

across entire width of mesothoracic peduncle; elytral base without vertical articulation face, the pronotum consequently freely movable on scutellum. Antennae with eleven segments (text-fig. 64). Head not pedunculate (text-fig. 63).

I. MOLURINI

(Pls. III—XXIV, with the exception of fig. 1 on Pl. III) (sensu Solier et Lacordaire [+ Sepidiini sensu Gebien, 1937b].)

Wingless ground-living beetles, about 1,000 species and many genera occurring all over the African continent (text-fig. 39), Arabia, Mesopotamia and the Circum-Mediterranean Province. The bulk of species and genera are Ethiopian and in particular Southern African, whereas only two genera of Sepidiina (*Sepidium* and *Vieta*) are represented in the Palaearctic and Saharan Regions.

Key to subtribes, see p. 33.

- Mesocoxae without trochantin (text-fig. 15) (*). Anterior margin of pronotum truncate or emarginate, without prominent and lobiform structures. Scutellum small or absent, in the former case occupying a small portion of the middle of elytral base; the latter with vertical articulation surface, opposing a similar articulation surface of pronotal base of prothorax, the pronotum thus prevented from moving on or overlapping scutellum and elytral base (text-fig. 4). In most cases, however, this structure is not visible, as both pronotal and elytral bases are solidly and closely attached to each other (which is never the case in the Molurini) (text-fig. 8). Antennae with ten or exceptionally nine segments, but in one tribe with eleven segments, when the head is strikingly elongate, with freely visible and demarcated cervical peduncle (text-fig. 4).
- 3
- 3. Body linear and small, not more than 5 mm. in length. Antennae with eleven segments. Head free, prognathous, elongate, with exposed, sharply demarcated and sclerotized cervical peduncle; tempora and postgenae several times longer respectively than eyes and oral-frontal portion of underside (text-fig. 4). Prothorax elongate, sharply separated dorsally from elytra by the exposed mesothoracic peduncle; pronotum much longer than broad (text-fig. 4), prosternum several times longer than procoxal cavities. Metasternum long, not shorter than basal sternite of abdomen and about three times as long as metacoxal cavities; episternum linear, several times longer than broad. Elytra loosely attached to pronotum.

(*) Español, 1954, in his key to the tribes of Tenebrionidae, confounds trochanter with trochantin. He attributes to the Stenosini and Elenophorini "mesocoxas sin trocánteres", to the Akidini "mesocoxas con trocánteres". However, the trochanter is a divided or connate sclerite of the femur, not pertaining to the coxa itself, while the trochantin, in Coleoptera, is referred to a sclerite often present on the outer side of mesocoxa. He figures the mesocoxa of *Elenophorus* and *Akis* (figs. 6 and 7, loc. cit.), omitting to indicate the trochanter on fig. 6 of *Elenophorus* and the trochantin on fig. 7 of *Akis*. *Elenophorus*, in actual fact, exhibits a very reduced and small trochanter on intermediate femur and posterior one, whereas *Akis* possesses a large trochantin on mesocoxae, as well as a conspicuous trochanter on intermediate and posterior femora.

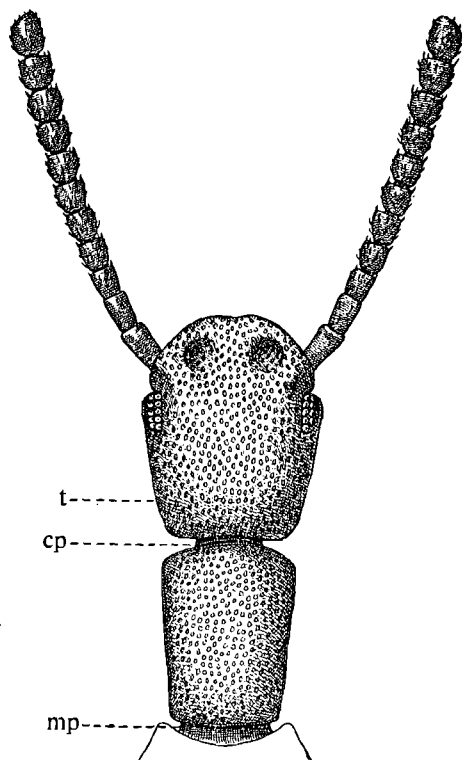


FIG. 4A.—*Mitotagenia kaszabi* Koch, 1941c (Stenosini).—Upper surface of front body (*cp*=cervical peduncle; *mp*=mesothoracic peduncle; *t*=tempora).

V. STENOSINI

(Pl. II, fig. 21; text-figs. 4A—4C.)

Wingless, petrophilous beetles with strongly pronounced myrmecophilous tendencies. Occurring in the arid and temperate regions of all five continents. The Arizona and California genus *Araeoschizus* Leconte falls within the range of variability of Stenosini and cannot be separated from the latter as an independent tribe (cf. Araeoschizini of Casey).

Ranging on the African continent from North Africa to Cape Town (text-fig. 3), but on account of their filiform, ant-like appearance and hidden habitat, usually overlooked by collectors. From Southern Africa only one species was known from Cape Town. I have found many other species practically everywhere (cf. Ferreira, 1953), represented by the two genera *Anethas* Jacobs and *Mitotagenia* Reitter. The genus *Meglyphus* from the Cape Province, placed by Motschoulsky into the relationship of the Trans-Caucasian Stenosin *Aspidocephalus*, does not belong to the Tentyriinae but to the tenebrioid Opatrinae. It closely resembles *Stenolamus* Gebien, but forms, together with *Pythiopus* Koch, a tribe of Opatrinae (Pythiopini Koch, 1954b) which is endemic to the Western Cape Province and Great Namaqualand.

In life the Stenosini are covered with an intense, bluish pruinescence. When disturbed they are able to move backwards as do the Pseudoscopions.

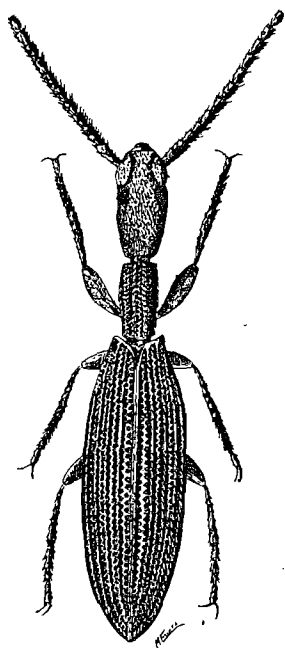


FIG. 4B.—*Anethas teixeirai* Ferreira
(ex Ferreira, 1950).

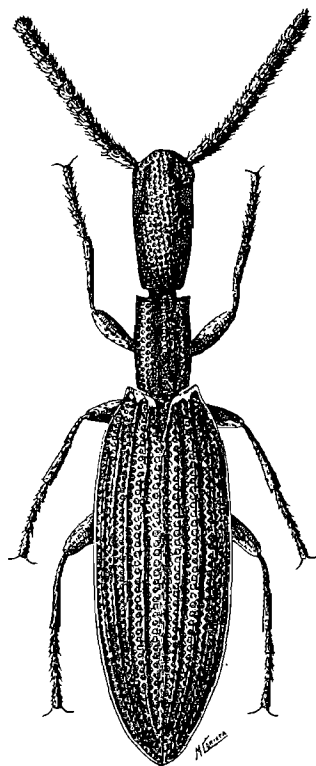


FIG. 4C.—*Anethas longiceps* Fairmaire
(ex Ferreira, 1950).

- Body oval, broad to roundish, varying from 4 to 25 mm. in length, but usually above 5 mm. Antennae with ten or exceptionally with nine free segments. Head with at least the occipital portion amplexed in prothorax, hypognathous and with vertical face, rarely porrect, transverse, without cervical peduncle; tempora and postgenae not or slightly longer than eyes or oral-frontal portion of underside respectively. Prothorax transverse, closely and solidly attached to elytra and generally also to mesosternum, without dorsally exposed mesothoracic notum; pronotum transverse, prosternum much shorter than procoxal cavities to about one-and-a-half times length of the latter. Metasternum short, at most one-and-a-half times as long as metacoxal cavities or about as long as basal sternite of abdomen; episternum broad, not subparallel, at best twice as long as broad.
4. Antennae with nine free segments (text-fig. 8). Eyes with a reduced number of strongly acinose corneal facets and with erect, blunt scales between facets (*). Base of pronotum with scutelli-

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(*) Scaly, setiferous or pilose eyes occur also in the Asiatic tribe of Lachnognyni, as well as in the Leichenini of Opatrinae. The latter are found also in Southern Africa and are probably cosmopolitan.

form prolongation at middle (text-fig. 8). Pro- and mesothorax solidly fused.

III. VANSONINI

(Text-figs. 6A, 8 and 9A.)

After careful study of the tribal characters of Tentyriinae, I consider the peculiar South African *Vansonium bushmanicum* Koch to be the representative of an independent tribe.

Exhibiting extremely specialized and adaptive particulars of a psammophilous Tenebrionid, this monotypical tribe is strictly confined to the Pro-Namibian area of Bushmanland (text-fig. 3).

- Antennae with ten free segments (text-fig. 7). Eyes simple, compound, of numerous and weakly acinose corneal facets, bare. Base of pronotum truncate (text-fig. 5). Pro- and mesothorax closely attached to each other, but not fused.
- 5. Mandibles strikingly dimorphic, in the ♂ enlarged, lucanid-like, porrect and considerably longer than head (text-fig. 5). Head without stridulatory organ on amplexed portion of occiput, bombous and with horizontal vertex. Eyes circular, not emarginated by genal canthus. Maxillae and prelabium inserted below anterior edge of postgenae. No epipleural structures on reflected portion of elytra. Elytra without primary rows. Under-side of femora not separated from lateral surfaces.

II. CALOGNATHINI

(Text-figs. 5 and 6B.)

Wingless and highly psammophilous insects, confined to the loose, windblown sand of the Namib desert. Occurring from south of the Orange River mouth up to the Moçamedes desert in Southern Angola (text-fig. 3).

Monotypical. The single species, *Calognathus chevrolatii* Guérin, forms several isolated and sharply separable geographic subspecies.

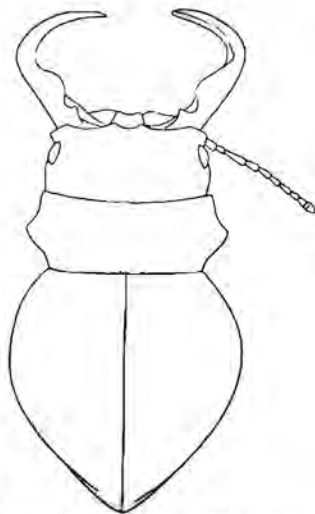


FIG. 5.—♂ of *Calognathus chevrolatii* Guérin, 1836 (Calognathini).—Dorsal outlines.

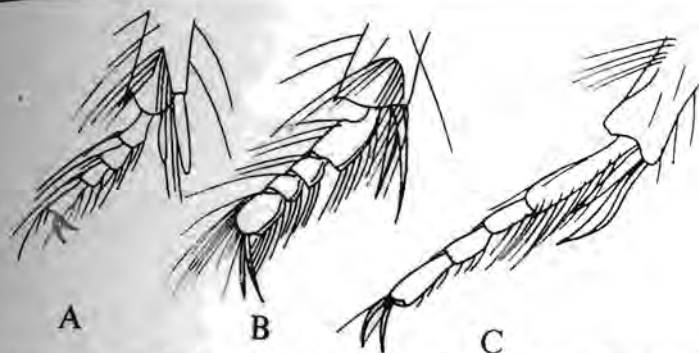


FIG. 6.—“Sand-shoes” (lateral view) of some South African Tentyriinae.—Posterior tarsus and apex of posterior tibia of *A*=*Vansonium bushmanicum* Koch, 1950b (Vansonini); *B*=*Calognathus chevrolatii* Guérin, 1836 (Calognathini); *C*=*Pachynotelus* spec. (Cryptochilini).

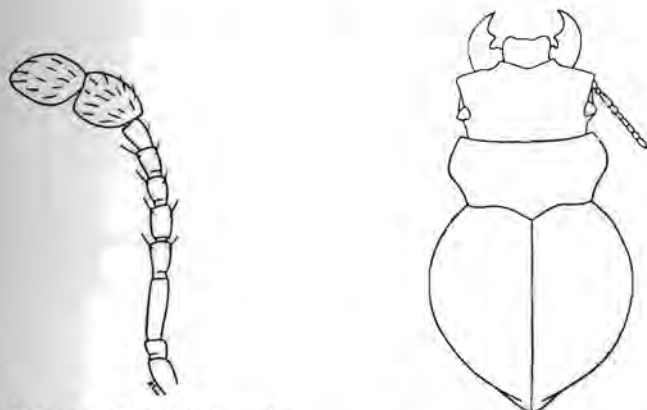


FIG. 7.—Antenna of a *Pachynotelus* (Cryptochilini), with the exceedingly enlarged two apical segments.

FIG. 8.—*Vansonium bushmanicum* Koch, 1950b (Vansonini).—Dorsal outlines.

- Mandibles not dimorphic, much shorter than head and hypognathous as are the other oral organs (Pl. II, fig. 10). Head with stridulatory organ on amplexed portion of occiput; small, more or less enclosed by prothorax, with hypognathous vertex and the postgenal portion of underside often concealed by a collar-like prolongation of prosternum. Eyes reniform, emarginated by genal canthus. Maxillae and prelabium inserted on anterior edge of postgenae. Elytra with strongly demarcated epipleural margin and primary rows (Pl. II, fig. 10). Underside of femora separated from lateral surfaces by sharply raised lateral carinae.

IV. CRYPTOCHILINI

(Pl. II, figs. 10—12; text-figs. 6C, 7, 9B and 9C.)

A Southern African autochthonous tribe of psammophilous, often deserticolous and constantly wingless beetles. With about 100 species,

spread all over the western part from Cape Town to Benguela and with a discontinuous East African group, extending close to the coast from Portu. East Africa to Italian Somaliland (text-fig. 3). Both areas are almost in contact with each other through a Trans-Bechuanian branch of the western groups.

The Cryptochilini appear in two sharply separable subtribes. The Cryptochilina with collar-like prolongation of prosternum, horizontally produced prosternal apophysis and bi-costate elytra; the Horatomina with emarginate and non-prolongate prosternum, declivous prosternal apophysis and the dorsal surface of elytra each with five primary rows. Both groups are beautifully coloured by the dense, scaly to pilose

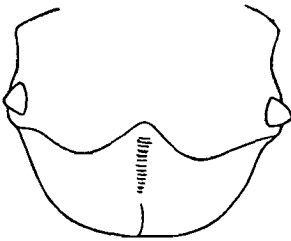


FIG. 9A.—*Vansonium bushmanicum* Koch, 1950b (Vansonini).—Stridulatory organ on retracted portion of occiput.



FIG. 9C.—*Cychrochile erodioides* Koch (ex Koch, 1953b).—Anterior tibia with tarsus.

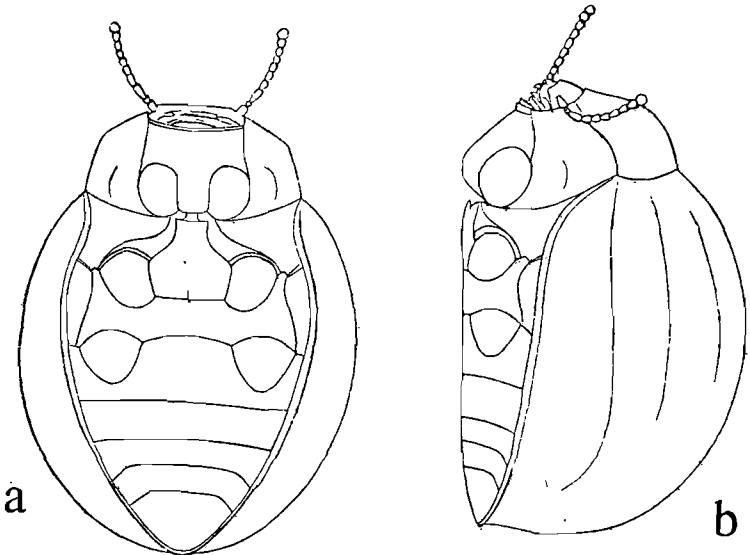


FIG. 9B.—*Cryptochile multcostata* Koch (ex Koch, 1953b).—a=ventral view; b=lateral view.

vestiture on upper surface of body. Many species of *Horatomina* are well-characterized by the presence of long and silky "sand-shoes" (text-fig. 6), which in the Southern African Tentyriinae occur also in the *Calognathini*, *Vansonini* and a few species of *Molurina*.

6. *Metasternum* either short, about as long as basal sternite of abdomen or shorter (text-fig. 10), or prolonged and considerably longer than basal sternite; in the latter case, either the upper surface of body tomentose and very uneven (*Zopherini*) (Pl. II, fig. 17) or body alate, elongate, with prognathous and free head, large scutellum, well-developed shoulders, punctate-striate elytra, transverse but not oblique metacoxal cavities, large and oblique epimera of mesosternum and the metasternum with a pre-metacoxal sulcus, but no oblique supplementary sulci on posterior half (*Epitragina* of Tentyriini) (Pl. I, figs. 14—17). 7

- *Metasternum* prolonged, much longer than basal sternite of abdomen, about as long as the two proximal sternites taken together (text-fig. 31); with a few exceptions, exhibiting two sharp and oblique supplementary sulci on posterior half (*os* in text-fig. 32) and often also a pre-metacoxal sulcus (*ps* in text-fig. 32). Metacoxal cavities strongly oblique in position and transverse. Body apterous, oval to roundish, with hypognathous and more or less amplexed head, without scutellum, without shoulders and with irregularly sculptured, non-striate elytra. Upper surface bare to finely pilose, never tomentose, plane, sometimes costate or with raised and shiny sculpture only on elytra (Pl. I, fig. 5). Mesosternal epimera elongate, subparallel with elytral margin, their sutures often superficially impressed or not marked. 12

7. Outer edge of anterior tibiae with strong median tooth.

(*ERODIINI*)

(Text-fig. 9D.)

A species of this tribe, *Diodontes sulcatus*, was described in 1834 by Solier from the Cape Province. As I have never seen any *Erodiin* from Southern Africa, Solier's patria is probably erroneous (*).

The *Erodiini* are African-Asiatic, but do not cross the equator in the South. They are diffused in the Circum-Mediterranean Province, Canary Islands, Sahara, northern part of Tropical Africa and South-Eastern Asia.

- Outer edge of anterior tibiae without median tooth. 8
8. Epimeron of mesosternum elongate, subparallel anteriorly and running parallel with elytral margin from base to metasternal episternum (text-fig. 10). Intercoxal process of abdomen very broad, distinctly and often much broader than submentum or

(*) The dentiform dilation of the middle of carinate upper edge of anterior tibiae occurs frequently in the digging *Opatrinae* of tenebrioid *Tenebrionidae*, but it is unusual within the Tentyriinae. Among the Southern African Tentyriinae I know only of the monotypical genus *Cychochile* Koch from Bechuanaland, exhibiting a sharp median tooth on anterior tibiae (text-fig. 9C), very similar to the tibial structure in *Erodiini*. As a closely related form of *Cychochile* has been recently collected by Mr. S. Walters of Stellenbosch University in the South-Western Cape Province, the possibility can not be excluded that Solier's *Diodontes* from the Cape Province may, in actual fact, be referred to the *Cryptochilini*.

anal sternite (text-fig. 10). Antennae with eleven segments (text-fig. 13). Postgenal margin with maxillary tooth (text-fig. 11). Body not tomentose, with strongly raised and laterally declivous elytra.

VII. ADESMIINI

(Pl. I, figs. 7—13; text-figs. 10—13.)

(nov. comb.: Adesmiini + Epiphysini sensu Casey and Gebien, 1937b.)

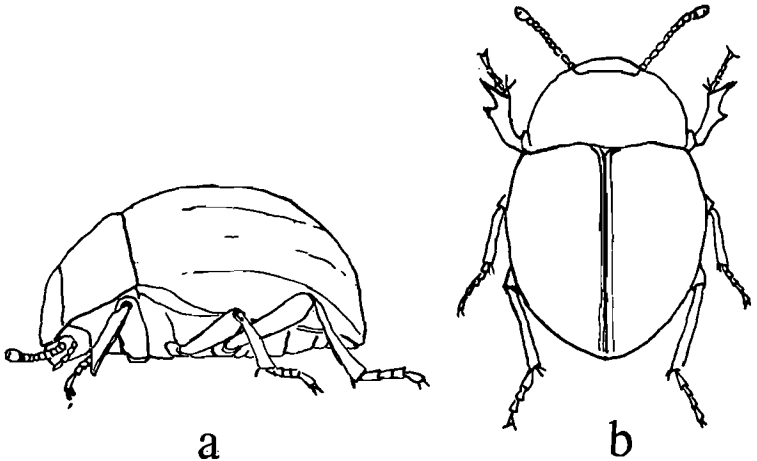


FIG. 9D.—*Diodontes subscutellatus* Lesne (ex Lesne, 1922).—a=lateral outlines; b=dorsal outlines.

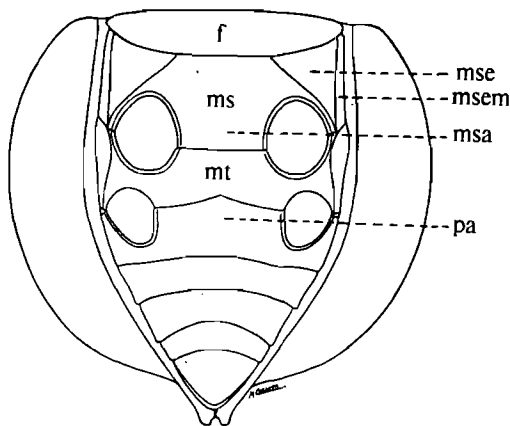


FIG. 10.—*Onymacris plana* Péringuey, 1886 (Adesmiini).—Underside of hind-body (f=foramen; ms=mesosternum; msa=mesosternal apophysis; mse=episternum of mesosternum; msem=epimeron of mesosternum; mt=metasternum; pa=inter-coxal process of abdomen).

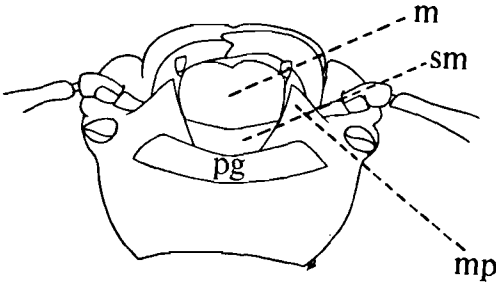


FIG. 11.—*Epiphysa flavicollis* (Fabricius, 1794) (Adesmiini).—Underside of head (*m*=mentum; *mp*=maxillary process of postgenal margin; *pg*=pregenar cavity; *sm*=submentum).

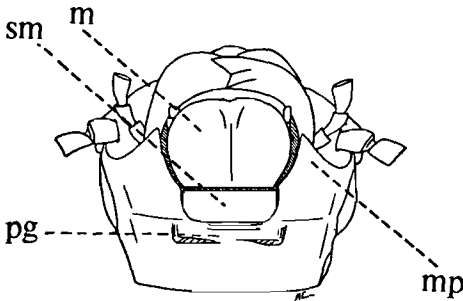
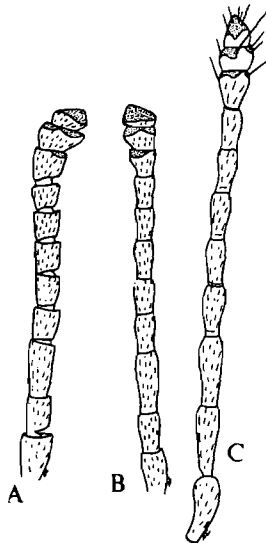


FIG. 12.—*Alogenius favosus* (Erichson, 1843) (Adesmiini).—Underside of head (*m*=mentum; *mp*=maxillary process of postgenal margin; *pg*=pregenar cavity; *sm*=submentum).

FIG. 13.—Antennae of Adesmiini, with sensorial portion of distal segments:—
A=*Onymacris* spec.; B=*Alogenius* spec.; C=*Epiphysa* spec.



The Adesmiini are for the most part heliotactic and generally very fast-running ground-beetles of the African steppes, savannas and deserts; a few of them are crepuscular, umbral and even nocturnal, with slow movements. All are apterous, with the shoulderless hind body closely attached to prothorax and sometimes solidly fused with the latter. In their distribution they agree to a certain extent with the Zophosini, Tentyriina of Tentyriini and Erodiini, having entered the Asiatic continent via Arabia into the Iranian, Turanian, Tartarian and Mongolian Provinces. From a total of about 220 species, almost half occur in Southern Africa. As is the case in the Zophosini and Eurychorini, the Southern African Adesmiini are split up into numerous greatly differentiated genera, while the Adesmiini of Tropical and Northern Africa and Asia are rather homogeneous, belonging to the large genus *Adesmia*, except for the south-eastern part of Tropical Africa, where two more genera, viz. *Renatiella* and *Coeladesmia* occur. These tropical genera penetrate into the northern parts of Southern Africa, while of the many Southern African genera only *Ceradesmia membranacea* Koch crosses north into the Katanga Province of the Southern Belgian Congo. Their distribution in Southern Africa (text-fig. 3) agrees rather well with the Cryptochilini, Stenosini and Tentyriina (of Tentyriini), being greatly developed in the West, by a Trans-Bechuanian branch reaching Portu. East Africa and absent in the central- and south-eastern parts.

I do not see any reason for separating the Epiphysini from the other Adesmiini, as done by Casey and Gebien. The Southern African *Epiphysa*, as well as the North African *Megagenius*, are nocturnal Adesmiini, which, although modified, exhibit all the main features of Adesmiini, being clearly linked with the diurnal and crepuscular genera by the typically intermediate genus *Alogenius*.

The Californian and Mexican Edrotini, and in particular the genus *Edrotes*, agree to such an extent with *Epiphysa* that Casey's theory of convergent development ought to be carefully re-examined. On the other hand the Californian *Craniotus pubescens* Leconte, for which Casey erected the monotypical tribe Craniotini, does not have the appearance of an Adesmiin.

- Epimeron of mesosternum short, transverse to triangular, confined to the apical portion of mesosternal episternum, and not prolonged towards base (text-fig. 28). Intercoxal process of abdomen narrow to moderately broad, distinctly narrower than mentum or anal sternite (text-fig. 28), except in the only Southern African Zopherin (Pl. II, fig. 17) and a few strongly dilated, round and complanate Eurychorini (Pl. II, figs. 4—7). In these exceptional cases, the body is either strongly complanate or tomentose, the antennae are ten-segmented (text-fig. 30) (with rarely a small and rudimentary eleventh segment), and the anterior margin of postgenae is produced into a large lobe, situated on each side of the mentum and submentum (text-fig. 29).
- 9. Epistome more or less tri-lobate, with the median portion produced and apically arcuate, rounded, triangular or dentate (text-figs. 17—20); sometimes the median lobe very strongly produced, rostriform and separated from lateral portions by a deep, often semi-circular emargination (into which fits the base of mandibles), with the apical margin truncate, emarginate or dentate (text-fig. 16). Antennae eleven-segmented, with free apical segment (text-fig. 21). Head free, sometimes moderately amplexed in prothorax, often with supra-orbital carinula.

VI. TENTYRIINI

(Pl. I, figs. 14—20; Pl. II, fig. 20; text-figs. 14—22.)

(nov. comb.: Tentyriini + Epitragini sensu Gebien, 1937b, and auct.)

On the basis of Southern African material it is impossible to separate the apterous Tentyriini from the usually alate Epitragini. In my revision of South African Epitragini and Tentyriini (1951) I have pointed out that a gradual change from fully winged to apterous species takes place within the genus *Derosphaerius*. With this reduction of wings

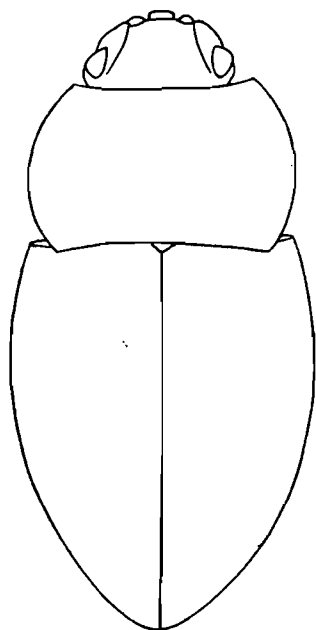


FIG. 14.—*Broomium nudum* Koch, 1950b (Tentyriini).—Dorsal outlines.

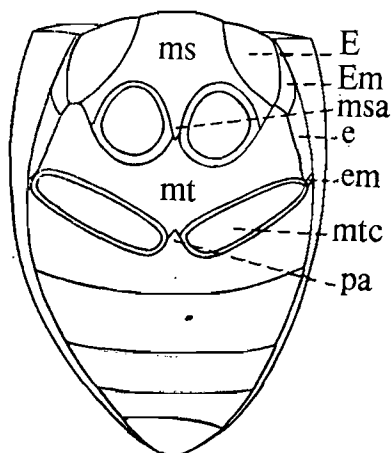


FIG. 15.—*Broomium nudum* Koch, 1950b (Tentyriini).—Underside of hind-body (*E*=episternum of mesosternum; *e*=episternum of metasternum; *Em*=epimeron of mesosternum; *em*=epimeron of metasternum; *ms*=mesosternum; *msa*=apophysis of mesosternum; *mt*=metasternum; *mtc*=metacoxal cavity, oblique in position, as in Zophosini; *pa*=intercoxal process of abdomen).

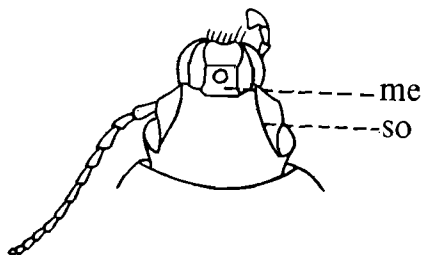


FIG. 16.—*Broomium nudum* Koch, 1950b (Tentyriini).—Upper surface of head (*me*=projecting median lobe of epistome; *so*=supra-orbital crest).

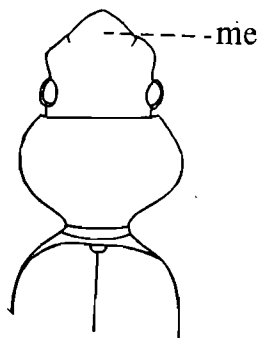


FIG. 17.—*Namaquaen australe* (Périn-guey, 1908) (Tentyriini).—Dorsal outlines of front-body (*me*=projecting median lobe of epistome).

is coupled a gradual shortening of metasternum, loss of shoulders, reduction of scutellum, but dilation of intercoxal process of abdomen. Casey took the premetacoxal sulci to be a peculiarity of Epitragini, but there are numerous Tentyriini with the same structure.

The Tentyriini sensu novo have an African-Asiatic-American distribution, occurring also on the Canary and Cape Verde Islands and in the Circum-Mediterranean Province. Until some years ago Southern Africa was believed to be very poor in species of Tentyriini, whereas the abundance in Northern Africa was attributed to Turanian origin. After extensive field work, however, the number of species and genera has been practically quintupled. Among those new discoveries were such peculiar genera as are *Broomium*, *Archinambia*, *Nerinodon*, *Oppenheimeria* and *Namibismus*, while the Saharo-Turanian genus *Cyphostethe* was found to occur in Southern Africa in no less than ten species. Of the two subtribes, the alate Epitragina are arboreal, but often also found under stones and in sand; they are nocturnal insects and usually good flyers, occurring everywhere in Southern Africa. The Tentyriina are petrophilous to psammophilous, often deserticolous, nocturnal and only exceptionally heliotactic (*Broomium*); their Southern African range (text-fig. 3) agrees well with that of Adesmiini and Cryptochilini, viz. occupying the western part and with a Trans-Bechuanian branch.

- Epistome not tri-lobate, with shallowly emarginated apical margin or the latter with a short, often irregularly dentate, median emargination (text-fig. 30). Antennae either ten-segmented (text-fig. 30) or with eleven segments, in the latter case the apical segment very short to rudimentary and more or less enclosed in the tenth segment (text-fig. 24). Head more or less amplexed in the prothorax, except in a few adelostomoid Eurychorini.

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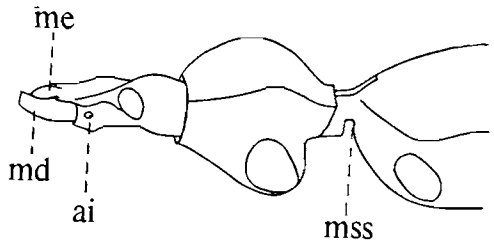
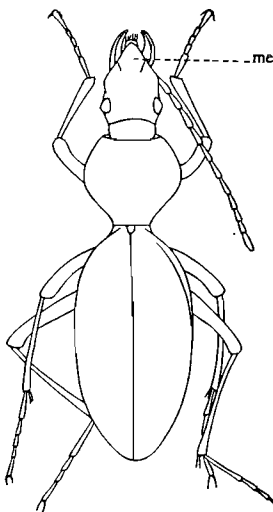


FIG. 19.—*Cychrachna carcharoides* Koch, 1950b (Tentyriini).—Lateral outlines of front-body (*ai*= antennal insertion; *md*= mandible; *me*= median lobe of epistome; *mss*= mesosternal sulcus).

FIG. 18.—*Cychrachna carcharoides* Koch, 1950b (Tentyriini).—Dorsal outlines (*me* = projecting median lobe of epistome).

10. Prosternal apophysis flat, from base to apex on same level with prosternum, much broader than mentum and about three times as broad as coxal cavity. Mentum small, barely broader than labrum. Eyes with very fine and flat corneal facets. Meta-

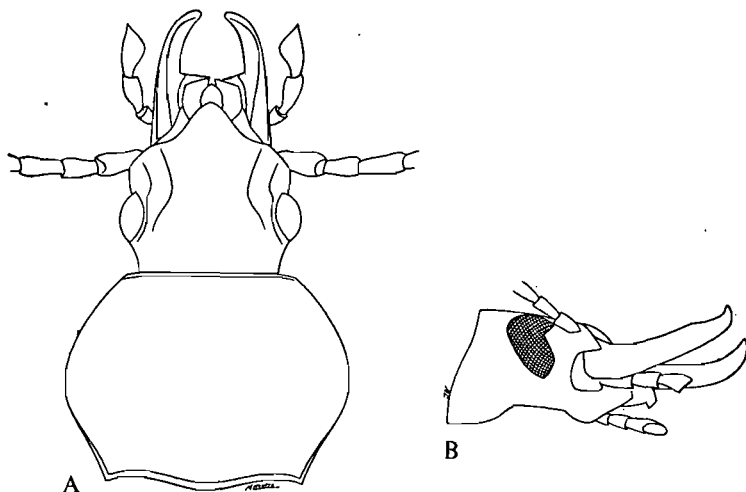


FIG. 20.—♂ of *Derosphaerius* (s.str.) *anthracinus* Westwood, 1889 (Tentyriini).—*A*=dorsal outlines of head and pronotum; *B*=lateral outlines of head.

sternum considerably longer than basal sternite of abdomen. Body tomentose, the lateral outlines of pronotum and elytra with large, lobiform and irregular processes.

VIII. ZOPHERINI

(Pl. II, fig. 17.)

One of the most curious tribes of Tenebrionidae, with a relict-like distribution on four continents; prevailing in the southern part of North America and occurring in the isolated genera *Scoriaderma* and *Zopherosis* in the tropical parts of Africa and New South Wales respectively; the North American *Phellopsis* with three species also in Japan and the north-eastern part of the Asiatic continent.

Scoriaderma cordicolle Waterhouse enters Southern Africa in Southern Rhodesia, where it was frequently collected by Dr. G. van Son in the Chirinda Forest. In its uneven and tomentose upper surface it resembles a piece of bark and was observed, during wet weather, crawling on the bark of trees or logs. It appears to be rather closely related to the Venezuelan *Meralius furcatus* Kirsch, with which it agrees also in the length of metasternum.

- Prosternal apophysis convex and declivous, with the apex situated on a much lower level than prosternum, much narrower than mentum and at most as broad as coxal cavity. Mentum large, considerably broader than labrum. Corneal facets of eyes convex and coarse. Metasternum sometimes as long as basal sternite, but usually much shorter than the latter. Body not tomentose, the lateral outlines of pronotum and elytra smooth or minutely crenulate to serrate-denticulate.

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11. Head small, strongly hypognathous, with the underside more or less concealed by prosternum; mandibles large and dorsally exposed; maxillary portion of postgenal margin with a rounded, obtuse, smaller and less produced lobe. Elytra strongly

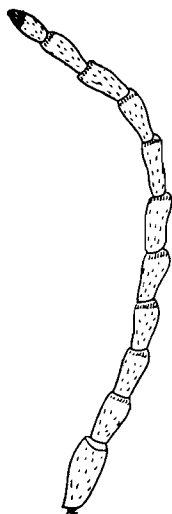


FIG. 21.—*Asphaltestes* (s.str.) *impressipennis* Fairmaire, 1888 (Tentyriini).—Antenna (lateral view).

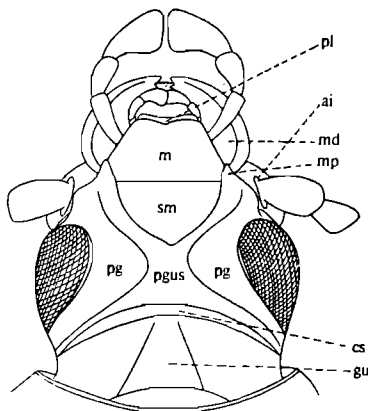


FIG. 22.—*Cyphostetha* (*Himastetha*) *gigantea* Koch, 1950b (Tentyriini).—Underside of head (*ai*=antennal insertion; *cs*=cervical sulcus; *gu*=gula; *m*=mentum; *md*=mandible; *mp*=maxillary process of postgenal margin; *pg*=postgena; *pgus*=pregenial sulci; *pl*=prelabium; *sm*=submentum).

convex. Episternum of metasternum broad, with the metacoxal cavities widely separated from lateral margin of elytra (text-fig. 28). Mesocoxae without or with a rudimentary and punctiform trochantin. Antennae with eleven segments, exceptionally with ten.

X. ASIDINI

(Pl. II, figs. 13—16; text-figs. 23—28.)

A large tribe, of which about 1,000 species have been described. Its distribution is strikingly discontinuous, the centres being the North-Western Mediterranean Province, Northern America, Madagascar and Southern Africa (text-fig. 3); poorly represented in Central and Eastern Europe, Southern America and in the eastern part of North America; completely absent from Asia, Australia and Tropical Africa, except for the south-eastern part. The Asidini are consequently the only known tribe of Tentyriinae which, although well-developed in Northern and Southern Africa, are almost extinct in the intermediate Ethiopian Region. The southernmost species of the Northern African genera is *Alphasida* (*Gymnetasida*) *saharensis* Koch from the Tripolitanian Hamada-el-Hamra (about 30° north latitude), and the northernmost of the Southern African genera is a new species from the south-eastern part of the Belgian Congo (Upemba Park, about 9° south latitude). The genera of both these African ranges are different and endemic.

As opposed to the American and Palaeartic Asidini (teste Horn, Leconte & Horn and Reitter), the Southern African Asidini lack a distinct trochantin of mesocoxae, nor is the eleventh segment of antennae always visible. There are about 70 species known from Southern Africa, but many more, still unknown forms have to be described in the subsequent volumes of this monograph. The majority are montane species, isolated and strongly differentiated, of subterranean habits and consequently difficult to collect. Several alpine species have been reported from the Spanish Sierras and Moroccan Atlas Mts., but in South Africa they have also developed specialized forms, which live exclusively in the summit regions of high mountain ranges (cf. *Machlomorpha altitudinis* Péringuey, collected on the top of Mont-aux-Sources at an altitude of approximately 10,000 feet).

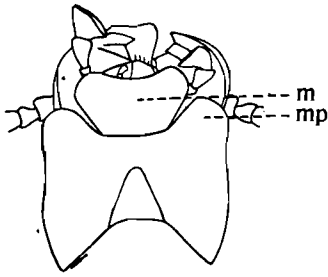


FIG. 23.—*Pseudomachla* (s.str.) *caffra* (Fåhraeus, 1870) (Asidini).—Underside of head (m=mentum; mp=mandibular process of postgenal margin).

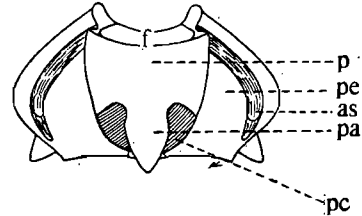
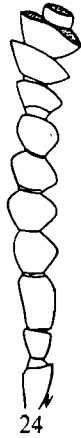


FIG. 25.—*Pseudomachla* (s.str.) *caffra* (Fåhraeus, 1870) (Asidini).—Underside of prothorax (as=antennal sulcus; f=foramen; p=prosternum; pa=prosternal apophysis; pc=procoxal cavity; pe=episternum of prosternum).

FIG. 24.—*Pseudomachla* (s.str.) *caffra* (Fåhraeus, 1870) (Asidini).—Antenna (lateral view).

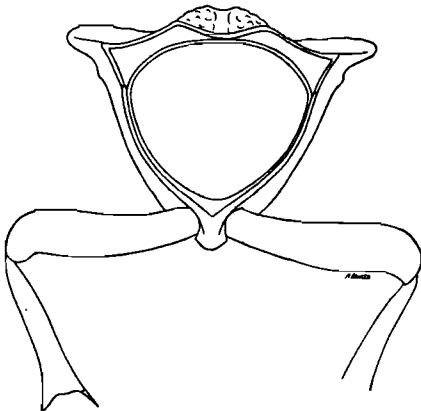


FIG. 26.—*Pseudomachla* (s.str.) *caffra* (Fåhraeus, 1870) (Asidini).—Basal foramen of prothorax in sectional view.

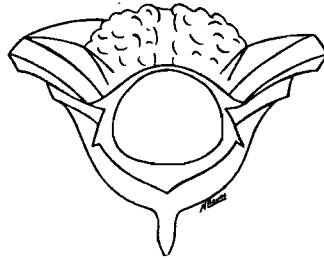
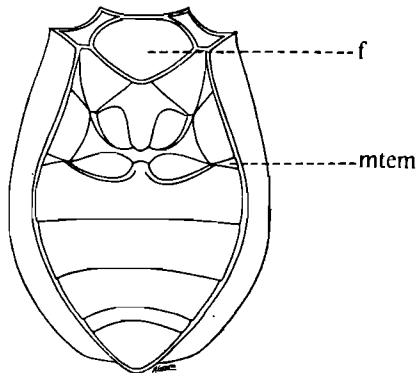


FIG. 27.—*Pseudomachla* (s.str.) *caffra* (Fåhraeus, 1870) (Asidini).—Basal foramen of hind-body, opposing the basal foramen of prothorax (sectional view).

FIG. 28.—*Pseudomachla* (s.str.) *caffra* (Fåhraeus, 1870) (Asidini).—Underside of hind-body (f=foramen; mtem=the transverse epimeron of metasternum, widely separating the metacoxal cavities from elytral margin).



- Head large, prognathous, with exposed underside; mandibles concealed by the enlarged sides of epistome; maxillary portion of postgenae with large, strongly produced, subtruncate to triangular lobes, extending to almost level with apical margin of mentum. Elytra more or less complanate. Episternum of metasternum moderately broad; the metacoxal cavities extending closely to lateral margin of elytra. Antennae ten-segmented, exceptionally with rudimentary eleventh segment.

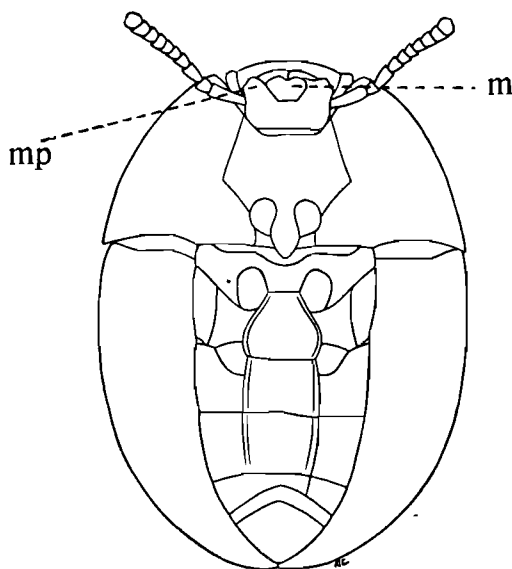


FIG. 29.—*Stips dohrni* (Haag, 1872) (Eurychorini).—Ventral outlines (*m*=mentum; *mp*=maxillary process of postgenal margin).

IX. EURYCHORINI

(Pl. II, figs. 1—9; text-figs. 29 and 30A.)

The Eurychorini are specialized Tenebrionidae and there is no other group in the world with which they can be compared. Phylogenetic relations to the Stenosini may be probable. Some Southern African Litoborini exhibit convergent features of habitus (text-fig. 30B), but they are widely separated from the Eurychorini in belonging to the tenebrioid Tenebrionidae.

They are a Pan-African tribe of apterous, petrophilous, cavernicolous to highly psammophilous beetles, of nocturnal and rarely crepuscular habits. The evolution centre is Southern Africa (text-fig. 3) and only a few forms are extra-African, occurring in Southern Spain, Mediterranean Asia and Arabia. The tribe is sharply separable into the Eurychorina and Adelostomina, the latter decidedly myrmecophilous. Of the 32 known genera, 20 are endemic to Southern Africa and 4 are found in both Southern and Tropical Africa.

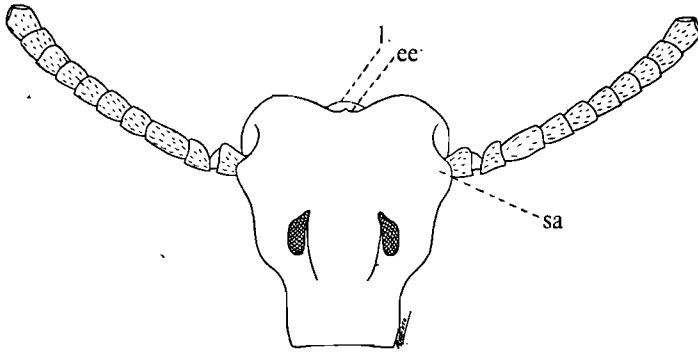


FIG. 30A.—*Eurychora nitida* Haag, 1872 (Eurychorini).—Upper surface of head (*ee*=epistomal emargination; *l*=labrum; *sa*=supra-antennal convexity of gena).

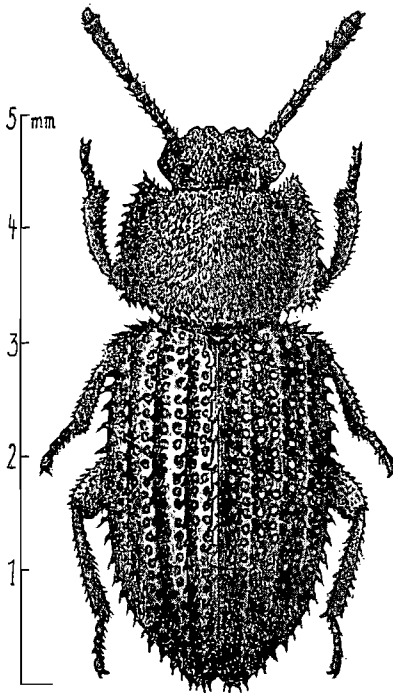


FIG. 30B.—*Hanstroemium spiniferum* Koch, a tenebrioid Tenebrionid of Litoborini, strikingly resembling the Adelostomina of Eurychorini.

8. Mesosternum with sharply defined anterior peduncle. Metasternum with two sharp and oblique, supplementary sulci on posterior half (*os* in figs. 31—33), except in *Cerosis* (and a few still unknown South African genera, which will be published in the subsequent volumes of monograph). Outlines of posterior tibiae smooth.

XI. ZOPHOSINI

(Pl. I, figs. 1—6; text-figs. 31—35.)

Extremely fast and heliotactic "sand-swimmers" or "sand-jumpers" and one of the most peculiar tribes of Tenebrionidae, which if anything show a slight relationship to the Tentyriini (cf. *Broomium* Koch, 1951), but not to the Erodiini.

The evolution centre is Southern Africa, where about 50% of species and eight of the ten described genera occur. The genus *Zophosis* is Pan-African, but also widely spread in the Circum-Mediterranean, West- and Central-Asiatic Provinces of the Palearctic Region.

Since the monographic work done by Deyrolle and Chatanay, the Zophosini are a well-studied group, with the exception of the Southern African forms. Most of the latter have not yet been described, including the groups of saltatorial and myrmecophilous Zophosini, which will be made known subsequently.

- Mesosternum without separated anterior peduncle. Metasternum without oblique supplementary sulci on posterior half. Outlines of posterior tibiae crenulate.

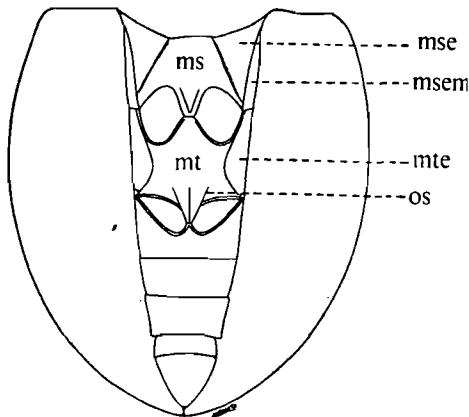


FIG. 31.—*Zophosis testudinaria* (Fabricius, 1787) (Zophosini).—Underside of hind-body (*ms*=mesosternum; *mse*=episternum of mesosternum; *msem*=epimeron of mesosternum; *mt*=metasternum; *mte*=episternum of metasternum; *os*=oblique, supplementary sulcus, delimiting metasternal apophysis).

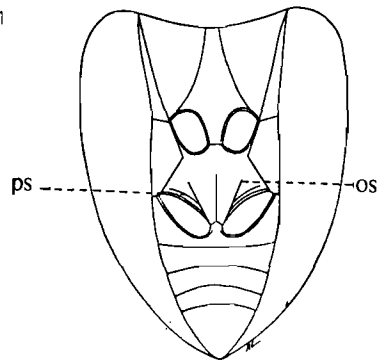


FIG. 32.—*Onychosis gracilipes* Deyrolle, 1867 (Zophosini).—Underside of hind-body (*os*=oblique, supplementary sulcus; *ps*=pre-metacoxal sulcus).

XII. DACTYLOCALCARINI

(Text-figs. 36—38.)

Based on the anophthalmous and highly specialized genus *Dactylocalcar* Gebien, endemic to the sandy dunes of the Namib desert. The tribal rank of this group is rather doubtful following the discovery of the ophthalmous genus *Protodactylus* Koch in the Angolan Namib. Subsequent to the description of *Protodactylus*, several other, as yet undescribed genera of Zophosini have been collected, exhibiting intermediate characters and obscuring the systematic limits between Zophosini and *Protodactylus*. The anophthalmy of *Dactylocalcar*, however, is unique among the Tentyriinae of the world.

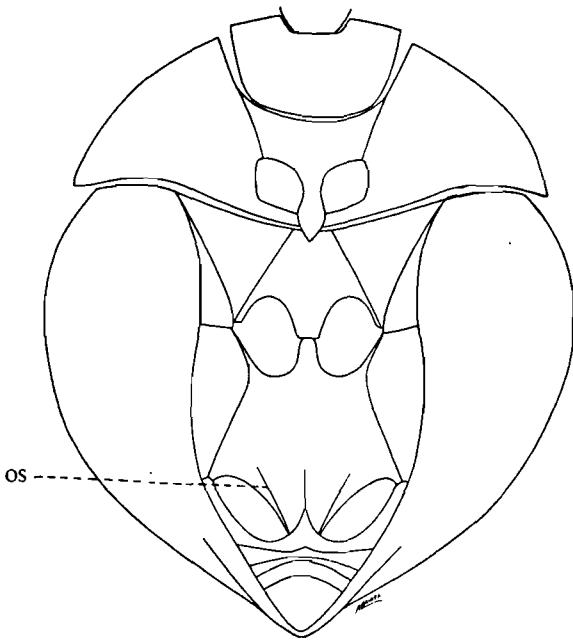


FIG. 33.—*Cardiosis mouffleti* Deyrolle, 1867 (Zophosini).—Ventral outlines (*os*=oblique, supplementary sulcus).

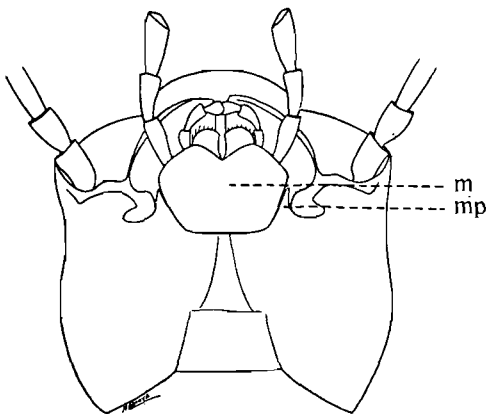


FIG. 34.—*Zophosis testudinaria* (Fabricius, 1787) (Zophosini).—Underside of head (*m*=mentum; *mp*=maxillary process of postgenal margin).

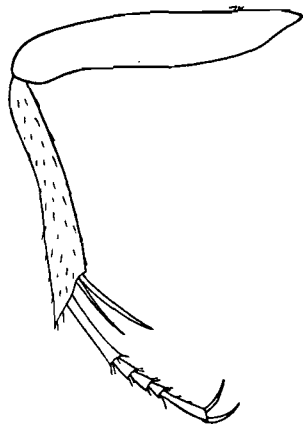


FIG. 35.—*Zophosis testudinaria* (Fabricius, 1787) (Zophosini).—Anterior leg.

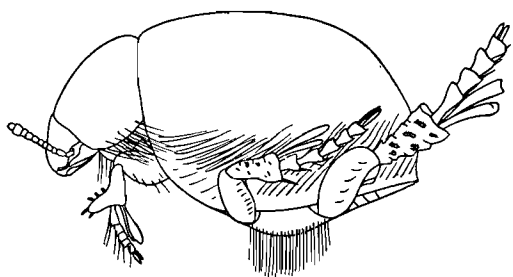


FIG. 36/37.—*Dactylocalcar caecus* Gebien, 1938
(*Dactylocalcarini*).—Lateral outlines.



FIG. 38.—*Dactylocalcar caecus* Gebien, 1938
(*Dactylocalcarini*).—Posterior leg.

I. MOLURINI

DIAGNOSIS.—Body apterous, slender to roundish, depressed to strongly convex and bombous, 4 to 80 mm. long.—Head hypognathous, rarely correct, with free upper surface and often vertical face. Epistome usually produced, often sharply separated from genae, truncate or shallowly emarginated, with pre-frontal sulcus and clypeal sutures. Supra-antennal portion large. Eyes lateral in position, compound, of numerous corneal facets, usually emarginated by genal canthus, rarely free. Labrum prominent. Mandibles large, usually exposed dorsally. Mentum moderately large, narrowed towards base, subpedunculate, leaving exposed cardo and stipo of maxillae and prelabium. The latter emarginated, with the labial palpi inserted at sides of base. Apical segment of maxillary palpi subcylindrical to slightly securiform, in a single case (*Namibomodes* [*Palpomodes*] *physopterus* [Gebien]) extraordinarily enlarged (text-fig. 41). Anterior margin of postgenae with maxillary ridge or emargination. Antennae filiform to subcylindrical, eleven-segmented, with elongate third segment; distal segments often dilated, sometimes strongly compressed, rarely with the two apical segments forming a kind of club; apical segment rounded to attenuate apically.—Prothorax extremely variable in shape and sculpture (text-fig. 45), usually with demarcated pronotum and often with the posterior foraminal carina exposed dorsally. Prosternum often prolongate and then collar-like, more or less concealing the postgenal to mental portions of underside of head; intercoxal apophysis to a great extent variable in shape and width.—Scutellum strikingly broad, extending across entire width of