APPENDIX

TO

MR. GEORGE M. DAWSON'S REPORT.

THE INSECTS

OF THE

TERTIARY BEDS AT QUESNEL,

BY

SAMUEL H. SCUDDER.

The fossil insects obtained by Mr. George M. Dawson in British Columbia, are better preserved, as a general rule, than any that have been obtained from other American localities. Naturally, little of a general nature can be said of so small a collection, but one cannot fail to be struck by the almost entire absence of Coleoptera, while the facies of the Diptera seems to be very different from that of any other known locality, whether in Europe or America. Besides fragmentary indeterminate remains, of which no mention will be made, there are twenty-four species, or more, which can at least be referred to families. It is remarkable that, where we may speak with confidence from the perfect state of the specimens, no two individuals belong to the same species. In determining the affinities of the Diptera, I have been greatly assisted by the hints and criticisms of my friend, Edward Burgess, Esq.

HYMENOPTERA

FORMICIDÆ.

Formica arcana.—A single fragment of a wing (No. 10 a), exhibiting, however, all the important parts of the neuration, is to be referred to the genus Formica (s. str.). *Pimpla senecta* lies on the same stone. The discoidal cell is of medium size, subquadrate, a little broader below than above; the single closed cubital cell is about three times as long as the discoidal cell, being a little produced (to considerably less than a right angle) at the tip, where the transverse vein, coming obliquely from the stigma, strikes the cubital vein exactly where it branches, forming a minute stigma, from which four veins radiate almost symmetrically; the

wing is of a uniform, faint fuliginous colour, the stigma of medium size, darkest along its lowest border, and all the veins dark, the scapular vein even black, and margined on its apical half with testaceous. The wing is 3 mm. in width, from the anal emargination to the base of the stigma, and the tip of the basal internomedian cell is 4·25 mm. distant from the apex of the closed cubital cell, making it probable that the entire length of the wing was nearly 12 mm.

Hypoclinia obliterata.—There are two specimens to be referred to Hypoclinia, and both are very fragmentary. One (No. 8) consists of the partial remains of the wings of one side overlapping; the other (No. 14) of similar remains, but so faintly impressed on the stone that some of the veins cannot be traced at all, and since in all essential features it agrees with the more distinct fragments, I have considered it as belonging to the same species, although it is of slightly greater size.

The essential portions of the fore wing remain, showing the neuration to be that of Hypoclinia; the second cubital cell is triangular, and the vein which marks its outer limit arises from the upper branch of the cubital vein a little beyond the cross-vein depending from the stigma; the discoidal cell is of about the same size as the second cubital cell, and is subquadrate, the vein marking its outer margin a little curved, and the apex of the cell itself separated by but a short space from the base of the second cubital cell. The scapular vein is more darkly coloured than the others, and a faint fuliginous cloud appears to surround the rather dark stigma. Length of fragment of wing 5 mm.; distance from base of wing to tip of stigma ·4 mm.

Aphænogaster longæva.—A single very obscure and fragmentary specimen, and its still more obscure reverse (Nos. 33, 33 a) are the sole representatives of this species; they exhibit a crushed and confused mass of head, thorax, legs and antennæ, and the larger part of a single front wing, apparently of a male. The wing is faintly infumated, especially beyond the stigma, and the stigma itself is only a little deeper in tint; the wing is also covered very sparsely with excessively delicate and very short microscopic hairs. The cubital vein forks beyond the discoidal cell by only one-third the width of the latter, and both the veins run to the tip of the wing, although very faintly; this cell is shaped exactly as in *A. Berendti* Mayr, found in amber, and is distant from the scapular vein by only half its width; the costal margin of the wing is more convex beyond the stigma than in the amber species mentioned. The base of the wing is lost, but its probable length is 7 mm., and its greatest breadth is 2·3 mm., length of stigma ·8 mm.

ICNEUMONIDÆ.

Pimpla saxea.—This species is represented by a single specimen (No. 31), presenting a shattered thorax, the first four abdominal segments viewed from above, and the front wing. These abdominal segments are pretty uniform and regular, rather strongly convex, pale testaceous, with a broad, blackish fuscous, basal, transverse band, occupying fully one-third of each segment; the segments are quadrate, broader than long and smooth. The metathorax is pale testaceous, and very delicately scabrous. The wing is uniformly hyaline, or shows the slightest trace of infumation, especially at the extreme tip, and is uniformly and rather sparsely covered with microscopic hairs, averaging ·04 mm. in length in the third median cell, seated upon little chitinous annuli ·008 mm. in diameter; the veins are black, and the basal part of the stigma black, but beyond it is dark fusco-castaneous; the castaneous portion (lying beyond the tip of the first median cell,) is three times as long as broad, extending half way down the upper border of the first subcostal cell; the third costal cell is comparatively narrow at tip, and the tip of the wing is somewhat pointed; the vein separating the areola or second subcostal cell, from the third costal cell is partially obliterated, and the areola is rather small, subquadrate, broadest at the open side; there is the slightest possible trace of the lower extremity of the vein separating the united first subcostal and second median cells, but the vein bordering the upper side of the third median cell is perfect throughout; the vein separating the third and fourth median cells is gently curved, subsinuate and partially obliterated in the middle. Length of fragment of body, 5·5 mm., length of wing, 8·75 mm., breath of wing beyond stigma, 2·9 mm., greatest width of third costal cell, ·35 mm.

Pimpla senecta.—A single specimen and its reverse (Nos. 10 b and 12), show little beside the greater part of the front wing, and the tip of the hind wing; crushed chitinous masses represent parts of the abdomen, and perhaps of the thorax; the wing is uniformly hyaline, with the slightest possible trace of infumation next the base, and is profusely covered with tapering microscopic hairs, averaging ·065 in length in the third median cell, seated upon minute chitinous annuli ·01 in diameter; the veins are black, or toward the tip and on the hind wing castaneous, and the stigma is dark testaceous; most of the stigma is broken, but enough remains to show that it is apparently not so broad as in the other species here described, and it extends less than half-way down the upper border

of the first subcostal cell; apically the third costal cell is comparatively broad, and the tip well rounded; the vein separating the areola from the third costal cell is nearly obliterated, and the areola is rather small, and shaped as in *P. saxea;* there is no trace whatever of the vein separating the united first subcostal and second median cells, although the vein above the third median vein is bent where it should join it, as in the preceding species; the same vein is partially obliterated in the middle of the portion below the first subcostal cell; the vein separating the third and fourth median cells is strongly curved, subsinuate and distinct throughout. Length of wing, 8·4 mm., breadth beyond the stigma, 2·4 mm.; greatest width of the third costal cell, ·4 mm. *Formica arcana* lies on the same stone.

Pimpla decessa.—The remains of this insect (No. 9 a) consist of crushed thorax and abdomen, and the two wings of one side of the body, superimposed; upon the same stone, at a slightly higher level, is the specimen of *Boletina sepulta.* The thorax and abdomen are entirely crushed and black, but the last segment of the latter bears the closest possible resemblance to the abdomen of the male of *Pimpla instigator* Fabr. The wing is uniformly infumated, and the margins of the anal excision infuscated; it is covered very profusely with short microscopic tapering hairs, more irregularly distributed than in the other two species described, averaging in the third median cell ·03 mm. in length, and seated on chitinous annuli varying in size, some being but half as large as others, the larger ones measuring about ·007 mm. in diameter; the veins are black, and the large triangular stigma almost as dark, a little paler toward either extremity; the stigma is about twice as long as broad, and extends more than half-way down the upper border of the first subcostal cell, the vein being partially obliterated beyond it; the third costal cell is rather narrow apically, although the tip of the wing is pretty well rounded; the species may readily be distinguished from those described above by the shape of the areola, which is pretty regularly quadrate, twice as long as broad, and has the vein next the third costal cell obliterated only at the ends; there is no trace of the vein separating the united first subcostal and second median cells, and the vein separating these cells from the third median cell is bent in the middle, and nearly obliterated in the middle half; the vein separating the third and fourth median cells is strongly curved, not at all sinuate, and slightly indistinct at its upper extremity. Length of fragment of body, 8·5 mm; length of wing, 7·7 mm; breadth of same beyond the stigma, 2·6 mm; greatest width of third costal cell, ·27 mm.

BRACONIDÆ.

Calyptites (nov. gen.)

This name is proposed for a genus of fossil Braconidæ, which seems to be distinct from any described living forms. It is related to Calyptus, but differs from it, in the neuration of the front wings, mainly in the shortness of the first submedian cell, the division between which and the second submedian cell, lies much before the lower extremity of the first median cell; and still more in the shape and position of the first subcostal and second median cells; the vein which separates them is in straight continuity with that separating the second subcostal and third median cells, so that the subcostal cells and the median cells lie in parallel lines along the longer diameter of the wing; the second median cell is scarcely more than half as large as the first subcostal cell, subquadrate, broadest below; the first subcostal cell is angulate, but broadly oval, its larger diameter along the wing almost twice as long as broad.

Calyptites antediluvianum.—Represented by a single fore-wing (No. 7) in perfect preservation. It is uniformly and scarcely infumated, the anal cell decidedly fuliginous, the stigma also fuliginous, and centrally infuscated; as preserved on the stone, the veins are pale and delicately edged with black, and accompanied by a very narrow and delicate infumated margin, especially in the basal and lower halves of the wing; the median vein does not reach the margin of the wing next the anal excision, but bends and runs in a straight course to the outer border; the second median cell has numerous brief shoots from the nervures along its lower and outer margins, and one is found at the middle of the upper margin of the second subcostal cell, and another below the middle of the vein separating the first and second subcostal cells. Length of wing, 6 mm.; breadth of the same beyond the costa, 2·1 mm.

DIPTERA.

CHIRONOMIDÆ.

There are several fragments of flies in the collection, which must be referred to this family, but the parts which are preserved are so uncharacteristic that nothing further can be said about them. They generally show a lateral view of the thorax and abdomen, sometimes accompanied by obscure fragments of wings (Nos. 18, 21), with no

important parts of the neuration; in one instance, with the larger part of the legs (No. 18), and again with the head and indications of the antennæ (No. 27); still others are pupæ (Nos. 22, 23, 25, 26), and apparently all are to be referred to this family.

MYCETOPHILIDÆ.

All the species found belong to the group of Mycetophilinæ, as defined by Winnertz.

Boletina sepulta.—A fragment of a single wing and a portion of the abdomen represent this species (No. 9 b). It is accompanied by *Pimpla decessa.* The wing is moderately broad, and faintly fuliginous; the costal, auxiliary and first and second longitudinal veins are heavily impressed, broad, black, and devoid of the microscopic hairs which uniformly cover the membrane of the wing and the other veins; these latter are faintly impressed, slender and testaceous. The costal vein is bristly; the base of the wing is broken, so that only the tip of the auxiliary vein can be seen, which terminates on the costal margin scarcely before the small transverse vein; the latter is conspicuously oblique, directed from above, downward and outward; the first and second longitudinal veins are pretty strongly curved downward at tip; the veins below these fork a little further out than in the scheme of Boletina, as figured by Winnertz, and the sixth longitudinal vein terminates just beyond the junction of the fourth and fifth longitudinal veins. Length of fragment, 3·75 mm.; estimated length of wing, 6 mm.; breadth of wing, 2·15 mm.

Brachypeza abita.—This species is represented by a single specimen (No. 3), and its reverse (No. 16), in which the wings and an obscure and detached fragment of the abdomen are present. The wing appears to be devoid of markings. The auxiliary vein does not fairly impinge upon the first longitudinal vein, but bends toward it and then vanishes; in other respects the neuration of the base of the wing is precisely as figured by Winnertz for Brachypeza; so, too, are the origin, course and position of all the principal veins and the cross-vein, but the branches of the fifth longitudinal vein unite perhaps a little further from the base, viz: scarcely nearer the base than the point of separation of the united third and fourth longitudinal veins from the second; the sixth longitudinal vein is perfectly straight, and terminates quite as far from the base of the wing as the small transverse vein; the anal vein is regularly curved, about as long as the sixth longitudinal vein, runs parallel to the border

beside it, and terminates on the lower margin. Length of wing, 4 mm., breadth of same, 1·35 mm.

Brachypeza procera.—The single specimen of this species (No. 4) is in a very fair state of preservation, almost the entire neuration of the wings being preserved, as well as fragments of the body and other appendages. The wings are fuliginous, more deeply next the costal border. The neuration of the extreme base is lost, and the remainder differs from that of *Brach. abita* only in the lower half of the wing; the branches of the fifth longitudinal vein unite nearer the base than in that species, resembling, in this respect, the illustration of Brachypeza given by Winnertz; the lower branch curves strongly toward the tip, diverging unusually from the upper branch; the sixth longitudinal vein is straight, and runs far past the forking of the fifth vein, fully two-thirds the way to the margin of the wing; the anal vein curves but gently, and appears to vanish before reaching the margin of the wing. Length of wing, 3·5 mm; breadth of same, 1·5 mm.

Trichonta Dawsoni.—A very well preserved though fragmentary specimen (No. 6) must unquestionably be referred to this genus, and is named for its discoverer. The greater part of one wing, the basal half of the other, including between them all the characteristic parts of the neuration, with crushed fragments of the thorax and abdomen, make up the remains of the creature. The veins of the wing are black, especially the upper ones, which are heavily marked; the wing is covered with microscopic hairs, and slightly infuscated throughout, but on the apical quarter becomes dark fuliginous. The neuration agrees in every particular, to the minutest degree, with the figure of Trichonta given by Winnertz, excepting that the fifth longitudinal vein forks considerably nearer the base, and the sixth longitudinal vein extends further into the middle of the wing. Estimated length of wing, 4·75 mm., breadth of same, 1·85 mm.

DOLICHOPODIDÆ.

A single specimen (No. 11) must be referred to this family, and apparently to the genus Dolichopus (s. str.), but so little a fragment of the insect is preserved, that no specific description can be given. The specimen is preserved on a side view; the head, thorax and abdomen can all be distinguished, together with the upper portion of one of the wings, attached to the body, but in a reversed position. The structure of the male abdomen, peculiar to the Dolichopodidæ, is indicated by some obscure markings beneath the apparent tip of the abdomen,

while the first and parts of the second and third longitudinal veins of the wings indicate its generic relations, although, of course, with some question.

ANTHOMYIDÆ.

Two species unquestionably belonging to this group, are referred hesitatingly to the genus Anthomyia, although they probably should not be generically associated. This is the only genus of Quesnel Diptera which has before been stated to be found in a fossil state, three species having been referred to Anthomyia by Heer, in his classic work on the Tertiary Insects of Europe, although none of his species, to judge by his figures alone, are congeneric with those here described. It can hardly be right to place the two species from Quesnel in the same genus, but, until the family is well monographed, it would, perhaps, be best to retain them together.

Anthomyia inanimata.—This species is pretty well represented by a single individual, and its reverse (Nos. 30, 32), showing the superior view of the insect with the wings (excepting the extreme base), most of the abdomen, and parts of the head, thorax and legs. The wings are rather narrow and regularly rounded; the bristly costal vein extends to the tip of the fourth longitudinal vein; the first longitudinal vein terminates before the middle of the costal border, just above the small transverse vein; the auxiliary vein is distinct throughout, and remains in close contiguity with the first longitudinal vein, curving first downward and then upward, and diverging from it only near the tip, and then but little, being scarcely separated from it at its tip by more than the thickness of the costal vein; the transverse shoulder vein is slightly oblique; the third longitudinal vein strikes the tip of the wing, and the second divides the space between this and the costa, running for the greater part of its length parallel to the latter, turning slightly upward at the tip; the third and fourth longitudinal veins are pretty closely approximated, and parallel as far as the transverse vein in the middle of the wing; from this to the large transverse vein they diverge gently, and are again parallel beyond; the small transverse vein is placed a very little before the middle of the wing; the large transverse vein is straight, nearly perpendicular to the costa, its lower extremity distant from the margin by about half its own length, its upper extremity dividing, just before the middle, the part of the fourth longitudinal vein lying beyond the transverse vein; the fifth longitudinal vein vanishes just before reaching the border; the two small basal cells are nearly equal in size, in length

about midway between the lengths of the two transverse veins. The wing is covered pretty abundantly, veins and membrane, with delicate microscopic hairs, and appears to be uniformly hyaline, though a little fuscous on the stone. The specimen appears to be a male, and the tegulæ are distinctly marked, leaving no doubt that it belongs to this group of Muscidæ. Probable length of body, 6 mm.; length of wing, 6·2 mm.; breadth of same, 2·25 mm.; length of hind tibia, 1·45 mm.

Anthomyia Burgessi.—The single specimen (No. 29) of this species shows an upper view of the whole body in a somewhat fragmentary condition. The broad and rounded abdomen indicates that it is a female. The wings are uniformly faint fuliginous, probably hyaline in life however, covered with microscopic hairs over both membrane and veins; they are short and broad and well rounded; the veins in the upper half of the wing are rather darker than those in the lower; the costal vein is bristly and extends to the tip of the fourth longitudinal vein; the stout first longitudinal vein strikes the costal at the middle of the front margin; the auxiliary vein appears to be confluent with the first longitudinal vein, half way from the base of the wing to the tip of the former; then, rapidly curving forward, diverges from it, and at its tip is as distant from the first longitudinal vein as the second longitudinal is from the third above the short transverse vein; the transverse shoulder vein is slightly curved and a little oblique and lies directly above the base of the small basal cells; the direction and relation of the longitudinal veins is the same as in *A. inanimata*, but the small transverse vein lies slightly beyond the middle of the wing, so that the divergence or parallelism of the veins is more marked than there; the large transverse vein is bent slightly inward in the middle, and its general direction is about midway between perpendicular to the costa and parallel to the neighbouring border; its lower extremity is but half as far from the margin of the wing at its own length; its upper divides, a little before the middle, the portion of the fourth longitudinal vein which lies beyond the small transverse vein, but instead of being only half as long as the portion of the fourth longitudinal vein lying between the two transverse veins, as in *A. inanimata*, it is very nearly as long; the fifth longitudinal vein just fails of reaching the border, while the sixth only runs about two-thirds the distance to the border; the basal cells are moderately large, much as in the preceding species. On one side there are, apparently, remains of tegulæ, showing that the insect should be referred to this group of Muscidæ. The apical third of the hind tibia is furnished abundantly with not very long hairs, while the remainder of the tibia is bare. Length

of body, 4·75 mm.; length of wing, 4·75 mm.; breadth of same, 2 mm.; length of hind tibiæ, 1·15 mm.; length of hind tarsi, 1·25 mm.

HELOMYZIDÆ.

Heteromyza senilis.—In this case we have but a fragment of one wing (No. 1), but one which exhibits most of the peculiarities of neuration, and, so far as it goes, very well preserved. The wing is slightly discoloured, but was apparently hyaline in life, covered rather profusely with exceedingly delicate microscopic hairs, which cover veins as well as membrane; the veins, excepting the costal, are testaceous; the costal vein is blackish fuscous, covered with short bristles, and extends beyond the third longitudinal vein, where the wing is broken; the auxiliary vein strikes the costa at about the end of the first quarter, and the nearly straight longitudinal vein before the middle of the wing; this vein is bare or only feebly pubescent; the slightly sinuous, toward the extremity slightly upturned, second longitudinal vein divides about equally the space between the costa and the third longitudinal vein; the latter is almost straight, scarcely bending to receive the small transverse vein at about the end of its basal third, and terminates at the broadly rounded tip of the wing; the small transverse vein lies just before the tip of the first longitudinal vein; the fourth longitudinal vein is nearly straight, only bent next the transverse veins; before the small transverse vein, it is parallel, and rather closely approximated to the third longitudinal vein; beyond, it diverges slightly and regularly from it, and beyond the large transverse vein again becomes parallel to it; only the basal portions of the fifth and sixth longitudinal veins are present, and the extreme base of the wing is lost; but the basal cells are evidently small, and their extremities lie just beneath the union of the second and third longitudinal veins; the wing is broad, ovate and well rounded; the costa pretty strongly arched. Length of fragment, 4 mm.; probable length of wing, 4·5 mm.; probable breadth of same, 2 mm.

SCIOMYZIDÆ.

Sciomyza revelata.—Although the only specimen to be described (No. 2), is but the remnant of a wing, partially overlapped by a fragment of its opposite, nearly all the characteristic parts of the neuration are preserved; the length of the costal vein, the distinctness of the auxiliary, and the large size of the small basal cells, leave little doubt that it should be referred to this group. The wing was apparently narrow, the costa but little arched, the extremity slightly angulated at

the tip of the third longitudinal vein; the membrane, as well as the castaneous veins, is covered not very profusely with delicate microscopic hairs; the costal vein is bristly, (at least near the base,) and extends to the fourth longitudinal vein, although it is but faint at the extreme tip, or on the lower third of the space between the third and fourth longitudinal veins; the auxiliary vein is weak, but distinctly separated from the first longitudinal vein from its very base; the transverse shoulder vein is a little oblique, directed from below upward and inward, lying nearer the base than the union of the second and third longitudinal veins; the first longitudinal vein cannot be traced through all its course, but it is bare save the pubescence, and apparently terminates scarcely beyond the small transverse vein; the latter lies beyond the end of the first third of the wing; the second and third longitudinal veins are nearly straight, slightly sinuous, and subparallel throughout, but at their tips diverge from each other; the third longitudinal vein is regularly though but slightly arched beyond the small transverse vein; the fourth longitudinal vein is made up of three perfectly straight subequal parts, slightly bent at the transverse veins; the larger transverse vein is straight, nearly perpendicular to the costa; it is shorter than half the middle portion of the fourth longitudinal vein; the tip of the basal cells is just below the junction of the second and third longitudinal veins. Length of the fragment, 4·5 mm; propable length of wing, 4·75 mm.

ORTALIDÆ.

Lithortalis nov. gen.

The single Ortalid of the collection can certainly not be referred to any of the American genera mentioned by Loew. It is most closely allied to Ceroxys, but beside a different distribution of the spots, the neuration of the wing varies so much from that of Ceroxys, as to render it certain that it should be separated from it. The shape of the wing is much as in Ceroxys, especially as in *C. canus* Loew, to which it is also most nearly allied in markings; the first longitudinal vein has bristles upon its end only, and even here they are few and small; the fourth longitudinal vein is curved backward a little, and the posterior angle of the third basal cell is not at all produced; the third and fourth longitudinal veins diverge at their tip; while the second and third converge. In Ceroxys, the auxiliary runs beside the first longitudinal vein for some distance, and then suddenly curves, almost bends upward. In Lithortalis the separation is gradual and not abrupt. In Ceroxys the small transverse vein lies below or outside the tip of the first longitudinal vein; in Lithortalis it lies within it. In the pattern of the markings also it differs from Ceroxys, in that there are no spots whatever before the larger transverse vein, excepting that the stigma, or the space lying between the auxiliary and first longitudinal veins, is testaceous.

Lithortalis picta.—The thorax, part of the abdomen and both wings of the single specimen preserved (No. 5), show the upper surface of the body with expanded wings. The abdomen is without markings. The wings are very well preserved, the apex slightly angulated between the third and fourth longitudinal veins; the costa nearly straight on its basal half, strongly convex beyond; the stigma occupies the entire space between the auxiliary and first longitudinal veins, and is dark castaneous, deepening toward the costa to blackish fuscous; the costal vein is blackish fuscous; the other veins are luteo-testaceous, deepening to blackish fuliginous next or in the spots; the other spots are dark fuliginous, deepening toward the veins or the margin, and consist of a narrow belt following the larger transverse vein and of confluent spots at the tips of the second, third and fourth longitudinal veins, forming a narrow marginal belt from just below the tip of the fourth longitudinal vein, to half-way between the tips of the first and third longitudinal veins, broadening slightly at the extremities of the veins in rapidly narrowing shoots, which follow the veins a short distance. Length of thorax and fragment of abdomen, 3 mm.; breadth of thorax, 1·25 mm.; breadth of abdomen, 1·5 mm.; length of wing, 5 mm.; breadth of same, 1·75 mm.

LONCHAEIDÆ.

Lonchaea senescens.—A portion of the body (excluding the head), too fragmentary to be of any value, and a pair of expanded wings faintly impressed on the stone, compose the remains of the single individual of this species (No. 17). The wings are rather slender, obovate and well rounded, with the neuration of *Lonchaea vaginalis* Fall., as given by Westwood in Walker's "Diptera Britannica," excepting that the basal cells do not appear to be quite so large in the fossil species, and the fourth longitudinal vein is slightly more arched beyond the larger transverse vein; the costal vein is bristly; the wing appears to be hyaline, but there is an indication of a slight infumation along the larger transverse vein; it is covered with excessively fine microscopic hairs which also cover all the veins with a delicate pubesence; with this exception the first longitudinal vein is bare; the larger transverse vein is slightly

oblique, and but little larger than the portion of the third longitudinal vein lying between the two transverse veins. Length of wing, 4·6 mm.; breadth of same, 1·8 mm.

Palloptera morticina.—An indistinguishable crushed mass of chitine and the basal half or more of a single wing (No. 20) are all that remain of this creature. The wing is small, and probably was not over three millimetres long; hyaline, with a slight infumated spot of considerable size in the middle of the wing between the two transverse veins; the basal cells are small; the auxiliary vein is very slight, and throughout very closely approximated to the first longitudinal vein; the latter appears to be short and nearly straight, bare of bristles, but pubescent like the rest of the wing; the costal vein is bristly, but like all the others is pale testaceous; the small transverse vein lies within the tip of the first longitudinal vein; the large transverse vein is straight, and perpendicular to the costa, removed from the small transverse vein by double its own length. Length of fragment of wing, 2·15 mm.

COLEOPTERA.

NITIDULIDÆ.

Prometopia depilis.—The single beetle (No. 24) of this collection belongs to the Nitidulidæ, but where it should be generically located, is a matter of some doubt. It resembles most among our American forms the genus in which I have provisionally placed it, but so few really generic features remain that one can judge by but little but accessory characters. The head is wanting and the thorax is broken, and though exhibiting the under-surface, the markings of the tegmina can be readily seen, as is frequently the case in fossil beetles. The form of the elytra and scutellum is precisely that of *Prometobia sex-maculata*, excepting that the base of the elytra is more distinctly angulate; beneath they are expanded just as there, and it is punctured in much the same irregular and minute manner, but equally so at the extreme border of the tegmina beneath, instead of being furnished at this point with transverse rugæ; the punctures are ·028 mm. in diameter, and do not give origin to hairs; the elytra are dark castaneous, and have a dull ridge along the sutural margin. The thorax is black, and proportionally shorter than in Prometopia, but otherwise it appears to have the same form, although the characteristic lateral projections of the front border are broken off, only the slightest indication of that on the left side appearing in a portion

of the curve of the front border. The thorax is more minutely punctate than the elytra, and the punctæ are connected by the slightest possible impressed lines, giving it somewhat of a corrugated appearance; a few of the abdominal segments may be seen, the pygidium extending just beyond the elytra; all these joints are black, smooth and shining, without trace of hairs or punctures. Length of fragment, 5·5 mm.; length of middle of thorax, 1·25 mm.; breadth of same, 3·2 mm.; length of elytra, 3·75 mm.; breadth of united elytra, 3·35 mm.

HEMIPTERA.

APHIDÆ.

Lachnus petrorum.—A fragment of a wing (No. 19) is sufficiently preserved to show that it should be referred to this genus, while the exact position of the veins is different from that of any species I have examined. The wing is unusually slender; the costal vein thickens apically as in *L. pini* (Linn.); the first discoidal vein is straight; the second discoidal originates very close to the first, runs parallel to it only at the very base, and then bends pretty strongly outward, striking the margin of the wing nearly as far from the tip of the first discoidal vein as half its own length; the origin of the third discoidal is not clear, but it is apparently not far from that of the first, in which case it runs parallel with the second until it branches in the middle of the wing; the lower of these branches almost retains the course of the basal part of the veins, but diverges slightly from the second discoidal vein, terminating very far from it on the border of the wing; the upper branch, diverging rather widely at first, almost at once runs parallel to the lower branch, and, when it has continued a less distance than the length of the basal half of the main vein, divides, the two forks diverging but slightly at base, and then very gradually converging, until they are no further apart than the bases of the first and second discoidal veins, and the upper fork almost touches the vein which curves downward from the stigma; together they diverge a little from the lower branch of the third discoidal vein; the stigmal vein is very conspicuous, passing by a broad sweep into the heart of the wing, diverging from the costal vein at a greater angle than does the second discoidal; unfortunately the tip of the wing is broken, and more than the apical half of the outer border is also wanting. Length of the fragment, 4 mm.; estimated length of wing, 5 mm.; width of same, 1·65 mm.

NEUROPTERA.

ODONATA.

A specimen (No. 28) and its reverse, show a distinct impression and relief in which the outline and contours are perfectly distinct, but in which all marks of appendages or sutures are effaced. They are evidently the front view of the head of one of the Libelluline Odonata, closely allied to, and of about the same size as, *Diplax minuscula* (Ramb.).