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The review of *Metapion gaudiale*- and *oculare* species groups (*Coleoptera*: *Apionidae*)

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ABSTRACT. Seven *Metapion* species with pubescent body vestiture are revised and the key for their determination is given. The following new synonyms are proposed: *Metapion gaudiale* FAUST, 1885 (= *Apion subfarinosum* DESBROCHERS, 1897), *M. oculare* GYLLENHAL, 1833 (= *Apion Kolenatii* KOLENATI, 1858 = *A. Breiti* WAGNER, 1910), *M. gelidum* FAUST, 1885 (= *Apion rimmae* BAJTENOV, 1981). Lectotypes of *Apion gaudiale*, *A. subfarinosum*, *A. korbi* SCHILSKY, 1901, *A. kolenatii*, and *A. breiti* are designated. *Apion* (*Catapion*) *cylindronotum* TER-MINASSIAN, 1972 is transferred to the genus *Metapion*.

The subgenus *Metapion* was erected by SCHILSKY (1906), the first author who divided huge and heterogenous genus *Apion* HERBST into several well defined subgenera. It originally comprised 12 species, most of them described from Asiatic deserts and little known. Recently, KOROTYAEV (1988) elevated *Metapion* to generic rank - a point of view followed and confirmed by ALONSO-ZARAZAGA (1991) in his revision of supraspecific taxa of the Palaearctic *Apionidae*. The group has never been thoroughly revised, and BAJTENOV (1981b) was the first who reviewed and summarised distribution and bionomic data on nearly all species of *Metapion* and provided a key for their determination. However, he left unsolved problems of synonymy and distinction between some closely related species. SCHÖN (1988) clarified such a problem concerning *M. squamosum* FAUST and its allies. In this paper I attempt to clarify the nomenclature and diagnostic features of further 7 species, characterized by pubescent body vestiture.

MATERIAL AND METHODS

The following abbreviations of the museum and private collections are used in the text:
DEI - Deutsches Entomologisches Institut, Eberswalde;

HMNH - Hungarian Museum of Natural History, Budapest;
IZ - Institut of Zoology, Polish Academy of Sciences, Warsaw;
KS - Karel SCHÖN coll.;
MHNP - Museum d'Histoire Naturelle, Paris;
MK - Michael KOSTAL coll.;
MM - Mieczysław MAZUR coll.;
MNHW - Museum of Natural History, Wrocław University;
NRS - Naturhistoriska Riksmuseet, Stockholm;
SM - S. SMRECZYŃSKI coll., now at the Department of Systematic Zoology and Biogeography, Jagellonian University, Cracow;
SMTD - Staatliches Museum für Tierkunde, Dresden;
ZMC - Zoologisk Museum, Copenhagen;
ZMH - Zoologisches Museum der Hamburg Universität;
ZMHU - Zoologisches Museum der Humboldt Universität, Berlin;
ZMLU - Zoological Museum, Lund University.

Drawings and measurements given in this paper were made using a calibrated eyepiece reticule and a stereomicroscope of Carl Zeiss Jena. The total length was based on a straight line extending from the front margin of the eye to the tip of elytra, with the specimen viewed dorsally and in an appropriate position. After DAMOISEAU (1967) three parts of rostrum are named: prorostrum - from the antennal insertion point to the apex, mesorostrum - a part to which antennae are inserted, metarostrum - from base to mesorostrum. Body proportions and their variability are given as a series of indices under each species. The indices are based on several measurements taken from up to 10 specimens of each species. The way of measuring and abbreviations used are as follows:

rl - total length of rostrum, measured dorsally in an appropriate position;
msrw - maximum width of the dilated part of rostrum (mesorostrum width);
mtrl - metarostrum length;
arw - apical rostrum width;
scl - length of antennal scape;
eyl - eye length, measured in dorsal view (fig. 1);
pl - length of pronotum, measured medially;
pw - maximum width of pronotum;
bpw - basal width of pronotum;
apw - apical width of pronotum;
el - maximum elytra length, measured dorsally in an appropriate position;
ew - maximum width of elytra;
bew - basal width of elytra, measured perpendicularly to elytral suture across the middle of humeral tubercles;
pft - maximum width of profemur;
ptbl - length of protibia;

Proportions of antennal and protarsal articles are given as length ratios, where the length of all subsequent articles is related to the length of scape and the 1st tarsomere,

respectively. The width of particular segments is then given in brackets in both cases.

Genital preparations have been made in Canada balsam using commonly employed techniques and they were examined under a compound microscope. The nomenclature of the male copulatory organs adopted in this paper follows KISSINGER (1968) and ALONSO-ZARAZAGA (1983, 1991).

Under the distribution of each species the name of the country is marked with an asterisk when the species is being recorded from this country for the first time. Letters m and f are used for males and females respectively, when the examined material is listed, or, sometimes, in the key and descriptions.

Acknowledgements. I wish to express my sincere thanks to the following persons for the loan of specimens: Prof. Rudolf ABRAHAM (ZMH), Dr. Roy DANIELSSON (ZMLU), Dr. Franz HIEKE (ZMHU), Dr. Michael KOSTAL, Dr. Rudiger KRAUSE (SMTD), Dr. Ole MARTIN (ZMC), Dr. Mieczysław MAZUR, Dr. Otto MERKL (HMNH), Dr. Hélène PERRIN (MHNP), Dr. Per Inge PERSSON (NRS), Dr. Bogusław PETRYSZAK (SM), Ing. Karel SCHÖN, Dr. Stanisław A. ŚLIPIŃSKI (IZ).

DESCRIPTION OF THE GENUS

Metapion SCHILSKY, 1906

Metapion SCHILSKY, 1906: V, subgenus of *Apion* HERBST, 1797, type species by original designation: *Apion candidum* WENCKER, 1864.

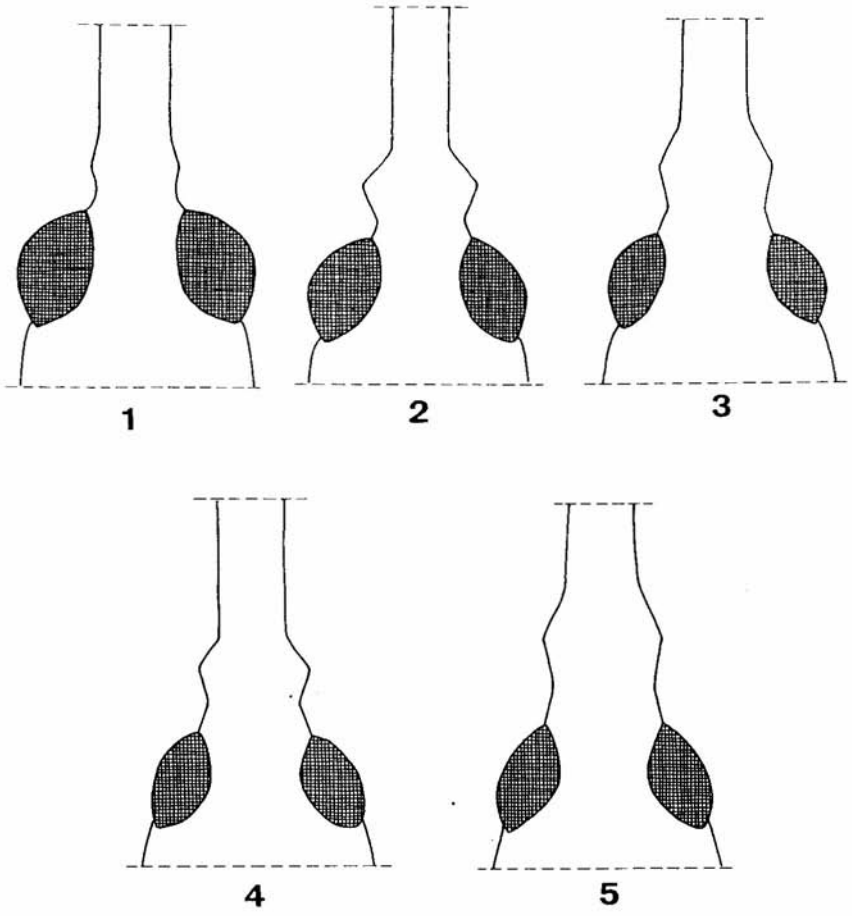
Pseudometapion WAGNER, 1930: 1387, subgenus of *Apion* HERBST, 1797, type species by subsequent designation (KISSINGER, 1968): *Apion gaudiale* FAUST, 1885.

Paronychapion VOSS, 1961: 181, subgenus of *Onychapion* SCHILSKY, type species by original designation: *Apion causticum* FAUST, 1885.

Body vestiture composed of unordered contiguous scales, dense. Rostrum thin, always longer than pronotum, dilated at base and dentate at antennal insertion (except for the *gaudiale* species group). Antennal pits broadly separated, well bordered; the scrobes absent or very shallow and short, with their lateral ridges not entering the venter of head. Antennae slender, inserted similarly in both sexes; club 3-segmented, conspicuous, not shorter than five distal funicular segments combined. Eyes relatively small; periocular ring of scales irregular, mostly double, fringe not developed. Frons as wide or barely narrower than the rostrum base. Pronotum without an apical fringe of forward projecting scales and a basal flange; lateral pleural line invisible; pleurosternal suture distinct, with a small supracoxal pit; ventral side with conspicuous and subarticulated sternellum and distinct longitudinal suture (fig. 41). Scutellum flat. Elytron with specialized seta on 9th interval; striae catenulate-punctate, apically conected 1+2+9, 3+4, 5+6, 7+8. Mesepisternal suture invisible; mesepimeral suture extremely fine, impunctate, bare; mesepimera, mesepisterna and metepisterna densely clothed with scales. Mesocoxae narrowly separated (0.15-0.20 coxa width); meso- and metasternal processes subequal in length, the latter basally depressed, metasternal rim obsolete. Suture between ventrites 1 and 2 well visible, impressed; 5th ventrite broadly rounded in both sexes, male pygidium invisible. Male meso- and

metatibiae with short, acute mucro. Tarsal claw with broad basal tooth. Metathoracic wing without a radial cell. Metendosternite with a very broad stalk and rudimentary anterior tendons.

Male copulatory organs weakly sclerotised. Internal sac of the median lobe with numerous small denticles near the orifice, no apparent sclerites. Tegmen subarticulated, apical membraneous lobes long, well divided, microsetose; parameroid lobes short, usually provided with a few fine and short macrochaetae; fenestrae well defined, strongly transverse; the free ring very narrow; prostegium well developed, uniform, usually incised. Spiculum gastrale forked, with long manubrium.



1-5. Head and basal part of rostrum: 1 - *Metapion gaudiale*, 2 - *M. merale*, 3 -*M. oculare*, 4 - *M. gelidum*, 5 - *M. ermischi*

The larvae seem to be root and stem borers of the family *Rutaceae*.

The genus is purely Palaearctic, originated probably in the desert areas of Central Asia. Its geographic range covers eremic zone of Africa (south to Sudan), Southern Europe (north to Austria), Asia Minor, Caucasus and Asia east to Mongolia. Traditionally classified with *Metapion* African *Apion niloticum* DESBROCHERS and *Apion mirei* HOFFMANN have been recently transferred to a palaeotropical genus *Pseudoconapion* VOSS (WANAT, 1990).

Some species, i.e. *M. candidum* (WENCKER), *M. obtectum* (SCHILSKY), *M. oculare* (GYLLENHAL), *M. ermischi* (VOSS), and especially females are characterized by a variability of the length of rostrum - unusual in the family - which in the extreme case of *M. ermischi* can vary from 1.14 to 1.61 of pronotal length within population.

Species of *Metapion* are very uniform in respect of external morphology and genital structures. For practical purposes they can be assigned to two groups based on the character of body vestiture. In the first, not treated in this paper, the vestiture consists of oval or broadly lanceolate scales densely covering the body surface. The second, reviewed here, comprises seven species in two distinct species groups. In these species the vestiture is pubescent, composed of hair-like or narrowly lanceolate scales, which at least on pronotum and elytra disk are more than 6 times longer than wide.

KEY TO *METAPION* SPECIES WITH PUBESCENT VESTITURE

1. Rostrum barely widened at antennal insertion, mesorostrum 1.2 times wider than prorostrum (fig. 1). Body elongate, elytra 1.54-1.62 times longer than wide. The g a u d i a l e species group 2
-. Rostrum distinctly dentate at antennal insertion, mesorostrum at least 1.6 times wider than prorostrum (figs 2-5). Body shorter, elytra 1.26-1.58 times longer than wide. The o c u l a r e species group 3
2. Body length 2.00-2.25 mm. Humeral tubercles strongly prominent, base of elytra 1.4 times wider than pronotum. Antennal club 3.2-3.4 times longer than wide (fig. 11) ..... *gaudiale* (FAUST)
-. Body length 1.65-1.90 mm. Humeri weakly prominent, elytra at base 1.25-1.30 times wider than pronotum. Club 2.45-2.85 times longer than wide .... *cylindronotum* (TER-MINASSIAN)
3. Pronotum in relation to elytra smaller, convex. Scutellum triangular, as long or slightly longer than wide. Male protibiae straight (fig. 43) 4
-. Pronotum relatively bigger, flat. Scutellum subrectangular, 1.7-2.0 times longer than wide. Male protibiae slightly curved inwards (fig. 42) 5
4. Elytra larger and more convex, 1.80-1.85 (m) or 1.85-2.07 (f) times wider and 3.00-3.09 (m) or 3.09-3.46 (f) times longer than pronotum (figs 23-26). The dilated basal part of rostrum shorter, 0.57-0.63 (m) or 0.62-0.75 (f) eye length (fig. 2). Antennae inserted at basal 0.14-0.16 (m) or 0.13-0.14 (f) of rostrum; antennal club 2.1-2.4 times longer than the scape. Femora and tarsi more slender, the 1st protarsomere 1.6-1.7 times longer than wide ..... *merale* (FAUST)

-. Elytra narrower, 1.61-1.73 (mf) times wider and 2.74-2.93 (m) or 2.93-3.04 (f) longer than pronotum (figs 27-30) which is more convex. Basal part of rostrum 0.71-0.73 (m) or 0.73-0.90 (f) as long as the eye; metarostrum weakly constricted (fig. 3). Antennae inserted at basal 0.20-0.21 (m) or 0.16-0.18 (f) of rostrum. Antennal club 1.6-1.8 times longer than the scape. The 1st protarsomere 1.3-1.4 times longer than wide ..... *oculare* (GYLL.)

5. Antennal club 2.7 times longer than wide, the length ratio of its segments 1:1:2. Elytra more convex, sides straight in basal 0.6 of their length (figs 60-63). Legs longer and more slender, profemur 0.92-1.03 as thick as mesorostrum. Median lobe of aedeagus parallelsided to the tip (fig.6) ..... *gelidum* (FAUST)

-. Club mostly 2.0-2.2 times longer than wide, the length ratio of its segments usually 1:0.8:1.5. Sides of elytra more or less regularly rounded. Profemur 1.06-1.25 as thick as mesorostrum. Median lobe of aedeagus constricted subapically (figs 48, 50) 6

6. Elytra relatively longer and wider (figs 31,32), 2.66-2.70 (m) or 2.88-2.93 (f) times longer and 1.64-1.81 times wider than pronotum. Legs more slender; profemur 1.09-1.12 (m) or 1.06 (f) as thick as mesorostrum, protibia 1.16-1.22 (m) or 1.20-1.26 (f) times longer than pronotum. Internal sac of aedeagus only with fine denticles near the orifice (figs 48, 49); parameroid lobes without distinct macrochaetae; prostegium deeply emarginate (fig. 54) ..... *hartmanni* (DESBR.)

-. Elytra more slender (figs. 35, 36, 38, 39), 2.45-2.67 times longer and 1.53-1.67 times wider than pronotum. Profemur 1.18-1.25 (m) or 1.11-1.16 (f) as thick as mesorostrum; protibia 1.13-1.14 (m) or 1.15-1.20 (f) times longer than pronotum. Internal sac of aedeagus, beside teeth near the orifice, with long fine setae and extremely fine stripes in basal half (fig. 50); parameroid lobes each with 3 macrochaetae; prostegium weakly emarginate ..... *ermischi* (Voss)

REVIEW OF THE SPECIES

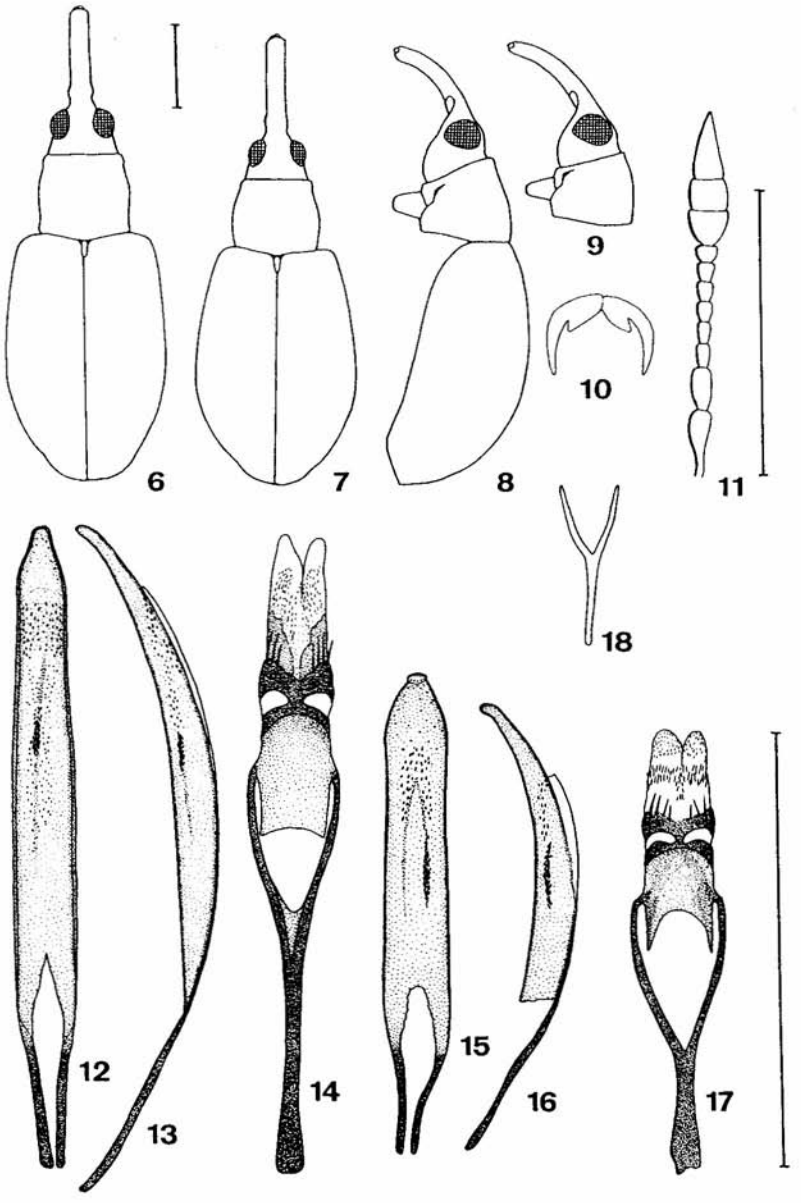
The *gaudiale* species group

The most significant attributes of the group are elongate body; hair-like vestiture; mesorostrum weakly and obtusely dilated; median lobe of aedeagus distinctly narrowed apically, internal sac with a small elongate tuft of minute spines; tegminal membraneous lobes split in apical one-third only.

Metapion gaudiale (FAUST, 1885)

Apion gaudiale FAUST, 1885: 189.
Apion otiosum FAUST, 1891: 414.
Apion subfarinosum DESBROCHERS, 1897: 23, **n. syn.**
Apion Korbi SCHILSKY, 1901: 99.

Length mf: 2.00-2.25 mm. All body parts black. Vestiture pure white, the scales



6-14. *Metapion gaudiale*. 6-9 - body outline: 6 - male, dorsal view, 7 - female, dorsal view, 8 - male, lateral view, 9 - female head and prothorax, lateral view; 10 - tarsal claws (not in scale); 11 - female antenna; 12-14 - aedeagus: 12 - median lobe, dorsal view, 13 - median lobe, lateral view, 14 - tegmen. 15-18. *M. cylindronotum*. 15-18 - aedeagus: 15 - median lobe, dorsal view, 16 - median lobe, lateral view, 17 - tegmen, 18 - spiculum gastrale. Scale 0.5 mm

in striae and on intervals equally long.

Indices. **rl/pl** m: 1.03-1.08, f: 1.26-1.37; **msrw/arw** 1.15-1.21; **mtrl/eyl** m: 0.43-0.56, f: 0.58-0.62; **scl/arw** m:1.05, f: 1.10-1.16; **pl/pw** 0.85-1.00; **bpw/apw** 1.13-1.18; **el/pl** m: 2.80-2.96, f: 3.00-3.33; **bew/pw** 1.37-1.50; **ew/bew** m: 1.15-1.20, f: 1.31-1.35; **el/ew** m: 1.58-1.62, f: 1.47-1.55; **pft/msrw** m: 1.18-1.22, f: 1.00-1.13; **ptbl/pl** m: 1.24-1.29; f: 1.30-1.39.

Rostrum relatively thick, evenly curved (figs 8, 9), bare in apical 0.75, sparsely scaliferous in basal 0.25, the surface strongly microsculptured, only in apical 0.3 slightly shining; puncturation very fine, indistinct, quite dense; ventral side glabrous, basal half of prorostrum with fine median rib. Head strongly transverse; eyes moderately convex, slightly larger and more prominent in male; frons barely wider than rostrum base, flat, rugosely microsculptured, puncturation weakly defined; temples slightly divergent, with scaliferous punctures on a distance of 0.25 of the eye diameter; venter rugose. Antennae inserted at basal 0.16-0.19 of rostrum, ratio (mf): 100:57(32):35:30:28:28:28:26(26):200(60), in male the scape more inflated; club very narrow, acute, length ratio of the segments 1:1:2 (fig. 11), antennal setosity pale, short, weakly protruding. Pronotum barely convex; subapical constriction slightly indicated on the disk; punctures very shallow, a little bigger than single ommatidium, about 0.5 diameter apart, interspaces rugosely microsculptured; prescutellar fovea absent. Scutellum subrectangular, twice as long as wide. Elytra almost parallelsided in male, widened posterad but not more convex in female (figs 6, 7); striae well impressed and bordered; intervals flat or barely convex, 1.25 times wider than striae, weakly shining, densely and irregularly punctate. Venter of the body with well defined punctures 0.5-1 diameters apart, their bottoms flat, interspaces smooth, microreticulate. Legs long and slender; femora weakly inflated; tibiae in both sexes straight, male mucro short, less than 0.3 as long as the apex of the tibia wide; tarsi very long, protarsal ratio m: 100(40):70(45):68(68):114(36), f: 100(55):75(58):71(75):125(42); claws with small teeth (fig. 10).

Median lobe of aedeagus long, symmetrical, narrowed apically; apophyses short; internal sac with minute teeth dispersed in the orifice region, microscopic asperities reaching basal one-third of the sac, and narrow indistinct darker line from the orifice to about 0.3 from the base, the tuft of spines short and compact (figs 12, 13). Tegmen long and narrow (fig. 14); membraneous lobes with well bordered melanized areas at base; macrochaetae strong; prostegium long, truncate. Spiculum gastrale shaped as in the following species.

Variability not significant, concerns mainly the shape of elytra.

Bionomics. Collected from *Haplophyllum* sp., *H. acutifolium* DC.., *H. perforatum* K. et K., and *Calligonum leucocladum* BUNGE (M. KOSTAL, pers. comm.).

Distribution. Caucasus, S Kazakhstan, Turkmeniya, Uzbekistan, Kirgiziya, Tadzhikistan; N Iran* (BAJTENOV, 1974, 1983; TER-MINASSIAN, 1963)

MATERIAL EXAMINED

Lectotype male of *A. gaudiale* labelled a) Ak-Dschar, Balassoglo, b) golden

square, c) Type, SMTD (present designation). Lectotype male of *A. subfarinosum* labelled a) Turcmenia, LEDER REITTER, b) Aschabad, 25 VI 86, coll. DESBROCHERS, MHNP (present designation). Lectotype male of *A. Korbi* labelled a) Aschabad, b) *Korbi* SCHILSKY, c) Typus, ZMHU (present designation).

SOVIET UNION. Uzbekistan: Adjarkul Lake, 30 km N Farish, 14-15 V 1985, 2 exs, R. BOROVEC (MNHW); Nuratau Mts, 10 km S Farish, 800 m, 13 V 1985, 1 ex., Tian-Shan Mts., Aurachmat 100 km NE Tashkent, 1400 m alt., 18-19 V 1985, 1 ex. - M. KOSTAL (MNHW). Kirgiziya: Turkestan Mts, Vorukh near Isfara, 1700 m alt., 10 VI 1987, 1 ex. (MK). Turkmeniya: Kopetdag Mts, Tutli Kala, 40 km E Kara-Kala, Ayders valley, 700 m alt., 2 V 1989, 1 ex. (MK). IRAN. Schirwan-Atrak-Tal, 5 II 1963, 3 exs, A. WARCHAŁOWSKI (DEI, SM); Robat-e Quarch Bil, Wildlife Park, 1 ex., Exped. Zool. Mus. Prague (DEI); Golhak near Teheran, 1400 m alt., VI-VIII 1961, 1 ex., J. KLAPPERICH (HMNH).

Remark. The type material of *A. otiosum* has not been examined by me. Synonymisation was done by WAGNER (1906).

Metapion cylindronotum (TER-MINASSIAN, 1972) n. comb.

Apion (*Catapion*) *cylindronotum* TER-MINASSIAN, 1972b: 239.

Length 1.65-1.90 mm. Colouration and vestiture as in *M. gaudiale*.

Indices. **rl/pl** m: 0.98-1.10, f: 1.28; **msrw/arw** 1.21-1.23; **mtrl/eyl** m: 0.46-0.67, f: 0.78; **scl/arw** 1.0; **pl/pw** 0.91-0.96; **bpw/apw** 1.05-1.09; **el/pl** 2.66-2.71; **bew/pw** 1.23-1.30; **ew/bew** m: 1.23-1.27, f: 1.40; **el/ew** 1.54-1.58; **pft/msrw** m: 1.18, f: 1.08; **ptbl/pl** m: 1.20-1.23, f: 1.12.

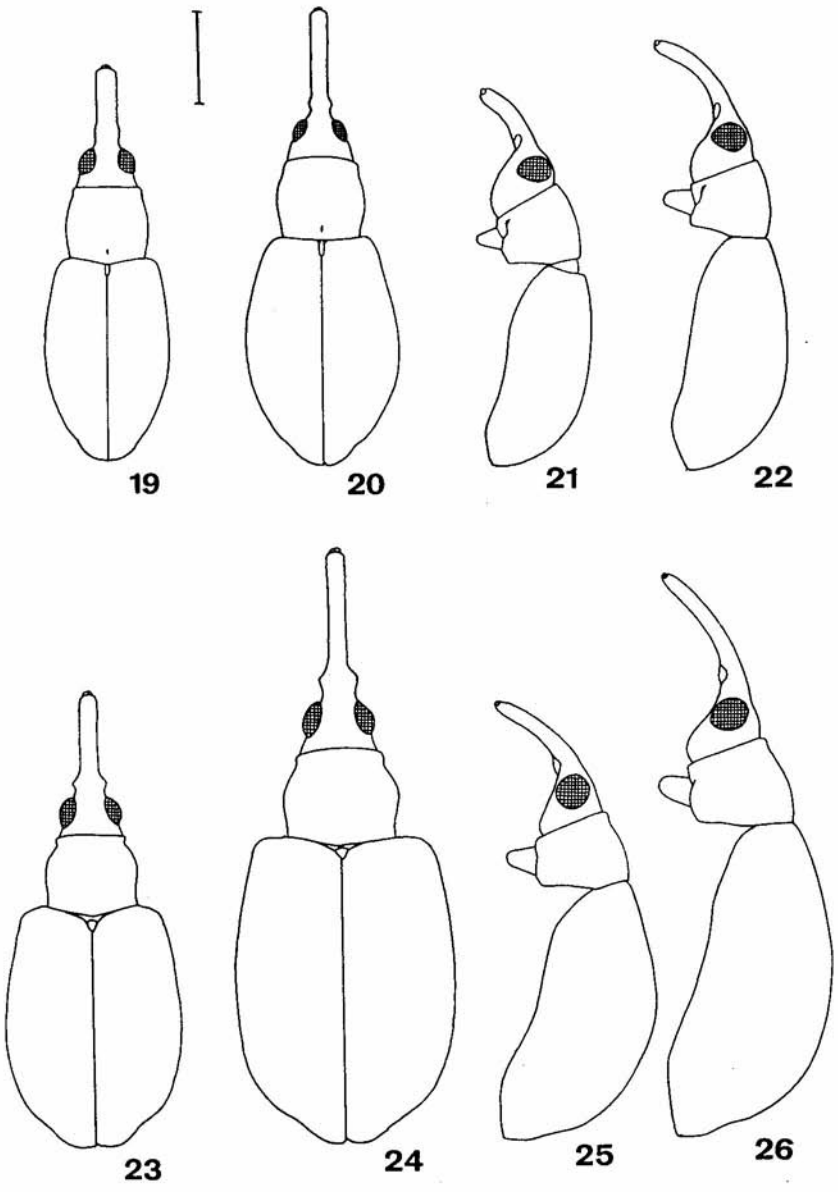
Rostrum barely (m) or distinctly (f) curved (figs 21, 22), thinner in female. Eyes in female distinctly smaller. Antennal insertion at basal 0.17-0.23 of rostrum, ratio m: 100:61(39):44(22):33:33:25:31:22(42):178(78), f: 100:67(39):44(22):31:31:28:25:22(42):222(78); in female the scape a little longer and the club slenderer and more elongate. Pronotal and elytral sides distinctly rounded (figs 19, 20). Humeri rounded; elytral intervals slightly convex; striae with large punctures marked on strial margins. Femora much thicker than those in *M. gaudiale*; tibiae slender, slightly curved inwards; protarsi m: 100(61):89(69):78(89):150(44), f: 100(61):78(67):72(72):150(44), the first two segments shorter than in the previous species.

Median lobe of aedeagus short and broad (figs 15, 16), lacking microscopic asperities and darker line in the internal sac, the tuft of spines long. Tegminal apical lobes with microchaetae longer than the respective microchaetae in *M. gaudiale*; macrochaetae fine, not markedly longer than microchaetae; prostegium deeply incised (fig 17). Spiculum gastrale deeply forked (fig. 18).

Other characters as in *M. gaudiale*.

Bionomics unknown.

Distribution. Mongolia.



19-22. *Metapion cylindronotum*, body outline: 19 - male, dorsal view, 20 - female, dorsal view, 21 - male, lateral view, 22 - female, lateral view. 23-26. *M. merale*, body outline: 23 - male, dorsal view, 24 - female, dorsal view, 25 - male, lateral view, 26 - female, lateral view. Scale 0.5 mm

MATERIAL EXAMINED

Paratype male: MONGOLIA, Cojbalsan Aimak, 40 km E Somon Tamzagbulag, no.389, 11 VII 1965, leg. Z. KASZAB (HMNH).

MONGOLIA. Suche-Batorskij Aimak, 80 km SSW of Barun-Urta, 19 VIII 1975, 1m 1f, GURJEVA & EMELJANOV (KS).

The *oculare* species group

Characterised by not very elongate, entirely black body; vestiture hair-like or very narrowly lanceolate, white; mesorostrum dentate; tegmen with apical lobes split to the base or nearly, microchaetae extremely fine.

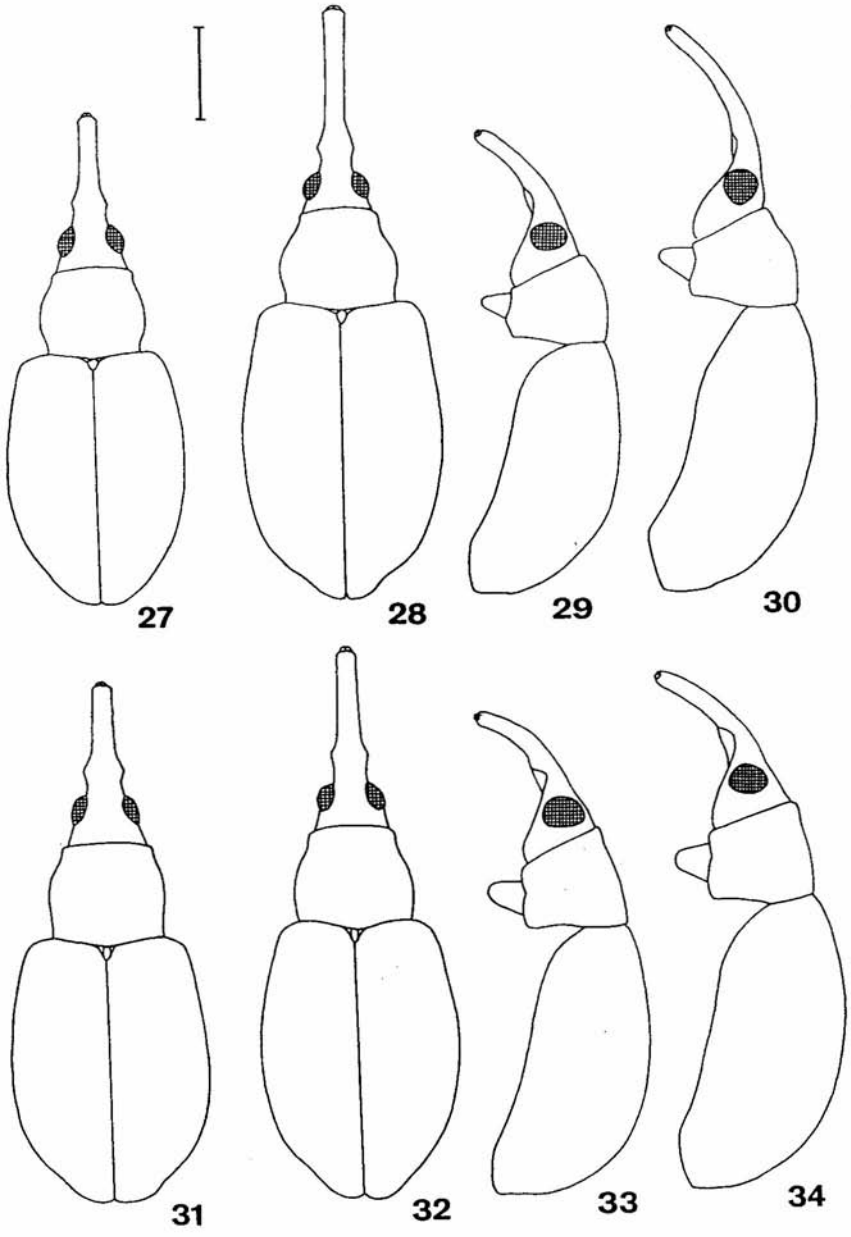
Metapion merale (FAUST, 1885)

Apion merale FAUST, 1885: 188.
Apion shiwanum VOSS, 1959: 76.

Length m: 1.84-2.00 mm, f: 2.09-2.41 mm. Scales as long as two-thirds of elytral interval width, strial scales of the same length.

Indices. **rl/pl** m: 1.20-1.24, f: 1.32-1.57; **msrw/arw** 1.82-2.05; **mtrl/eyl** m: 0.57-0.63, f: 0.62-0.75; **scl/arw** m: 1.10-1.12, f: 1.12-1.24; pl/pw m: 0.80-0.89, f: 0.78-0.82; **bpw/apw** 1.23-1.33; **el/pl** m: 3.00-3.09, f: 3.09-3.46; **bew/pw** 1.46-1.57; **ew/bew** 1.22-1.33; **el/ew** 1.39-1.46; **pft/msrw** m: 0.90-0.97, f: 0.84-0.87; **ptbl/pl** m: 1.32-1.35, f: 1.22-1.59.

Rostrum regularly curved (figs 25, 26), thin, glossy on whole length in both sexes; puncturation obsolete; dilated part very short, with coarse scales; prorostrum bare; venter smooth, impunctate, with a pair of very fine grooves in basal one-third of prorostrum. Head strongly transverse; eyes moderately convex, of equal size in both sexes; frons broad, impunctate, rugosely microsculptured; temples very short, sculpture ending just behind the eye posterior margin; ventral side rugose between the eyes, with several transversely directed scales. Antennae inserted at basal 0.14-0.16 (m) or 0.13-0.14 (f) of rostrum; ratio m: 100(39):72(39):39:39:39:39:36:33:244(94), f: 100(36):67(33):33:33:33:33:31:29:209(81); the club parallelsided in basal half of length, then narrowed and acute; antennal setae fine, pale. Pronotum relative to elytra very small, weakly convex, with rugose microsculpture, markedly constricted subapically, the constriction usually prolonged to the disk; punctures dense but very shallow, their margins indistinct; prescutellar fovea absent. Scutellum subtriangular, as long as wide. Elytra large, convex; humeral tubercles prominent (figs 23, 24); striae shallow, punctures close to each other; intervals convex, 1.6-1.8 as wide as striae, slightly shining, microsculpture and puncturation irregular. Venter finely punctate, punctures of first two ventrites 1.5-2 diameter apart; male 2nd ventrite with shallow median impression close to posterior margin. Legs slender; femora weakly thickened;



27-30. *Metapion oculare*, body outline: 27 - male, dorsal view, 28 - female, dorsal view, 29 - male, lateral view, 30 - female, lateral view. 31-34. *M. hartmanni*, body outline: 31 - male, dorsal view, 32 - female, dorsal view, 33 - male, lateral view, 34 - female, lateral view. Scale 0.5 mm

tibiae in both sexes straight; tarsi narrow, protarsal ratio mf: 100(60):86(70) :80(91):140(35).

Median lobe of aedeagus slightly constricted subapically, truncate at apex (figs 44, 45); orificial teeth of the sac bigger than those in related species, long bunch of fine setae beneath. Tegminal macrochaetae very short; prostegium incised (fig. 52). Spiculum gastrale widely forked, the strut 0.6 total length (fig. 56).

Variability expressed mainly in the length of female rostrum, size of humeral protuberance and shape of elytra, to a lesser extent in pronotal convexity, femoral thickness and tibial length. Proportions of antennal segments relatively stable.

Bionomics. In Uzbekistan collected from *H. perforatum* K. et K., *Haplophyllum acutifolium* DC., and *Haplophyllum* sp. (M. KOSTAL, pers. comm.). The former host plant has been reported by BAJTENOV (1981b).

Distribution. S Kazakhstan, Turkmeniya, Uzbekistan, Kirgiziya, Tadzhikistan; N Iran*, N Afghanistan (BAJTENOV, 1974, 1981b, 1983).

MATERIAL EXAMINED

SOVIET UNION. Kazakhstan: Dzhambul (former Aulie-Ata), 2 exs (DEI, HMNH). Turkmeniya: Wernyj, 1 ex.; Bekljar-bek, 2 exs - coll. REITTER (HMNH); Kopetdag Mts, 5 km NW of Kara-Kala, 350 m alt., 2 exs (MK). Uzbekistan: Amankutan, 2 exs (SM); Samarkandskaya Oblast, 27 IV 1955, 3 exs, G. DUBOWSKIJ (IZ, SM); Tian-Shan Mts, Chatkal valley, 80 km NE of Tashkent, 1400 m alt., 18-19 V 1985, 8 exs, R. BOROVEC (MK, MNHW); Hissar Mts, Kaltakul near Yakkabag, 2400 m alt., 3-4 VI 1987, 1 ex., M. KOSTAL (MNHW). Kirgiziya: Turkestan Mts, Verukh, 5 km E of Isfara, 1700 m alt., 10 VI 1987, 4 exs, M. KOSTAL (MK, MNHW). Tadzhikistan: Adyry near Stalinabad, 7 V 1961, 1 ex. (SM). IRAN. Robat-e Quareh Bil, Wildlife Park, 1000 m alt., 1 ex.; 50-70 km E of Minudasht, Golestan Forest, 1 ex. - DEI.

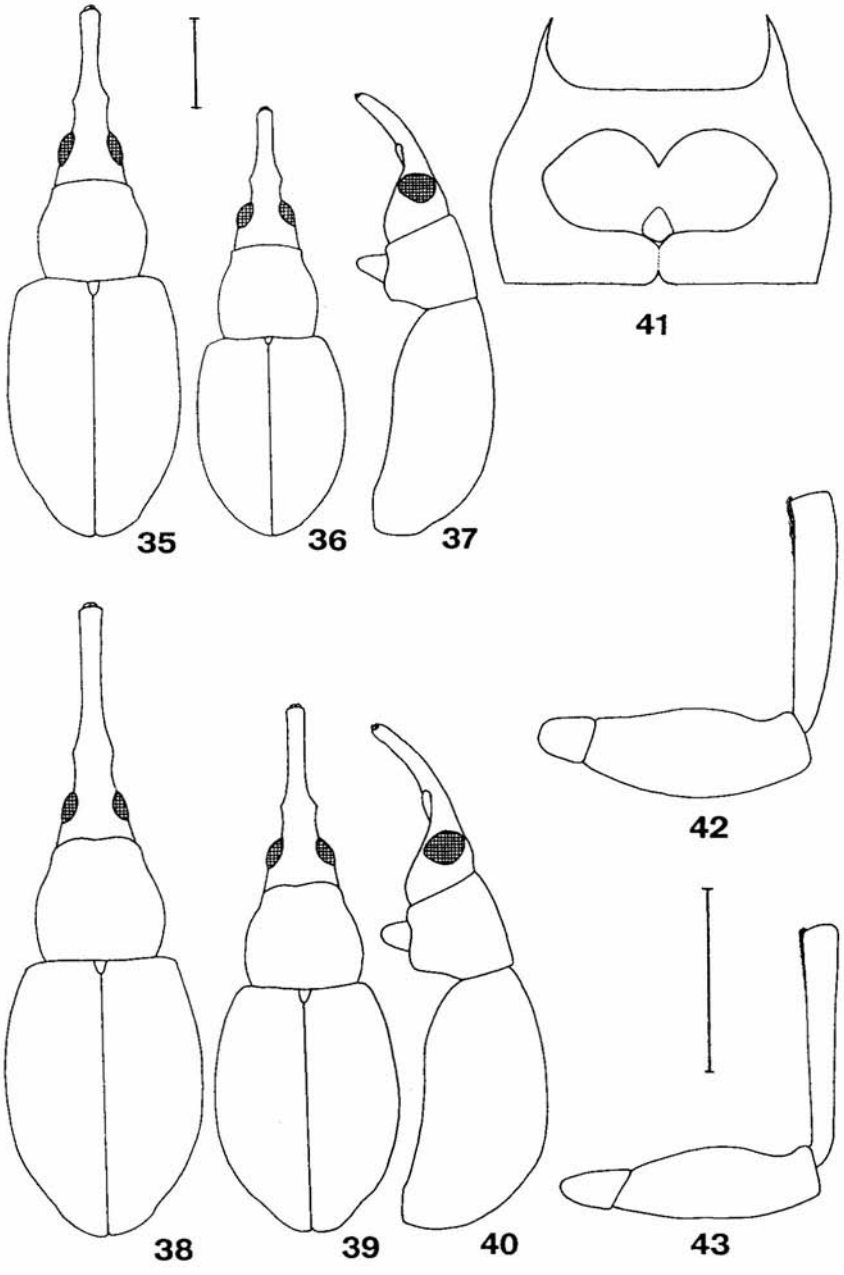
Remark. Type material was not examined. Synonymisation of *A. shiwanum* was done by BAJTENOV (1977).

Metapion oculare (GYLLENHAL, 1833)

Apion oculare GYLLENHAL, 1833: 257.
Apion Kolenatii KOLENATI, 1858 : 151, **n. syn.**
Apion Breiti WAGNER, 1910: 944, **n. syn.**
Apion hartmanni auct., nec DESBROCHERS, 1897.

Length m: 1.84-2.09 mm, f: 2.18-2.34 mm. Elytral scales ca. 0.5 as long as the interval width, strial scales barely shorter.

Indices. **rl/pl** m: 1.16-1.20, f: 1.37-1.50; **msrw/arw** 1.78-1.94; **mtrl/eyl** m: 0.71-0.73, f: 0.73-0.90; **scl/arw** m: 1.17, f: 1.22-1.47; **pl/pw** 0.83-0.95; **bpw/apw** 1.22-1.28; **el/pl** m: 2.74-2.93, f: 2.93-3.04; **bew/pw** m: 1.45-1.47, f: 1.51-1.53; **ew/bew** 1.20-1.27; **el/ew** m: 1.50-1.52, f: 1.53-1.57; **pft/msrw** 0.97-1.09; **ptbl/pl** 1.18-1.25.



35-41. *Metapion ermischi*, body outline: 35, 36 - male, dorsal view, extrema of variability, 37 - male, lateral view, 38, 39 - female, dorsal view, extrema of variability, 40 - female, lateral view, 41 - prothorax, ventral view (not in scale). 42, 43. Profemur and protibia: 42 - *M. ermischi*, 43 - *M. oculare*. Scale 0.5 mm

Rostrum weakly curved, thicker than that in *M. merale*; the expanded part and the base of prorostrum alutaceous, the remaining part of prorostrum shiny, sparsely punctate; the punctures minute, often elongate; metarostrum weakly widened toward antennal insertion; venter smooth, with flattened, short median rib at prorostrum base. The structure of head and eye size as in *M. merale*. Antennae inserted at basal 0.20-0.21 (m) or 0.16-0.18 (f) of rostrum; ratio m: 100(37):52(35):35(26) :35:30:30:30:30(39):165(74), f: 100(36):59(36):34(27):34:32:27:27:27(39):182(82) but in females with long rostrum the scape and all funicular segments are relatively longer and the club is only about 1.6 times longer than the scape. Pronotum markedly convex on the disk, rounded; puncturation dense; punctures round shallow but well bordered, about 0.5 diameter apart, their interspaces slightly shining, microreticulate; prescutellar fovea obsolete. Scutellum longer than wide, triangular. Elytra in comparison to those in *M. merale* narrower and less convex, with less prominent humeri and more regularly rounded sides (figs 27-30); intervals about twice as wide as the striae, flat, more shining and distinctly irregularly punctate; strial punctures smaller and wider spaced. Legs more robust, tibiae and tarsi shorter, protarsi mf: 100(74):90(81):100(114):152(48). First two ventrites with punctures 0.5-1 diameter apart, bigger than those in *M. merale*, the 2nd ventrite in male without impression.

Median lobe of aedeagus asymmetrical; internal sac with microscopic setae in basal half of length and numerous small teeth surrounding the orifice (figs 46, 47). Tegminal plate with short macrochaetae and truncate prostegium; the basal piece shorter than the manubrium, its arms straight or irregularly curved (fig. 53). Spiculum gastrale similar to that in *M. merale* (fig. 57).

Body shape varies to a much lesser extent than in the preceeding species, only pronotal proportions can change more considerably. The length of female rostrum as variable as in *M. merale*; elongation of rostrum is followed by an elongation of antennal scape and funicular segments in relation to the length of the club.

Bionomics. According to BAJTENOV (1981b) the beetles were collected in Crimea from *Ruta graveolens* L., but it is not certain if it concerns *M. oculare* or *M. ermischi.*

Distribution. Albania*, Yugoslavia (Macedonia), Bulgaria, Rumania (Dobruja), Crimea, Caucasus (SCHUBERT, 1956; ANGELOV, 1973, 1976; BAJTENOV, 1981b). Literature data may partly refer to *M. ermischi.*

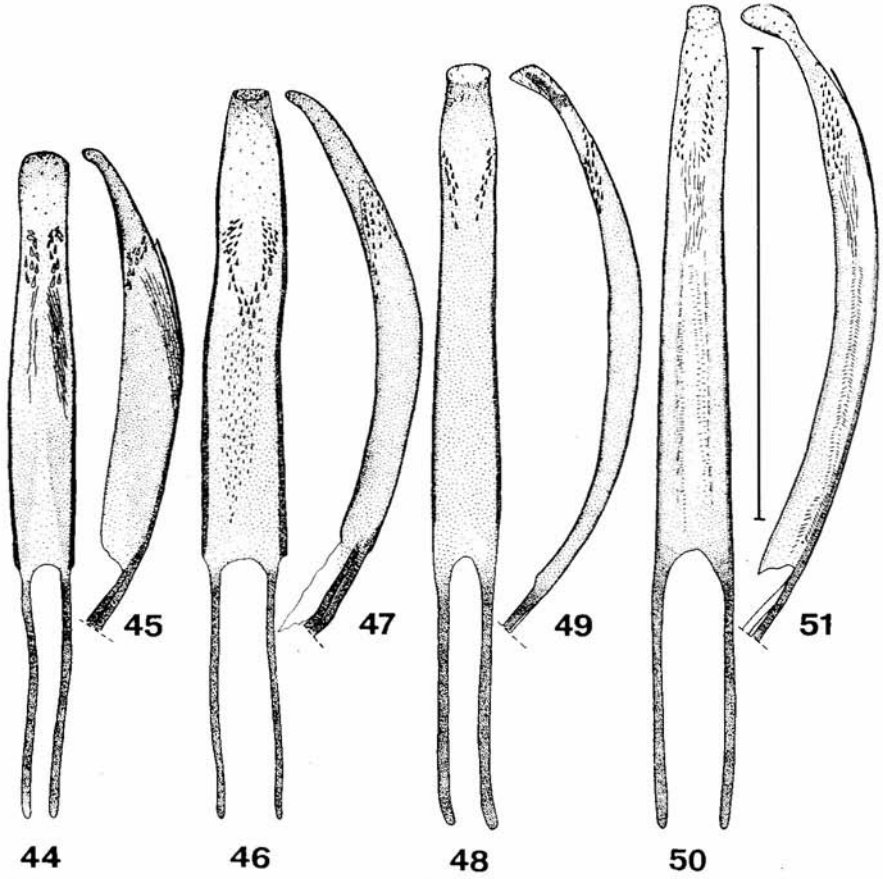
MATERIAL EXAMINED

Holotype male of *A. oculare* labelled a) Iberia, STEVEN, b) typus, c) male, d) 143, e) 396, 75 (NRS). Lectotype female of *A. kolenatii* labelled a) Caucasus, b) KOLENATI, c) 990, d) *Apion Kolenatii* SCHÖNH., KOLENATI d. - ZMC (present designation); Lectotype female of *A. breiti* labelled a) Sebastopol, Krim 1910, b) female, c) coll. WAGNER, d) *Breiti* m. female, WAGNER det., coll. K. F. HARTMANN (SMTD) (present designation.

BULGARIA. Golo Bardo, 28 IX 1970, 1 ex., V. TOMOV (SM); Veliko Tarnovo, 5-8 VI 1980, 1 ex. (MM). YUGOSLAVIA. Macedonia: Sar Planina, Popova sapka, 25 VII 1937, 12 ex., Skopje, 4 VII 1937, 6 ex. - J. FODOR (HMNH). ALBANIA.

Gyalica Lums Mts, 1918, 1 ex., E. Csiki (HMNH). SOVIET UNION. Crimea: Simferopol, 6 V 1911, 1 ex., V. Pliginski (ZMHU).

Remarks. Gyllenhal described the species basing on the specimen collected by Steven and originally labelled "Iberia". Wagner (1910b) and all subsequent authors thought this locality to mean the Iberian Peninsula, so *M. oculare* (Gyll.) was commonly considered as a senior synonym of *M. hartmanni* (Desbr.) described from Spain. In fact the name "Iberia" of Steven referred to Georgia (Kolenati, 1858; Schilsky, 1906) and the examined holotype of *M. oculare* is not conspecific with *M. hartmanni*. Examination of specimens of *M. breiti* (Wagn.) determined by H. Wagner revealed that the series consists of two species not distinguished by him, the first conspecific with the holotype of *M. oculare*, and the second conspecific with the holotype of *M. ermischi* described by Voss (1969) from Bulgaria. As the only syntype of *M. breiti* available to me and designated here as a lectotype belongs to the first



44-51. Median lobe of aedeagus, dorsal and lateral view: 44, 45 - *Metapion merale*, 46, 47 - *M. oculare*, 48, 49 - *M. hartmanni*, 50, 51 - *M. ermischi*. Scale 0.5 mm

species, it has been synonymised with *M. oculare*.

Metapion ermischi (Voss, 1969)

Apiotherium (*Harpapion*) *ermischi* Voss, 1969: 53.
Apion breiti auct., partim.

Length mf: 1.77-2.47 mm. The scales shorter than those in preceeding species, usually not longer than 0.5 interval width on the disk, shorter and mostly truncate posteriorly in the apical part of elytra.

Indices. **rl/pl** m: 1.00-1.06, f: 1.14-1.61; **msrw/arw** m: 1.79-1.83, f: 1.53-1.94; **mtrl/eyl** m: 0.85-0.90, f: 0.94-1.30; **scl/arw** m: 1.17-1.21, f: 1.24-1.61; **pl/pw** m: 0.83-0.85, f: 0.90-0.94; **bpw/apw** 1.21-1.29; **el/pl** 2.45-2.67; **bew/pw** 1.34-1.40; **ew/bew** 1.18-1.28; **el/ew** 1.45-1.58; **pft/msrw** m: 1.18-1.25, f: 1.11-1.16; **ptbl/pl** m: 1.13-1.14, f: 1.15-1.20.

Rostrum almost straight, with relatively very long dilated basal part (fig. 5); metarostrum barely constricted; meta- and mesorostrum rugosely microsculptured; prorostrum of variable length in female, distinctly punctate, especially in male weakly shining, usually at least in basal one-third microreticulate, on sides punctures larger, elongate; venter glabrous, not strongly polished. Head sculpture as that of base of rostrum, with traces of punctures; eyes very weakly convex, similar in both sexes. Antennae of the length and proportions correlated with the length of rostrum, the length ratio of antennomeres m: 100(43):64(43):36(27):34:32:30:32:32(41):182(82), f (longest rostrum): 100(34):64(30):39(23):36:29:29:27:29(32):150(62), f (shortest rostrum): 100(30):60(40):33:30:30:30:28(40):190(90); in extreme cases the club is about 2.5 times longer than wide and its segment proportions can resemble those in *M. gelidum*. Pronotum flattened, markedly rounded laterally, with relatively long apical narrowed part (figs 35-40); puncturation very shallow, fine, sometimes indistinct; punctures 2 times larger than eye ommatidium, interspaces narrower than puncture diameter, strongly microreticulate, mat; prescutellar fovea absent. Elytra regularly rounded, weakly convex; humeral tubercles weakly prominent, the base of elytra not markedly wider than the pronotum; striae well impressed, with elongated punctures closely spaced; intervals flat, 2.5-3 times broader than striae, densely punctate, microreticulate and slightly shining. Venter more shiny; metasternum finely and in the middle sparsely punctate, in male broadly concave; the first two ventrites with larger and denser punctures, mostly less than one diameter apart. Legs robust; femora very thick in male, more slender in female; tarsi moderately long, ratio 100(68):91(82):100(118):145(45).

Median lobe of aedeagus barely asymmetric; internal sac with two multiplied rows of teeth near the orifice and long fine setae just below them, basal part with extremely fine transverse stripes (figs 50, 51). Tegminal plate with narrow, well separated membraneous lobes and short macrochaetae; the basal piece longer than manubrium, with regularly arched arms (fig. 55). Spiculum gastrale straight, narrowly and shortly forked (fig. 59).

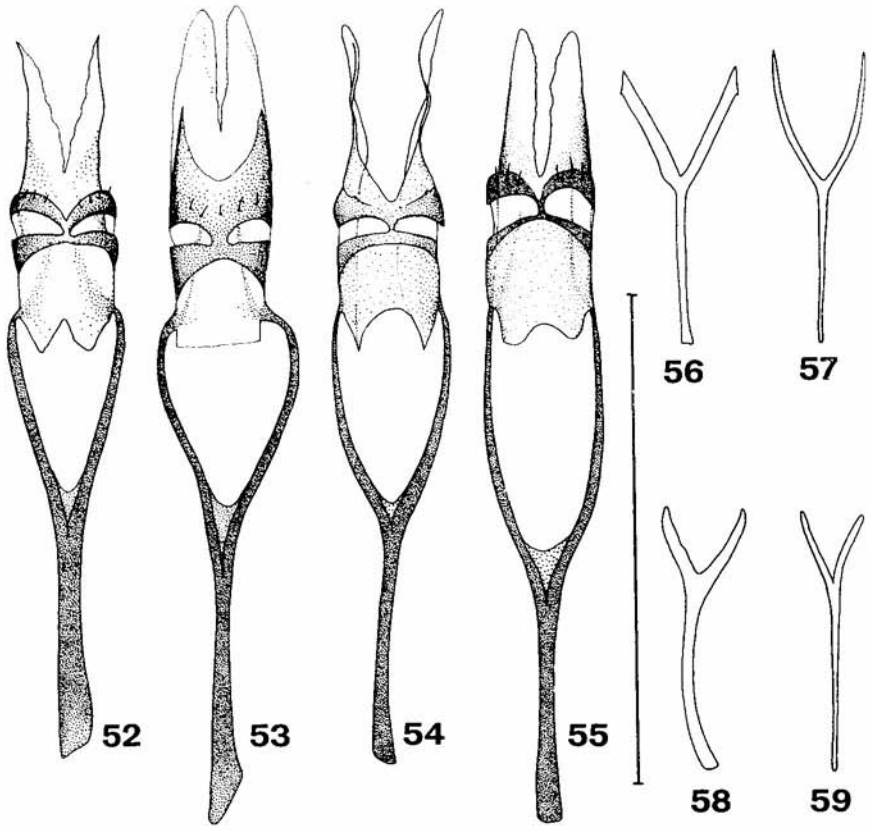
Bionomics unknown.

Distribution. Yugoslavia (Macedonia)*, Bulgaria, Turkey*, Soviet Union*: Crimea. Recently recorded from Austria under the name *breiti* (GRÄF, 1989; L. DIECKMANN, pers. comm.).

MATERIAL EXAMINED

Holotype male and paratype female of *A. ermischi* (ZMH).

YUGOSLAVIA. Macedonia: Sar Planina, Popova sapka, 25 VII 1937, 8 exs; Skopje, 4 VII 1937, 5 exs - J. FODOR (HMNH); Vodno near Skopje, 11 VI 1969, 1 ex., NECKER & HAAS (DEI). BULGARIA. Nessebar, 4-11 VI 1964, 7 ex., K. ERMISCH (SM, ZMHU), 10 VI 1965, 2 exs, T. Palm (ZMLU); Veliko Trnovo, 5-8 VI 1980, 2 exs, M. MAZUR (MNHW). TURKEY. South Anatolia: Namrun, 11-26 V 1960, 1 ex., 12-18 V 1966, 2 exs; Osmaniye, 1000 m alt., V-VI 1967, 1 ex. - F. SCHUBERT



52-55. Tegmen: 52 - *Metapion merale*, 53 - *M. oculare*, 54 - *M. hartmanni*, 55 - *M. ermischi*. 56-59 Spiculum gastrale: 56 - *M. merale*, 57 - *M. oculare*, 58 - *M. hartmanni*, 59 - *M. ermischi*. Scale 0.5 mm

(ZMHU). SOVIET UNION. Crimea, 8 VIII 1908, 1 ex., Sebastopol, 19 V 1911, 1 ex. - W. PLIGINSKI (DEI).

Remarks. Polymorphism of the length of female rostrum, apparently the strongest among *Metapion* species, was noted by SCHUBERT (1956). The author described two categories of females - with short and long rostrum, and disscussed differences between them. Formerly WAGNER (1910) did not pay attention to variable rostrum length while describing *Apion breiti*, which led him to misidentification of sex of the examined specimens. Contrary to other species of the genus, in *M. ermischi* the increasing length of prorostrum is accompanied by elongation of metarostrum, pronotum and elytra (extreme forms shown in figs. 35, 36, 38, 39). It also results in elongation of the antennae, particularly of the scape and basal funicular segments, and to much lesser extent of the club.

Voss originally placed *M. ermischi* in an afrotropical subgenus *Harpapion* of the genus *Apiotherium*, apparently basing on general similarities, particularly on the presence of mucrones on male mid- and hind tibiae, the character occurring in several differrent apionid lineages. Other characters such as unordered body vestiture, absence of a basal flange of pronotum, shape of tibial mucrones, and especially genital structure and bionomic data do not indicate close relationships between *Metapion* and *Harpapion*.

M. ermischi was synonymised with *M. breiti* by ANGELOV (1973) which necessitates a verification according to the earlier disscussion (see remarks on *M. oculare*).

Metapion hartmanni (DESBROCHERS, 1897)

Apion Hartmanni DESBROCHERS, 1897: 17.
Apion oculare auct., nec GYLLENHAL, 1833.

Length mf: 2.07-2.28 mm.

Indices. **rl/pl** m: 1.03-1.06, f: 1.13-1.33; **msrw/arw** m: 1.80-1.83, f: 1.89-1.91; **mtrl/eyl** m: 0.80-0.93, f: 1.00-1.07; **scl/arw** m: 1.1-1.2, f: 1.31-1.35; **pl/pw** 0.86-0.94; **bpw/apw** 1.20-1.25; **el/pl** m: 2.66-2.70, f: 2.88-2.93; **bew/pw** 1.37-1.40; **ew/bew** 1.26-1.32; **el/ew** m: 1.41-1.43, f: 1.47-1.52; **pft/msrw** m: 1.09-1.11, f: 1.06; **ptbl/pl** m: 1.16-1.22, f: 1.20-1.26.

Very similar to *M. ermischi* but generally much less variable. Besides those listed in the key, only the following differences can be noted.

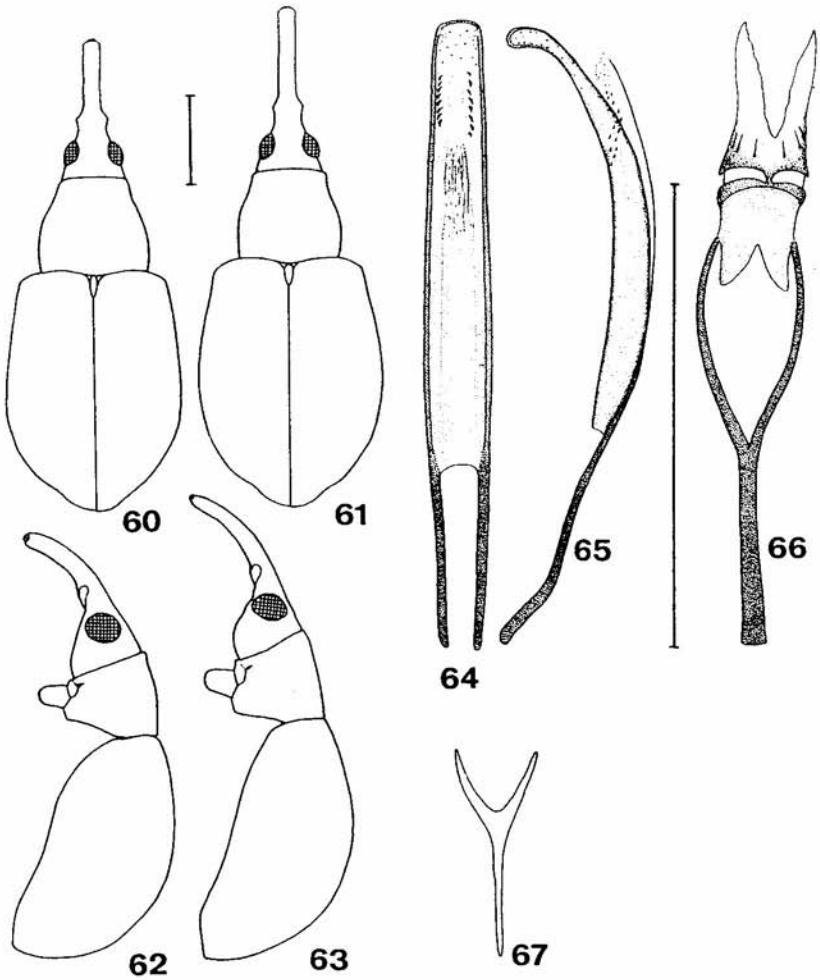
Dilated part of rostrum relatively shorter; prorostrum thicker, at least in two-thirds of its length shagreened in both sexes, slightly more curved. Antennae inserted at basal 0.23-0.24 of rostrum in both sexes, the funicle barely thicker; length ratio of antennomeres m: 100(46):59(46):34(32):34:32:30:28:30(46):190(90), f: 100(42):58(42):31:29:27:25:31:166(83), variability not significant. Female head less conical. Pronotum relatively smaller, less rounded laterally (figs 31, 32). Elytra more convex (figs 33, 34). Legs more slender, male protibia often straight.

Basal piece of tegmen shorter than the manubrium. The strut of spiculum gastrale curved (fig. 58).

Bionomics unknown.
Distribution. Southern Spain.

MATERIAL EXAMINED

SPAIN. Valencia, 2m 1f, coll. REITTER (HMNH), 4f, coll. PENECKE (SMTD).
Remark. Type material not examined.



60-67. *Metapion gelidum*. 60-63 - body outline: 60 - male, dorsal view, 61 - female, dorsal view, 62 - male, lateral view, 63 - female, lateral view; 64-67 - aedeagus: 64 - median lobe, dorsal view, 65 - median lobe, lateral view, 66 - tegmen, 67 - spiculum gastrale. Scale 0.5 mm

Metapion gelidum (FAUST, 1885)

Apion gelidum FAUST, 1885: 188.
Apion rimmae BAJTENOV, 1981: 124, **n. syn.**

Length mf: 1.6-2.1 mm. Scales wider than those in the remaining species of the group, on pronotal and elytral disks 0.5-0.6 as long as interval width, acute at both ends; on pronotal sides and lateral and apical parts of elytra the scales shorter, mostly truncate posteriorly.

Indices. **rl/pl** m: 1.09-1.19, f: 1.2-1.3; **msrw/arw** 1.70-1.76; **mtrl/eyl** 0.85-0.92; **scl/arw** 1.11-1.18; **pl/pw** 0.86-0.93; **bpw/apw** 1.15-1.30; **el/pl** 2.65-2.89; **bew/pw** 1.38-1.51; **ew/bew** 1.23-1.32; **el/ew** 1.36-1.47; **pft/msrw** 0.92-1.03; **ptbl/pl** 1.18-1.26.

Rostrum weakly curved (figs 62, 63), with the sculpture similar to that in M. oculare; in female a little more glossy, only slightly longer than in male. Eyes of equal size in both sexes; frons flat, strongly microsculptured, puncturation very indistinct. Antennae similar in both sexes, inserted at basal 0.20-0.22 (m) or 0.18-0.20 (f) of rostrum; ratio mf: 100(35):55(35):35:30:28:28:28:28:190(70). Pronotum relative to elytra big, weakly rounded apically (figs 60, 61), sometimes barely convex, completely mat; punctures minute, very shallow, irregularly spaced, interspaces rugosely microsculpured; prescutellar fovea absent. Elytra usually shorter in male, convex; humeri prominent; intervals 2 times wider than striae on the disk, narrower in apical parts, slightly shining, with irregular puncturation and indistinct microreticulation, flat or weakly convex; striae shallow, punctures less than 1 diameter apart. Metasternum and ventrites 1, 2 weakly shining, with punctures about 1 diameter apart. Femora moderately thickened, tibiae and tarsi slender, length ratio of protarsomeres 100(67):94(78):100(111):167(47).

Median lobe of aedeagus parallelsided, truncate at apex; internal sac with a single row of teeth on both sides of the orifice and a long bunch of extremely fine setae beneath (figs 64, 65). Tegminal apical lobes narrow, well separated; parameroid lobes each with 3 moderately long macrochaetae; prostegium deeply emarginate; manubrium as long as the basal piece (fig. 66). Spiculum gastrale shaped as in fig. 67.

The least variable species in the group, also showing the least pronounced sexual dimorphism. The shape of pronotum and elytra and the degree of intervals convexity vary most notably.

Bionomics. In Uzbekistan collected from *Haplophyllum acutifolium* DC. and *H. perforatum* K. et K. (M. KOSTAL, pers. comm.). BAJTENOV (1981b) collected this species from *H. dshungaricum* and, apparently accidentally, from *Rubus idaeus* L.

Distribution. Soviet Union: Caucasus, S Kazakhstan, Turkmeniya, Kirgiziya, Uzbekistan, Tadzhikistan, Buriatskaya ASSR; Iran*, Afghanistan, Syria* (TER-MINASSIAN, 1940, 1972; VOSS, 1959; HOFFMANN, 1962; BAJTENOV, 1974, 1981b).

MATERIAL EXAMINED

Holotype male of *A. gelidum* labelled a) Wiernoje (now Alma-Ata), KUSCHAKEWITSCH, b) *gelidum* FAUST, c) type, d) golden square, coll. FAUST (SMTD). Paratype female of *A. rimmae* labelled a) Kasachstan, Betpakdala, 9 VI 1980, leg. M. BAJTENOV (DEI).

SOVIET UNION. Uzbekistan: Tian-Shan Mts, Chatkal valley, Aurachmat, 100 km NE of Tashkent, 800 m alt., 14 VIII 1984, 3m 1f; Chimgan Mt, 80 km NE of Tashkent, NW slope, 1900 m alt.,17 V 1985, 1m; Nuratau Mts, 10 km S of Farish, 800 m alt., 13 V 1985, 2f - M. KOSTAL (MK, MNHW). IRAN. Shah H. Rheza Wildlife Park, 30 VII 1970, 1f (DEI). SYRIA, 1m, coll. STIERLIN (DEI).

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