Observations on the above.

Agrilus biguttatus was taken in the hollow to the left of the main path through the wood.

Elater præustus, on the western edge of the wood.

Molorchus umbellatarum was in the greatest profusion.

Ægeria apiformis, *bembeciformis*, *cynipiformis*, *myopæformis*, *formiciformis*, and *vespiformis*, *Sesia fuciformis* and *bombyliformis*, and *Polypogon derivalis*, were taken in the hollow.

Acronycta ligustri, on the trunks of oaks.

Several of the larvæ of each of the following insects were found full-fed on the 11th of July:—*Notodonta perfusca*, *Chaonia roboris*, and *Biston prodromarius*.

Art. XX.—*Description of the Genera and Species of the British Chrysididæ.* By W. E. Shuckard, M.E.S.

It is not from having made any notable discoveries, or additions to the already recorded indigenous species of these exceedingly pretty insects, that I am prompted to bring together the dispersed notices of them, but from a desire that season after season shall not pass away without making them more accessible to cabinets in general, by placing in the hands of the remote collector the ready means to determine his captures, and thereby stimulate him to further exertion.

Latreille, in the second edition of the *Règne Animal*, makes them the sixth tribe of the second family, viz. of the *Hymenoptera pupivora*; he had previously placed them preceding the *Oxyurites*, in his *Familles Naturelles*, but he here alters their situation. I have not leisure at the present moment to discuss the question, for this paper will be solely technical, and I therefore leave them where he places them; but they form a very natural group, the essential character of which is, an articulated ovipositor, each articulation of which is retractile within the other, like the tubes of a telescope. Latreille says they have a sting at the end of it. I know, from experience, that it will frequently puncture and produce momentary pain,

which I consider as solely mechanical, for it has no true *aculeus*, a necessary condition of which is, that it should likewise instil a poison; but no poison-secreting organs have yet been detected in them, nor have I ever understood that the puncture has produced inflammation. They are supposed to be parasites—many, to all appearance, upon species of the genus *Odynerus*, and some upon *Osmia bicornis*, *Halicti*, and *Andrenæ*. But little is known of their history. Dahlbom says, their larvæ are apods, and subvermiform. In hot, sunny, sandy places, they are to be observed running and flying with agility, and in constant motion, investigating every aperture or crevice they meet with. They are also found in numbers upon palings, posts, the trunks of trees, and the leaves of plants, but less frequently in the latter situation, and never but in the sunshine. But their habits vary as much as their habit, and did we know their history thoroughly we should, I dare say, find that they differ as much throughout their developments as when arrived at their perfect state, which will necessarily be adapted to their respective functions. But, not to weary the reader with hypotheses, I will give a short synopsis of the external characters which separate them into their several genera. But I must premise that they are, in the majority of species, of a tolerable size; and I have never observed, even amongst their minims, one less than a line in length, nor quite so small; and their colours are more or less metallic, in which copper, gold, steel, and brass, vie with each other in refulgency; but *retournons à nos moutons*.

A. Thorax narrowed in front: abdomen lanceolate, not convolvent . . . . . I. CLEPTES.

B. Thorax not narrowed in front, and truncated at both extremities: abdomen concavo-convex, convolvent.

1. Scutellum not produced.
   - *a.* Abdomen semi-cylindrical . . . . . II. CHRYSIS.
   - *b.* Abdomen subquadrate . . . . . III. EUCHRŒUS.
   - *c.* Abdomen semi-circular . . . . . IV. HEDYCHRUM.
2. Scutellum produced at its apex into a flat mucro . V. ELAMPUS.

Short generic descriptions will suffice for the ostensible object of this paper, which is merely to facilitate the recognition of species, and especially as brief external generic characters will sufficiently mark the discrepancies of the British

genera, which do not interlink so closely as to require a detailed examination of the oral organs. The British entomologist may, therefore, take for granted, that sufficient differences exist, besides those given, to warrant retaining the genera already established.

Genus I.—Cleptes, *Latr.*

Head transverse, as wide as the mesothorax: antennæ with thirteen joints in both sexes: prothorax subquadrate, somewhat narrowed in front: metathorax truncated, and produced on each side into an acute spine: legs moderate: superior wings with a closed marginal cell, the radial[a] nervure being rounded; the cubital nervure is obsolete just beyond the first recurrent, but the space it leaves for the submarginal cells is unusually wide; the first and second discoidal cells complete, small, the latter oblong-quadrate; the first apical cell almost complete, but the subdiscoidal nervure does not quite extend to the apex of the wing: abdomen ovato-conical, with five segments in the male, and in the female four, with a protruded ovipositor.

In general habit, the insects of this genus approach closely to the aculeate genera *Meria*, *Plesia*, and *Tiphia*, but their retractile ovipositor, parasitic habits, and metallic colours, necessarily bring them into the present family. They cannot, from the structure of the abdomen, roll themselves up, like the other species of the family, upon the approach of danger.

Sp. 1. Cl. semiaurata.

Latr. Hist. Nat. T. XIII. 236. 1. *Nouv. Dict.* VII. 190. *Fab. Piez.* 154. 1. *Le Pelet. Ann. du Mus.* T. VII. 119. 1.

Sphex semiaurata . . *Linn. Fn. Suec.* 1661. *Systema, Ed.* 12. 946. 35.

Chrysis semiaurata . . *Fab. S. E.* 357. 14. *Sp.* 457. 17. *Oliv. Ency. Méth. Ins.* II. 676. 21.

[a] For an explanation of the terms I use in the description of the nervures of the superior wings, I must refer to my Essay on the Indigenous Fossorial Hymenoptera, p. 17, and the illustrative plate; and also to a Paper on the Neuration of the Superior Wings of the Hymenoptera in general, where they are treated in greater detail, which will appear in Part III. of the Transactions of the Entomological Society.

Ichneumon semiauratus, *Fab. Mant.* 269. 127. *Ent. System.* II. 184. 210.
Id. splendens . *Fab. Ent. Syst. Sup.* 229. 211. ♂
Cleptes splendens . . *Fab. Piez.* 155. 3.
Ichneumon auratus . . *Panz. F. G.* 52. 1. ♀ Cleptes. *Panz. Krit. Rev.* II. 95.
Id. semiauratus, *Panz. F. G.* 51. 2. ♂ Cleptes. *Panz. Krit. Rev.* II. 95.
Id. id. *Rossi.* II. 8vo. 78. 790.

In the *male.* Head, first joint of the antennæ, and thorax, of a brilliant metallic green or blue, and very much punctured, especially the vertex and the prothorax; the metathorax rugose: the wings slightly fuscous, with an iridescent reflection; the nervures piceous: the legs testaceous, excepting the femora, which are all of the same colour as the thorax; but the posterior ones are above testaceous, which becomes fuscous towards the apex: the extreme tip of the coxæ, the four posterior trochanters, and the extreme base of the femoræ, are red: the tarsi dusky: the abdomen shining testaceous, with the marginal half of the third segment black, and the fourth and fifth of a steely-blue.

In the *female*, the head and thorax are of a rich coppery-red, or gold-colour, less deeply punctured than in the male: the antennæ testaceous; the eight apical joints fuscous: the wings with a clouded fascia passing over the base of the space apportioned to the submarginal cells and the discoidal cells, and another dark cloud towards the apex: the legs entirely testaceous: the abdomen the same, except the black margin of the third segment, as in the male, and the fourth of a metallic blue or green: ovipositor exserted. (Length, 3—3½ lines; expansion of the wing, 5 lines.)

This species has been found all round the metropolis. Mr. Westwood once took it in numbers at Chelsea; it has occurred near Southgate, captured by Mr. Walker; and it has been taken in the Regent's Park. I have taken males this year at Old Brompton. St. Fargeau considers that it is parasitic on a *Tenthredo.*

Sp. 2. Cl. nitidula. *Rossi.*

Latr. Hist. Nat. T. XIII. 236. 2. *Le Pelet. An. du Mus.* VII. 119. 2. *Fab. Piez.* 154. 2.
Ichneumon nitidulus. *Rossi,* II. *Fab. Ent. System.* 184. 211. *Coquebert,* 19. Pl. 4. Fig. 5.

The *male*. I can detect no difference between the insect I possess, as the male of this species, and the male of the preceding, with the exception of the slighter exsertion of the fifth abdominal segment, and the colour of the head and thorax being more blue.

The *female* has the head bronzy, inclining to coppery; the scape of the antennæ bronzy above, red beneath; and the two first joints of the flagellum also red, the rest black; vertex and face with scattered deep punctures: prothorax testaceous; mesothorax bronzy black, both slightly punctured; metathorax blue and rugose; legs testaceous: the intermediate and posterior coxæ, trochanters, and femoræ, of a bronzy black: abdomen shining testaceous, with the posterior half of the third segment black, and the fourth steely-blue: ovipositor exserted.

I believe this species has not occurred near London; it has been found in Suffolk, by Mr. Rudd, and it has also occurred in the New Forest, Hants. The male is not yet fully or well determined; the differences between the one I have received as such from my friend, the Rev. G. T. Rudd, and the preceding species, are too slight to admit of my considering it determinate, for I have carefully examined it under a lens of high power.

Genus II.—Chrysis, *Linn.*

Head transverse, as wide as the thorax, which is truncated anteriorly and posteriorly, and the metathorax has a minute tooth on each side: abdomen consisting of three segments, the third being sulcated towards its extremity, and along the margin of this sulcation it has a row of minute fossulets: the apex frequently dentate, but the teeth, in some species, obsolete, or entirely deficient: the superior wings with a marginal[b] and first and second discoidal cells complete, and a first apical cell nearly complete: the radial nervure forms an angle (except in *Chr. cyanea*, where it is rounded,) and the second discoidal is quadrangular (except in *Chr. neglecta*, where it is triangular): legs moderate.

The insects of this genus possess the power of rolling themselves up into a ball upon the approach of danger. They are supposed to be parasitic, but their history is not known, as their earlier stages have not been ascertained. They are to be

[b] This cell is open in *Chrysis neglecta*.

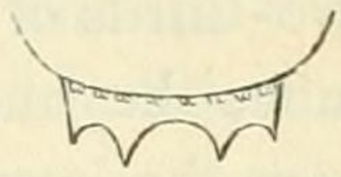
found almost every where in the height of summer in sunny situations; they are extremely active.

Sect. I. *Abdomen more or less dentate at the apex.*

Sp. 1. Chr. ignita.

Linn. F. S. 1665. *S. N.* 947. 1.
Fab. S. E. 358. 6. *Sp.* I. 455. 8. *Mant.* 283. 9.
Ent. Syst. II. 241. 10. *Piez.* 173. 14.
Olivier, Ency. Mét. Ins. II. 673. 11.
Latr. Hist. XIII. 238. 4. *Nouv. Dict.* VII. 71.
Le Pelet. Ann. du Museum, VII. 126. 12.
Cuvier, Tableau Elémentaire, 502. 1.
Panz. F. G. 5. 22.
Spin. I. 64. 6.
Rossi, F. E. II. 119. 842. in 8vo.
Donovan, Brit. Insects, Vol. I. pl. 7.
Schrank, F. B. II. 2. 344. 2195.

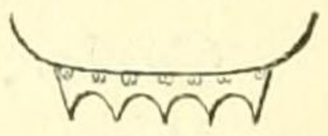
Var. 1.—(*Alcione.*) Head, thorax, and legs, (except the tarsi, which are black,) of a beautiful metallic blue or green, occasionally and variously splashed with a golden refulgence; sometimes dull blue: abdomen of rich refulgent metallic crimson, red, or purple, sometimes obscure, the apex terminated by four teeth; the two central ones distant from each other and nearer the lateral ones, their apices describing a curve: head, thorax, and abdomen, very coarsely and deeply punctured, the margin of the second and entire third segment being less deeply so; an elevated longitudinal smooth line running down the centre of the abdomen, frequently obsolete upon the third segment. (Length, varying from 3—7 lines; expansion of wings, from $5\frac{1}{4}$—$10\frac{1}{2}$ lines; from the inspection of twenty individuals.)



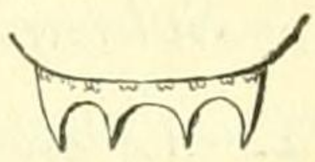
Var. 2. (*Asterope.*) Colour and sculpture nearly the same as in the former, but the terminal teeth of the abdomen are at equal distances, their apices describing a decided curve. The colour is generally somewhat less vivid, and the apical portion of the second segment, and the entire third, is a little more punctured, but in general habit it much resembles it. (Length from 4—$5\frac{1}{2}$ lines, from the inspection of seventeen individuals.)

Var. 3. (*Celeno.*) In this variety the abdomen is much more punctured than in the two preceding; it is also more quadrate, being broader in proportion to the general size. Its colour is more opaque; the terminal teeth also have the two central ones closer together, and the lateral ones wider from them, the depth of the central curve or emargination being considerably less than that of the lateral ones, and the apices of the teeth nearly equal. (Length from $3\frac{1}{4}$—$4\frac{1}{2}$ lines; from the inspection of thirty-four individuals.)

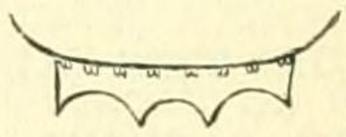
Var. 4. (*Electra.*) In this the puncturing and refulgence of the abdomen resemble *Var.* 3, but the terminal teeth are all at equal distances, the emarginations they form are of equal depth, and their apices are in a straight line. (Length 3—$4\frac{1}{2}$ lines; from the inspection of nineteen individuals.)[c]



Var. 5. (*Maïa.*) In this the puncturing and refulgence is the same as the *Var.* 3 and 4, but the terminal teeth are considerably bent round the lateral emarginations, describing two-thirds of a circle, and the lateral teeth advance beyond the central ones. (Length from $3\frac{1}{2}$—$5\frac{1}{4}$ lines; from the inspection of two individuals.)



Var. 6. (*Taygeta.*) In this the sculpture of the abdomen is the same as in the last, but the apices of the teeth describe a slight curve, and the two central ones are closer together than to the lateral ones. (Length $3\frac{1}{2}$—$4\frac{1}{2}$ lines; from the inspection of two individuals.)



I must make a few observations upon the colours of these insects, which have been too often had recourse to for specific subdivision in British entomological cabinets. In every variety above described, the colours vary in intensity from brilliant green and gold to deep blue, and the abdomen from crimson, with a golden refulgence, to purple, and even its darker shades, arising, I conceive, from the quantity of juices within the insect at the time of its death, and also from the mode of killing, or the length of time in dying. As no two specimens agree exactly in colour, I was obliged to resort to what I consider safer characters, but which I think are also doubtful, and characterise nothing more than varieties; still

[c] In this wood-cut there should be but four teeth.

it has struck me as remarkable, that *Vars.* 1 (the type) and 2, agree together in general habit and sculpture, as do also *Vars.* 3 and 4. In the former two varieties the effulgence of the abdomen is greatest, having smooth portions, but in the latter two, it is uniformly punctured throughout, which gives them a more opaque appearance; and even those which have a golden glow are less vivid than in the two first varieties. In these, both sexes appear to be mixed, but there are fewer males than females. *Var.* 3 appears to consist entirely of females, and *Var.* 4 of males; these, perhaps, may constitute species, viz. 1 and 2, one, and 3 and 4, another. I have not data sufficient to found any hypothesis upon as to their habits, or thence to separate them, as I have omitted distinguishing those which I have collected upon old road rails, &c., from those that I have taken upon sand; but this description of them may perhaps lead to some satisfactory result in giving a clue for entomologists to thread the maze by. Species in other orders have certainly been established upon much less tangible characters, and therefore, although I have considered them as varieties merely of one insect, I have given them names, which can be rejected or adopted at pleasure. In general habit, *Vars.* 5 and 6 resemble 3 and 4, but too few have occurred to admit of my considering them more than varieties; upon which subject I may observe, that we find, throughout the domains of nature, some genera and species have a constant inclination to vary from their types, whereas, others are constantly true to one peculiar structure. This species, therefore, may possibly admit of being classed amongst the regular irregularities.

Sp. 2. Chr. Ruddii.

Head, first and second joints of the antennæ, and legs, excepting the tarsi, of a rich green or blue, more or less splashed with gold; the collar and scutellum more or less cupreus; the tarsi and flagellum of the antennæ black: the abdomen of a rich carmine pink, opaque, and occasionally with a golden glow, very densely and minutely punctured with a slight longitudinal carina along the centre, becoming obsolete on the third segment: the terminal teeth approximating to *Var.* 2 of *Chry. ignita.* (Length 4—5 lines.)

It will be expected that I should give my reasons for considering this, which has the same distribution of colour as all

the varieties of the *C. ignita*, a distinct species, and why I treat those merely as varieties. I may refer to my observations under that species for some reasons; others are, the minutely punctured abdomen, its invariably carmine pink colour, and the coppery refulgence, always in some degree present, of the prothorax and scutellum. I have much pleasure in dedicating this elegant species to my kind friend the Rev. G. T. Rudd, he having first attracted my attention to it by some splendid specimens from the New Forest. His claims upon entomologists for his discoveries in the obscure families of the *Staphylinidæ* and of the *Ichneumones adsciti*, justify also a departure from the rigid rules of scientific nomenclature, which are but too frequently sinned against to record merely a private friendship. This species has occurred near London, and in the New Forest, Hampshire.

Sp. 3. Chr. fulgida.

Linn. F. S. 1699. *S. N.* 948. 7.
Fab. Sp. I. 455. 7. *Mant.* 283. 7. *Ent. Sys.* II. 240. 8. *Piez.* 172. 11.
Coquebert, 59. Pl. 14. 6.
Olivier, Ency. Mét. Ins. II. 673. 9.
Latreille, Hist. XIII. 237. 2.
Le Peletier, Ann. du Muséum, VII. 126. 13.
Panz. F. G. 79. 15. *Spinola*, I. 64. 4.
Schrank, F. B. II. 2. 343. 2194.

Head, first joint of antennæ, thorax, and first segment of abdomen, of a metallic green, playing into blue, with occasionally bright golden spottings; all these colours varying in almost every individual; second and third segments of the abdomen of a golden red, sometimes obscured, the terminal teeth the same as in my *Var.* 2 of *Chr. ignita*: venter green: wings fuscous, very slightly iridescent; nervures piceous: legs metallic green or blue: tarsi and flagellum of antennæ black: head, thorax, and abdomen, very much and deeply punctured, the latter having a central, longitudinal, smooth, elevated line. (Length, $4\frac{1}{2}$—$5\frac{1}{2}$ lines; expansion of wings, $6\frac{3}{4}$—$7\frac{1}{2}$ lines.)

This species has occurred at Combe, Darenth, Birch Wood, and Bexley; Mr. Walker has taken it near Southgate; Mr. Ingall, at Camberwell; and Mr. F. Smith, at Blackwater, Hampshire.

Sp. 4. Chr. Stoudera.

Jurine, Pl. 12. F. 9.
Spinola, II. 169. 14.

Head, first joint of antennæ, thorax, first segment of abdomen, and a large semicircular spot at the centre of the base of the second segment, of a metallic green or blue, splashed occasionally with gold, the remainder of the abdomen of a golden red: the terminal teeth as in my *Var.* 6 of *Chr. ignita:* wings slightly clouded; nervures piceous, legs metallic green or blue: tarsi black or piceous: sculpture as in *Var.* 6 of *Chr. ignita.* (Length, $3\frac{3}{4}$ lines; expansion of wings, $6\frac{1}{4}$ lines.)

Mr. Stephens, to whom I am indebted for this insect, tells me, he used to take it formerly at Darenth; I know no other locality where it has occurred.

Sp. 5. Chr. analis.

Spinola, Ins. Lig. II. 26. No. 26.

Deeply punctured: the abdomen without the central, smooth, longitudinal, and elevated line: head, thorax, legs (except the tarsi, which are reddish), and third segment of the abdomen, of a metallic blue or green, splashed with gold: the first and second segments of the abdomen of a golden red, the apex of the third with four teeth. (Length, 3 lines.)

"The only British specimen of this beautiful insect I have seen, was certainly taken at Yarm, by me." (Note of T. Meynell, jun. Esq. to the Rev. G. T. Rudd, to whose kindness I am indebted for a sight of the insect, and for being able to describe it.) It is singular that the name Mr. Rudd proposed for it should agree with that which I subsequently discovered Spinola had applied to it. I have seen a foreign specimen of it in the collection of Mr. Curtis, taken by him at Rouen, in Normandy.

Sp. 6. Chr. bidentata.

Linn. Syst. Nat. 947. 2.
Fab. S. E. 358. 7. *Sp.* I. 456. 9. *Mant.* 283. 10. *Ent. Syst.* II. 241. 11. *Piez.* 173. 16.
Olivier, Ency. Méth. Ins. II. 674. 12. *Le Peletier, Ann. du Muséum,* VII. 128. 23.
Panz. F. G. 77. 15. *Donovan, Brit. Insects,* Vol. I. Pl. 19.

Chr. dimidiata? *Fab. E. S. Sup.* 258. 15. 16. *Piez.* 174. 22. *Coquebert*, 58. Pl. 14. F. 2 and 3. *Latr. Hist.* XIII. 238. 5. *Le Peletier, Ann. du Muséum*, VII. 127. 20. *Spin.* II. 170. 15.

Head, first joint of antennæ, metathorax, excepting post dorsolum, extreme base of the first segment of the abdomen, and its terminal segment, of a rich metallic golden green or blue: pro- and meso-thorax, and the post dorsolum, the first segment of the abdomen, excepting as above, and the second segment, of a rich crimson red, sometimes obscured: legs green or blue; tarsi pitchy: wings slightly clouded: entire insect sculptured as in the preceding species: abdomen terminated by two lateral teeth, generally obsolete, and sometimes by four obsolete equidistant teeth.

This species is exceedingly common. I always find it in sand-banks, chiefly abundant where *Epipone spinipes* abounds. I have not the least doubt the above authors have described this species under the above two names, and it stands in the Banksian cabinet, named by Fabricius, as his *Chr. bidentata*.

Sp. 7. Chr. succincta.

Linn. Sys. Nat. 947. 3.
Fab. S. E. 358. 8. *Sp.* I. 456. 10. *Mant.* 283. 12. *Ent. Sys.* II. 241. 13. *Piez.* 174. 19.
Oliv. Ency. Méth. Ins. II. 674. 14. *Le Peletier, Ann. du Muséum*, VII. 128. 24.
Panz. F. G. 77. 16. *Spin.* I. 64. 7. *Rossi*, Vol. II. 8vo. 122. 846.

Of a metallic blue or green, splashed with gold: the dorsolum and abdomen of a rich crimson red, splashed with gold, especially the first segment; the terminal segment having four obtuse teeth; the central ones nearer together than to the lateral ones: tarsi pitchy: head and thorax rather coarsely punctured: the abdomen delicately so, and wanting the central, elevated, smooth line, conspicuous in the majority of the species of this genus: the prothorax has usually a couple of golden red spots in the centre of its anterior margin, above. (Length, 3 lines; expansion of wings, $4\frac{1}{2}$ lines.)

The only localities I know for this very pretty species, is the sandy lane near Brockenhurst, in the New Forest, where

several of my friends have taken it, and Blackwater, on the borders of Berkshire and Hampshire.

Sp. 8. Chr. cyanea.

Linn. F. S. 1667. *S. N.* 948. 5.
Fab. S. E. 359. 11. *Sp.* I. 456. 14. *Mant.* 283. 12. *Ent. Sys.* II. 241. 13. *Piez.* 174. 19.
Olivier, Ency. Méth. Ins. II. 675. 19.
Latr. Hist. XIII. 238. 6. *Le Peletier, Ann. du Muséum,* VII. 128. 22.
Cuvier, Tableau Elémentaire, 502. 2.
Panz. F. G. 51. 10. *Schrank, F. B.* II. 2. 345. 2199.
Spinola, 1. 65. 12. *Rossi,* Vol. II. 8vo. 122. 845.
Donovan, Brit. Ent. Vol. VII. Pl. 235.

Entirely of a rich metallic blue or green, splashed with gold; occasionally obscure: head and thorax deeply punctured: abdomen delicately so, without the central, elevated, smooth, longitudinal line; the apex of the abdomen distinctly tridentate: the tarsi pitchy, and the flagellum of the antennæ black: the wings nearly hyaline, but very slightly clouded.

This species is common; but I have found it only on palings and worm-eaten trunks of trees.

Section II.—*The apex of the abdomen edentate.*

A. *Marginal cell complete.*

Sp. 9. Chr. cœrulipes.

Chr. cœrulescens . *Fab. Ent. Syst. Sup.* 357. 9. 10. *Coquebert,* 59. Pl. 14. Fig. 5.
Chr. cœrulipes . *Fab. Sys. Piez.* 173. 13. *Spin.* I. 64. 5.
Chr. Leachii . . *Stephens's Catalogue.*
Chr. cuprea . . *Rossi,* Vol. II. 8vo. 126. 851.

Entirely of a rich crimson, with the exception of the metathorax, legs, and first joint of the antennæ, which are of a metallic blue or green: the flagellum of the antennæ, the tarsi, and nervures of the wings, are black: the wings themselves clouded: head and thorax coarsely punctured, and the abdomen delicately so. (Length, 5 lines.)

The only British specimen of this splendid insect is in the British Museum. I do not know its locality. It is a common species in the South of France and Italy.

Sp. 10. Chr. Leachii.

Face and occiput blue: vertex green: prothorax, mesothorax, and scutellum, of a rich golden red, with their sutures playing into a deep blue-green: metathorax blue: abdomen, with the first segment, of a golden green, playing into blue; the second and third, as far as its transverse ridge, of a rich golden red, with a central, elevated, longitudinal, blue line passing down the second; the apical portion of the third segment blue: the femoræ, tibiæ, and first joint of the antennæ, of a golden green; the flagellum of the latter black: the tarsi piceous: the wings hyaline: the head and thorax are deeply punctured, and the abdomen delicately so. (Length, 2 lines.)

This very beautiful species stands as *Chrysis nitidula?* in the collection of the British Museum; but Fabricius having described one by that name from America, I have altered it to the name of a gentleman, who deservedly stands high in the estimation of all naturalists, and especially of entomologists.

Sp. 11. Chr. Austriaca.

Fab. Piez. 173. 15. *Le Peletier, Ann. du Mus.* VII. 128. 28.

Chr. refulgens? . *Spinola, Ins. Lig.* I. 8. 4; II. 170. 16.

Very pubescent: head, several of the basal joints of the antennæ, above, thorax, legs, excepting the tarsi, which are black, either blue or green, variously intermingled, and occasionally splashed with gold: the wings subfuscous; the nervures piceous: post-scutellum and metathorax gibbous: abdomen edentate at its extremity, and of a rich golden red, varying in intensity and metallic refulgence; it is coarsely punctured, chiefly on the sides, with a central, smooth, longitudinal carina. (Length, 4—5 lines.)

This is apparently a rare species; in general external habit, it greatly resembles the larger specimens of the 1st and 2d *Vars.* of the *Chr. ignita*, and might therefore be easily mixed with that species unless the apex of the abdomen be examined. It has occurred in the vicinity of London; one of my own specimens was taken at Hampstead, and a second at Bexley, in Kent.

B. *Marginal cell open at its apex.*

Sp. 12. Chr. neglecta.

Closely punctured: head, thorax, basal joints of the antennæ, and legs, excepting the tarsi, which are black, of a dull blue or green, or variously intermingled, and occasionally splashed with gold: wings subfuscous; nervures piceous: abdomen edentate at its extremity, very minutely punctured, of an opaque carmine colour, with a slight longitudinal elevation in the centre of its second segment. (Length, 3—3½ lines.)

This common and very distinct species appears to be undescribed; it may probably have been intermixed, or mistaken on the continent for the *Chr. Austriaca*, from which it considerably differs, not only in size, (for it is never more than half the size of that species,) but by its open marginal cell, and its very opaque abdomen. In British cabinets and catalogues, it has hitherto stood as the *Chr. rufa* of Panzer, which, however, is the *Hedychrum roseum* of Illiger's Rossi. It frequents sandy situations, and is very abundant, with the *Chr. bidentata*, at Highgate.

Genus III.—Euchrœus, *Latr.*

Head transverse, as wide as the base of the prothorax: thorax truncated anteriorly and posteriorly, with an acute tooth on each side of the metathorax, placed low: abdomen very convex above, consisting of three segments, the terminal segment having an elevated transverse ridge just before its apex, which is multidentate: superior wings with an incomplete marginal and first apical cell, and complete first and second discoidal cells; the radial nervure obtusely angulated, and that, as well as the subdiscoidal nervure, gradually terminating before reaching the extremity of the wing: legs moderate.

Sp. 1. Euch. quadratus. *Leach, MSS.*

Euch. sexdentata . *Latr. Nouv. Dict.* T. X. 529. (without his synonymes.)

Chrysis festiva? . *Fab. Piez.* 171. 3.

Entirely of a rich, refulgent, metallic green or blue: the flagellum of the antennæ black: the femoræ and tibiæ of a golden green: the

knees and tarsi piceous: the occiput, the centre of the mesothorax, the base of the second segment, and the entire third segment of the abdomen, of a beautiful blue, the latter serrated at its extremity, having thirteen teeth, the three central ones most distant from each other, the others smaller and closer together: head and thorax deeply punctured, the abdomen less so; the second segment having an elevated, central, longitudinal, smooth line: the wings slightly clouded. (Length, 4 lines.)

I know no locality for this beautiful and apparently very rare insect; the only British specimen I have seen is in the British Museum; it is said to have been captured by Dr. Leach. I have been obliged to reject every synonyme of the *Chr. sexdentata* of Fabricius and Panzer, as all mention six terminal teeth to the abdomen, Latreille only noticing its serration; but, as he calls it by a name evidently belonging to another insect, and not at all appropriate, I cannot do better than retain Leach's MS. name, under which it stands in the collection of the Museum. I quote Fabricius's synonyme with doubt, on account of the locality he gives, and yet I think it deserves retaining, as the species may be widely distributed, for I possess specimens from the Cape of Good Hope which perfectly correspond, differing only a little in size; but, if this doubt can be overruled, Fabricius's name must take the place of Leach's.

Genus IV.—Hedychrum, *Latr.*

Head transverse: thorax oblong, quadrate, truncated at both extremities, the metathorax having a minute tooth on each side: abdomen consisting of three segments; in the first section, semicircular, convex above; in the second section, more elongate, gibbous above, and marginate at its extremity: superior wings in the first section with a marginal cell nearly complete, the radial nervure which encloses it gradually terminating upon the superfices, before reaching the extremity; a first recurrent nervure, and incipient cubital, and the discoidal nervures, very slightly traced, but distinctly existing; the commencement of the subdiscoidal more strongly marked, but leaving the first apical cell incomplete; in the second section the radial nervure terminates very abruptly shortly after its commencement, and in some specimens a line of colour merely indicates its course, which also obsoletely

marks the course of the commencement of the cubital, first recurrent, and discoidal nervures, but which do not exist: whereas, by a singular irregularity, the subdiscoidal nervure is present, and tolerably strongly marked, but it does not extend to the apex of the wing: legs moderate.

The same observations apply here as those noticed under the genus *Chrysis*; but for the individual habits of the species, I must refer to the observations under their several descriptions.

SECTION I.—*Abdomen not emarginate.*

Sp. 1. Hed. regium.

Le Peletier, Ann. du Muséum, 7. 122. 4.

Chrysis regia . . *Fab. Ent. Sys.* II. 243. 19. *Piez.* 175. 26. *Coquebert*, 60. Pl. 14. Fig. 8. *Panz. F. G.* 51. 9. *Spin.* 1. 65. 11.

Id. punctatum, *Leach. MSS.*

The head and thorax very coarsely punctured; the abdomen more delicately so; a minute tooth on each side towards the base of the terminal segment: the head, first joint of the antennæ, thorax and legs, (except the tarsi,) of a deep blue, or green: the tarsi rufescent: the wings very fuscous: the abdomen of a rich carmine. (Length, 3—4 lines; expansion of the wings, 6 lines.)

There are several specimens of this insect distributed in cabinets; but I do not know any locality for it. The above is described from one of the specimens in the collection of the British Museum, in which the series varies from 3—4 lines.

Sp. 2. Hed. lucidulum.

Latr. Hist. XIII. 239. 2. *Nouv. Dict.* XIV. 255. *Le Pelet. Ann. du M.* VII. 122. 9.

Chrysis lucidula . . *Fab. S. E.* 358. 9. *Sp.* I. 456. 11. *Mant.* 283. 13. *Ent. Syst.* II. 242. 15. *Piez.* 174. 21. *Coquebert*, 58. Pl. 14. Fig. 4. *Oliv. Ency. Méth. Ins.* II. 675. 15. *Spin.* I. 64. 8. *Rossi*, Vol. II. 8vo. 123. 847. *Schrank, F. B.* II. 2. 344. 2198.

Id. fervida . . *Panz. F. G.* 51. 6.

The head, scape of the antennæ, scutellum, and metathorax, pectus, and legs, (excepting the tarsi, which, as well as the flagellum of the antennæ, are black,) of a rich green or blue: the dorsal portion of the pro- and mesothorax, of a refulgent red: head and thorax deeply and coarsely punctured; abdomen minutely so, with its apex much rounded. (Length, $2\frac{1}{2}$—3 lines.)

This conspicuous and rare species is in several cabinets. I believe it has been caught in the vicinity of London.

Sp. 3. Hed. cœrulescens. *St. Farg.*

Le Peletier, Ann. du Muséum, VII. 122. 10.
Violacea?. . *Rossi*, Vol. II. 8vo. 123. 848.

Entirely of a beautiful blue, (excepting the flagellum of the antennæ and the tarsi, the former black, the latter piceous:) wings clouded: head and thorax coarsely punctured: abdomen delicately so. (Length, 2 lines.)

There are two specimens of this insect in the British Museum. I do not know any locality for them.

Sp. 4. Hed. ardens. *Curtis.*

Hed. nitidum? *Le Peletier, Ann. du Muséum*, VII. 123. 12.
Chrysis ardens? *Latr. in Coquebert*, 59. Pl. 14. Fig. 7.

The vertex of the head, dorsal portion of the pro- and mesothorax, the scutellum, and abdomen, of a vivid coppery red, under certain lights reflecting a greenish refulgence: the scape of the antennæ, face, anterior angles, sides, and pectus of the thorax, as well as the metathorax, and legs, (excepting the tarsi,) of a rich green or blue: tarsi, rufescent: flagellum of the antennæ, black: wings, slightly clouded: venter, black. (Length, 1—$2\frac{1}{2}$ lines.)

I have occasionally found this species at Hampstead. The Rev. F. W. Hope has taken it in plenty at Southend; and the Rev. G. T. Rudd, in the New Forest. The specimens from the latter locality are invariably larger than all others that I have seen. I have always captured it settling upon sand.

Sp. 5. Hed. fervidum. *Fab.*

Latr. H. XIII. 240. 3. *Le Pelet. Ann. du Muséum*, VII. 122. 7.

Chrysis fervida. *Fab. Sp.* I. 456. 12. *Mant.* 283. 14. *Ent. Sys.* II. 242. 16. *Piez.* 175. 23. *Oliv. Ency. Méth. Ins.* II. 675. 16. *Spin.* I. 64. 9.

The head and thorax very coarsely punctured ; the abdomen more delicately so, but more coarsely than in its congeners ; the abdomen very broad, and much rounded at its extremity ; the last segment having a minute tooth on each side towards the base : the vertex and dorsal portion of the pro- and mesothorax, with the scutellum, of a rich coppery green, intermingled with red : the face, legs, (excepting the tarsi, which are ficeous,) pectus, and metathorax, of an intense blue : wings very fuscous, especially towards their extremity : abdomen of a pinkish red, with a golden refulgence : the venter, black. (Length, 4 lines.)

This splendid species, which has been taken three times at Wandsworth, by my friend, W. W. Sanders, Esq. (to whose liberality I am indebted for my specimen,) is the largest British one I am acquainted with. There is a specimen in the British Museum, but I am unacquainted with the place of its capture.

Sp. 6. Hed. roseum.

Chrysis rosæ, *Rossi, Fauna Etrusca*, T. II. ed. 8vo.
Le Peletier, Ann. du Muséum, VII. 123. 13.
Chrysis rufa *Panz. F. G.* 79. 16.

Head and thorax very coarsely punctured ; abdomen delicately so : head, scape of the antennæ, thorax, and legs, (excepting the tarsi, which are piceous,) green or blue, occasionally splashed with gold : the scutellum frequently golden : the wings hyaline ; the apex with a broad fuscous band : the abdomen testaceous or carneous, sometimes darker towards its apex, which is much rounded, and it has occasionally a violet reflection.

This very pretty insect, which I had the pleasure of introducing to the British Fauna, occurs in abundance at one particular spot on Hampstead Heath, where I captured it settling on the sand. I have for hours endeavoured to trace its habits, but in vain ; all that I have been able to observe is, that it alights on the ground, runs a few inches, turns round, and flies off again. I have not been able to find whence it comes, or whither it goes ; it may probably be parasitic upon *Tachytes pompiliformis*, or *Gorytes tumidus*, for I have

sometimes lost it amongst the short grass at the roots of furze, whither I have also traced these insects. I took a solitary specimen at the beginning of August, on the umbels of the *Pastinacca*, at Birch Wood, in Kent.

SECT. II. *Abdomen gibbous, and emarginate nervures abruptly terminated.*

Sp. 7. Hed. auratum.

Latr. Hist. XIII. 239. *Le Pelet. Ann. du Mus.* 7. 12. 1.

Chrysis aurata . *Linn. F. S.* 1666. *S. N.* 948. 4.
Id. id. . *Fab. S. E.* 359. 10. *Sp.* I. 456. Fig. 13. *Mant.* 284. 16. *Ent. Sys.* 242. 18.
Id. id. . *Piez.* 175. 25. *Olivier, Ency. Méth. Ins.* II. 675. 18.
Id. id. . *Panz. F. G.* 51. 8. *Rossi*, 8vo. V. 1I. 121. 844.
Id. id. . *A. Schrank, F. B.* II. 2. 345. 2200.

Head and thorax very coarsely punctured; the abdomen extremely minutely: the terminal segment much acuminated, and the entire abdomen very gibbous: the head, basal joints of the antennæ, legs, excepting the four last joints of the tarsi, which are piceous, and venter of a rich blue, or green, sometimes, but rarely, with some golden splashes: the abdomen of a very vivid and fiery red, the disc of its dorsal portion not unfrequently æneous or black. (Length, $1\frac{1}{2}$—3 lines.)

This is doubtlessly the most common species of the genus. It is generally found settling upon the leaves of shrubs, and, like its congeners, generally rolls itself up into a ball upon the approach of danger, and thus, unexpectedly falling, it contrives to escape. I found it common in July, on the umbels of the parsnip, and upon a currant-bush infested by an aphis in a market garden in Battersea-fields; to the latter it doubtlessly resorted for the honey secreted by the aphis.

Sp. 8. Hed. bidentulum.

Le Pelet. de St. Fargeau, An. du Mus. VII. 121. 3.

Hed. imperiale . . . *Leach, MSS. Stephens, Catalogue.* 391. 5283. *Curt. Guide.* 657. 5.

Chrysis ænea ?	*Fab. Mant.* I. 284. 15. *Ent. Syst.* II. 242. 17. *Piez.* 175. 24. *Panz. F. G.* 51. 7.
Omalus nitidus ? . . .	*Panz. F. G.* 97. 17.
Hedychrum nitidum ? . .	*Spin.* II. 170. 15. 1
Id. æneum ? . .	*Ib.*
Chrysis cœrulea . . .	*Dahlbom. Excercitationes Hymenopterologicæ P.* 33. 17.

Var. 1. (*Imperiale.*) Entirely of a deep dark blue or purple, with the exception of the flagellum of the antennæ and the tarsi, which are black : the venter green : the wings edged with a broad fuscous band : the head and thorax very coarsely punctured : the abdomen more delicately, and very gibbous ; the latter pubescent, especially the last segment, which is also much acuminated. (Length, 3½ lines.)

Var. 2. (*Bidentulum.*) Of a brilliant bluish green, excepting the disc of the abdomen, which is of a shining blackish green, punctured, and the form of the entire abdomen similar to the preceding, but not more than two-thirds of its size, and not at all pubescent : the antennæ, wings, and legs, as in the preceding. (Length 1—2½ lines.)

Var. 3. (*Viride.*) When alive entirely of a brilliant green ; it differs from the preceding in the green not having a blue tinge ; after death, the head and thorax change to a deep blue green, and the disc of the abdomen becomes black : the punctures as in the last, and, like it, it wants the pubescence of the first variety, but the wings, antennæ, and legs are similar, but it differs in the terminal segment of the abdomen being much more rounded, and the abdomen itself not so gibbous. (Length, 1½—2¼ lines.)

Var. 4. (*Ænea.*) Entirely of a dark æneous tinge, nearly black : in sculpture and in the form of the abdomen, it resembles *Vars.* 1 and 2, as also in its legs, wings, and antennæ : from *Var.* 2 it differs only in colour. (Length, 2 lines.)

Var. 1, of which I have one specimen only, was taken at Bexley, by Mr. Bainbridge, who kindly gave it to me ; it stands in the cabinet of the British Museum as the *imperiale* of Leach ; it is certainly *Var.* 2 of the *Chrysis cœrulea* of Dahlbom. *Vars.* 2 and 3, I have taken in Battersea-fields ; *Var.* 2 appears to be the *bidentulum* of St. Fargeau ; *Var.* 3 I have called *viride*, from its colour when alive ; and I have

named it in case further observation should confirm it as a species; *Var.* 4 was captured at Yarm, in Yorkshire, by the Rev. G. T. Rudd, who tells me it is common there, where it occurs amongst grass, and that all are exactly alike; its dark colour is remarkable; it is evidently the *Chrysis ænea* of Panzer and Fabricius. Why I treat all these as varieties of one species is, because the two which differ most essentially in habit I captured within a hundred yards of each other, and observed they had precisely the same habits, and because their differences are but a trifling degree wider than those I detect in my series of the *Hedychrum auratum*.

Genus V.—Elampus, *Spinola*.

Head and thorax as in the preceding, with the exception of the scutellum being produced posteriorly into a porrect spine, which is plane above: abdomen rather more elongate than the second section of the preceding genus, but above, convex, not gibbous, but like it, emarginate at its extremity: superior wings, with merely the commencement of a radial nervure, which terminates very abruptly; and all, excepting the basal nervures of the wings, totally obsolete, or their course very slightly coloured, but no nervures existing: legs, moderate.

Sp. 1. El. Panzeri.

Chrysis Panzeri . . *Fab. Piez.* 172. 9. *Spin.* I. 63. 3.
Id. scutellaris . *Panz. F. G.* 51. 11.
Hedychrum spina . *Le Peletier, Ann. du Mus.* VII. 121. 2.

Head and thorax deeply and coarsely punctured; abdomen very delicately so: the mucro of the postscutellum flat upon the top, and also very coarsely punctured: an obtuse tooth on each side of the last segment of the abdomen, half-way between the emargination and the base: head, scape of the antennæ, thorax, and legs, (excepting the tarsi, which are rufescent,) of a metallic blue and green, variously disposed, and occasionally splashed with gold: the abdomen of a rich, golden, or carmine red, the refulgence upon it sometimes, under some aspects, appearing green. (Length, $2\frac{3}{4}$ lines.)

My specimens of this apparently rare insect were taken at Leaves Green, in Kent; the Rev. G. T. Rudd has captured

it this year in the New Forest. Panzer figures his with the abdomen green, which, under some lights, and in some specimens, will appear so, from their excessive refulgency; but the positive colour of the abdomen is red.

Art. XXI.—*Note on Butterflies questionably British.*

In the Lists of British Lepidoptera which have been published by Messrs. Stephens and Curtis, many names occur which, in our cabinets, that is, in the cabinets of those few entomologists who are scrupulous, stand, year after year, as names only; now, if there really are British insects corresponding to these names, it is very well to allow the vacancies left for them to remain, until some fortunate entomologist discovers the locality for these rarities, and supplies our cabinets; but, on the contrary, if there exist no such insects in Britain, it is surely ill-advised in us to retain the names; I suggest that it would be far better to forget that such insects have ever been recorded as British, and should they hereafter occur, I would re-introduce them as entire novelties. The following butterflies are more or less abundant in cabinets of professedly British insects, but of any authentic record of capture in this country we are wholly ignorant.

Podalirius, far from uncommon.

Europome, very common, existing in thirty-one cabinets that I have inspected.

Palæno, in catalogues only.

Chrysotheme (?)

Apollo, a fine series in a cabinet in the North of England, and single specimens in several cabinets.

Mnemosyne, *Tessellata*, *Maturna*, *Hampsteadiensis*, *Niobe*, *Populi*, *Sibilla*, *Levana*, *Huntera*, *Mæra*, *Phædra*, *Alcyone*.

Ligea, in the cabinet of Mr. Stephens, and lately introduced into those of Mr. B. Standish, and several of our dealers. Mr. Stephens, in his Illustrations, acknowledges himself ignorant of the time and place of its capture, and of the name of its captor.

Mnestra.