

XXII. *Observations on the Genus Pausus, and Description of a New Species.*

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IN a dissertation published at Upsala in the year 1775, and called *Bigæ Insectorum*, Linné described two new genera of insects, to one of which he gave the name of *Paussus*. The etymology of this word, though he does not explain it himself, is probably the Greek *παῦσις*, signifying a *pause*, a *cessation*, a *rest*. But then it ought to be spelt with only one *s*; and in either case it would be difficult to comprehend the reason of his applying it to the insect in question. The former, however, may easily be accounted for as a trifling error of the press; and the latter, I imagine, it may not be improper to explain in this way:—Linné, old, infirm, and sinking under the weight of age and labour, saw no possibility of continuing any longer his glorious career: wishing therefore to put a stop to his usual amusements and useful exertions, he would say,

— hic meta laborum;

and so it was as to insects, for *Pausus* is the last he ever described, and afterwards he published only two small botanical dissertations.

But whether this etymology and explanation be right or wrong, I cannot find any better; and thus I am induced to follow Thunberg, Gmelin, and Herbst, in their mode of spelling *Pausus* with one *s*, being as to my idea the most rational.

Linné knew but one species of this genus, from which he took the generic character, and which he called (from μικρός and κεφαλή) *micro-cephalus*, on account of its head being very small in proportion to the other parts of the body. It is shortly described in the dissertation above-mentioned, and five figures of it subjoined, representing it in different views, two in its natural size, and three in a magnified one.

After this original account of Linné, there have been very few authors that have published any thing concerning *Pausus*. Those I have had an opportunity of seeing, and I think I have seen all, are the following; and whose writings I shall mention in the same chronological order as they have appeared.

Thunberg, during his travels in the country of the Hotentots, in the year 1772, having met with two unknown insects, described them as constituting a new genus in the class of Coleoptera. But having returned to Sweden, and being then acquainted with the *Pausus* of Linné, he thought his two species might be referred to this genus, established during his absence; and accordingly he wrote a paper on the subject, which he delivered to the Royal Academy of Science at Stockholm, and which is printed in its Transactions for the year 1781.—Here he describes and specifies his two insects, calling the one *Pausus ruber*, and the other *Pausus lineatus*; annexing two figures of the last mentioned, one shewing it in its natural size, and the other representing it magnified. He also makes some few additional remarks on the genus itself, and gives the specific difference of *P. microcephalus*.

Fuefsly,

Fuefsly, without taking notice of what Thunberg had written on the subject, republished Linné's original account in the 3d number of his *Archiv der Insectengeschichte*, printed at Zurich 1783. The whole description, as well as all the figures, are expressly copied; but the other remarks are translated into the German language.

Gmelin, in his *Linnæi Systema Naturæ* of 1788, seems to have confined himself only to the perusal of the text of Fuefsly, transcribing even his error; which he surely could never have done, had he at the same time consulted the original of Linné.

Herbst, in his *Natur System der Insecten*, the 4th part of the Coleoptera, published at Berlin 1792, has inserted both Linné's and Thunberg's species, but translated their descriptions of them into German, and given them new specific characters in Latin, though not very recommendable for correctness either scientific or typographical. To this he has subjoined a plate, representing, amongst many other insects, also two figures of *P. microcephalus*, and two of *P. lineatus*; the former copied from the dissertation of Linné, and the latter from Thunberg's paper in the Transactions of the Swedish Academy of Science.

Fabricius began in the same year, or 1792, to publish at Copenhagen his *Entomologia Systematica*. Not having before taken notice of *Pausus* in any of his writings, he now introduced it in this work; not however as a distinct genus, but putting it under his *Cerocoma*, he calls Linné's insect *C. microcephala*, and the figured one of Thunberg *C. lineata*. The other, or *Pausus ruber*, he does not mention at all.

An anonymous author, or probably more than one, have lastly published at Winterthour in the canton of Zurich, in the year 1794, a French translation of Fuefsly, combining all his separate numbers in one continued volume, and calling it *Archives de l'Histoire des Insectes*.

Insectes de Fuesly. Here occurs nothing but what is found in the original edition, except a new blunder, and a remark in the notes to this purport: "that there are two other species of *Pausus* mentioned in the memoirs of the Swedish Academy, and that Fabricius, not having examined these insects as minutely as he ought, has placed them amongst his *Cerocomæ*, till there may occur an opportunity of determining their genus with more accuracy."

These are all the writers I have seen who treat on the genus and species of *Pausus*. And it is very remarkable, that almost every one of them has committed some mistake. This may be excusable, when there are several accounts of a natural production from ocular observations of different persons; but not so when there exists only one, as is the case in regard to Linné's *Pausus*; for though Thunberg and Fabricius may both have seen it, yet neither of them has added any thing to illustrate it but what might have been collected from Linné's description and figures of it, the latter having only created greater confusion than any before him, by putting it among the *Cerocomæ*. As to Fuesly, Gmelin, Herbst, and Fuesly's translators, I am almost certain they never saw a *Pausus*; and therefore, whatever they have written, they ought to have taken from Linné, and are to be esteemed in proportion as they have copied him faithfully.—But I shall state their respective mistakes more at large, when I come to the history of *P. microcephalus* in particular, and shall now in the first place settle the characteristics of the genus.

Besides the Linnæan species, which I have examined here in London, I brought another nondescript with me from Africa, which, in imitation of Linné's deriving the specific name of his from the Greek, I call (from σφαίρα and κέρας) *P. sphærocerus*, on account of each of its antennæ bearing at its end a large and remarkable globe.

Both

Both these species I have carefully compared, and found to agree in many circumstances; but I shall here only mention the most striking ones, as well as those which stand in need of some explanation, or where, from want of proper *termini technici*, I shall be under the necessity of using circumlocution in order to be understood.

The *Body* is hairless, smooth, and polished, above somewhat depressed, before narrower, and behind nearly cylindrical; the *size* small, being from the top of the antennæ to the end of the abdomen only three lines long, and across the elytra not quite one broad; the *colour* uniform, a darker or lighter brown; the *motion* steady and slow, at least in the species I have seen alive. It is very unlike all other genera I know; but it seems to come nearest to the *Clerus* of Fabricius, bearing to it, at least upon the whole, so much natural resemblance that its most proper place in the systematical arrangement will be next after that genus.

The *Head* is smaller and shorter than the thorax, almost round, and at the base surrounded as it were by an annular segment; in the living animal it is pointing straight forward, but when dead it commonly bends a little downwards. The *clypeus* is minute, and more or less depressed in the middle. On the *throat* there is a convex spot, raised in form of a triangle, which is nearly equilateral, the base of which forms a cross-bar between the eyes, its two upper angles being acute, but the lowermost cut off by the annular segment just mentioned.

The *Eyes* are rather large, transversally oblong, prominent, and situated in a socket, the brim of which is elongated into one angle before lying horizontally, and another behind standing upright; which structure seems to prevent the insect from being able to look in any other direction than forwards.

The

The *Antennæ* are very remarkable, and different from those of all other insects, not only by their consisting of no more than two joints, but also by their singular mechanism. The *under-joint* is a thick and almost round knob, truncated at both ends, and below on the outside furnished with a little bright ball, moving in a cavity on the head, just before the eye, between the clypeus and the anterior angle of the eye-socket. This ball is the pivot on which the whole antenna rolls or performs its rotatory motion. It is very visible at its root, and easily mistaken for an eye, being quite globular, and, by continual rubbing, highly polished. The *upper joint* is also a kind of knob, but of a very different nature, and curiously constructed. In the front it is outwardly marked with a raised line, or an edge, running from the base to the vertex, and behind elongated into a tube or a hook pointing inwards. Beneath it is furnished with a pedicle, which having a ball at the end, and being inserted in the under-joint, towards the outside of its top, as into a socket, makes the upper-joint qualified for a separate motion, independent of that of the whole antenna. And as a proof that this is really the case, it is to be observed that there are scarcely two antennæ to be met with having the elongated hind part of the upper-joint pointing exactly the same way, though the under-joint remains in its usual position; which makes it very difficult to determine the true and most natural direction of this hind part, which however, I should think, must be either just above the under-joint, or a little on the outside of it. Linné gives to this part the name of *hook*; and so it is in my species, but in his own it resembles more a tube or a blunt spur, or rather it is nothing else than a short contracted elongation of the upper-joint. But, having made this remark by way of explanation, I shall not scruple to retain the original term *uncinata*, as applied to the upper-joint, called by
Linné

Linneé *clava*, to which I also would add his other appellation of *solida*, if it could be done with any sort of propriety. By this epithet he certainly meant nothing more than *integer*, adopting it in contradistinction to *lamellatus* and *perfoliatus*. And it answered the purpose very well, as long as no other insects were known than those having their clavæ entire and at the same time solid. But now it would imply a contradiction, since we have got a coleopterous insect with an entire clava though not solid; which is undoubtedly the case as to *P. sphærocerus*, being provided with clavæ, or head-balls, almost pellucid, and seemingly containing no substance whatsoever but perhaps some fine liquid. As to the clavæ of *P. microcephalus* I am not so certain, but they have also an appearance of being inflated; and besides, as they are larger than the whole head, one would suppose them too heavy to be carried in the front, if quite solid. However this may be, the word is still improper in regard to the other species, and I shall therefore avoid using it. The under-joints of both species are almost parallel, but the upper ones very diverging. On the vertex of these latter, at the end of the raised line above described, there are one or more small protuberances, tipped with fleshy substances, like hairs, which probably are organs for feeling.

The *Mouth*, and its different parts, as to their shape and structure, I have not been able to ascertain so accurately as I could wish, and as it ought to be done; for, independent of their smallness in so little an animal, it is quite impossible to describe them rightly, without their being taken separate from one another; and for this purpose I had not any of these rare insects to sacrifice, three of one species and six of the other being all which I have seen. Besides, the former were not my own; the latter I could subject to a closer scrutiny, not minding much whether any of them became broken. The

consequence of which is, that I am better acquainted with *P. sphærocerus* than with the other. The mouth, however, of both species, and the various parts belonging to it, I have been obliged to examine in their unseparated state, and I have been therefore unable to avoid all mistakes, as the innermost are more or less concealed by the exterior ones. But I must confess that even these latter, which I can plainly see through a compound microscope, do not appear to me exactly such as Fabricius will have them to be. I shall describe them all as I have found them.

The *Palpi* are four in number, and seem all to arise from the cross-line between the eyes, or the base of the jugular triangle before mentioned. The two placed in the middle and farther in, and perhaps also a little higher up, are three times as long as the others, at the bottom nearly approximate but afterwards diverging, flat within and convex without, moving on two small tubercles at the base, above which they are first contracted, and so more or less widened. They may also, although my observations have not satisfied me on the subject, be in some way or other attached to the lowermost and external part of the labium. In those of *P. microcephalus* I cannot find the least vestige of articulation except the base-hinges; but those of *P. sphærocerus* seem to be jointed all along, though I cannot ascertain it as a fact, not being able to make out any number of joints, even with the greatest magnifying power which I have used. These palpi would probably be called *posteriores* or *postici* by Fabricius, but the appellation of *interiores* appears to me much more suitable. The other two, which he perhaps would name *anteriores* or *antici*, answer every description of being *exteriores*, for they are not only placed on the outside of the interior ones, and close to them, but also on the outer margin of the often mentioned guttural cross-bar. They are, besides, very small, erect, compressed,

compressed, narrower towards the top and blunt, and seem to have neither joints nor motion, nor the same structure as the others, being minutely punctated. Whether or not they internally adhere to the maxillæ, is impossible for me to decide; but certain it is, that if they do, it cannot be to any other part than their very bases.

The *Mandibulæ*, also inserted in the jugular cross-line between the exterior palpi and the anterior angle of the eye-socket, extended to the middle of the under-joint of the antennæ, and, moving on two hinges below, are upon the whole arched, acuminate, and forcipated: but, to speak more particularly, they consist of three different parts, viz. two horny cases or sheaths, the inferior of which is the largest and almost straight; the superior narrower, shorter, and bending inwards; and from the top of this there comes out a still narrower round and fleshy hook, which meets that of the other mandibula, and seems to be a true instrument for feeling. The structure of the lowermost sheath being the broadest, and the other broader than the hook, makes the mandibulæ appear as drawn out below on the inside, and as if furnished with two teeth, the inferior of which is covered with small hairs.

The *Maxillæ* being hidden by the mandibulæ, the exterior palpi and the labium, I cannot see any thing of them but their very tops, which are extended above the lip, or between it and the mandibulæ, and appear to be arched, horny, cylindrical, toothless, sharp-pointed and forcipated.

The *Labium* is rather large, thin and membranaceous, of equal length and breadth, longitudinally raised in the middle, entire at the top, and there furnished with hairs. It is besides shorter than the interior palpi, and often covered by them, which then are placed one on each side of the longitudinal carina. That of *P. sphaerocerus*

is nearly truncated, and downwards inflected; but that of *P. microcephalus* shews an appearance very different, its top being seemingly drawn out in the middle into a point, and its keel longitudinally fulcated, as if the lip were bipartite. Whether these appearances are optic illusions, or realities, or owing to the subjacent maxillæ, I do not pretend to determine. But so much is certain, that, by repeated observations, I have not been able to discover any fissure in the middle tip of the labium, viewed in front.

The *Thorax*, though very unlike in these species as to many particulars, is nevertheless upon the whole of the same shape. It is narrower than the elytra, and uneven, consisting of two distinct parts, the foremost a little raised all around, and the other not only lower, but also broader, and either depressed or excavated in the middle, being otherwise nearly cylindraceous; and therefore the term *attenuatus*, used by Thunberg, seems not to be very apposite, though it may answer much better the description of his own species. But even supposing that the thorax tapers towards the base, it would be the very reverse of *attenuatus* as applied elsewhere.

The *Elytra* are linear, almost flat, smooth, thin and flexile; the base, containing the small *scutellum*, is not only much contracted, but even narrower than the thorax; the exterior margins, bent down, cover a great deal of the abdomen; and the truncated ends are inflected behind; but to avoid a fold being necessary in the outer angle on each side, where the incurvated borders of the sides and the ends meet, the elytra are there cut out into minute sinuses, the edges of which being a little raised form as it were small oblong tubercles.

The *Abdomen* is of the same thickness throughout, and composed of five segments; *above*, it is nearly flat, and of a light changeable ferruginous

ferruginous colour, looking as if pellucid, and the posterior margin of the last segment but one as if raised above the terminal, which is dark-coloured, very large and bent down, being behind circular and margined; *underneath*, and on its fore-part, the abdomen is marked with a little convex plat situated between the second and third pair of feet, and further towards the end it is gibbous, the first and the fourth of the segments being much broader than the others, and the cavity under the thighs of the hinder feet surrounded by a circle of very minute and approximated dots. In the specimens of *P. microcephalus* which I have had to examine, this cavity being covered by the thighs, and the upper part of the abdomen by the elytra, I can see only very few of the dots; nor am I able to ascertain whether the whole back of the abdomen is as light-coloured as that of *P. sphaerocerus*.

The *Feet* are all nearly of an equal length, the two first being inserted in the fore-part of the thorax, or rather of the breast; the two second in the base of the venter at the top or contracted end of the little plat above mentioned; and the two last in the middle of the venter. The *thighs* are thicker than the legs, particularly those of the hinder feet; they are without hairs or spines, of an oblong shape, but more contracted at the base, and compressed, though at the same time gibbous on both sides; they are moveable in a transverse direction by aid of a light-coloured appendage, which being attached to their base within, rolls in a socket below, and which on the hinder feet is very large, oval, and compressed to an obtuse edge, but on all the other feet it resembles more a tubercle, being almost round; the thighs are lastly cut out at the top, and their inner margins a little beyond the middle, for the inward motion and contraction of the *legs*, which also are compressed but not gibbous, and on the edges more or less furnished with short hairs.

hairs. The *tarsi* are nearly cylindraceous and very slender, composed of four joints, three of which are of equal length, but the outermost longer, all marked at their tops with a hair on each side, and otherwise hardly distinguishable. At the end of the *tarsi* there are two longish claws, crooked inwards, and diverging.

From this generic description it is very easy to be convinced that *Pausus* never can be of the same genus as *Cerocoma*. And it is rather a matter of surprize that Fabricius, who always has been ready to divide the genera of Linné, and sometimes has done it for reasons, I fear, not very urgent, should now unite two so strikingly and essentially distinct. He says, it is true, "that he has only put it in here for future examination, that it seems to be a genus of itself, and that he does not know it rightly." But then it might perhaps have been as well not to have mentioned it at all. Be this however as it may, in order to prevent any farther misconception on the subject, I will here state all the principal circumstances by which *Cerocoma* differs from *Pausus*.

The *Body* is of an oblong shape, and almost of an equal breadth throughout, the head and the thorax being scarcely narrower than the elytra. It is found without the tropics in the South of Europe and the most Northern parts of Africa, on plants growing in open fields.

The *Head* is oval, and inflected downwards.

The *Antennæ* are small, scarcely as long as the thorax, and composed of many joints of various size and shape, particularly those of the male. And therefore I do not comprehend what could induce Fabricius to call the joints equal, and the antennæ moniliformes, especially as he adds that the latter are *irregulares*; for this term, according to the signification he has attached to it himself, flatly contradicts the former assertions.

The

The *Palpi* are nearly of equal length, the anterior affixed to the back of the maxillæ, and the posterior to the middle of the lip, the former consisting of four joints and the latter of three. Fabricius says, that the palpi are filiform, and all their joints cylindrical, and of the same size. This may be true as to the hinder palpi, but it is not equally so in regard to the foremost, as these latter have the middle joints vesicular and incrassated in the male, and obconical with the terminal one much larger in the female.

The *Mandibulæ* are toothless and without sheaths.

The *Lip* is cylindraceous, elongated, and contracted where the palpi are inserted, and above them bifid.

The *Thorax* is flat, but marked with no inequalities, being neither depressed nor excavated.

The *Elytra* are rounded at the end, and neither bent down there, nor at the exterior margins.

The *Abdomen* is furnished on the sides with papillary folds.

The *Tarsi* of the fore feet have five joints, but those of the hinder feet only four.

These few remarks may be sufficient to shew that *Cerocoma* is as different a genus from *Pausus* as can be supposed, and perhaps much more so than many which Fabricius has established. Having thus far settled the generic character, I shall now proceed to the history and description of the species in particular.

I. *PAUSUS microcephalus.*

This, Linné says, "was sent to him by Dr. Fothergill of London, in a collection of insects chiefly from North America and Guinea;" which in fact is nothing more than saying, that it may be a native
of

of either of those countries, or of both, or of neither; in one word, that its *habitat* was not known to him; and therefore he very prudently avoided assigning to it any.—This being the case, it is quite unaccountable how Fuefsly, Gmelin, Herbst and Fuefsly's translators could do it, without supposing a misrepresentation of Linné's text, as I am certain they knew nothing of the insect, but what they had learned from his dissertation.

Fuefsly tells us, "it was found amongst a number of other insects which the celebrated Dr. Fothergill of London had gathered in North America." But neither was Dr. Fothergill ever in America, nor is this insect a native of that country, as far at least as we yet know. This double blunder has nevertheless been faithfully transcribed by Herbst; but Gmelin has satisfied himself with only the wrong *habitat*. Fuefsly's translators have made two alterations in his text; the one equally erroneous as the original, in saying that this species was found in a collection of insects from South America and the other; a real amendment, in excluding the statement of Dr. Fothergill's having collected it himself in America.

Thunberg has very properly not attempted to say from whence it came; but Fabricius mentions Africa, from the authority of the cabinet of the Right Hon. Sir Joseph Banks, Bart. K. B. and I have no doubt but that this is its true native country; not however the whole continent of Africa, but its western coast, within the Tropics, on this side of the Line; at least it is certain that the two specimens of it now in London, one belonging to Sir J. Banks, and the other to Mr. Drury, were both sent from thence by Mr. Smeathman. And it is so much the more probable that the insect Linné got, likewise came from him; for I understand he was particularly patronized by Dr. Fothergill, and amongst other curiosities also sent him many insects from that part of Africa which he visited.

Now I find from those of his manuscript papers which Mr. Drury obligingly has permitted me to peruse, that though he often travelled to different places between Isles de Lofs and Sherbro', still he resided chiefly at the Bananas;—and therefore I think we shall not be much mistaken, if we consider this island, or the adjacent part of Sierra Leone, as the only native country hitherto known of *P. microcephalus*, this rare insect, of which there are no more to my knowledge now existing in Europe than the three specimens before-mentioned, all of which I have seen, but in a very different manner; for, of the Linnæan one, now in the possession of Dr. Smith at Norwich, I had only a cursory view, at a time when I entertained no idea of describing it; but the other two I have been allowed to examine and compare carefully. And as the figures annexed to Linné's dissertation, though upon the whole of merit, were found to be capable of conveying a wrong notion of the true structure of the antennæ, and principally of their superior joint; Sir J. Banks did me the favour of granting me leave to have his specimen drawn in different sizes and positions.

Linné describes this insect as *niger elytris piceis*, Thunberg and Gmelin as *totus niger*, and Fabricius as *fuscus*. Herbst calls it *ater*, but figures the elytra piceous, and the rest of the body blackish-cinereous; and thus makes it very curiously resemble an harlequin. As to Fuesly, he has only copied Linné's words; but in the French edition both *niger* and *piceus* are translated by *noire*.—Hence we find that this insect has been described now with one colour and now with another, and sometimes as having two colours, though it does not possess but one, and that almost uniform. This is a singular fact, and a striking instance of authors not knowing the true signification of Linné's terms.

It is not very uncommon in our days to see *ater* and *niger*, *piceus* and *fuscus*, used promiscuously: but it was not so originally with Linné; for, by *ater* he meant a colour of the blackest kind; by *niger*, another of black and brown mixed together; and by *piceus*, still another of a lighter cast, or with a greater portion of brown. As to *fuscus*, it was a dark colour, composed of a mixture of black, brown, and cinereous. Having once asked him the difference between *ater* and *niger*, I received this explanation from himself. It must therefore be genuine; and if we apply it to the present case, we shall find it agree admirably well, for the colour of *P. microcephalus* is a dark brown, but underneath and on the forepart bordering on blackish; and of course Thunberg has approached very near the truth in calling it *niger*, though I would rather give it the name of *piceus*.

Fabricius, in pointing out the specific difference of this insect, and speaking particularly of its antennæ, says that their clava is *irregularis*. This word not being otherwise defined, it must here be taken in the sense in which it is commonly used, and then it conveys the idea of the clava being of a shape either not always uniform, or deviating from the ordinary rules of nature. But neither is the case, for all that I have seen have been quite alike, and an oblong spheroid is not a very uncommon form to be met with in nature; *P. sphaerocerus*, both the *Pausi* of Thunberg, and *Cerocoma ruficollis* of Fabricius, having, besides something similar to it, the upper joint of their antennæ differently shaped from those of other insects.

After these details of the history of *P. microcephalus*, I shall now state the chief differences between it and *P. sphaerocerus*.

It is of the same length, but somewhat broader across the elytra, and of a much darker colour, being also very little shining.

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The *Head* is uncommonly small and without a horn, its annular base-part higher than the foremost; the *clypeus* bipartite, and the jugular *triangle* minute.

The *Eyes*, being as dark as the surrounding parts, cannot be discovered but by a large magnifier, and then they appear to be of a water-colour. The angles of the brim of the socket are large, the hinder one being raised to the height of the eye.

The *Pivots* of the *antennæ* are black, very bright, and easily taken for eyes. The *under-joint* is furnished with a wart on the inner margin of the top, covered with papillary or cartilaginous hairs. The *upper-joint*, or the clava, is dotted, much greater than the head, and of the shape of an oblong spheroid, being in *front* rounded and compressed with the carina raised into a sharp edge, provided on the *vertex* with four tubercles set in a row and tipped with hairs, and elongated *behind* into an obtuse tube, laterally compressed, above depressed, and underneath having a knob, which, in moving, touches the bundle of hairs on the top of the under-joint. The *pedicle* is long and crooked, its upper part being broader, compressed, and keeled in front.

The *interior Palpi* are of a lanceolated-oblong shape, and furnished with very minute hinges.

The *Mandibulæ* have small hinges, and the inferior sheath much larger than the superior.

The *Thorax* is broader than the head and very uneven, the two parts being entirely separated by a transversely surrounding furrow, the *foremost* above and on the sides elevated to a sharp edge like a collar, and the *hinder* one cut out in the middle into a cavity, which, obtuse behind, and dilatated and deepened before, is encompassed on the sides with diverging and outwardly declining lobes, being

at their top rounded, and provided with shining hairs of a fulvous colour, and incurved downwards.

The *Elytra* are without dots, and rather longer than the abdomen. The folds of the exterior borders, and the tubercles on the outer angles of the ends, are both larger than those of *P. sphærocerus*.

The *Under-wings* are quite footy, and without the least glossiness.

The *Abdomen* has the terminal segment very retuse, and the margin of the next before it visibly raised.

The *Hinder-feet* are a little shorter than the others. The *thighs* of these feet are larger than those of *P. sphærocerus*. The *legs* of the four foremost feet are linear, but those of the two hindmost ones nearly lanceolated, being also somewhat broader. The joints of the *tarsi* are exceedingly difficult to be distinguished.

2. PAUSUS *sphærocerus*.

I had been in Africa almost three years before I happened to meet with this remarkable little insect, and then it was quite accidentally. There was a house building for the Governor, on an eminence called Thornton-hill, at the South end of Freetown, in Sierra Leone; and in the beginning of the year 1796, several apartments having been got ready so as to be habitable, one of them was allotted to me, and I removed into it in the end of the month of January.

I had not resided there many days, when one evening having just lighted my candle and begun to write, I observed something dropping down from the ceiling before me upon the table; which, from its singular appearance, attracted my peculiar attention. It remained for a little while quite immoveable, as if stunned or frightened, but began soon to crawl very slowly and steadily. I then caught it, and, from the remembrance I had of the Linnæan species, I directly took it for a non-descript of this genus.

Some few days after, coming into my room from supper with a light in my hand, and having put it upon the table, there instantly fell another down from the ceiling. The third I was favoured with by the then Governor, Mr. Dawes, who informed me that it had dropt down before him on the table, just when he had entered his room and was going to write. The other three which I afterwards collected, were also got upon similar occasions; and from thence I thought I had some reason to conclude, that it is a nocturnal animal, that it becomes benumbed by candle light, that it lives in wood and prefers new built houses, &c. After the end of February I never saw any more.

The last which I caught I put into a box, and left confined there for a day or two. One evening going to look at it, and happening by chance to stand between the light and the box, so that my shadow fell upon the insect, I observed, to my great astonishment, the globes of the antennæ, like two lanthorns, spreading a dim phosphoric light. This singular phenomenon roused my curiosity, and, after having examined it several times that night, I resolved to repeat my researches the following day. But the animal, being exhausted, died before the morning, and the light disappeared. And afterwards, not being able to find any more specimens, I was prevented from ascertaining the fact by reiterated experiments at different times; which I therefore must recommend to other Naturalists, who may have an opportunity of visiting Sierra Leone, requesting that they would particularly inquire into this curious circumstance.

I shall now only add some few remarks, shewing in what manner this new species most essentially differs from the old one.

Not being quite so broad, it looks as if it were longer, and more cylindrical.

cylindrical. It is also of a lighter or chestnut colour, and all over very glossy.

The *Head* is larger, but its annular base part smaller and contracted. It is furnished with a little horn in the middle between the eyes, which is straight, conic, and tipped with a tuft of cartilaginous hairs. The *clypeus* is only depressed, and the jugular *triangle* wider.

The *Eyes* are large and very evident, those of the male black, though in a certain light appearing greenish; but those of the female are like pearls, or as if they were covered with a crystalline membrane. The angles of the brim of the socket are small and rounded at the top, and the hinder one lower than the eye.

The *Pivots* of the *antennæ* are not so discernible, being of the same colour as the surrounding parts. The *under-joint* is without any hairy papilla or wart. The *upper-joint*, or the *clava*, is of the size of the head, quite globular, and resembles an inflated bladder, being almost pellucid, and of a light flesh colour. The *keel* is nothing more than a raised line, finishing on the vertex in only one chestnut brown tubercle covered with cartilaginous hairs. Behind there is a little conical shining *hook*, of the same colour and with the same sort of hairs bending outwardly, being of equal length with the horn on the head, but narrower. The *pedicle* is short, straight and cylindraceous.

The *interior Palpi*, furnished with very visible hinges, are a little thicker towards the top, but look in some directions as if they were filiform.

The *Mandibulæ* have large hinges, and the superior sheath almost as long as the inferior one, and nearly cylindrical.

The *Thorax* is of the same breadth as the head, and not very uneven, the two parts being separated by a furrow only on the
sides

sides and underneath, the *foremost* above and on the sides convex resembling an annular segment, and the *hinder* one impressed in the middle with a mark somewhat like two small diverging wings of a blackish silvery colour.

The *Elytra* are shorter than the abdomen, and minutely punctated.

The *Under-wings* are of a shining and changeable violaceous colour, and not very dark.

The *Abdomen* has the terminal segment a little convex, and in the female more so than in the male. Underneath, the third and last segments are darker than the others.

The *Feet* are all of equal length. The *thighs* have smaller appendages than those of *P. microcephalus*. The *legs* are at the top broader, truncated and hairy, having the exterior margin drawn out into a sharp lamina, on each side of which there is a row of small diverging hairs, which make the leg appear as if it were canaliculated, at least in a certain light, and with a small magnifier. On the interior margin there is but one row of hairs, and on the hinder legs I do not observe any. The *tarsi* are longer than those of *P. microcephalus*, and have also both the joints and the claws much more distinct.

Having thus given a sufficiently detailed account of the genus *Pausus*, and its two species, which I have seen myself, as to their history, their generic resemblance, and specific difference, I shall now endeavour to describe them in a shorter and more scientific language.

In settling his genera of insects, Linné attended chiefly to the *antennæ* and their structure; but he took occasionally into consideration also other parts, as the *head*, the *thorax*, the *elytra*, &c. &c. Fabricius has adopted a different method, and made out the generic descriptions.

descriptions only from the mouth and the organs for feeding, or what he calls *Instrumenta cibaria*. These descriptions he has published in his *Genera Insectorum*, under the name of *Characteres naturales*, in imitation of what Linné had done before in regard to plants.

But as a *Character naturalis*, in whatever manner it may be made out, does not contain the whole description of a genus, or the whole account of the agreement between its species, I would call the remaining part *Habitus naturalis*, and from the leading points of this double statement I would form a *Character artificialis*, to be put before the genus in the text of the book, leaving what is named *Character essentialis*, or the most distinguishing marks from other genera, out of *Character naturalis*, to be inserted as usual in the methodical arrangement at the head of the class.

But *Pausus* is a genus so very unlike all others hitherto known, that I cannot find a place for it in this arrangement. Gmelin has put it in the division, *Antennis clava solida*; and Fabricius with *Cerocoma* in another, *Antennis moniliformibus*. But, as I have proved above, it does not belong to either; nor can it be placed amongst Fabricius's genera *Antennis extrorsum crassioribus*, because these expressions, without being otherwise defined, are so vague that they may be equally applied to all insects with clavated antennæ, as it has been done not only by Linné, but also by Fabricius himself in his *Philosophia Entomologica*. I am therefore under the necessity of making a new division for *Pausus*.

DESCRIPTIO



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