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UPPER TRIASSIC INSECTS FROM THE MOLTENO "FORMATION", SOUTH AFRICA.

by

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ABSTRACT

Insects are recorded from eight plant fossil localities in the Molteno "Formation", but only heavily sclerotized species (Blattodea and Coleoptera) have been obtained from six of them. A small mecopteron was found at another locality, and only at Birds River, near Dordrecht, has a more diverse fauna, with representatives of the Orthoptera, ?Mantodea, Blattodea, Homoptera and Megaloptera, been obtained. The known fauna is closely comparable with the Triassic faunas of Australia.

Thirteen species, nine of which are described as new, are recorded from the Molteno. Six of the new species, and one described species, are referred to *Hagla, Mesorthopteron, Triassoblatta, Dysmorphoptiloides* and *Ademosyne,* genera represented in or previously restricted to the Australian Triassic faunas. The new monotypic genera, *Prosbolomorpha* (type species *clara:* Homoptera) and *Afristella* (type species *delicatula:* Mecoptera), are similar to genera recorded from the Triassic of Australia. *Euchauliodes distinctus,* gen. et sp. nov., is the earliest known Corydaloidean wing (Megaloptera); it is referred to a new family.

INTRODUCTION

Fossil insects are known from eight localities in the Molteno "Formation" (Upper Triassic), all of which are essentially fossil-plant localities.

The only previous record of insects from the Molteno "Formation" was from Upper Umkomaas, Natal where John Townrow made a large collection of plants during July—August 1956, and found a cockroach and three species of beetle (Zeuner 1961).

Since 1967, extensive plant fossil collections have been made by Heidi M. Anderson from 42 localities within the Molteno outcrop, and eight of these localities have yielded fossil insects. Five have yielded only single specimens whilst the remaining three, Little Switzerland (N-L.Sw.), Upper Umkomaas (N-U.U) and Birds River (C-Dt. II) have yielded 6, 14 and 45 specimens respectively.

A review of part of the Molteno flora with a map showing the distribution of localities and collecting data has been prepared by H. Anderson (1974, this journal). A review of the insect fauna found to date (January 1973) from the Molteno Formation is given in Table 1. In the present paper all the insects found prior to January 1973 and the single specimen from N-H1.II are described. The remaining insects, collected at Birds River (C-Dt. II) in January 1973, will be described in a subsequent paper.

The Triassic fauna from these localities in the Molteno Formation shows a close relationship to the Australian Triassic faunas of Mt. Crosby and Denmark Hill. A number of species are referred to genera recorded from Australia *(Hagla, Mesorthopteron, Triassoblatta, Dysmorphoptiloides* and *Ademosyne).* Most of the other species are similar to species recorded from the Triassic of Australia even though they are referred to distinct genera in the families Cicadoprosbolidae (Homoptera) and Mesopanorpodidae (Mecoptera). One species does not have comparable representation in the Australian fauna, but *Euchauliodes distinctus,* a megalopteron, represents the earliest known Corydaloid wing.

LIST OF FOSSIL INSECTS

Hagla contorta sp. nov.: Orthoptera.
Mesorthopteron similis sp. nov.: ? Mantodea.
Triassoblatta natalensis (Zeuner): Blattodea.
T. robusta sp. nov.: Blattodea.
T. sp.: Blattodea.
Prosbolomorpha clara gen. et sp. nov.: Homoptera.
Dysmorphoptiloides protuberans sp. nov.: Homoptera
Protopsyllidiid nymph: Homoptera.
Euchauliodes distinctus gen. et sp. nov.: Megaloptera.
Afristella delicatula gen. et sp. nov.: Mecoptera.
Moltenocupes townrowi Zeuner: Coleoptera.
Gen. et sp. indet. Cupedidae: Coleoptera.
Umkomaasia depressa Zeuner: Coleoptera.
Ademosyne speciosa sp. nov.: Coleoptera.
A. prisca sp. nov.: Coleoptera.
Gen. et sp. indet.: Coleoptera.
Pseudosilphites natalensis Zeuner: Coleoptera.

SYSTEMATICS
ORDER ORTHOPTERA
SUBORDER ENSIFERA
SUPERFAMILY GRYLLOIDEA
FAMILY HAGLIDAE

The family was recorded first from the Lower Triassic (Zeuner, 1939; Sharov, 1968). The fore wings of males are modified for stridulation. There is only a slight difference in venation between the sexes in *Prohagla superba* (Riek, 1954) from the Upper Triassic of Australia whereas the difference is pronounced in other species of the family. The South African species is referred to *Hagla,* a genus in which the fore wings are relatively long and narrow, and the median field is strongly arched in males, although the wing of the species from the Molteno is somewhat broader than in other species of the genus.

Genus *Hagla* Giebel, 1856.

Type species. Hagla gracilis Giebel.
Generic diagnosis. Fore wing long and rather narrow, with widened costal space. MA strongly arched in middle in fore wing of male. CuP and 1A very close, touching or almost touching one another, and strongly kinked in the middle.

Hagla contorta sp. nov.
(Fig. 1; Plate I, Fig. 1)

Derivation. Contorta from the complex venation of the male fore wing.
Type. C-Dt. II 351, Bernard Price Institute.
Type locality and horizon. Birds River, Dordrecht, Eastern Cape Province (C-Dt. II), Molteno Formation, Upper Triassic.
Description. Fore wing of male. Length, as preserved, 16 mm ca, indicating a wing length of 20 mm ca. Sc and R distinctly curved in middle. Rs arising at a very pronounced angle. Upper branch of MA strongly up-arched but distinctly separated from Rs, and branching secondarily just beyond its closest point to Rs. CuA_2 almost straight and diverging from CuA_1 throughout its length. Apices of CuP and 1A not clearly preserved, approaching one another in middle but apparently not touching one another. Precostal space distinct but relatively small.
Note. The species differs from those previously described in the broader costal space, the up-arching of Sc and R about the middle of the wing and absence of fusion at a point of CuP and 1A at the point of up-arching. It can be compared most closely with *Hagla sinuata* (Riek, 1955), from the Upper Triassic of Mount Crosby, Australia.

ORDER ? MANTODEA

The first undoubted mantids are the undescribed species from the Lower Cretaceous or Upper Jurassic of Transbaikal (Sharov, 1968) although the Upper Carboniferous Eucaenidae may be referable to the order. The Mesorthopteridae from the Triassic of Australia may also be Mantodea but, unfortunately, they are imperfectly known.

FAMILY MESORTHOPTERIDAE

This family has the unusual development of a series of forwardly-directed pectinate branches on CuA. The Strephocladidae from the Upper Carboniferous of the Saar and the Strephoneuridae from the Lower Permian of Tshekarda have a similar development but, as all are imperfectly known, ordinal placements remain in doubt. A reconstruction of *Mesorthopteron* was given by Tillyard (1922), but appears to be inaccurate.

M is not connected to CuA by a distinct cross connection in the Mesorthopteridae, and, in this respect, the species resemble Paraplecoptera and Mantodea. The irregular archedictyon also suggests relationship to the early Paraplecoptera and the Mantodea, and some Recent Orthoptera. There was apparently a small but not sharply defined clavus, with the margin of CuP straight.

Genus *Mesorthopteron* Tillyard, 1916

Type species. Mesorthopteron locustoides Tillyard 1916 : 14.
Generic diagnosis. Costal space broad. Sc extending almost to apex of wing, with numerous forwardly-directed branches. Upper branch of M forking distally.

Mesorthopteron similis sp. nov.
(Fig. 6; Plate I, Fig. 4)

Type. C-Dt. II 354 a, b, Bernard Price Institute.
Type locality and horizon. Birds River, Dordrecht, Eastern Cape Province (C-Dt. II), Molteno Formation, Upper Triassic.
Description. Incomplete wing. Length, as preserved, 22 mm, indicating a total length of 35—40 mm. Similar to *Mesorthopteron locustoides,* from the Triassic of Australia, but branches of Sc more regular and more oblique, and CuA and CuP more widely separate in middle.
Note. The slight difference between this species from southern Africa and *locustoides* from Australia may be no more than individual variation.

ORDER BLATTODEA
FAMILY POROBLATTINIDAE

Sc is distinctly branched although relatively short, and CuA relatively unspecialized, being in part dichotomously branched.

Genus *Triassoblatta* Tillyard 1919

Rhipidoblattopsis Zeuner 1961 (syn. nov.)
Type species. Triassoblatta typica Tillyard 1919 : 368.

Zeuner placed *Rhipidoblattopsis* (type species *Rhipidoblattopsis natalensis* Zeuner 1961) in the Mesoblattinidae. He was of the opinion that the genus was more closely related to the Liassic species of Europe than to *Triassoblatta* and *Samaroblatta* from the Upper Triassic of Australia. He stated that it was similar to *Rhipidoblattina* Scudder from the Liassic of Britain, especially in the sigmoidal curvature of the

branches of CuA but was distinguished by the slightly concave curvature of the branches of R towards the fore margin. Additional material of the species shows that it is very similar to species of *Triassoblatta* recorded from Australia, and *Rhipidoblattopsis* is here synonymized with *Triassoblatta*.

Triassoblatta natalensis (Zeuner)
(Fig. 2; Plate I, Fig. 2)

Rhipidoblattopsis natalensis Zeuner 1961 : 305
Type. In. 59529, British Museum (Natural History).
Type locality and horizon. Burnera Water Fall, Upper Umkomaas, Natal (Locality N-U.U.), Upper Triassic, Molteno Formation.
Description. Length of holotype tegmen, as preserved, 14,2 mm, indicating a total length of ca. 15 mm. Length of a second specimen (N-U.U. 411) 16,8 mm, width 5,3 mm. Costal space narrow, with an oblique groove from base that crosses the first two branches of Sc. Sc with six terminal branches. Sc ending slightly before level of apex of clavus. Claval veins, except first two, not looped, with seven veins in clavus. CuA with a slight tendency to pectination of its branches.
Note. Sc has more terminal branches than in most Australian species of the genus but this is probably somewhat variable even within a species, as is branching of most veins.

N-U.U. 671 a, b is probably another specimen but there are apparently 11 branches in the clavus.

Triassoblatta robusta sp. nov.
(Fig. 3; Plate II, Fig. 2)

Type. C-As. I 160, Bernard Price Institute.
Type locality and horizon. Askeaton, Eastern Cape Province (C-As. I), Molteno Formation, Upper Triassic.
Description. Length, as preserved, 10 mm indicating a total length of ca. 14 mm. Costal space broad, with an oblique groove from base that crosses the first four branches of Sc. Sc with six terminal branches. Sc ending level with apex of clavus. Clavus with probably seven veins, second and third looped just before margin, a very wide gap between first and second veins in more than basal half. R sigmoidally curved. M branching rather distally, level with apex of clavus.
Note. This species differs from *natalensis* in the venation of the clavus, shape of R, and wider costal space.

Triassoblatta sp.
(Plate II. Figs. 3, 4)

Specimen N-L.Sw. 349 from Little Switzerland, Oliviershoek Pass, Natal, is too imperfectly preserved for naming but it differs from the described southern African species in the number and branching of the veins in the clavus, and, to some extent, in the branching of CuA. Base of wing not preserved, complete from middle of clavus to apex of wing. Length, as preserved, 15 mm. R and M similar to *natalensis*. CuA partly dichotomously branched. Clavus with 13 or 14 branches at margin, third and fourth veins apparently branched, first vein moderately widely separated from claval margin over basal portion, as far as preserved.

Blattodea *incertae sedis*

N-L.Sw. 1006 a, b, from Little Switzerland, Oliviershoek Pass, Natal, is an almost complete fore wing but details of the venation are indistinct over the critical areas. It is apparently similar to, if not conspecific with, *T. natalensis*.

N-L.Sw. 1005; N-L.Sw. 459 and O-Za. I 28, from Zastron, Orange Free State, are very fragmentary blattid remains.

ORDER HEMIPTERA
SUBORDER HOMOPTERA
DIVISION AUCHENORRHYNCHA
FAMILY CICADOPROSBOLIDAE

Genus *Prosbolomorpha* gen. nov.

Type species. *Prosbolomorpha clara* sp. nov.
Diagnosis. Similar to *Austroprosbole* (Evans, 1943) but M_{3+4} branching almost from its point of origin from M, and CuA_1 directed towards apex of wing.

Prosbolomorpha clara sp. nov.
(Fig. 10; Plate I, Fig. 3)

Type. C-Dt. II 3, Bernard Price Institute.
Type locality and horizon. Birds River, Dordrecht, Eastern Cape Province, (C-Dt. II). Molteno Formation, Upper Triassic.
Description. Wing complete except for extreme base. Length, as preserved, 19 mm indicating a total length of ca. 21 mm; width 8 mm. Veins strongly impressed. Ambient vein distinct, especially at apex. Nodal break on fore margin distinct, with definite re-entrant angle. CuA and M close at base.
Note. The venation is thick over most of the wing. The area of the costal space is not well preserved so that it is not possible to say whether cross veins were present in this area or not.

SUPERFAMILY CERCOPOIDEA
FAMILY DYSMORPHOPTILIDAE

The family is recorded from the Triassic of Australia and Upper Jurassic of central Asia (Evans, 1956). A new species of the genus *Dysmorphoptiloides* first recorded from Australia is described from the Triassic of southern Africa.

This is a very specialized family of the Cercopoidea, characterized by the marked re-entrant angle in the fore margin. Actually the wing shape is due to a prolongation of the central portion of the apex in the area covered by the median and radial fields. The initial stages in this prolongation are seen in some Eoscartarellidae, and there is variation in shape in the Dysmorphoptilidae. Ambient vein distinct.

Genus *Dysmorphoptiloides* Evans, 1956

Type species. Dysmorphoptiloides elongata Evans 1956 : 219.

Diagnosis. Costal space with distinct cross veins. M four-branched. R with two or three branches to the wing margin beyond the re-entrant angle in fore margin. Rs just touching R or connected to it by a cross vein near its middle.

The two described species differ in the proportions of the apical wing lobe and in the connection between Rs and R.

Dysmorphoptiloides protuberans sp. nov.
(Fig. 9; Plate I, Fig. 5)

Type. C.Dt. II 342, Bernard Price Institute.

Type locality and horizon. Birds River, Dordrecht, Eastern Cape Province (C-Dt. II), Molteno Formation, Upper Triassic.

Description. Length, as preserved (only apex of wing), 11,5 mm. Similar to *D. parva* Evans (1956) from the Triassic of Australia in the relative size and shape of the apical wing lobe. R with three branches to the margin beyond the re-entrant in the fore margin. R and Rs connected by a cross vein. Cross vein between R and Rs and that between Rs and M almost in line.

Note. The whole of the wing membrane is thickened and sculptured. The ambient vein is distinct but close to the margin. The species differs from *D. parva* Evans only in the proportions between sections of the veins.

DIVISION STERNORRHYNCHA
FAMILY PROTOPSYLLIDIIDAE

The family is recorded from the Upper Permian and Triassic of Australia, Upper Triassic of Russia and Jurassic of Karatau. Nymphal exuviae have been recorded from Australia and Russia. A nymph is recorded from the Triassic of southern Africa, and is here described.

Protopsyllidiid nymph
(Plate I, Fig. 6)

Description. Complete nymph, C-Dt. II 1, Bernard Price Institute, from Birds River, Dordrecht, Eastern Cape Province. Molteno Formation, Upper Triassic. Length ca. 3 mm. Large wing-buds on mesonotum and metanotum. Head and prothorax apparently fused, although subdivision indicated at meson. Prothorax with median convex area and large paratergal lobes. Head portion apparently produced to form a continuous margin with prothorax, its anterior margin convex, and with a centrally raised area wider than median sections of thorax. Abdominal terga with distinct doublure, indicated by a marked lateral groove over whole abdomen.

ORDER MEGALOPTERA
SUBORDER EUMEGALOPTERA
FAMILY EUCHAULIODIDAE FAM. NOV.

Diagnosis. Differing from Recent Megaloptera in the basal origins of M and Cu, and greater number of cross veins. CuA two-branched. M four-branched. A number of cross veins between R and Rs. CuP arising close to base.

The family differs from Recent Chauliodidae not only in the basal origins of M and Cu but also in the number of cross veins between R and Rs, branching of M and branching of CuP. In the large number of cross veins between R and Rs it resembles the Neuromini and in the four-branched M it resembles *Platyneuromus* (Corydalini).

Genus *Euchauliodes* gen. nov.

Derivation. Euchauliodes = primitive *Chauliodes,* a Recent genus of the Order Megaloptera.

Type species. Euchauliodes distinctus sp. nov.

Diagnosis. CuP distinctly forked at apex. 1A and 2A widely separated throughout their lengths. Posterior branch of Rs deeply forked. M and CuA fused for only a very short distance, with the stem of M deflected towards CuA.

Euchauliodes distinctus sp. nov.
(Fig. 4; Plate II, Fig. 1)

Type. C-Dt. II 2, Bernard Price Institute.

Type locality and horizon. Birds River, Dordrecht, Eastern Cape Province (C-Dt. II), Molteno Formation, Upper Triassic.

Description. Fore wing, apex not preserved. Length, as preserved, ca. 28 mm indicating a wing of 35—40 mm; width ca. 11 mm. Three distinctly convex veins, R, CuA and Rs + MA_1. Costal and subcostal spaces appearing narrow through slight overfolding of convex R on to concave Sc. MA_1 separating from Rs before wing margin. Secondary branches of M close to margin. Branches of CuA directed somewhat towards wing apex. Anal veins distinctly swollen at base. Cross veins dense over most of wing.

ORDER MECOPTERA
FAMILY MESOPANORPODIDAE

The family is well represented in the Upper Permian and Triassic of Australia (Riek, 1953, 1956). The two known genera are separated on the development of the cubito-median Y-vein. A new genus is recorded from the Triassic of southern Africa. There is more fusion between M and CuA than in previously known species of the family and, in this respect, similarity to the Nannochoristidae, a family with extant species but also recorded from the Permian of Australia.

Genus *Afristella* gen. nov.

Derivation. Afristella = combination from Africa and *Choristella.*

Type species. Afristella delicatula sp. nov.

Diagnosis. Similar to *Prochoristella* (Riek, 1953) in wing shape, with narrow costal space, and in venation, except that the stems of M and CuA are fused for some distance towards base, and Sc and R touch at a point towards the apex of Sc.

Afristella delicatula sp. nov.
(Fig. 5; Plate I, Fig. 7)

Type. C-K.K. I 9, Bernard Price Institute.
Type locality and horizon. Konings Kroon, near Elliot, Eastern Cape Province (C-K.K.I), Molteno Formation, Upper Triassic.
Description. Length, as preserved, 4+ mm, indicating a fore wing length of ca. 5 mm. Costal space narrow. Subcostal space relatively wide. Both Rs and M four-branched. Rs_{1+2} forking after Rs_{3+4}. M not strongly arched at point of separation from CuA. Anal veins not adequately preserved but wing not markedly narrowed at base.
Note. This small wing would have been referred to the Nannochoristidae if Rs had been reduced to three branches, because of the marked fusion between the stems of M and CuA. It is also outstanding because of the close approximation of Sc to R at its apex, another character in which it resembles some Nannochoristidae.

ORDER COLEOPTERA
FAMILY CUPEDIDAE

Genus *Moltenocupes* Zeuner, 1961
Type species. Moltenocupes townrowi Zeuner 1961 : 304.

Moltenocupes townrowi Zeuner.
Moltenocupes townrowi Zeuner 1961 : 304.
Moltenocupes townrowi: Ponomarenko 1969 : 80.
Type. In. 59334 and paratype In. 59574, British Museum (Natural History).
Type locality and horizon. Burnera Water Fall, Upper Umkomaas, Natal (Locality N-U.U.), Molteno Formation, Upper Triassic.
Description. Length from head to tip of elytra 23 mm. The entire beetle, including mandibles, elytra and sternites (but not the tergites) coarsely punctate, with numerous small tubercles.
Note. Zeuner compared the species with the Recent Australian genus *Omma* from which it differs in the shape of the pronotum. However, Ponomarenko (1969) referred the species to the Triadocupedinae on its broad form and a pronotum that is antero-laterally produced.

Specimens N-U.U. 121 a, b and ?N-U.U. 402 a, b, from the Upper Triassic Molteno Formation, are tentatively referred to the species. They are very fragmentary and consist of only small portions of elytra. N-U.U. 1211 a, b, shows the rather pointed apex of an elytron that recalls those of the Permocupedidae. However, the number of rows of cellules in the wing is more in keeping with the Cupedidae. C-Rp. I C 100 a, b from Rooipoort, near Elliot, Eastern Cape Province, is an almost complete elytron probably referable to this species.

SUBFAMILY OMMATINAE
gen. et sp. indet.

Specimen from Little Switzerland, Oliviershoek Pass, Natal, N-L. Sw. 1028 a, b, Bernard Price Institute, is a complete insect preserved mainly in outline. The head is almost as broad as the pronotum, and the pronotum is apparently rounded antero-laterally. The species is similar in form to *Omma* (Cupedidae).

FAMILY PERMOSYNIDAE

Ponomarenko (1969) was of the opinion that the Permosynidae (syn. Ademosynidae) are on the cupedid line, and are also close to the ancestor of the Polyphaga. The sculpture of the elytra is reduced to lines of fine punctures.

Genus *Ademosyne* Handlirsch, 1906
Type species. Ademosyne major Handlirsch 1906.

Ademosyne speciosa sp. nov.
(Fig. 8; Plate I, Fig. 8; Plate II, Figs. 5 and 6)

Type. N-U.U. 1206 a, b and paratype N-U.U. 1208, Bernard Price Institute.
Type locality and horizon. Burnera Water Fall, Upper Umkomaas, Natal (N-U.U.), Molteno Formation, Upper Triassic.
Description. Length of elytron 9,5 mm; width 3 mm. Pronotum transverse, with antero-lateral margin rounded, postero-lateral margin slightly produced, and caudal margin slightly produced at meson; pronotum with fine sculpture, tending to be transversely rugose at meson. Scutellum visible at bases of elytra, but exposed area very small. Elytron long and thin, truncate at base, slightly pointed at apex. Elytron with eight faint longitudinal sulci. Sutural margin distinct, narrow; eighth sulcus very close to sutural margin, formed by fusion of two sulci close to base. Elytra very finely sculptured, finer than on the pronotum.

Ademosyne prisca sp. nov.
(Fig. 7; Plate II, Fig. 7)

Type. N-U.U. 1209, Bernard Price Institute.
Type locality and horizon. Burnera Water Fall, Upper Umkomaas, Natal (N-U.U.), Molteno Formation, Upper Triassic.
Description. Elytron length 9 mm. Elytron very convex, flattened in preservation so that sutural margin appears convex. Elytron with 11 fine sulci, seven clearly arising from base; posterior four arising as a unit; nine and ten joined at apex and the combined apex joined to 11th.

FAMILY ? PERMOSYNIDAE

Genus *Umkomaasia* Zeuner, 1961
Type species. Umkomaasia depressa Zeuner 1961 : 305.
Diagnosis. Zeuner did not give a generic diagnosis but the depression towards the base of the elytron on which he placed considerable emphasis is probably an artifact of preservation. Elytron with very numerous longitudinal carinae.

Umkomaasia depressa Zeuner
Umkomaasia depressa Zeuner 1961 : 305.
Type. In. 59564, British Museum (Natural History).

Type locality and horizon. Burnera Water Fall, Upper Umkomaas, Natal (Locality N-U.U.), Molteno Formation, Upper Triassic.
Description. Length slightly in excess of 8 mm; width 4 mm. Left elytron distinctly convex, with about 17 slight ridges separated by very fine grooves, every fourth or fifth ridge more pronounced.
Note. Zeuner compared the species with *Grahamelytron crofti* Zeuner (1959) from the Jurassic of Grahamland. He tentatively referred the species to the Carabidae on the depression towards the base of the elytron. The elytron resembles that of *Ademosyne* in shape but differs from this Triassic genus in the number of ridges.

FAMILY ? SILPHIDAE

Genus *Pseudosilphites* Zeuner, 1931

Type species. Pseudosilphites triassicus Zeuner 1931.

Pseudosilphites natalensis Zeuner 1961.

Type. In. 59573, British Museum (Natural History).
Type locality and horizon. Burnera Water Fall, Upper Umkomaas, Natal (Locality N-U.U.), Molteno Formation, Upper Triassic.
Description. Ventral view of whole beetle. Length 7,5 mm, width 5 mm. Pronotum large, semicircular, with head completely hidden beneath. Size of head proportionally smaller than in the Recent silphids, *Silpha obscura* L. and *Phosphuga atrata* L., which the species closely resembles, according to Zeuner.
Note. Family placement remains doubtful because of the inadequate preservation of the specimen.

ORDER COLEOPTERA

gen. et sp. indet.

Specimen N-U.U. 1905 a, b, Bernard Price Institute, is the ventral impression of the abdomen of an insect. N-L.Sw. 344 is possibly a beetle elytron. N-L.Sw. 347 is a small beetle elytron.
Note. An additional undetermined specimen was collected from Hlatimba Valley, Natal (N-H1. II).

TABLE 1

THE INSECT FAUNA OF THE MOLTENO FORMATION

Order Genus Species	Locality N-L.SW.	N-U.U.	N-Hl. II	C-K.K.I.	C-Rp. Ic	C-As. I	C-Dt. II	O-Za
Ephemeroptera (mayflies)								
1 gen. et sp. nov.							4	
(abdomen)							1	
Meganisoptera (protodragonflies)								
1 gen. et sp. nov.							1	
Odonata (dragonflies)								
2 gen. et sp. nov.							8	
Plecoptera (stoneflies)								
1 gen. et sp. nov.							1	
Orthoptera (grasshoppers)								
Hagla contorta sp. nov.							1*	
? Mantodea (mantids)								
Mesorthopteron similis sp. nov.							1*	
Blattodea (cockroaches)								
Triassoblatta natalensis Zeuner		3*						
T. robusta sp. nov.						1*	10	
T. sp.	1*							
Samaroblatta sp.							1	
incertae sedis	3*							1
(abdomen)							2	
Homoptera (cicadids etc.)								
Prosbolomorpha clara sp. nov.							1*	
Dysmorphoptiloides protuberans sp. nov.							1*	
3 gen. et sp. nov.							3	
Protosyllidiid nymph							1*	
Megaloptera (adlerflies)								
Euchauliodes distinctus sp. nov.							1*	
Mecoptera (scorpionflies)								
Afristella delicatula sp. nov.				1*				
Coleoptera (beetles)								
Moltenocupes townrowi Zeuner		4*			1*			
Ademosyne speciosa sp. nov.		2*						
A. prisca sp. nov.		1*					3*	
Umkomaasia depressa Zeuner		1*						
Pseudosilphites natalensis Zeuner		1*						
gen. et sp. indet.	2*	1*						
Incertae sedis			1*				4	
January 1973, totals for each locality	6	13	1	1	1	1	44	1

* Asterisk—described in this paper.

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The line drawings were prepared under my direction by Mrs. Sybil Monteith, initially from photographs, but subsequently checked against the specimens. The photographs were prepared by Mr. P. J. Nagel at the Bernard Price Institute.

I also record my appreciation for the opportunity to visit the fossiliferous horizon at Birds River and to enjoy the friendly hospitality of the Tennant family while searching for fossils in the rich outcrop on their property.

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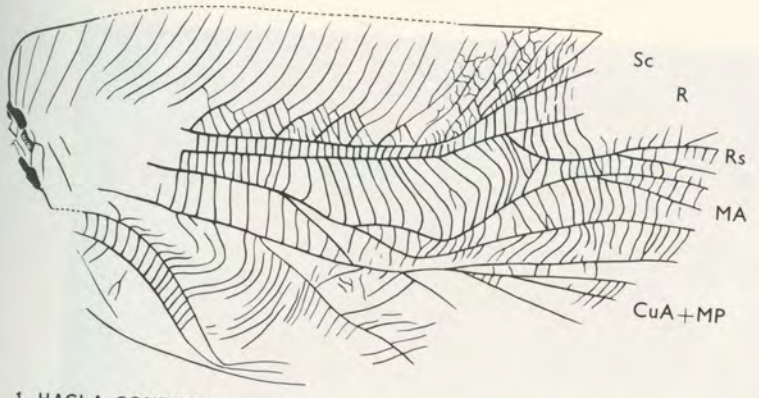
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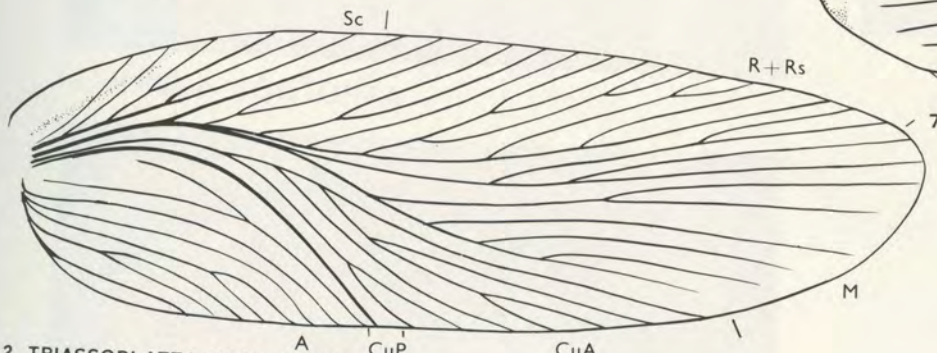
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FIGURES

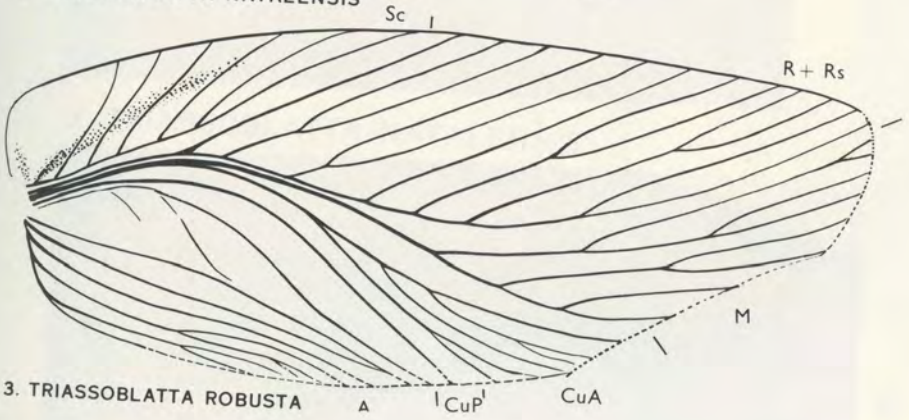
Figure 1. *Hagla contorta* sp. nov. Holotype C-Dt. II 351.
Figure 2. *Triassoblatta natalensis* (Zeuner) Specimen N-U.U. 411.
Figure 3. *Triassoblatta robusta* sp. nov. Holotype C-As. I 160.
Figure 4. *Euchauliodes distinctus* gen. et sp. nov. Holotype C-Dt. II 2.
Figure 5. *Afristella delicatula* gen. et sp. nov. Holotype C-K.K. I 9.
Figure 6. *Mesorthopteron similis* sp. nov. Holotype C-Dt. II 354 a.
Figure 7. *Ademosyne prisca* sp. nov. Holotype N-U.U. 1209.
Figure 8. *Ademosyne speciosa* sp. nov. Holotype N-U.U. 1206 a.
Figure 9. *Dysmorphoptiloides protuberans* sp. nov. Holotype C-Dt. II 342.
Figure 10. *Prosbolomorpha clara* gen. et sp. nov. Holotype C-Dt. II 3.



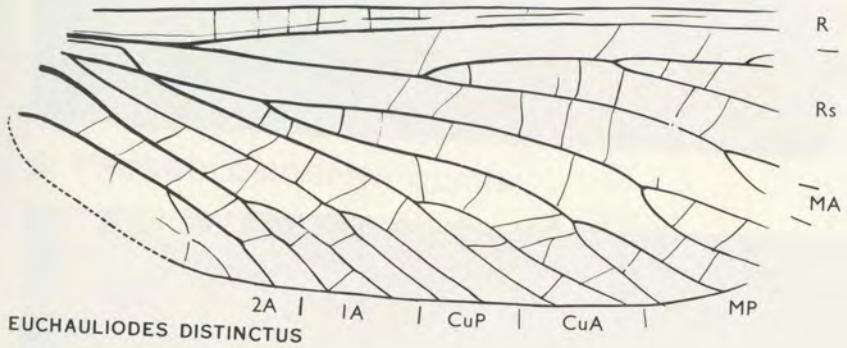
1. HAGLA CONTORTA



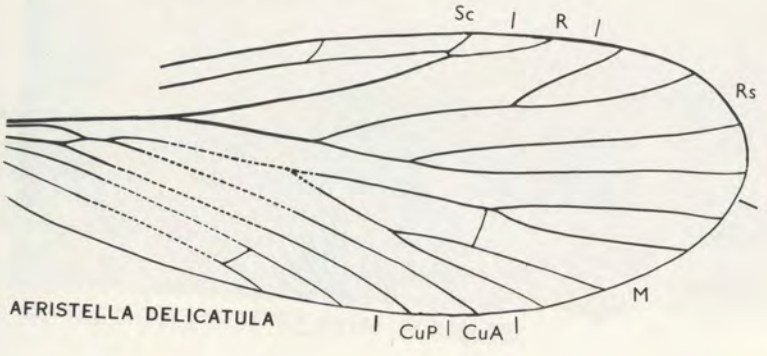
2. TRIASSOBLATTA NATALENSIS



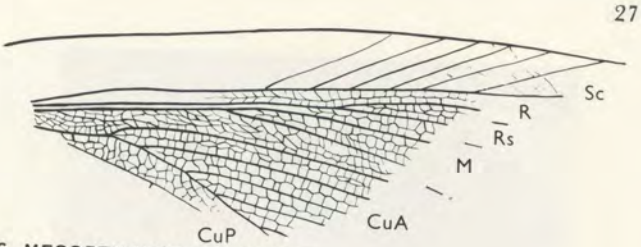
3. TRIASSOBLATTA ROBUSTA



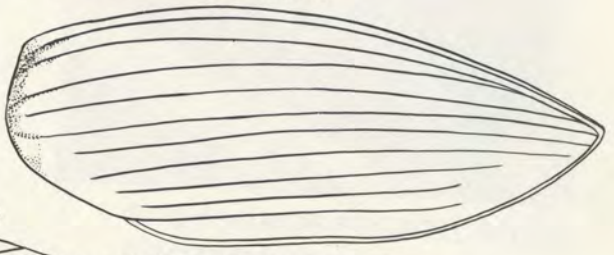
4. EUCHAULIODES DISTINCTUS



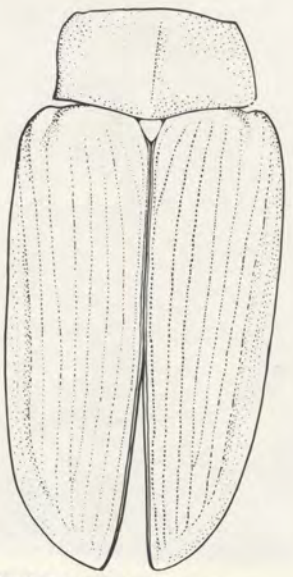
5. AFRISTELLA DELICATULA



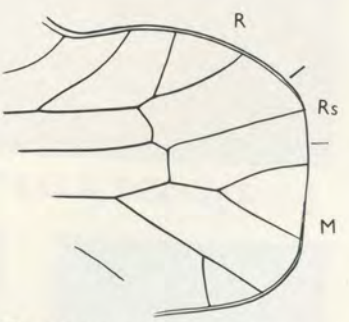
6. MESORTHOPTERON SIMILIS



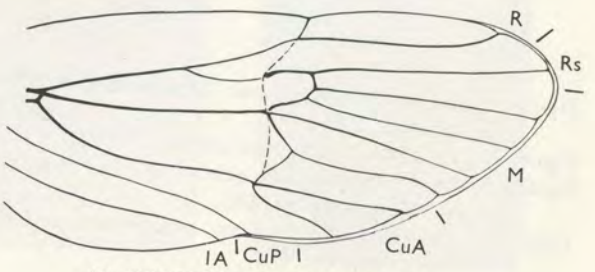
7. ADEMOSYNE PRISCA



8. ADEMOSYNE SPECIOSA



9. DYSMORPHOPTILOIDES PROTUBERANS



10. PROSBOLOMORPHA CLARA

PLATE I

Figure 1. *Hagla contorta* sp. nov. Holotype C-Dt. II 351. (Mag. approx. 2X).
Figure 2. *Triassoblatta natalensis* (Zeuner) N-U.U. 411. (Mag. 5X).
Figure 3. *Prosbolomorpha clara* gen. et sp. nov. Holotype C-Dt. II 3. (Mag. approx. 5X).
Figure 4. *Mesorthopteron similis* sp. nov. Holotype C-Dt. II 354a. (Mag. approx. 4X).
Figure 5. *Dysmorphoptiloides protuberans* sp. nov. Holotype C-Dt. II 342. (Mag. approx. 5X).
Figure 6. Protopsyllidiid nymph, C-Dt. II 1. (Mag. approx. 25X).
Figure 7. *Afristella delicatula* gen. et sp. nov. Holotype C-K.K. I 9. (Mag. approx. 9X).
Figure 8. *Ademosyne speciosa* sp. nov. Holotype N-U.U. 1206 a. (Mag. 5X).



1. HAGLA CONTORTA



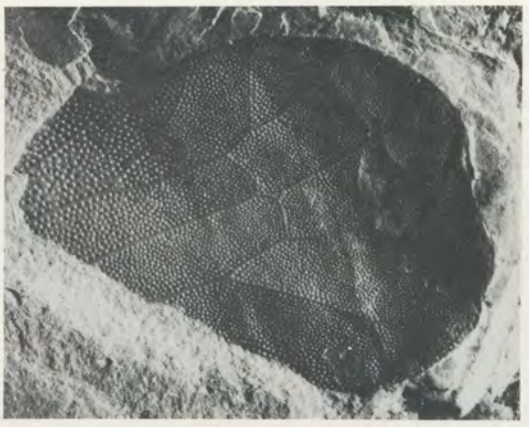
2. TRIASSOBLATTA NATALENSIS



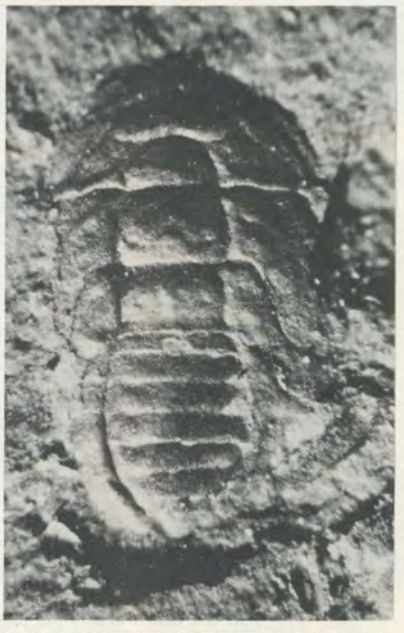
3. PROSBOLOMORPHA CLARA



4. MESORTHOPTERON SIMILIS



5. DYSOMORPHOPTILOIDES PROTUBERANS



6. PROTOPSYLLIDIID NYMPH



7. AFRISTELLA DELICATULA



8. ADEMOSYNE SPECIOSA



PLATE II

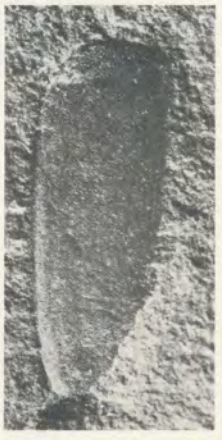
Figure 1. *Euchauliodes distinctus* gen. et sp. nov. Holotype C-Dt II 2. (Mag. approx. 6X).
Figure 2. *Triassoblatta robusta* sp. nov. Holotype C-As. I 160. (Mag. approx. 5½X).
Figure 3. *Triassoblatta* sp. N-L. Sw. 349. (Mag. 6X).
Figure 4. *Triassoblatta* sp. N-L.Sw. 1006 a. Print reversed. (Mag. 6X).
Figure 5. *Ademosyne speciosa* sp. nov. N-U.U. 1208. (Mag. 5X).
Figure 6. *Ademosyne speciosa* sp. nov. Holotype N-U.U. 1206 a. For sculpture. (Mag. approx. 4X).
Figure 7. *Ademosyne prisca* sp. nov. Holotype N-U.U. 1209. (Mag. approx. 5X).
Figure 8. Coleoptera: Ommatinae. gen. et sp. indet. N-L.Sw. 1208 b. (Mag. approx. 5½X).
Figure 9. *Moltenocupes townrowi* N-U.U. 402 a. (Mag. approx 4X).
Figure 10. *Moltenocupes townrowi* N-U.U. 1211 b. (Mag. approx. 6X).

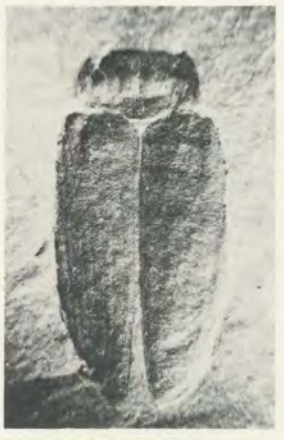


1. EUCHAULIODES DISTINCTUS



2. TRIASSOBLATTA ROBUSTA

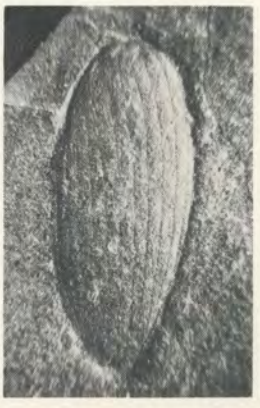




5. ADEMOSYNE SPECIOSA 6.



3. TRIASSOBLATTA SP.





7. ADEMOSYNE PRISCA 8. OMMATINAE



4. TRIASSOBLATTA SP.





9. ? MOLTENOCUPES TOWNROWI 10.