HYMENOPTERA.

Notes on Hymenoptera.

By Frederick Smith.

In recording the discoveries of Hymenopterous insects during the past season, it occurs to me, that great expectations will very naturally arise in the minds of many Entomologists in consequence of the remarkable summer of 1868; its tropical character, continued even up to the commencement of autumn, will long be remembered. Three months of uninterrupted fine weather, together with a continuance of almost tropical heat, is rarely registered in the Entomological Calendar.

The practical observation of the habits of Hymenopterous insects is in so great a degree dependant upon weather, suitable for that purpose, as, in itself, to determine with tolerable precision the success that will attend the labour of the Hymenopterist.

Experience has shown, that the extremes both of heat, cold, or wet, are alike unsuited to the development of Hymenopterous insects, and it would be difficult to decide which of these extremes is most destructive to insect life. The extreme of heat was experienced during the past summer, and the result of the season's campaign proves, I think, the truth of my opinion.

There are one or two effects of the character of the past

season, upon the aculeate Hymenoptera, that could not, I think, fail to impress itself upon every observer of these insects,—and that has been the diminutive size of the greater portion of them. I cannot perhaps better illustrate this, than by mentioning a circumstance that occurred to myself.

During the first week in June I visited Bournemouth, and, on one of my collecting excursions in the neighbourhood, I observed several bees which I imagined to be the *Osmia bicornis;* and, in consequence of their apparently diminutive size, I was induced to capture three or four of that very common insect; subsequently, when about to set and prepare them for my collection, I was perfectly astonished on discovering that they were minute specimens of *Bombus muscorum*, examples of the worker sex. Later in the season, about the middle of August, I found workers of the same bee equally small, at Cromer in Norfolk. The same unusual diminution of size was observable in the majority of the solitary bees throughout the season.

I attribute the development of these small bees to an insufficient supply of nourishment; day succeeded day, when the heat was so intense that bees could only venture forth for a short time in the morning; during the hours of midday, no bees were to be seen, and those flowers which they usually frequent during the months of July and August, flowered, and ran to seed so rapidly, that the usual supply of food was unattainable. During my experience, I do not remember any season when Hymenoptera generally were so scarce; and those that were found, were mostly so bleached and faded by the intense heat of the sun, as to render them useless as specimens for the cabinet.

Before I proceed to enumerate the discoveries and captures of rarities, I must refer to the last paragraph of the paper

which I contributed to the Annual of 1866, it is as follows:—"In 1864 I collected a large number of the larvæ of *Eriocampa ovata*, and, in the spring of the following year, bred as many as fifty flies, but all proved to be females." Of this very common species of saw-fly the male is not known; the female is very abundant in the neighbourhood of Lowestoft, where the alder, upon which its larva feeds, grows in almost every hedge, and at the sides of every ditch; I have taken some hundreds of examples in the hope of finding the male. When collecting the larvæ in 1864, I selected those of the largest size, judging they would be soonest full fed, and therefore give me the least trouble in attending upon them; and no doubt such proved to be the case, but it subsequently occurred to me, that by adopting this course, I had possibly collected the larvæ of females only, the male larvæ being, probably, always smaller; this supposed error however I determined to rectify; therefore, being at Lowestoft last season also, I availed myself of the opportunity, and collected a large number of larvæ of all sizes, preferring those of the smallest size I could find; many of these were not more than the eighth of an inch in length. The feeding of these larvæ occupied about three weeks; each one, when it had acquired its full growth, buried itself in mould, contained in a large flower-pot.

In the month of April, in the present year, the flies began to issue forth, and continued to do so up to the end of the month; the total number being 132; all proved to be females, with one solitary exception, and that is a male of a species of *Nematus*. The mystery, therefore, that has hitherto existed with respect to the male of *Eriocampa*, is undispelled. The solution of this mystery is probably to be sought for in another direction. Be this as it may, we are led to the inquiry as to the possibility of the fertilization of the

eggs of *Eriocampa ovata*, without the intervention of the male sex; this may probably be a suggestion that will be summarily dismissed by many, as quite untenable; let it however induce other Entomologists to investigate the subject. I have myself, for several years past, lost no opportunity of endeavouring to solve the problem without any satisfactory result; another person may be more successful in his researches. *Eriocampa ovata* is not the only saw-fly whose male is unknown, whereas the females are extremely abundant.

In my communication to the Annual of last year, I gave some account of a species of wasp belonging to the genus *Polistes*, which was caught alive by a lady at Penzance in the summer of 1866; and again in 1867, three specimens were taken, several others being observed at the same time. I remarked upon its close resemblance to *Polistes biguttatus*, a South American insect, and suggested the possibility of its being an imported species; but, at the same time, remarked upon the extreme difficulty of suggesting a means whereby it could have been conveyed from South America or Brazil.

My correspondent undertook to make every inquiry as to what vessels had entered the harbour from America; in July last I received the following information: "I think I have at last solved the problem of the *Polistes*. After trying in vain to obtain any intelligence of shrubs or unsawn wood being imported from South America, a remark of my sister's turned my thoughts in another direction. She told me, that the common wasp is often very troublesome to butchers, by its taste for raw meat. Now there is a regular trade between Penzance and South America in raw hides, and it occurred to me as possible, that the South American wasps might have settled on the hides, and so have been wrapped up and entangled in them."

It was also ascertained that the ship conveying the hides arrived at Penzance on the 25th of July, 1866, and the *Polistes* captured about the 15th of August. In 1867 the same ship entered the port of Penzance on the 31st of July, and the *Polistes* was again taken during the first week in August. The wasp was shown to the captain of the ship, who at the same time was asked if he had ever observed any insects like it on board; he replied, "they had often plenty of flies and beetles on board," and after attentively looking at the wasp he said, "no doubt it came from his ship, as he had seen hundreds about it when sailing down one of the branches of the La Plata."

This explanation, I think, fully accounts for the capture of the *Polistes*; and, at the same time, it suggests a way by which many carrion beetles may be conveyed to this country, in a way that might not occur to Entomologists who pick up such insects in the neighbourhood of Penzance, as well as near ports in other parts of this country.

It is a remarkable circumstance that Mr. Douglas, of the Custom House, should capture the same species of *Polistes* in the tobacco warehouse at the St. Katherine's Docks, in the month of August last. He kindly forwarded the insect to me, but, at the same time, could not even suggest the country from whence it came, as the tobacco was imported from all parts of the world. It may not, however, have been imported with tobacco; and the insect might have flown from the hold of some ship lying in the docks.

At page 87 of the Entomologist's Annual for 1865 a record of the discovery of *Formica exsecta* will be found, and it will be seen that only the workers were discovered. The following season I again visited Bournemouth, with no better success; not being able to do so before the month of

August, and it was not until the month of June this year that I again went to that locality.

So much fine hot weather preceded the time of my visit, that I calculated upon a more rapid development of the sexes, and probably I was right to some extent; but, although I found, during the first week in June, plenty of the sexes spun up in the their cocoons, I did not succeed in obtaining a single perfect ant of the male or female sex. Finding myself thus disappointed, I resolved upon bringing home, and establishing a colony of this ant in my own garden.

On the morning of my leaving Bournemouth, I rose early, and, taking a spade and a tin box, I set out for the purpose of obtaining a nest of *Formica exsecta*. At the early hour of five o'clock, I found a nest with its inmates apparently in quiet repose, not an ant was to be seen; I carefully marked out the size of my tin case round the nest, and soon succeeded in digging up a good sized turf, on which, in a perfectly undisturbed state, was the nest I so longed to obtain; in depositing the nest inside the tin case, I scarcely disturbed the ants; a few issued forth to see what was going on, but as I moved them so gently, they appeared satisfied, and soon retreated back into the nest. With great care I brought my treasure to London, and on the evening of the same day had the satisfaction of seeing a nest of *Formica exsecta* established in my garden at Islington.

It was a great pleasure thus to have, as it were, completely overcome a great disappointment; a week or two would, I thought, produce me the sexes of the ant I had so long desired to obtain. Alas! how little do we foresee coming events; in this instance, they cast no "shadows before;" the fulfilment of my wishes appeared a mere matter of time, as to when they would be consummated.

On the following morning I visited my ants' nest, when, what was my astonishment, on beholding a line of black ants extending from the nest to the root of a lilac tree in the corner of the garden; one troop of ants were on their way from the tree to the nest, whilst another was travelling in the opposite direction; each ant laden either with a larva or pupa of *Formica exsecta*.

My hopes, plans and arrangements now appeared to be completely destroyed; on reflection, however, I consoled myself with the hope that the black ants, *Formica nigra*, were only committing a raid upon the other species, after the manner of the slave-making species *Formica sanguinea*.

This idea, on mature consideration, not only revived my hopes, but even added to my previous satisfaction; and for this reason: I was, in all probability, about to make a great discovery; I was about to prove that which had escaped the notice of all previous observers,—*Formica nigra* was to be discovered in the character of a slave-making ant. I therefore allowed the pillage to go on; which it did, more or less, for a day or two; I even observed the black ants dragging the workers of *Formica exsecta* off to their own nest.

I was, however, doomed to be again disappointed; in a few days every larva, pupa and worker was conveyed into the nest of *Formica nigra*, and from that time, the most careful watching failed to discover any trace of *Formica exsecta*; I have not any doubt of the whole contents of the nest having become the food of the colony of the black ants.

In July last, Mr. Rothney visited Bournemouth, just five weeks subsequent to my doing so; and on the 14th of the month he wrote to me as follows:—"I discovered a nest of '*exsecta*' in a most secluded spot on the cliffs facing the sea; and, most fortunately, found all the sexes." At this

time, the males and females had quitted most of the nests, so that about the last week in June would usually be the best time to look for those sexes. Mr. Rothney continues, "in taking them, the workers swarmed all over me, face, neck, arms and legs; I got fearfully punished. The sexes were also found in two other nests, but in about twenty others I failed to find a single male or female."

Mr. Rothney also obtained the males and females of *Formica aliena*, the males in abundance, but only seven females; this capture is the first that has been made in this country of those sexes. This insect is regarded by Dr. Nylander as a variety of *Formica nigra*, and its differences from that species are extremely slight; that which is most readily observable is the absence of pubescence on the scape of the antennæ, and on the legs. In *F. nigra* the microscope shows those parts to be sprinkled with long hairs; the habit of the insect is also different; it is usually found on exposed bare patches on cliffs or commons, and it has a way of tunnelling under the ground, and of casting up little hillocks, after the manner of the mole; the worker has the thorax usually of a pale testaceous colour; the pubescence is not to be found on the scape or legs of any of the sexes; it is not known whether any difference in the form of the sexual organs would separate the males.

In June I obtained all the sexes from a nest of *Formica congerens;* I searched in the nest of this ant for the *Tinea ochraceella*, but without success; when I first discovered the nest of this ant, a few years ago, I observed a number of minute moths running among the ants, but it did not occur to me at the time, that it might probably be a rarity.

The following is a list of the rarer species of Hymenoptera taken at Bournemouth by Mr. Rothney:—*Mutilla Europea* and *ephippium; Eumenes coarctata; Panurgus calcaratus; Nomada baccata* and *Halictus prasinus.* At Stowborough Heath, near Corfe Castle, Dorsetshire, *Dasypoda hirtipes*, abundantly; and at the same locality, a beautiful species of *Odynerus*, new to the British fauna; this insect is described in the Catalogue of Hymenopterous Insects, pt. 5, Vespidæ, published by the trustees of the British Museum. In the national collection are two specimens of this wasp, supposed to have been taken in Polish Ukraine, S. W. Russia, but the locality is not quite certain; they were taken by Dr. Dowler, who formed a large collection of insects, whilst on a tour through Europe, the whole of which he presented to the national collection in 1843; the description of the insect is the following:—

Odynerus basalis, Smith. Female.—Length 5—6 lines.—Black: the basal segment of the abdomen red, tile-coloured. Head and thorax rugose-punctate and opaque; the clypeus produced and deeply emarginate at the apex, and with a yellow transverse band at the base; a narrower yellow line at the inner orbits of the eyes, running from the base of the clypeus to the emargination of the eyes; a minute yellow spot between the antennæ at their base, and another behind the eyes; the scape of the antennæ beneath and the tips of the mandibles ferruginous. Thorax: the anterior margin of the prothorax above, an ovate spot beneath the wings, the tegulæ, the posterior margin of the scutellum and of the post-scutellum, yellow; the legs ferruginous, with the coxæ and trochanters black; wings pale fulvo-hyaline; the nervures rufo-testaceous, becoming bright ferruginous at the base of the wings; the stigma rufo-testaceous; the tegulæ have a central dark stain. Abdomen: the posterior margins of the first and three following segments yellowish-white; the band on the second segment widened laterally; the basal segment has sometimes a central black line.

Var. A. The yellow line at the base of the clypeus obsolete.

Var. B. The sides of the metathorax ferruginous, and the basal segment of the abdomen with only a minute central triangular black spot.

Mr. Rothney has bred the rare *Crabro capitosus* from bramble sticks collected at Ipswich; he has also taken that scarce bee *Stelis phæoptera* in the flowers of the mallow at Addiscombe.

Having had an opportunity of examining the Hymenoptera bred from bramble sticks by Mr. Rothney, I detected among them a new British bee; it is a species of *Prosopis* most nearly allied to *P. dilatata*, but is a smaller insect; four specimens were bred, two of each sex.

Prosopis rubicola. Male.—Length 2¼ lines.—Black: the head and thorax closely and evenly punctured, opaque; the metathorax with a triangular space at the base, defined by a sharp ridge, rugose; the head, before the antennæ, yellowish-white; the scape of the antennæ short, broadly dilated and black, with a minute yellow spot at the apex outside; the flagellum, except the basal joint, fulvous beneath; mandibles entirely black. Thorax: a minute yellow spot on the tegulæ in front; the wings hyaline and iridescent; the anterior tibiæ yellow in front, and the apical joint of the tarsi testaceous; the extreme base of the intermediate tibiæ and the basal joint of the tarsi yellow; one-third of the posterior tibiæ at their base and the first joint of the tarsi yellow. Abdomen shining, finely and closely punctured.

Female.—Closely resembles the male; the head and thorax opaque; the abdomen shining; an impressed line extending from the anterior stemma to the insertion of the antennæ, a similar shining impressed line close to the inner orbits of the eyes; a minute yellow spot on the front of the tegulæ and the base of the posterior tibiæ yellow; the apical joint of the tarsi testaceous; the abdomen very delicately and rather distantly punctured.

Bred from bramble sticks collected either at Shirley or Ipswich, but supposed to be from the latter locality.

At Bournemouth, during the first month of June last, I discovered a nest of *Tapinoma erratica*, in which I found all the sexes; the males and females winged, the latter sex was taken by Mr. Grant at Weybridge in 1843, but only two apterous specimens; the male I had not previously either taken or seen.

At the commencement of the season, in April and May, the aculeate Hymenoptera appeared in considerable numbers, giving promise of an abundant season; early in June however the unprecedented heat of the weather caused a remarkable decrease in their numbers; at Bournemouth they were becoming extremely scarce during the first week of that month; and it is certainly a remarkable fact, that the majority of these insects captured in July, August and September, were mere dwarf representatives of their species.

In the Entomologist's Monthly Magazine, Mr. Bold records the capture of two species of aculeate Hymenoptera; he also minutely describes both the insects; one *Passalæcus monilicornis* of Dahlbom, the other *Pompilus melanarius* of Vander Linden; both are new to the British fauna. With regard to the latter insect, I am answerable for having misled Mr. Bold, by informing him, that I believed it to be the *P. melanarius;* I am now quite sure that I was in error in so doing. On a careful examination of the insect, a specimen of which was given to me by Mr. Sharp, who captured it in Dumfries, I observe first, that it is a very close ally of *Pompilus niger*, from which it scarcely differs,

excepting in the neuration of the wings; it is a little more pubescent about the head and thorax; the neuration of the wings of *P. niger* varies greatly, the third submarginal cell is sometimes triangular, petiolated, or, occasionally only contracted towards the marginal cell, but I have never seen a specimen of *P. niger* agreeing with Mr. Bold's insect; it would be very desirable that a series of specimens should be obtained, including the male sex, when some strong specific character might be found, and the insect satisfactorily determined as a new British species, which I am inclined to consider it; I cannot find any description of an European *Pompilus* that suits it.

Having visited Cromer in August last, I will give a list of such aculeate Hymenoptera as I noticed in that extreme north-east corner of Norfolk; it is true, that in consequence of the long-continued summer weather that preceded my visit, the list will give, probably, a very inadequate idea of the species usually to be found there in the month of August, but I know no work that contains any account of the capture of a single Hymenopterous insect from Cromer. Many Coleoptera have been registered as occurring there, and, if I may draw my conclusions from the general character of the neighbourhood, I should certainly say it is a locality rich in its Hymenopterous fauna. The beautiful hills, valleys, woods and open commons, that diversify the surrounding country, offer every kind of situation usually resorted to by the aculeate Hymenoptera.

List of bees.—*Colletes succincta* and *Daviesana*; *Prosopis signata*; *Sphecodes gibbus* and *rufescens*; *Halictus rubicundus, leucozonius, cylindricus, albipes, flavipes, Smeathmanellus, æratus, morio, villosulus, fulvicornis, minutus, nitidiusculus*, and *H. malachura*.

In my Monograph of the British Bees, I have regarded

H. malachura as a mere variety of *H. cylindricus*, and I was partly led to do so from the circumstance of finding the same opinion expressed by Mr. Kirby in an interleaved copy of his Apum Angliæ; and also from the fact of my never having found the insect in the London district, whence Mr. Kirby received it; I was also unable to detect any good specific difference in the typical specimen, in consequence of its faded and imperfect condition.

I have now the pleasure of re-establishing this species, and of pointing out the particulars in which it differs from *H. cylindricus*, which it closely resembles; it differs from that species in having the clypeus less produced, the tegulæ black, the base of the metathorax less coarsely sculptured, and in wanting the sharp elevated ridge at the margin of the truncation; the legs are entirely black, and the pubescence whiter; the margins of the abdominal segments are not rufo-testaceous.

I am also inclined to think, that the *Halictus ruficornis* will prove to be the male of *H. malachura*.

Of the genus *Andrena*, I only observed three species,—the *Andrena simillima, tridentata* and *minutula*. I have only once before taken *Andrena tridentata*; in 1864 I found a few specimens on the ragwort, near Chirstchurch, Hants; I found it on the same flower at Cromer. Only one species of *Nomada* occurred, *N. solidaginis*; *Bombus muscorum, sylvarum, fragrans, terrestris, lucorum* and *lapidarius*.

Of the fossorial group I found very few, although, in ordinary seasons, August is the month when they are usually abundant; the following are all that I noticed:—*Tiphia femorata*; *Pompilus fuscus, gibbus, plumbeus*; *Ammophila sabulosa*; *Tachytes pompiliformis*; *Mellinus arvensis*; *Crabro Panzeri, Walkeri, obliquus, cephalotes, cribrarius,*

albilabris and *brevis*; *Oxybelus uniglumis*; *Odynerus parietum*; *Vespa vulgaris*, *germanica* and *rufa*.

The wasps were very abundant, particularly so in the butchers' shops. I was pleased to find that the butchers at Cromer have observed that wasps, if unmolested, are perfectly harmless, and extremely useful in carrying off the large blow-flies; the butchers at Cromer are always, they say, glad to see plenty of wasps. Some people begrudge wasps a little fruit, and appear to have no idea of the many ways in which these insects are beneficial.

Mr. Algernon Chapman has this season captured the rare *Odynerus crassicornis*, at Abergavenny; and also, the equally rare *Pompilus bifasciatus*.

I have previously remarked upon species of saw-flies that are of common occurrence, of which only the females have been discovered; and I have shown that breeding numbers of one of these species has failed to produce the male sex. This is, I admit, no conclusive proof of the non-existence of that sex, but we are led to ask ourselves, whether copulation at remote intervals is not, in these species, the law which regulates their continuance.

A subject equally interesting, and one that embraces perhaps even more startling phenomena, is the law that determines the development of the sexes in insects. A most interesting paper on this subject appeared in the Annals and Magazine of Natural History for 1867. This paper is a translation from the "Comptes Rendus." The author of the paper, Landois, endeavours to prove that the sex, in insects, is not determined in the egg state, and that it entirely depends upon the abundance or deficiency of food supplied to the larva; this naturally calls to mind the opinion of Huber, who refers the cause of difference of sex entirely to the quality of the food with which the larva is supplied; the development

of the queen of the hive-bee is induced by the larva being supplied with what is called royal jelly; whilst food of a less nutritive, or less stimulating character, causes the development of males and worker bees.

Dr. Siebold, in his treatise on Parthenogenesis, appeared to have settled the law of sexual development in insects most satisfactorily; and to have proved beyond the possibility of mistake or illusion, that worker bees, as well as queens, originate from eggs fecundated by the queen, whereas males are the product of non-fecundated eggs. Landois asserts, however, that independent of the eggs, destined to produce males and workers, being deposited in different-sized cells, that the food supplied for the nourishment of the young bees is not the same in the two cases; this, Landois observes, led him to try the experiment of transferring eggs deposited in worker cells into the larger cells of the drones; a similar transformation being made of the larvæ in drone cells into those of the workers; thereby causing an opposite production in each case. The experiment was tried, and, after one or two failures, the desired result was attained.

Landois discovered that it was necessary to transfer the eggs without touching them. In order to accomplish this, a piece of the bottom of the cell, upon which the egg was deposited, was cut away with a small pointed knife; the fragment on which the egg lay was then transported into the other cell, worker bees were developed from male eggs, and *vice versâ*. The experiment was repeated several times with the like result, and therefore, according to these experiments, it is not the fecundation of the eggs, or the non-fecundation, to which can be attributed the production of females, workers or males: it is, on the contrary, solely dependant upon the quality and quantity of the food with which the larvæ are nourished.

Professor Siebold has combated the theory of Landois, and maintains his own views of the parthenogenesis of the males; and refers to the results that have been obtained by anatomical and microscopical investigations of the larvæ of insects in the process of development in the egg; he consequently expresses the greatest doubt of the correctness of the theory set up by Landois.

In support of his own views, Siebold refers to the great work of Herold on the development of the cabbage butterfly, wherein it is shown, that germs of the undeveloped reproductive organs of the sexes are distinctly visible; and this discovery, he has shown, has been confirmed by Weisman in his remarkable work on the embryology of insects.

In addition to this, Dr. Siebold combats the opinion of Landois, that abundant nourishment produces females, and a scanty supply males, by quoting the authority of some of the most experienced observers of bee life, who all agree, that all larvæ up to the sixth day receive the same kind of nourishment; that which is called food paste, upon which the queens are abundantly fed until they change to the pupa state; whilst the larvæ of workers and drones, after the sixth day, receive a coarser kind of food, so that here we see workers and drones receiving the same kind of nourishment.

Assuming that the law of development of the sexes is applicable to the whole of the Insecta, in what way can we apply the theory of Landois to the Lepidoptera?—the cabbage butterfly, for instance; the quality, as well as the quantity of the food, is the same, and all the larvæ are equally free to consume the same amount of food. The same is the case in a very large number of Coleoptera; we may instance those tribes that feed upon wood, and also the necrophagous beetles, as well as many others.

Take the case of the wasp: it is certain that all the wasps developed in spring are, in the larval condition, dependent upon a single wasp, the queen, for nourishment, and all these are workers; the males on the contrary are produced in autumn, when the nest is most populous and food most abundant.

Among solitary bees I have observed, that those belonging to the genus *Colletes* frequently arrive at their perfect condition without having consumed the whole of the food stored up for them; I am unable to say which sex was developed from such cells, but here was a superabundant supply; I have not noticed a similar occurrence in the nest of any other bee.

The case of the genus *Anthidium* is remarkable, and appears to be strongly opposed to the theory of Landois. The males, in this genus, are always much larger than the females; the male carries off the female and copulates in the air; many males are twice the size of the females; in this case, it would certainly appear that the males would require even a larger quantity of food than the females.

Let us also take into account the economy of a fossorial and also a vespidious insect. The genus *Cerceris* is an example of the former group; now some of the species of this genus store up rhyncophorous beetles; in this case, both sexes are undoubtedly supplied with food of the same quality, when in the larva state.

Among the solitary wasps, we find the genus *Odynerus* storing up a number of caterpillars, all certainly those of the same species of moth.

The theory of Professor Siebold, that of parthenogenesis, is applicable to the development of all the Hymenopterous insects whose economy I have investigated, whilst that of Landois is certainly not; the objections to it appear to me to

be insurmountable and so conclusive, that I cannot think otherwise than that the author has drawn his deductions from insufficient evidence and from illusory observation.

I have introduced this subject in the hope that some readers of the Entomologist's Annual may be induced to follow up this interesting subject, and that the science of Entomology may benefit by their investigations.

NOTE.—I have just received from Mr. McLachlan a specimen of *Polistes biguttatus?*, captured at Liverpool, by Mr. Nicholas Cooke, in the office of a wool warehouse; it is certainly remarkable that this species only of the genus, so abundantly represented in species in Brazil, should be imported into this country.

27, RICHMOND CRESCENT, ISLINGTON.