi*, F., more or less abundant on flowers. *Edemera podagrariæ*, L.

Otiorrhynchus truncatellus, Graells, not uncommon on the Guadarrama, occurring even on the summit of the Peñalara. *Strophosomus erinaceus*, Chevr.; *S. ebenista*, Seidl., a common insect on the Guadarrama, and often found in numbers under stones. *Cathormiocerus chevrolati*, Seidl., and *Dichotrachelus graellsii*, Perris, near the snow, Laguna de los Pajaros. *Cneorrhinus pyriformis*, Boh., not rare, on oak bushes near the town: two forms of the female were met with (as in the species found on *Genista* at Piedrahita in 1902), one green, the other grey, like the male, the latter being less elongate than the corresponding sex of the Piedrahita insect; the scales of the green females from La Granja are opaque, while in those from Piedrahita they are metallic.* *Thylacites* sp., common, under stones, in bare hot places. *Brachyderes lusitanicus*, F., *B. incanus*, L. *Pachytychius scabricollis*, Rosenh. *Polydrosus setifrons*, Duv. *Brachytemnus porcatus*, Germ., in the pine stumps. *Ceuthorrhynchus biscutellatus*, Chevr. *Balaninus pellitus*, Boh. *Orchestes avellanæ*, Don., *O. ilicis*, F., *O. quercus*, L. *Rhamphus flavicornis*, Herbst. *Apion atomarium*, Kirby, *A. craccæ*, L., *A. pomonæ*, F., *A. vorax*, Herbst, etc. *Attelabus curculionoides*, L. *Hylastes palliatus*, Gyll.

Spondylis buprestoides, L., a common species in the pine forest. *Vesperus brevicollis*, Graells, two males beaten from oak. *Criocephalus* sp., in the pine forest. *Leptura stragulata*, Germ., *L. rubra*, L., *L. livida*, F. *Dorcadion graellsii*, Graells, *D. hispanicum*, Muls., Laguna de los Pajaros, Peñalara, not rare, but worn, both species being almost over in July.

Titubæa biguttata, Oliv. *Lachnæa pubescens*, Duf., *L. sexpunctata*, Scop. *Cryptocephalus 5-punctatus*, Harr.,

* Cf. Trans. Ent. Soc. Lond. 1903, pp. 176, 177.

sparingly, on young oak bushes on the "flat" outside La Granja: we have not seen a record of this conspicuous species from Spain, and it is not represented in the Madrid Museum; *C. sexmaculatus*, Oliv., *C. globicollis*, Suffr., *C. moræi*, L. *Cyrtonus montanus*, Graells, Puerto de Navacerrada, nearly over in July. *Timarcha* sp., in abundance, Laguna de los Pajaros. *Chrysomela hæmoptera*, L.; *C. rufoænea*, Suffr. *Hispa atra*, L. *Cassida margaritacea*, Schall.

Halysia 12-guttata, L., *H.* 18-guttata, L. *Adonia mutabilis*, Scriba. *Coccinella* 14-pustulata, L. *Exochomus* 4-pustulatus, L., *E. auritus*, Scriba.

List of HEMIPTERA-HETEROPTERA found at La Granja.

Eurygaster maura, L. *Graphosoma lineatum*, L. *Sehirus dubius*, Scop., *S. maculipes*, M. and R. *Ælia rostrata*, Poh. *Neottiglossa leporina*, H.-S. *Staria lunata*, Hahn. *Eurydema festivum*, L., *E. oleraceum*, L. *Tropicoris rufipes*, L. *Carpocoris purpuripennis*, De G. *Verlusia quadrata*, F. *Centrocoris spiniger*, F. *Gonocerus juniperi*, H.-S. *Therapha hyoseyami*, L. *Corizus crassicornis*, L., *C. parumpunctatus*, Schill., *C. tigrinus*, Schill. *Lygæus equestris*, L., *L. pandurus*, Scop., *L. superbus*, Poll. *Nysius thymi*, Wolff. *Cymus glandicolor*, Hahn, *C. melanocephalus*, Fieb. *Heterogaster artemisiæ*, Schill. *Macroplox fasciata*, H.-S. *Microplex interrupta*, Fieb. *Aphanus pini*, L. *Taphropeltus championi*, Reut., n. sp. *Beosus maritimus*, Scop. *Emblethis angustus*, Mont. *Monanthia echii*, Wolff. *Serenthia læta*, Fall. *Phymata crassipes*, F. *Aradus flavicornis*, Dalm., one specimen, in the Laguna de los Pajaros. *Coranus subapterus*, De G. *Nabis fesus*, L. *Salda cocksi*, Curt. *Cryptostemma alienum*, H.-S. *Piezostethus terricola*, Reut., under a stone on the mountains. *Miris lævigatus*, L., *M. calcaratus*, Fall. *Megaloceræa erratica*, L. *Lopus gothicus*, L. *Phytocoris meridionalis*, H.-S., abundant, and *P. vittiger*, Reut., *P. varipes*, Boh., *P. femoralis*, Fieb., *P. abeillei*, Puton, and *P. albofasciatus*, Fieb., more rarely, on oak, etc., but very difficult to secure. *Megalocælum infusum*, H.-S. *Adelphocoris lineolatus*, Goeze. *Pæciloscytus unifasciatus*, F. *Brachycoleus triangularis*, Goeze. *Cyphodema instabile*, Luc. *Camptobrochis lutescens*, Schill. *Capsus ruber*, L. *Pilophorus cinnamopterus*, Kb., and *P. perplexus*, Scott, on oak. *Oncotylus bolivari*, Reut. *Sthenarus ocularis*, M. and R. *Dicyphus geniculatus*, Fieb. *Corixa mæsta*, Fieb.

From La Granja we went on to Madrid, spending a day or two there to visit the Museum, etc. Leaving Madrid on Aug. 5th, we proceeded northward to Navalperal (4165 ft.), in the Province of Avila, and at the western extremity of the Guadarrama. Here we were joined by the Spanish entomologist, Manuel Escalera, who accompanied us to the "Pinar" of Las Navas, etc. The partially-dried-up streams at this place furnished a large number of water-beetles, *Deronectes carinatus* being particularly abundant, and on the sandy banks we found *Acylophorus glabricollis*, various *Bembidia*, etc. In the pine forest we obtained divers Longicornia and other beetles, from the earthenware cups placed on the pine trunks to catch the exuding resin, such as *Nothorrhina muricata*, *Ergates faber*, *Temnochila cærulea*, etc. Our time, however, at Navalperal was limited, and we finished our collecting here by catching several males of *Vesperus brevicollis*, just before commencing our long homeward journey. It may be worth noting, perhaps, that at Irun, on July 7th, we observed *Hylotrupes bajulus* in numbers on the telegraph posts, in which the females were depositing their eggs.

List of COLEOPTERA found at Navalperal.

Bembidium elongatum, Dej., *B. octomaculatum*, Goeze. *Bidessus geminus*, F., *B. minutissimus*, Germ. *Hydroporus halensis*, F., var. *fuscitarsis*, Aubé, in profusion, *H. flavipes*, Oliv., *H. varius*, Aubé, *H. lepidus*, Oliv., *H. marginatus*, Duft., *H. lituratus*, Brullé, *H. discretus*, Fairm., etc. *Deronectes carinatus*, Aubé, in abundance. *Agabus brunneus*, F., *A. didymus*, Oliv., *A. chalconotus*, Panz. *Ilybius fuliginosus*, F. *Dytiscus pisanus*, Lap. (♀), *D. marginalis*, L. (♂ and ♀), *D. punctulatus*, F. *Gyrinus urinator*, Ill. *Hydrophilus flavipes*, Stev. *Limnoxenus oblongus*, Herbst. *Hydrobius fuscipes*, L. *Helochares* sp. *Paracymus æneus*, Germ. *Hydrochus* sp. *Hydræna testacea*, Curt., *H. riparia*, Kug., *H. nigrita*, Germ. *Pelochares versicolor*, Walk. *Acylophorus glabricollis*, Lac. *Philonthus suavis*, Bris., *P. umbratilis*, Grav., *P. quisquiliarius*, Gyll. *Phalacrus maximus*, Fairm., not rare on flowers. *Meligethes exilis*, Sturm, with the preceding. *Temnochila cærulea*, Oliv., *Anthaxia 4-punctata*, L., *Melanotus dichrous*, Er., *Rhizotrogus neglectus*, Perez, *Nothorrhina muricata*, Dalm., *Ergates faber*, L., and *Criocephalus* sp., *Hylurgus ligniperda*, L., *Tomicus sexden-*

tatus, Boern., in or about the earthenware cups fastened on the pines to catch the exuding resin; many of the specimens had been thus trapped, and were so coated with resin that they had to be immersed in benzine or turpentine before they were of any use. *Lygistopterus sanguineus*, L. *Clerus formicarius*, L. *Cerocoma schreberi*, F. *Zonabris geminata*, F., *Z. variabilis*, Pall. *Brachyderes suturalis*, Graells, on pines. *Cleonus marmottani*, Bris. *Lixus iridis*, Oliv., in the stems of a large Umbellifer; *L. ascanii*, L. *Pissodes notatus*, F. *Rhynchites cæruleocephalus*, Schall., on *Cistus*. *Vesperus brevicollis*, Graells, males attracted to an acetylene lamp placed by Señor Escalera outside a house in the village for the purpose of catching moths.

List of HEMIPTERA-HETEROPTERA found at Navalperal.

Ancyrosoma albolineatum, F. *Ælia acuminata*, L. *Eurydema festivum*, L. *Phyllomorpha laciniata*, Vill. *Centrocoris spiniger*, F. *Syromastes marginatus*, L. *Camptopus lateralis*, Ger. *Neides tipularius*, L. *Lygæus saxatilis*, Scop. *Nabis ferus*, L., *N. rugosus*, L. *Gerris gibbifer*, Schml. *Corixa sahlbergi*, Fieb., *C. transversa*, Fieb., *C. semistriata*, Fieb.

Descriptions of two new species of Hemiptera-Heteroptera from Spain. By Prof. O. M. REUTER.

Taphropeltus championi, n. sp.

Fusco-ferrugineus, $\frac{2}{3}$ apicalibus marginum lateralium pronoti anguste pallidis, $\frac{1}{3}$ horum basali nigro-fusco; clava tertiaque basali parte corii testaceis, illo apice sat late nigro-fusco, corio cetero nigro-fusco, macula marginali fere in tertia apicali parte posita albido-flavente, membrana infuscata, venis obscurioribus, macula oblonga exteriori suturam membranæ terminante; antennis modice gracilibus, obscure ferrugineis, articulo secundo apice tertioque nigro-fuscis, quarto flavo-testaceo, basi nigro-fusco; pedibus cum coxis flavo-testaceis vel flavo-ferrugineis, femoribus anticis (♀) modice incrassatis, spinulis duobus instructis et inter eas et apicem subtiliter denticulatis, spinula posteriore supra medium posita, tibiis anticis sat fortiter arcuatis.

Long. ♀ $2\frac{9}{10}$ mm.

Hab. SIERRA DE GUADARRAMA, La Granja.

T. contracto, H.-Sch., minor, colore corporis, antennarum et pedum, pronoto magis æquali, lobo antico ejus parum convexo, sulco transversali minus distincto, spinula posteriore femorum anticorum basi magis appropinquata mox distincta. Caput omnium creberrime et subtilissime punctatum. Antennæ articulo secundo latitudini verticis oculique unici æque longo, ultimis apice ejus paullo crassioribus, tertio secundo circiter $\frac{1}{4}$ brevior, quarto secundo fere æque longo. Rostrum pallide flavens, coxas intermedias attingens. Pronotum sulco transversali pone medium sito, parte apicali parum convexo, creberrime subtiliter punctata, parte basali concolore, minus crebre et paullo fortius punctata. Scutellum ut pars basalis pronoti punctatum. Clavus triseriatim punctatum. Corium apicem versus obsoletius punctatum.

Two specimens.

Pachytomella cursitans, n. sp.

Nigra, nitens, pronoto postice hemielytrisque omnium subtilissime cinereo-pubescentibus; antennis pedibusque utriusque sexus totis nigris; vertice haud vel obsoletissime marginato et utrinque ad oculum obtuse depresso, fronte fortiter convexa, clypeo basi a fronte impressione bene discreto; antennis articulo secundo latitudine verticis interoculari parum longiore (♂) vel hac circiter $\frac{1}{3}$ brevior, gracili (♀); hemielytris crebre sat fortiter coriaceo-punctulatis; mare feminaque (plerumque) brachypteris; capite formæ brachypteræ basi pronoti æque lato; dorso abdominis feminae leviter ænescente.

Long. ♂ $1\frac{3}{4}$ mm., ♀ $1\frac{1}{2}$ mm.

Hab. CANTABRIAN MOUNTAINS, Puerto de Pajares.

P. doriæ, Ferr. et Reut., affinis et similis, corpore superne niger-rimo haud chalybeo-nitente, quamvis valde nitido, glabro, solum pronoto postice hemielytrisque omnium brevissime et subtilissime cinereo-pubescentibus, his fortius coriaceo-punctatis, antennis brevioribus pedibusque utriusque sexus totis nigris divergens. Corpus formæ brachypteræ breviter ovale (♂) vel late ovatum (♀). Caput formæ brachypteræ a supero visum pronoto longitudine æquale vel subæquale, ab antico visum latitudini verticis oculique unici fere æque longum, vertice oculo fere $2\frac{1}{2}$ (♂)—triplo (♀) latiore, clypeo retrorsum vergente, genis altis, gula haud distinguenda. Oculi retrorsum vergentes, angulis anticis pronoti incumbentes. Antennæ ad (♂) vel paullo infra (♀) apicem oculorum interne insertæ, articulo primo apicem clypei haud attingente, secundo versus apicem sensim incrassato, feminae quam maris

graciliore, duobus ultimis simul sumtis secundo paullo longioribus, quarto tertio brevior. Pronotum formæ brachypteræ basi longitudine duplo (♂) vel magis quam duplo (♀) latius, apice quam basi parum angustius, disco horizontali, antice foveolis quatuor in arcum positus, postice subtiliter striguloso, margine basali late sinuato. Hemielytra formæ brachypteræ apicem segmenti quarti (♂) vel basin segmenti tertii (♀) dorsalis attingentia, tota coriacea, commissura scutello distincte longiora (♂) vel huic æque longa (♀), margine apicali valde obliquata (♂) vel subrecte truncata (♀), angulo exteriori subrecto (♀) vel acutiusculo, rotundato (♂).

Many specimens.

EXPLANATION OF PLATE.

PLATE VII.

The Monastery of Santas Arbas, about a mile south of the Pass of Pajares, and near the confluence of several valleys on the southern side.



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