XXX. *Observations on Succinic Insects. By the Rev.
F. W. HOPE, F.R.S., Pres. Ent. Soc., &c.*

[Read March 3, 1834.]

AT our last meeting * some few observations were read on mummied insects in a tolerable state of preservation after the lapse of two or three thousand years. I now wish to draw your attention to insects of much greater antiquity, insects which for aught I know may vie in antiquity with the "great globe itself." I allude to those which are contained in amber. It requires no very warm imagination to paint in glowing colours the overwhelming productiveness of the earliest ages: enough may be gathered for our present purpose from the imagery of the poet, in describing a period when the sun with greater power than at present shot his rays on the gladdened forest, when every tree and shrub distilled liquid amber from their branches, and when the whole air teemed with the countless myriads of insect population. It may require however the wand of the fairy or magician to account for the sudden and happy inhumation of these insects in their amber tenements; I say happy, for in most instances they appear not to have struggled to avoid their destiny, but seem fresh and beautiful as if still animate with life. It is not my intention here to propound a theory; this I most willingly leave to others: some speculations have enjoyed an ephemeral reputation, and then fell without any very satisfactory results being obtained from them, and others will probably do the same. I shall therefore proceed at once to make some remarks on the substances which contain insects, give the tests by which they may be known †, and then place before you a Synoptical Table of such genera and species as have fallen under my notice. The only recorded bituminous and resinous substances, I believe, which contain insects are the following, namely, amber and copal (Observe, I do not here include the *Crustacea* or *Arachnida*). It is not unlikely however that eventually they may be discovered in coal ‡, bituminized shale, and in the honey-stone. Amber is occasionally met with in the gravel-pits near London, and I have seen specimens which were found in Hyde Park. At Aldborough on the coast of Suffolk, after a raking tide, it is thrown on the beach in considerable quantities, along with masses

* Vide Journal of Proceedings, p. xi.

† See Supplementary Observations by Dr. Ure, annexed.

‡ I have subsequently learned that some have been found in coal near Bonn. Vide Proceedings Geological Society.

of jet, and if not torn from the bed of the sea may have been washed from the Baltic, where there are regular mines of it as well as in Spain*. Amber is also abundant on the shores of Sicily and the Adriatic sea. By eminent geologists it is considered as antediluvian, and of its vegetable origin there can be little doubt. The trees which produced the amber and the insects which frequented them are not known to exist. Probably the climate by degrees became colder and destroyed the vegetation and drove the latter to seek a more southern and genial region, or inundation may have overflowed the woods and buried all beneath a mass of waters. The celebrated Berendt gives us his opinion that the geographical focus of the amber wood was in the bottom of the Baltic, in the neighbourhood of what is now called Samland near Pillau. Every gale from the north still throws up, as it did a thousand years ago, its masses of amber on the Baltic shores; and it is worthy of remark that each point of the coast receives a particular kind of amber, so peculiar that practised cutters of it are able, when looking at a rough piece, to decide whether it came from a quarter to the east of Dantzic, or from the west on the coast of Pomerania, the produce probably of different trees. The places therefore where the amber was originally produced and subsequently immersed appear to be identical. Had it been carried thither by diluvium or alluvium the different kinds must have been commixed, but that is evidently not the case, as is well attested by Mr. Berendt and others. From an examination of the fossil wood (in the British Museum) obtained from the Prussian amber-mines, it appeared to me mostly to resemble fir, and as the major part of the insects found in amber are Xylophagous, I did expect to find some species which we meet with at present on the fir. Up to the present moment however I have not succeeded. Berendt informs us that the wood, blossom, fruit and needle *leaves* of the *Coniferae* have been found in amber,—the latter very rarely,—yet never corresponding with any existing trees; and although the leaves appeared to differ greatly from all known species, he thinks himself justified in ascribing them to the genus *Pinus*. And in a letter lately received from Mr. Berendt he informs me that the anatomico-microscopical examination of the wood

* It is much more likely that amber inclosing insects should be thrown on the shores of England than recent "exotic beetles, which beetles were said to have revived after having been long drenched in salt water." Meeting with this passage in a work of such eminence as Professor Lyell's *Principles of Geology*, I inquired of the author what these exotics were, and received for answer specimens of *Calosoma Sycophanta*, an insect found in Essex, Norfolk, Cheshire, and other counties in England. Here the entomologist comes in to aid the geologist.

places it beyond a doubt that the amber-tree was a *Pinus*. What the species of the true amber-tree really was cannot be known, but the above writer informs us the *Pinus Balsamea* approaches nearest to it in appearance, and he then states his opinion that the tree no longer exists.

With regard to the insects in amber I state them to be altogether extra-European; many of them belong to tropical and temperate climes, while some approach South American and Indian forms: I know of no existing species, however, to which they are analogous; they are therefore probably extinct. I arrived at this conclusion solely from the examination of a variety of specimens belonging to the collections of Germany and England, and was therefore greatly pleased on finding afterwards that Jussieu, Germar and De Jean maintain the same opinion in their writings. From Mr. König of the British Museum I obtained the intelligence that Dr. Leach and Mr. MacLeay were of the same opinion. We have then the united testimony of some of the first entomologists of Europe, whose collections are proverbially rich, whose acquaintance with insects and whose capability of judging on this point cannot be doubted. Here we have the entomologist and botanist arriving at the same conclusion in their respective researches: first, that the substances inclosed in amber (whether animal or vegetable) agree with no existing species; and secondly, the species of plants producing amber are no longer in existence, or if they do exist at present they have escaped the notice of some of the most laborious and accurate naturalists of Europe. We may therefore conclude with the geologist that amber is of very remote antiquity, and that which is contained in it is coeval with the envelope.

Before I place before you the Synoptical Tabular Arrangement of the genera and species of amber-insects, I ought to state that in some instances *amphibia and shells have been inclosed in them by art; an example of which may be seen in the British Museum, where a toad has been inserted, but so badly managed that few can doubt the attempt at imposition: others have introduced shells, with apparent success; the attempt has also been made with insects, but has generally failed. I am ready to allow that in some instances deceptions have so far succeeded as to make their originality doubtful to the inexperienced entomologist; but even allowing this it will not affect the antiquity of the major part, which are evidently natural.

* Brydone states that in Sicilian amber lizards are occasionally found, and Mr. König informs me also that there is in the British Museum the tail of a lizard inclosed in amber which is evidently not artificial.

With regard to lizards and shells being found in amber there is now little doubt of its truth ; making even ample allowance for modern trickery and imposition (of which indeed there is no lack,) we have still the testimony of Pliny, who states : “ Liquidum primo distillare argumento sunt quædam intus translucencia ut *Formicæ* aut *Culices Lacertæ*que quas adhæsisse musteo non est dubium et inclusas indurescenti.” Vid. lib. xxxvii. cap. 3. At St. Gard, in France, amber is found in a bed of fossil wood mixed with numerous specimens of shells denominated *Ampullaria*, one species of which is named *Ampullaria Faujasii*; and other shells of the genera *Paludina* and *Helix* have also been discovered imbedded in the same substance. For a moment we must refer to the geologist for his information. On the authority of Mr. De la Beche I state that the Prussian deposit of lignite and amber belongs to the tertiary rocks, and its place is probably above the supracretaceous group ; little however is satisfactorily known at present respecting it. It is not unlikely that the amber of Sicily may belong to another period ; and as scarcely any specimens from that quarter * have come under my notice, I cannot state that the genera contained in them approach the forms of temperate or tropical climes.

It was my intention here to have added Tables of the genera of amber-insects which have fallen under my observation ; and I only refrain from doing so at present from a desire to make them as perfect as possible, expecting shortly to receive from Prussia many important additions to those I am acquainted with. There is evidently no want of species of amber-insects, although they are not so numerous as those contained in animé †. The celebrated Swammerdam had in his collection 166 species of *Coleoptera*, and Frisch more than 200 ; Berendt possesses more than 1000 specimens, among which however there are many duplicates. The number of described genera already recognised by me amounts to 83 ; there are also various others as yet uncharacterized, several of them belonging to temperate climes, and several which are probably tropical. The major part of the insects exhibit a close resemblance to existing species, and can be satisfactorily classed under published genera. That any of those which are found in amber are identical with existing species

* Since writing this account I have received a letter from Mr. Berendt giving a concise account of Sicilian amber. He states that it scarcely differs from that of the Baltic, except that opalescent pieces frequently occur in Sicily, which are rarely found in Prussia.

† [At the request of the Publication Committee the Tables of amber-insects in their present state have been added at the end of this Memoir.—SEC. E. S.]

I do not believe, for out of many hundred specimens, nay I may say thousands, which have fallen under my notice, none have yet induced me to change my opinion that they are otherwise than of the tertiary period. If the reader desire further information on these points, let him consult the elaborate writings of Schweigger and Dalman, and the eloquent Berendt. In the pages of the former he will find a scorpion figured from Prussian amber, which is a genus properly a native of warm climates, certainly never occurring so far north as Dantzic. A new genus of spiders described by the same writer approaches in its characters a southern and probably an American type. I may add also that *Formica Surinamensis*, or at least one like it, has already been recognised in amber; and that some insects of the following genera, viz. *Gyrinus*, *Saperda*, *Hispa*, and *Lamprosoma*, evince a South American relationship, while the *Blattide* and some of the *Hymenoptera* resemble closely Oriental species. The presence of *Phryganea*, *Ephemera*, *Panorpa*, and *Lep-tura*, and many other genera indicates a northern climate. From the above discrepancies I abstain at present from entering more largely into the geographical investigation of amber-insects, and reserve it for some future paper; but from what has already been adduced, may we not conclude that the climate and temperature of Europe have undergone considerable change? The above examples of tropical insects sufficiently testify that the amber-tree did not vegetate under a climate such as Prussia now enjoys, but in a warm region. I trust the above notices will afford a sufficient stimulus to induce others to take in hand a subject replete with interest; a subject embracing in its scope not only the changes of temperature and climate which our globe has undergone, but also the consideration of the geographical distribution of insects and plants, by which alone we can arrive at any satisfactory conclusion respecting them. Let then the geologist boast of his Mastodon and Megatherium, his wondrous Saurian Reptiles, and numerous genera of unknown beings; the entomologist also prides himself on his *Amber Insects*, rivalling the former in antiquity, and surpassing them in beauty and in colouring. Let the former add room to room, gallery to gallery, and fill a city with his relics and his casts, the latter may also rest contented with his stores, less bulky indeed though not less interesting. The earth is a study for them both, an inexhaustible field of inquiry, and it may be matter of question which will most contribute to illustrate the condition and character of its earliest tenants.

*Chemical Observations on Amber, Animé, and Copal, above referred to.**By* ANDREW URE, *M.D., F.R.S.*

Amber, specific gravity 1·080.

Animé 1·054.

Copal 1·071.

Amber hardly if at all softens when heated in a glass matrass over the flame of a spirit-lamp, but shrinks, darkens in colour, and exhales white fumes of an ambrosiacaal odour, which, when condensed in a receiver, are found to consist of succinic acid and oil. It does not dissolve in alcohol, or in caoutchoucine, but is rendered friable by infusion for some time in a mixture of these two liquids.

Animé is, like amber, remarkable for the number of insects imbedded in it. When heated in a glass retort over a spirit flame it softens, and by skilful management of the heat it may be fused without burning. In this state it exhales copious vapours of an ambrosiacaal odour, which being condensed in water and tested, afford evident traces of succinic acid. Animé is very transparent; its colour is a clear brown with a yellow tinge. Alcohol does not act upon it, and caoutchoucine very slightly; but a mixture of the two in equal parts, even in the cold, speedily penetrates its substance and converts it into a soft gelatinous matter, like bright and somewhat thin calves'-feet jelly. By this means the impasted insects may be readily extracted entire. But after long digestion in the above compound solvent, it does not melt down into a liquid varnish, even though heat be applied.

Copal is distinguishable from animé by a faint opalescence, and a pale greenish yellow tinge. Caoutchoucine acts very feebly upon it as well as alcohol; but a mixture of the two speedily dissolves it in the cold into a rich homogeneous varnish. When heated in a glass retort over a spirit-flame it readily melts into a very fluid consistence, and when further urged by the heat it boils with little explosions; a viscid oily matter distils over. After continuing the process for some time the liquid copal begins to blacken; but it affords no succinic acid on testing the distilled fluid with the greatest care.

LIST OF SUCCINIC INSECTS.

COLEOPTERA.

Family.	Genus.	Species.	Authority.	Substance.	Locality.	Collection or Cabinet.
<i>Cicindelidæ.</i>	<i>Cicindela</i> .	One.	Berendt.	Amber.	Prussia?	Halle.
<i>Carabidæ.</i>	<i>Lebena</i> .	<i>resinata</i> .	Gernar.	Amber.	.....	.....
	<i>Lebia</i> .	One species.	Berendt.	Amber.	.....	.....
		3 new species.	Hope.	Animé.	India?	Mr. Strong, &c.
	<i>Planetes?</i>	One, new.	Westwood.	Animé.	India?	Mr. Westwood.
	<i>Helluo?</i>	One.	Westwood.	Animé.	.....	Mr. Westwood.
	<i>Carabus</i> .	One.	Berendt.	Amber.	.....	.....
	<i>Gyrinus</i>.	.....	[delius.	Amber.	.....	.....
	<i>Osortus</i> .	N. s.	Berendt, Hope, & Sen- Westwood.	Animé.	.....	.....
	<i>Staphylinus</i>.	.....	Hope.	Amber.	.....	.....
	<i>Sunius?</i>	N. s.	Hope.	Animé.	Prussia.	Mr. Strong.
<i>Clavigeridæ.</i>	<i>Articerus</i> .	Dalmanianus.	Dalman.	Animé.	.....	Dalman olim.
<i>Pselaphidæ.</i>		pectinicornis.	Hope.	Animé.	Prussia.	Dalman olim.
		2 species.	Hope.	Animé.	.....	Hope.
<i>Lampyridæ.</i>	<i>Lampyris</i> .	2 species.	Hope and Berendt.	Animé & amber.	Prussia.	Mr. Strong.
	.....	.....	Hope.	Amber.	.....	.....
<i>Clericæ.</i>	<i>Lycus</i> .	N. s.	Hope.	Animé.	Prussia.	Mr. Strong.
	<i>N. g.</i>	pectinicornis.	Hope.	.....	.....	.....
	<i>Clerus</i>	nigripes.	Dalman.	Animé.	Prussia.	Dalman olim.
	<i>Tillus</i> .	12 species.	Hope.	Animé.	Prussia.	Mr. Strong.
	<i>Onilus</i>.	.....	Hope.	Amber.	.....	.....
	<i>Thanasimus</i> .	N. s.	Hope.	Amber.	Prussia.	Mr. Strong.
	<i>Notoxus</i>.	.....	Hope.	Amber.	.....	.....

COLEOPTERA (continued.)

Family.	Genus.	Species.	Authority.	Substance.	Locality.	Collection or Cabinet.
<i>Nitidulidæ.</i>	<i>Nitidula.</i>	2 n. s.	Hope.	Amber?	Prussia.	Mr. Strong, B. M.
	<i>Strongylus.</i>	.....	Hope.	Amber.	.....	.....
<i>Engidæ.</i>	<i>Cateretes.</i>	.....	Hope.	.....	.....	.....
	<i>Cryptophagus.</i>	.....	Hope and Berendt.	Amber & animé.	.....	Mr. Strong, B. M.
<i>Erotylidæ.</i>	<i>Silvanus.</i>	.....	Berendt.	Amber.	.....	.....
	<i>Erotylus.</i>	N. s.	Hope.	Animé.	.....	Mr. Strong.
<i>Copridæ.</i>	<i>Eumorphus.</i>	N. s.	Hope.	Animé.	Prussia.	Mr. Strong.
<i>Melolonthidæ.</i>	<i>Anthrophagus.</i>	2 species.	Hope.	Animé.	India.	Mr. Strong.
<i>Buprestidæ.</i>	<i>Hoplia.</i>	N. s.	Hope.	Animé.	.....	Mr. Strong.
	<i>Buprestis.</i>	.....	Berendt.	Amber.	.....	.....
	<i>Agrilus.</i>	2 species.	Hope.	Animé.	India.	Mr. Strong, B. M.
	<i>Agrilus.</i>	.....	Berendt.	Animé.	.....	.....
<i>Elatridæ.</i>	<i>Elatr.</i>	1 species.	Berendt.	Amber.	.....	.....
	<i>Elatr., no new genera.</i>	15 species.	Hope.	Animé.	India.	Hope, Strong, &c.
	<i>Eucnemis?</i>	1 new.	.....	Animé.	.....	.....
<i>Lampyridæ.</i>	<i>Lampyrus.</i>	.....	Hope.	Amber.	India.	Hope, Strong, &c.
	.....	.....	Hope.	Amber.	.....	.....
	<i>Lampyrus.</i>	N. s.	Hope.	Animé.	.....	Mr. Strong.
<i>Diaperidæ.</i>	<i>Lycus.</i>	.....	Berendt.	Amber.	.....	Mr. Strong.
<i>Helopidæ.</i>	<i>Hypophlæus?</i>	N. s.	Berendt.	Amber.	.....	Mr. Strong.
<i>Cistidæ.</i>	<i>Helops.</i>	N. s.	Berendt.	Amber.	.....	Mr. Strong.
<i>Serropalpidae.</i>	<i>Cistela.</i>	2 species.	Berendt.	Amber.	.....	Mr. Strong.
<i>Mordellidæ.</i>	<i>Orchesia.</i>	1 new.	Berendt.	Amber.	.....	Mr. Strong.
	<i>Mordella.</i>	2 species.	Berendt.	Amber.	.....	Mr. Strong.
	<i>Mordella.</i>	.....	Berendt.	Amber.	.....	Mr. Strong.
	<i>Mordella.</i>	.....	German.	.....	.....	Halle.

<i>Anthicidæ.</i>	Ripidus	megalophus.	Sweigger.	Animé.	.....	.....	Dalman olim.
<i>Bruchidæ.</i>	Anaspis.	pyrrhocephalus.	Dalmann.	Animé.	.....	.....	.....
<i>Curculionidæ.</i>	Anthicus.	.....	Berendt.	Animé.	.....	.....	Mr. Strong.
	Rhinosinus?	N. s.	Hope.	Animé.	.....	.....	.....
	Anthribus.	N. s.	Waterhouse.	Animé.	.....	.....	.....
	Cleonis.	2 species.	Hope.	Animé.	.....	.....	Strong.
	Balaninus.	.....	Sendelius.	Amber.	.....	.....	Sendelius olim.
	Pronopus	.....	Hope.	Amber.	.....	.....	.....
	Curculio.	acanthomerus.	Dalman.	Amber.	.....	.....	Dalman olim.
<i>Lucanidæ.</i>	Platycerus.	One.	Berendt.	Amber.	.....	.....	.....
<i>Pausidæ.</i>	Pausus	.....	Berendt.	.....	.....	.....	.....
<i>Brenthidæ.</i>	Brenthus.	cruciatu.	Dalman.	Animé.	.....	Prussia.	Dalman olim.
	Platypus	2 species.	Hope.	Animé.	.....	.....	Mr. Strong.
<i>Bostrichidæ.</i>	Bostrichus.	flavicornis.	Germar, Hope.	Animé & amber.	.....	Brazil?	Germar.
	Hylesinus.	One.	Berendt.	Amber.	.....	.....	.....
<i>Curculionidæ.</i>	Calandra.	One.	Hope.	Animé.	.....	.....	.....
	Piazorus	2 species.	Westwood.	Animé.	.....	.....	Hope.
<i>Xylophaga.</i>	Platypus.	Many species.	Berendt.	Amber & animé.	.....	.....	Strong.
	.....	electrinus.	Germar.	Amber.	.....	Prussia?	Hope.
	Hylesinus	.....	Hope.	Amber.	.....	.....	Germar.
	Hylurgus.	N. s.	Hope.	Animé.	.....	.....	.....
	Apate.	.....	Berendt.	Amber.	.....	.....	Strong.
	Sylvanus.	N. s.	Hope.	Animé.	.....	.....	.....
	Trogosita.	N. s.	Hope.	Animé.	.....	.....	Strong.
	Cucujus.	2 species.	Hope and Berendt.	Animé Amber?	.....	.....	Strong.
	Cerambyx.	Dichoptera.	Dalman.	Animé & amber.	.....	.....	Dalman olim.
	Callidium.	One.	Hope.	.....	.....	.....	Dalman olim.
	Saperda.	.....	Berendt.	Amber.	.....	.....	.....

COLEOPTERA (continued.)

Family.	Genus.	Species.	Authority.	Substance.	Locality.	Collection or Cabinet.
<i>Lamiæ.</i>	<i>Clytus</i> .	One.	Hope.	Amber.	.....	Dalman olim.
	<i>Stenocorus</i> .	One.	Berendt.	Amber.	.....	Dalman olim.
	<i>Acanthocinus</i> .	Three.	Hope.	Amber.	.....	Dalman olim.
	<i>Lania</i> .	Several.	Hope.	Amber.	.....	Dalman olim.
<i>Lepturidæ.</i>	<i>Saperda</i> .	One.	Hope.	Amber.	.....	Dalman olim. B.M.
	<i>Leptura</i> .	One.	Berendt.	Amber.	.....	.....
	<i>Auchenia</i> .	Several.	Hope.	Amber.	.....	Hope.
<i>Crioceridæ.</i>	<i>Crioceris</i>.	.....	Berendt.	Amber.	.....	.....
	<i>Criocerina</i>	pristina.	Germar.	Amber.	.....	Halle.
	<i>Cassida</i> .	One.	Berendt and Hope.	Animé.	.....	Strong.
<i>Cassidæ.</i>	.....	.....	Hope.	Amber.	.....	Hope.
	<i>Chrysomela</i> .	Several.	Berendt.	Animé.	.....	.....
	<i>Chrysomela</i> .	Several.	Hope.	Amber & animé.	.....	Strong.
	<i>Cryptoccephalus</i> .	Two.	Hope.	Animé.	.....	Strong.
<i>Galerucidæ.</i>	<i>Eumolpus</i> .	One.	Hope.	Animé.	.....	Strong.
	<i>Colaspis</i> .	Several.	Hope.	Animé.	.....	Strong.
	.....	.....	Berendt.	Amber.	.....	.....
	<i>Galeruca</i> .	Several.	Berendt.	Amber.	.....	Strong.
<i>Coccinellidæ.</i>	<i>Luperus</i> .	One.	Berendt.	Amber.	.....	Strong.
	<i>Altica</i> .	Many species.	Berendt.	Amber.	.....	Hope.
	<i>Scirtes</i>.	.....	Hope.	Amber.	.....	.....
	<i>Coccinella</i> .	3 species.	Berendt.	Amber.	India?	Hope.
<i>Hispidæ.</i>	<i>Phalacrus</i> .	1 species.	Berendt.	Amber.	.....	.....
	<i>Hispa</i>.	.....	.....	Amber.	.....	Hope.
	<i>Dermestidæ.</i>	Two or three.	Berendt.	Amber.	.....	.....
		One.	Berendt.	Amber.	.....	.....

ADDENDA FROM MR. BERENDT'S MSS.

<i>Anobium</i> .	 •	Berendt.	Amber.	
<i>Cyphon</i> .	One.	Berendt.	Amber.	
<i>Necydalis</i>.	.....	Berendt.	Amber.	
<i>Elater</i>.	.....	Hope.	.....	
3 genera.	.....	Hope.	Amber.	
<i>Cupes</i>.	.....	Hope.	Amber.	
<i>Cypha, Kirby</i> .	One.	Hope.	.....	
<i>Staphylinidæ</i> .	3 genera.	Berendt.	Amber.	
<i>Lamprosoma</i>.	.....	Berendt and Hope.	... •	
<i>Telephorus</i>.	.....	Hope and Berendt.	Amber.	
<i>Malthinus</i> .	... •	Berendt.	Amber.	
<i>Cantharis</i> .	One.	Berendt.	Amber.	
<i>Atopa</i> .	One.	Berendt.	Amber.	
<i>Cicadidæ</i> .	1 species.	HOMOPTERA.		
<i>Cicada</i>.	.....	Hope.	Animé & amber.	Mr. Strong.
<i>Cixius</i> .	1 species.	Berendt.	Amber.	.....
<i>Issus</i> ?	2 species.	Westwood.	Animé.	Mr. Strong.
<i>Aphrophora</i> .	Several.	Hope.	Animé.	Mr. Strong.
<i>Iassus</i>.	.....	Westwood and Hope.	Animé & amber.	Hope, Westwood.
<i>Pæcilopectera</i>.	.....	Westwood and Hope.	Animé.	Mr. Strong.
<i>Ricania</i> ?	equestris.	Westwood and Hope.	Animé.	
<i>Centrotus</i> .	One.	Dalman.	Animé & amber.	Dalman olim.
<i>Cercopis</i> .	Many species.	Hope.	.....	Mr. Strong.
		Hope.	Animé.	Dalman olim.
<i>Aphidæ</i> . (None.)				
<i>Libellulidæ</i>.	.....	NEUROPTERA.		
<i>Libellula</i> .		Berendt.	Amber.	.....
<i>Agrion</i> ?	Allied to Virgo.	Hope.	Animé.	Mr. Strong.
<i>Ephemeridæ</i>.	.....	Berendt.	Amber.	.....
<i>Hemerobitidæ</i> .	1 species.	Hope and Berendt.	Animé & amber.	Mr. Strong.

NEUROPTERA (continued.)

Family.	Genus.	Species.	Authority.	Substance.	Locality.	Collection or Cabinet.
<i>Hemerobidae.</i>	<i>Hemerobius</i>	antiquus.	Germar.	Amber.	.....	Halle.
<i>Termitidae.</i>	<i>Termes.</i>	Many species.	Westwood and Berendt.	Animé & amber.	.....	Hope.
	<i>Embia</i>	Savignii?	Westwood.	Animé.	India?	Mr. Strong.
<i>Panorpidæ.</i>	<i>Panorpa.</i>	1 new species.	Berendt.	Amber.	.....	.....
<i>Psocidæ.</i>	<i>Psocus.</i>	Several.	Westwood.	Animé & amber.	.....	Mr. Strong.
<i>Myrmeleonidæ.</i>	<i>Myrmeleon.</i>	.....	Berendt.	Amber.	.....	.....
TRICHOPTERA.						
	<i>Phryganea.</i>	Several.	Berendt.	Amber.	.....	.....
	<i>Limnephilus.</i>	Several.	Westwood.	Animé.	.....	Mr. Strong.
	<i>Phryganeolitha</i>	<i>vetusta.</i>	Germar.	Amber.	Europe.	Halle.
HYMENOPTERA.						
<i>Tenthredinidæ.</i>	None.	Many species.	Hope and Berendt.	Amber & animé.	.....	Mr. Strong, Hope.
<i>Ichneumonidæ.</i>	<i>Ichneumon.</i>	3 species.	Hope.	Animé & amber.	.....	Mr. Strong.
<i>Vespidæ.</i>	None.	1 like <i>minuta</i> , 1	Westwood.	Animé.	.....	.....
<i>Evandæ.</i>	<i>Evania.</i>	like <i>appendegaster</i> .	Walker.	Animé.	.....	Hope, &c.
<i>Chalcididæ.</i>	<i>Cynips.</i>	.....	.....	Amber.	.....	.....
		Very numerous.	Hope.	Animé.	.....	Dalman olim.
<i>Pteromalidæ.</i>	<i>Palmon.</i>	<i>Bellator clavellatus</i>	Dalman.	Animé.	.....	.....
	<i>Eupelmus.</i>	[<i>capitellatus</i>].	Westwood.	Animé.	.....	Hope.
	<i>Ceraphron.</i>	Walker.	Walker.	Animé.	.....	Hope.
<i>Proctotrupidæ.</i>	<i>Proctotrupes.</i>	3 distinct.	.....	Amber.	.....	.....

<i>Chrysidae.</i>	Bethylus.	.....	Westwood.	Animé.	.....	Mr. Strong.
<i>Formicidae.</i>	Chrysis.	2 species.	Hope and Westwood.	Animé.	.....	Mr. Strong.
	Formica.	Numerous.	Westwood and Berendt.	Amber & animé.	Prussia.	Hope, Halle.
	Myrmica.	.....	Westwood and Berendt.	Animé & amber.	.....	.....
	Poneræ.	.....	Westwood.	Animé.	.....	Westwood.
<i>Sphegidae.</i>	Peloponcus.	Blue species.	Hope.	Animé.	.....	Mr. Strong.
<i>Mutillidae.</i>	Mutilla.	2 species.	Berendt.	Amber.	.....	Mr. Strong, B.M.
<i>Vespidæ.</i>	Vespa.	One.	Westwood.	Animé & amber.	.....	Mr. Strong, B.M.
<i>Andrenidae.</i>	Andrena.	Various.	Hope and Berendt.	Animé.	.....	Mr. Strong.
<i>Apidae.</i>	Apis.	.....	Westwood.	Animé.	.....	Hope, Strong.
	Trigona.	Numerous.				
ORTHOPTERA.						
<i>Blattidae.</i>	Blatta.	Several species.	Gernar and Berendt.	Amber.	Prussia.	Halle.
	Mantis.	perspicillata.	Dalman.	Animé & amber.	.....	Dalman olim.
<i>Mantidae.</i>	Forficula.	2 species.	Hope.	Animé.	.....	Mr. Strong.
<i>Achetidae.</i>	Acheta.	N. s.	Hope.	Animé.	.....	British Museum.
		Several species, } and larvæ.	Westwood.	Animé & amber.	.....	Hope.
<i>Gryllidae.</i>	Conocephalus ?	Larva.	Sendelius and Berendt.	.....	.....	.....
	Gryllus.	.....	Westwood.	Animé.	.....	Mr. Strong.
<i>Locustidae.</i>	Acrydium.	1 species.	Berendt.	Amber.	.....	.....
	Locusta.	One.	Westwood.	Animé.	.....	Mr. Strong.
	Tettigonia.	.....	Berendt.	Amber.	.....	.....
<i>Forficulidae.</i>	Forficula.	.....	Hope.	Amber.	.....	.....
			Berendt.	Amber.	.....	.....
HEMIPTERA.						
<i>Pentatomidae.</i>	Pentatoma.	1 species.	Hope.	Animé & amber.	.....	Mr. Strong.
<i>Coreidae.</i>	Coreus.	1 species.	Westwood.	Animé.	.....	Mr. Strong.
	Macrophthalmus.	1 species.	Hope.	Animé.	.....	Mr. Strong.
<i>Lygaeidae.</i>	Lygaeus.	Several.		Animé.	.....	Hope.

HEMIPTERA (continued.)

Family.	Genus.	Species.	Authority.	Substance.	Locality.	Collection or Cabinet.
<i>Capsidæ.</i>						
<i>Reduviidæ.</i>	Phytocoris.	Several species.	Westwood.	Animé.	.....	Mr. Strong.
	Reduvius.	Very numerous.	Westwood.	Animé.	.....	Hope.
	Ploiaria.	1 species.	Westwood.	Animé.	.....	Mr. Strong.
<i>Cimicidæ.</i>	Aradus.	.....	Berendt.	Amber.	.....	.....
	.....	1 species.	Westwood.	Animé.	.....	Mr. Strong.
<i>Notonectidæ.</i>	Corixa.	2 species.	Westwood.	Animé.	.....	Westwood.
	Notonecta ?	1 species.	Hope.	Animé.	.....	Mr. Strong.
<i>Nepidæ.</i>	Gerris ?	1 species.	Hope and Berendt.	Animé & amber.	.....	Mr. Strong.
<i>Miridæ.</i>	Nepa.	.....	Berendt.	Amber.	.....	.....
<i>Cimicidæ.</i>	Miris.	.....	Hope.	Amber.	.....	.....
	Cimex.	.....	Hope.	Amber.	.....	.....
			LEPIDOPTERA.			
<i>Papilionidæ.</i>	Papilio.	.....	Hope and Berendt.	Animé & amber.	.....	Mr. Strong.
	Pavonia.	Metis.	.....	.....	.....	.....
	Syntomis.	Several species.	Westwood.	Animé.	.....	Hope and Strong.
	Tinea.	4 species.	Hope.	Animé.	.....	Hope.
	Noctua.	.....	Hope.	Amber.	.....	.....
	Sesia ?	.....	Hope.	Amber.	.....	.....
	Sphinx.	.....	Berendt.	Amber.	.....	.....
			DIPTERA.			
<i>Culicidæ.</i>	Culex.	.....	Hope and Berendt.	Amber.	.....	Mr. Strong.
<i>Tipulidæ</i>	Platyura.	.....	Hope.	Amber.	.....	Mr. Strong.
	Limnobia.	.....	.....	Amber.	.....	Mr. Strong.
	Ptychopteryx.	.....	.....	Amber.	.....	Mr. Strong.
	Cecidomyia.	.....	Walker and Hope*.	Animé & amber.	.....	Hope.
	Molobrus.	.....	.....	Animé.	.....	.....
	Tipula.	.....	Hope.	Amber.	.....	Westwood.

DIPTERA (continued.)

<i>Syrphidæ.</i>	Tabanus.	.....	Berendt.	Amber.	.....	.....
<i>Estridæ.</i>	Hæmatapota.	.....	Berendt.	Amber.	.....	.....
<i>Muscidæ.</i>	Bombylus.	.....	Hope.	Animé.	.....	Mr. Strong.
	.....	.....	Berendt.	Animé.	.....	.....
	Xylophagus.	3 species.	Hope.	Animé.	.....	.....
	Stomoxys.	... ..	Berendt.	Amber.	.....	Mr. Strong.
	Asilus.	1 species.	Hope.	Amber.	.....	Mr. Strong.
	Dolichopus.	.....	Hope.	Amber.	.....	Mr. Strong.
	Chrysosoma.	.....	Hope.	Amber.	.....	.....
	Baccha.	1 species.	Berendt.	Amber.	.....	Mr. Strong.
	Cæstrus.	1 species.	Hope.	Amber.	.....	Mr. Strong.
	Musca.	Numerous species.	.....	Amber.	.....	.....
	Platystoma.	[One like Cæsei.	.....	Amber.	.....	.....
	Mocillus.	Abundant.	Hope	Amber.	.....	Mr. Strong.

Minute Diptera are very numerous, among which there are some species similar to our European, but none I think identically the same.

APTERA.

<i>Scolopendridæ.</i>	Scolopendra.	.....	Berendt.	Amber.	.....	.....
<i>Iulidæ.</i>	Iulus.	.....	Berendt.	Amber.	.....	.....
<i>Phalangidæ</i>	Phalangium.	.....	ARACHNIDA.	.....	.....	.....
<i>Acaridæ.</i>	Trombidium.	.....	Berendt.	Amber.	.....	.....
		.....	Berendt.	Amber.	.....	.....