

## Revision of *Apotoforma* BUSCK, 1934 (*Lepidoptera: Tortricidae*), with descriptions of four other *Tortricini* species

Józef RAZOWSKI

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Abstract. The genus *Apotoforma* is redescribed, its 5 species are briefly characterised and 3 new species are described. Four other species of *Acleris* HÜBNER and *Cornesia* RAZOWSKI are described and the notes on *Brachiolia* RAZOWSKI are provided.

Key words: revision, *Apotoforma*, *Tortricini*, new species.

Józef RAZOWSKI, Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Sławkowska 17, 31-016 Kraków, Poland.

### I. INTRODUCTION

Since the publication of the 'World Fauna of *Tortricini*' (RAZOWSKI 1966) only one paper (RAZOWSKI 1986) summarising the study on that tribe has been published. Now I am adding some data on the rather poorly known genus *Apotoforma* BUSCK and providing the descriptions of 7 new species.

**Acknowledgments.** I am greatly obliged to Dr. Ronald W. HODGES and the authorities of the Smithsonian Institution, Washington for providing the *Apotoforma* material for study. My thanks are also due to Mr. Kevin R. TUNCK, the Natural History Museum London, for lending some types and examination of *Brachiolia egenella* material.

**Note.** The numeral given in the descriptions of the labial palpus indicates the proportion of its total length to the larger diameter of the eye. The acronyms used are: NHML – Natural History Museum, London; NHMW – Naturhistorisches Museum, Wien; NMNH – National Museum of the Natural History, Smithsonian Institution, Washington.

### II. REVISION OF *APOTOFORMA*

*Apotoforma* BUSCK, 1932, Ent. Am., 13: 153. Type-species: *Oxygrapha rotundipennis* WALSINGHAM, 1897, by orig. design., and monotypy. Neotropical. – *Emeralda* DIAKONOFF, 1960, Verh. kon. ned. Akad. Vet., Naturk., 53: 190. Type-species: *Emeralda cimelia*

DIAKONOFF, 1960, by orig. design., and monotypy. Ethiopian. – *Apotoforma*: RAZOWSKI, 1966, World Fauna of *Tortricini*: 159, revision.

*Apotoforma* was described by BUSCK (1934) to include a single Neotropical species, *Oxigrapharotundipennis* WALSINGHAM, although 3 other close species were known from that region. Till my revision of the *Tortricini* (RAZOWSKI, 1966) two Ethiopian species were described, one of them (*Teras algoana*) over one hundred years ago. In the above mentioned monograph I treated 8 species. Further new species were discovered only in 1984 by RAZOWSKI & BECKER in Brazil (*A. epacticta*) and Nigeria (*A. fustigera* in 1986, by this author). In this paper three further Neotropical species are described. The redescription of the genus and review of the species are as follows.

Alar expanse 8 - 15 mm; labial palpus 1.3 - ca 2. Forewing elongate-ovate; venation: in forewing *R*5 to costa before apex, *M*3-*Cu*1 stalked to 1/3; in hindwing *M*2 absent. Coloration brownish to greenish, pattern typical of the tribe, darker.

**Male genitalia.** Tegumen high; uncus broad, variable in shape; socius vestigial or absent; tuba analis with weak sclerotic belt or strong ventral sclerite, in a few species strongly broadening apically; transtilla, a weakly sclerotized band. Valva short, with strongly reduced, rather weakly sclerotized costa; brachiola very large; sacculus slender, long, with free termination and dorsal process resembling the spined termination. In one species dorsal process bifid. Aedeagus in large part weakly sclerotized; cornuti short, capitate spines, thorn-like or long, thin.

**Female genitalia.** Papilla analis with distal, main part separated from the proximal portion by means of membrane; sterigma large, concave medially, with large lateral lobes; apophysis anterior reduced to a small prominence or functionally replaced by small process of lateral edge of sterigma, rarely plesiomorphic, long. Ductus bursae simple, or with ventral sac situated medially; signum often absent.

**Biology.** Only the data on the host of *rotundipennis* available; it feeds on *Acacia macrantha* and *arabica* and 'marabu' in Cuba.

**Distribution** (Fig. 1). Five species are known from the islands of the Caribbean Sea, and 5 from the American continent. The most widely distributed taxon is *rotundipennis*, as it is known from Cuba, Jamaica, St. Thomas, Florida and, acc. to new data, Texas. Towards the south *Apotoforma* spreads as far as Mato Grosso, Brazil. The Ethiopian branch is represented by 4 species: one from Nigeria, one from Madagascar and two from Natal, South Africa.

**Comments. Diagnosis:** The supposed autapomorphies are the development of the lateral lobes of the strigma, the reduction or absence of the apophysis anterior and development of the rod-like sclerite of the tuba analis. However, none of these character is constant. The synapomorphies with the other genera of the *Eboda* group are the membranous division of the papilla analis, the desclerotization of the upper part of the aedeagus and the absence of the hindwing vein *M*2.

As generalised species I regard those with simple uncus, weakly sclerotized tuba analis and short cornuti (*rotundipennis*, *monochroma*, *dolosa*). Ethiopian *unguifera* and *fustigera* have developed similar uncus and tuba analis, however, the former is armed with a short, ventral process. Two Neotropical species, *jamaicana* and *epacticta* differ from all preced-

ing taxa in more complicate uncus in which ventro-lateral lobes occur. Their tuba analis is armed with spines. They are certainly closely related to one another, though *jamaicana* differs in having ventral sac of the ductus bursae. Two other African species, *cimelia* and *algoana*, differ from main bulk of the genus mainly in more elaborate uncus and very slender cornuti, curved postbasally. DIAKONOFF erected for his *cimelia* new genus *Emeralda*, but this seems transitional to *algoana*. The two species possess some plesiomorphic characters, as large uncus, large number of cornuti, weakly sclerotized tuba analis, well developed apophyses anteriores, and only two probable apomorphies – elaborate uncus (especially in *algoana*) and curved cornuti. The dorsal process of the sacculus is in *algoana* very long, and bilobed, but such characters are variably distributed within particular genera and not necessarily correlated with other apomorphic characters. And so I suppose these two species form only a group in the genus and not deserve separation.

*Apotoforma rotundipennis* (WALSINGHAM, 1897)

*Oxygrapha rotundipennis* WALSINGHAM, 1897, Proc. zool. Soc. London., 1897: 132. Type-locality: St. Thomas. – *Apotoforma rotundipennis*: BUSCK, 1933, Ent. Am., 13: 154, figs 1-3, 9 (male & female genit.). – RAZOWSKI, 1966, World Fauna Tortricini: 167, fig. 223 (male genit.), 224 (female genit.), redescri., synonymy.

Alar expanse 8-10 mm. Head, thorax and forewing ground-colour brownish to cinnamon-brown; pattern ill-defined, darker; costal part of median fascia distinct, slender, subapical fascia usually as a curved line to end of termen.

Male genitalia with uncus rather weakly sclerotized, tapering apically; socius vestigial; median sclerite of tuba analis tapering terminally; free termination of sacculus bristled, accompanied by small process at base; 5-7 rather moderate cornuti in vesica. Female genitalia with distinct lateral lobes of sterigma and scobinate colliculum.

Biology and distribution as mentioned for the genus.

*Apotoforma cydna* sp.n.

Alar expanse 15 mm; labial palpus shorter than 1.5, whitish, with brownish marks in terminal third laterally; remaining parts of head and thorax brownish grey, but flagellum of antenna brownish. Ground-colour of forewing pale brownish grey, with ash-grey hue; some fine brown-grey, transverse strigulae along costa and two reddish dots in postbasal area; costa spotted grey, row of black, erect scales from costal remnant of median fascia across wing; row of pale grey dots along apex and termen. Fringes rather concolorous with ground-colour. Hindwing greyish brown; fringes whitish with median line brown.

Female genitalia (Fig. 2): sterigma broad, expanding in middle posteriorly, with lateral parts extending medially, terminating in subtriangular, sharp process; ventral parts sclerotized along edges except for middle. Colliculum membranous, slightly broadening subterminally; ductus bursae fairly long, membranous; ductus seminalis with broad, curved basal portion, then very slender; rudimentary signum present.



**Holotype, female:** "Venezuela: Ar.[agua], Rancho Grande, 1100 m, 16-23.X.66, SS & WD DUCKWORTH", genitalia slide Nr. 11115; collection of NMNH

**Comments.** This species is distinct in entirely membranous colliculum and broad, sharp lateral processes of the sterigma; minute signum may also be of specific importance.

*Apotoforma hodgesi* sp.n.

Alar expanse 14 mm; labial palpus shorter than 1.5, whitish, with grey mark before end of median joint and on terminal joint, both laterally; remaining parts of head brownish, with indistinct cinnamon hue; thorax concolorous, creamer distally. Forewing rather concolorous with head, with indistinct, brownish grey spot at middle of costa followed by a trace of suffusion marked by a few black, erect scales representing median fascia; remnants of subapical blotch and fascia even weaker; row of terminal brownish dots delicate; fringes ochreous cream, with more ferruginous basal line. Hindwing brown-grey, paler basally; fringes paler than wing base.

**Female genitalia** (Fig. 3) as in *cydna* but with distal portion of sterigma weakly expanding posteriorly, indistinctly concave medially; lateral parts of sterigma shorter; apophyses anteriores slender, curved apically; anterior portion of sterigma fusing with colliculum; ductus bursae and ductus seminalis smaller than in *cydna*; signum rather well developed.

**Holotype, female:** "Panama, Cerro Campana, 11-14 July 1967, O. S. FLINT, Jr."; genitalia slide Nr. 11112; collection of NMNH.

**Comments.** Very close to *cydna*, differing as described above, with plesiomorphic apophyses anteriores and signum. Distinct also in cream-ochreous shade of the forewing and strong reduction of the pattern.

*Apotoforma ptygma* sp.n.

Alar expanse 16 mm; labial palpus ca 2, cream, tinged brown distally, remaining parts of head and thorax brownish grey. Ground colour pale brownish, with postmedian portion of costal area and terminal third of wing more cream and base of wing darkened, brownish grey. Pattern in form of costal spots, largest near middle; towards dorsum followed by indistinct shade, a remnant of median cell; subterminal spots small, also with trace of a fascia. Fringes concolorous with ground-colour of distal area of wing. Hindwing brownish; fringes whitish with brownish median line.

**Female genitalia** (Fig. 4): Distal portion of sterigma expanding in middle posteriorly, with slightly concave median portion, anterior edge distinctly sclerotized except for middle, lateral parts rather short, with small, sharp ventral processes representing apophyses anteriores. Colliculum long, rather weakly sclerotized posteriorly, bent medially, with anterior portion better sclerotized, marked by 4 thorns arranged along posterior edge; ductus bursae bent towards colliculum; ductus seminalis ventral, with basal portion broad, coiled, tapering gradually; signum moderate, rather weakly sclerotized.



**Holotype**, female: "Mexico: Slp, El Salto, 8 Aug. 1966, O. S. FLINT", genitalia slide 11113; collection of NMNH.

**Comments.** Distinct in the shape of the colliculum, especially by sclerotized anterior portion, armed with series of the thorns. The form of the lateral parts of sterigma speaks of its close affinity to *hodgesi* and *cydna*, however it is more specialised than in other Neotropical species of *Apotoforma*.

*Apotoforma monochroma* (WALSINGHAM, 1897)

*Oxygrapha monochroma* Walsingham, 1897, Proc. zool. Soc. London, 1897: 132. **Type-locality**: Haiti: Port-au-Prince. Type in collection of NHML. – *Apotoforma monochroma* RAZOWSKI, 1966, World Fauna *Tortricini*: 161, figs 213,214 (male genit.), revision.

Alar expanse 12 mm; pattern indistinct, brownish, rather uniformly dark. Male genitalia with uncus broad, slightly convex apically; end part of sclerite of tuba analis broad, bifid apically; 1-2 cornuti in vesica.

**Distribution**: Haiti.

An additional specimen of the type series examined (collection of NHMW). It is characterised by two small cornuti.

*Apotoforma dolosa* (WALSINGHAM, 1914)

*Polyortha dolosa* WALSINGHAM, 1914, Bull. centr. Am. Lepidoopt. Heterocera, 4: 274. **Type-locality**: Guatemala: San Geromino. Type in NHML. – *Apotoforma dolosa* RAZOWSKI, 1966, World Fauna *Tortricini*: 161, figs 215,216 (male genit.), redescr.

Alar expanse 14-15 mm. Forewing ground-colour brownish grey. Male genitalia as in *monochroma* but base of cornutus broad, rounded.

**Distribution**: Guatemala.

**Comments.** In the paralectotype now examined (collection of NMNH) there are only 2 cornuti. The only difference from *monochroma* is the shape of the cornuti. This character should be, however, re-examined on a larger material.

*Apotoforma negans* (WALSINGHAM, 1897)

*Oxygrapha negans* WALSINGHAM, 1897, Proc. zool. Soc. London, 1897: 131. **Type-locality**: Haiti: Port-au-Prince. Type in NHML. – *Apotoforma monochroma*: RAZOWSKI, 1966, World Fauna *Tortricini*: 163, redescr.

Alar expanse 12 mm; ground-colour olive-grey; pattern vestigial, browner, in form of median and subterminal lines.

**Distribution**: Haiti.

**Comments.** The genitalia remain unknown. Externally the type differs slightly from *negans* and *monochroma* which also were described from the islands of the Caribbean Sea.

*Apotoforma epacticta* RAZOWSKI & BECKER, 1984

*Apotoforma epacticta* RAZOWSKI & BECKER, 1984, Rev. bras. Ent., **28**(2): 204, figs 1-6 (male genit.), 7,8 (female genit.). Type-locality: Brazil: Mato Grosso: Rio Brilhante. Type in MNRJ.

Alar expanse 8-12 mm. Ground-colour brownish cream, suffused brownish; pattern brown, typical of the genus, variable.

Male genitalia (Figs 5-7) with uncus tapering apically, armed with broad antero-anterior lobes; tuba analis spined in apical concavity. Female genitalia (Figs 8,9) with rounded proximal prominences of sterigma; signum absent.

**Distribution:** Brazil: Mato Grosso.

**Note.** I am reproducing my drawings from the original description as they were published in an extremely poor way.

*Apotoforma jamaicana* RAZOWSKI, 1984

*Apotoforma jamaicana* RAZOWSKI, 1984, Acta zool. cracov., **9**(5): 378, figs 30,31 (male & female genit.). Type-locality: Jamaica: Runaway Bay. Type in NHML. – RAZOWSKI, 1966, World Fauna *Tortricini*: 165, figs 221, 222 (male & female genit.), pl. 5, fig. 5 (photogr. of moth).

Alar expanse 12 mm; ground-colour of forewing yellowish, suffused with brownish. Base of costa and rather ill-defined pattern brownish. Male genitalia as in *epacticta* but uncus rather rounded apically, with slender lateral processes; socii present and incisure of the top of tuba analis sclerite deeper. Female genitalia with lateral, rounded lobes of sterigma but without proximal prominences; ductus bursae with large antemedian sac.

**Distribution:** Jamaica.

*Apotoforma uncifera* RAZOWSKI, 1984

*Apotoforma uncifera* RAZOWSKI, 1984, Acta zool. cracov., **9**(5): 380, fig. 32 (male genit.). Type-locality: South Africa: Natal: Pinetown. Type in NHML. – RAZOWSKI, 1966, World Fauna *Tortricini*: 163, figs 217,218 (male genit.), pl. 5, fig. 4 (photogr. of moth). – RAZOWSKI, 1986, Acta zool. cracov., **29**(19), figs 16,17 (male genit.).

Alar expanse 12 mm. Forewing ground-colour yellowish, pattern brownish; head and anterior half of palpus yellow-ferruginous. Male genitalia with uncus broad, provided with

ventral process situated subterminally; end of tuba analis very broad, rounded; dorsal process of sacculus long, setose; no cornuti in vesica.

**Distribution:** Republic of South Africa: Natal.

*Apotoforma fustigera* RAZOWSKI, 1986

*Apotoforma fustigera* RAZOWSKI, 1986, Acta zool. cracov., **29**(19): 426, figs. 14,15 (male genit.). **Type-locality:** Nigeria: Mt. Cameroon. Type in NHML. – RAZOWSKI, 1966, World Fauna *Tortricini*: 165, figs 219,220 (male genit.).

Alar expanse 15 mm; head and thorax cinnamon brown, ground-colour of forewing browner than in *uncifera*. Male genitalia as in *uncifera* but uncus longer with wedge-shaped process, process of tuba analis larger, and terminal process of sacculus longer.

**Distribution:** Nigeria.

*Apotoforma cimelia* (DIAKONOFF, 1960)

*Emeralda cimelia* DIAKONOFF, 1960, Verh. kon.ned. Akad. Wet., Nat. **53**: 190, figs 84,85 (male genit.). **Type-locality:** Madagascar: Diego Suarez. Type in NHML. – *Apotoforma cimelia*: RAZOWSKI, 1964, Acta zool. cracov., **9**(5): 375. – RAZOWSKI, 1966, World Fauna *Tortricini*: 168, fig. 225 (male genit.), pl. 5, fig. 7 (photogr. of holotype), redescr.

Alar expanse 12 mm; Thorax brownish; ground-colour of forewing green, yellowish at base and along distal part of costa; base of costa and suffusions brown. Male genitalia: uncus long, tapering, terminating in two thorns; tuba analis simple; sacculus with small subterminal projection; cornuti, numerous, slender spines curved postbasally.

**Distribution:** Madagascar.

*Apotoforma algoana* (FELDER & ROGENHOFER, 1875)

*Teras Alceras* [sic!] *algoana* FELDER & ROGENHOFER, 1875, Reise Novara, Zool., **2**, pl. 137, fig. 50. **Type-locality:** Republic of South Africa: Cape Province. – *Apotoforma algoana*: RAZOWSKI, 1966, World Fauna *Tortricini*: 170, figs 226,227 (male genit.), 228,230 (female genit.), redescr.

Alar expanse 16-18 mm; head and forewing ground-colour grey-green; pattern (subdorsal blotch) black-brown. Male genitalia with elaborate uncus provided with median lobes and three terminal processes; dorsal process of sacculus bifid, with unequal arms; terminal process spined; aedeagus curved; cornuti as in *cimelia*. Female genitalia: Sterigma very large, with small proximal prominences; apophyses fully developed; eighth tergite very large; signum absent.

**Distribution:** Republic of South Africa: Cape Province and Natal.

**Note.** A more accurate drawing of the male genitalia (Figs 10,11) is enclosed.



III. DESCRIPTIONS OF NEW SPECIES OF OTHER *TORTRICINI**Cornesia molytes* sp.n.

Wing expanse ca 12 m. Labial palpus over 1, brownish cream, cream ventrally and terminally; front cream, vertex slightly darker, mixed with ochreous; antenna brown. Forewing not expanding posteriorly, with costa convex basally, then weakly so; apex short, rounded, termen weakly oblique, straight. Ground-colour cream, almost entire distinctly shining silver, suffused with greenish in dorsal half, before median fascia as far as costal edge of median cell, atrophying towards dorsum. Brown dots along costa and dorsum. Pattern green, edged whitish-green, in form of basal blotch preserved in dorsal half of wing, accompanied with costal more ochreous brown mark, convex median fascia with dark brown posterior edge and small, pale subterminal mark situated before tornus. Fringes whitish cream, mixed with ochreous terminally. Hindwing grey; fringes somewhat paler, mixed with cream at apex, with grey basal line.

Female genitalia (Fig. 12): Ovipositor rather long; apophyses fairly long. Sterigma well sclerotized, scobinate, consisting of short cup-shaped part extending dorsally into short postvaginal plate; ductus bursae very long; ductus seminalis postmedian; signum, a small concave plate.

Holotype, female: "Kenya, Shimba Hills, 28-31.VII. 1892"; Genitalia slide Nr. 27184 [NHML]; collection NHML.

*Brachiolia* RAZOWSKI, 1964

RAZOWSKI, 1964, Acta zool. cracov., 9(5): 383. Type-species: *Tinea egenella* WALKER, 1864, by original designation. – Razowski, 1966, World Fauna *Tortricini*: 150.

To complete the above description I would like to add the supposed autapomorphies of *Brachiolia*; large, bifid, strongly sclerotized uncus; large free termination of sacculus armed with group of spines; presence of hairy process on sacculus, anterior to group of spines and presence of large, sharp process at ostium edge.

The genus was originally monotypical, presently 4 species are included (also: *B. amblopiis* (MEYRICK, 1911) from Seychelles; *B. obscurana* RAZOWSKI, 1966 from Natal and *B. wojtusiaki* RAZOWSKI, 1986 from Nigeria).

*Brachiolia egenella* (WALKER, 1864)

*Tinea ?egenella* WALKER, 1864, List Specimens Lepid. Insects Colln. Br. Mus., 30: 1005. Type-locality: Ceylon. Type in NHML. – *Eboda obstinata* MEYRICK, 1908, J. Bombay nat. Hist. Soc., 18: 624. Type-locality: Ceylon: Puttalam. Type in NHML. – *Brachiolia egenella*: RAZOWSKI, 1966, World Fauna *Tortricini*: 151, figs 200-204 (male and female genit.), pl. 5, fig. 1, revision.

In my paper of 1966 I figured the genitalia of four specimens which show some variation. Now, Mr. Kevin R. TUCK, the Natural History Museum, London has kindly checked a series of their specimens and found that the number of the spines of the sacculus and the shape and size of the apophyses anteriores vary from specimen to specimen. Moreover, a membranous lobe bearing a smaller cluster of spines is also variable and sometimes almost obsolete (Figs 13-16).

*Acleris emera* sp.n.

Alar expanse 15 mm; labial palpus smaller than 1.5, cream mixed with ochreous distally; remaining parts of head similarly coloured, thorax, especially collar, and base of tegula browner. Forewing rather not expanding posteriorly, with costa uniformly convex, apex rounded, termen not oblique, somewhat convex. Ground-colour ochreous-cream with distinct pinkish-pearl shine and brownish-ochreous suffusions and strigulation. Remnants of pattern brownish, preserved as costal spots, part of median fascia and subapical blotch followed by slender fascia limiting apical area. Some paler spots along costa and suffusion along termen present. Fringes concolorous with ground-colour, yellowish at apex, with basal line brownish and orangeous respectively. Hindwing rather broad, with weak angulation, whitish, in distal third suffused with brown-grey; fringes paler than distal part of wing, whitish in anal area.

**Male genitalia** (Figs 17,18): Tegumen high, with simple apical lobes; socius long, erect, with subtriangular ventral part and curved distal portion; tuba analis with long ventral sclerite extending beyond membranous dorsal portion. Valva fairly broad; sacculus broad, minutely spined to middle, with weak ventral concavity, rounded ventro-terminal angulation and small spined termination. Transtilla rather uniformly broad, with distinct dorsal prominence medially. Aedeagus short; sockets of numerous cornuti present.

**Holotype**, male: "Bolivia, Cochabamba, Incachaca; 27.VIII.-5.IX.56, 2100 m, L. PENA", Genitalia slide Nr. 11111. Collection of NMNH.

**Comments**. Very close to *Acleris matthewsi* RAZOWSKI, 1986 from Cuzco, Peru. It differs from it in broader, subtriangular ventral parts of the socius, spined anterior half of the sacculus and strong dorso-median process of the transtilla.

*Acleris retrusa* sp.n.

Alar expanse ca 16 mm; labial palpus shorter than 1.5, pale ochreous cream, remaining parts of head whitish brown, antenna brownish, thorax brown, mixed with grey medially. Forewing not expanding terminally, broadest medially, with costa strongly curved outwards, apex very short, broad, termen not oblique, rather straight medially. Ground-colour brownish with slight ferruginous admixture, ochreous cream beyond middle; pattern diffuse, browner than ground-colour; some ferruginous-brown spots along distal part of costa; some black-brown, erect scales in median and subapical areas of wing. Fringes brownish, yellow-ochreous from apex to mid-termen, basal line rust-brown, median line

black-brown at apex and middle of termen. Hindwing brownish, paler towards base; fringes pale brown, mixed with ochreous in apex area, with brown median line.

**Female genitalia** (Fig. 19): Papilla analis broad; apophyses fairly long; sterigma with slight median prominence of posterior edge and large, rounded apically, anterior corners; colliculum large, in major part well sclerotized, broadest at sterigma; bursa copulatrix extremely small, with indifferentiable ductus bursae; ductus seminalis subdorsal.

**Biology** unknown except for the food-plant: *Rubus* species.

**Holotype, female**: "Jalapa, Mexico, XI-63; Ex *Rubus*; N. L. H. KRAUSS Collector, S# 482"; genitalia slide Nr. 11117; in collection of NMNH.

**Comments**. Externally this species resembles some East Palearctic taxa e.g. *Acleris sagmatias* (MEYRICK) or Neotropical *Apotoforma* – species. The sterigma is typical of the genus, but the shape and the size of the corpus bursae are unusual. The male is unknown.

### *Acleris chloroma* sp.n.

Wing expanse 26 mm. Labial palpus ca 1.5, brownish ochreous, short scaled, with median joint distinctly expanding terminally, marked with subterminal brown blotch, and fairly long, brown terminal joint. Ventral side of palpus whitish, dorsal side slightly tinged greenish. Antenna brownish. Remaining parts of head green. Forewing uniformly broad throughout; costa convex at base, apex beyond vein M1, very short, sharp; termen very weakly oblique, hardly concave beneath apex. Ground colour verdigris green, minutely dotted and strigulated black; numerous groups of erect scales present; diffuse brownish cream blotch before end of median cell; indistinct blackish oblique fascia from 1/3 of costa through anterior part of pale blotch formed by agglomeration of strigulae. Median portion of costa tinged cream. Fringes cream, basal line and some basal spots blackish. Hindwing brownish; fringes slightly paler, with indistinct, concolorous basal line.

**Female genitalia** (Fig. 20) with ovipositor and labii typical of the genus. Sterigma broad, with short proximal prominences and weakly sclerotized, short colliculum. Signum, a slender sclerite with a few minute thorns.

**Holotype, female**: "Uganda, Ruwenzori Range, Bugoye, 4.500 ft., 5-10.IX. 1952, D.S. FLETCHER"; genitalia slide Nr. 4869 [NHML], in collection of NHML.

This species resembles Palearctic *Acleris literana* (LINNAEUS, 1758) and has sterigma similar to that of some other Palearctic species. The signum, however, is quite different.

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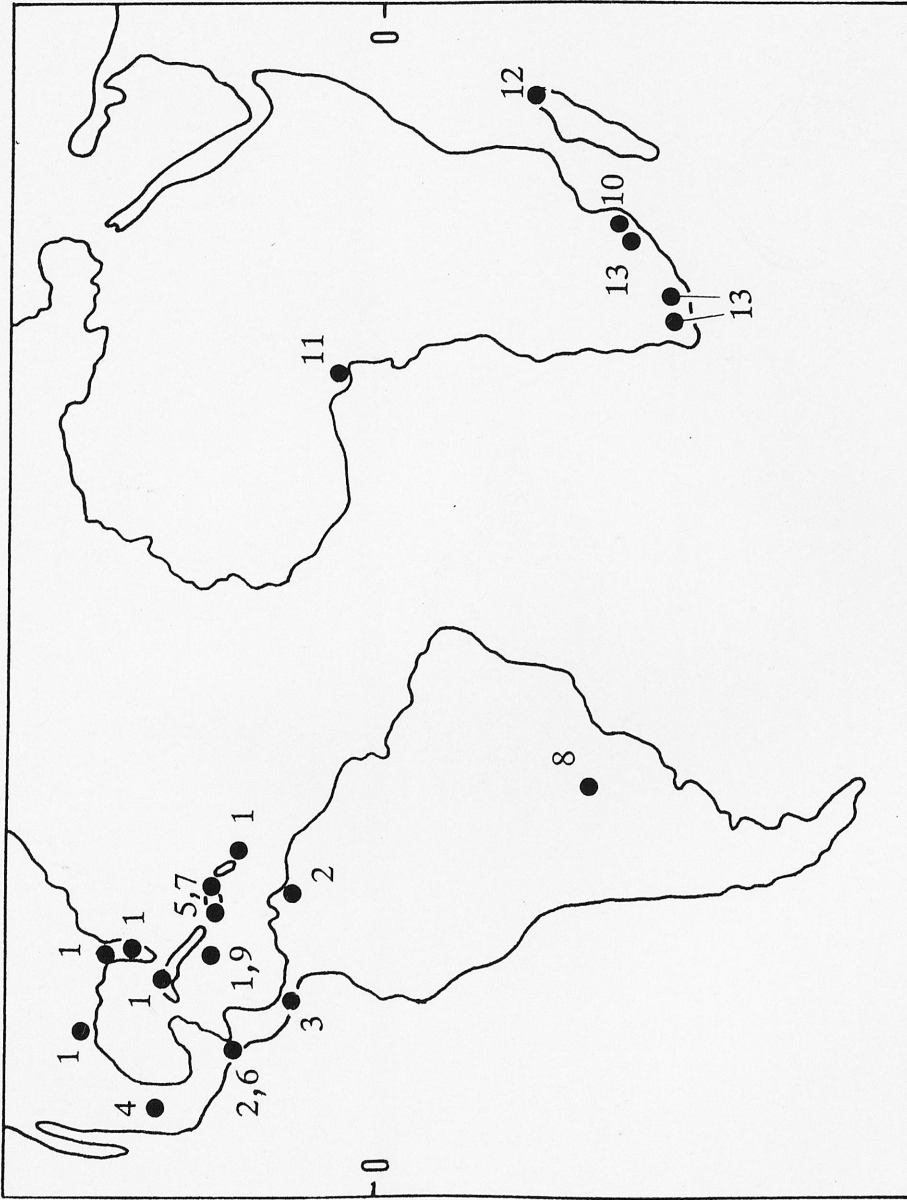
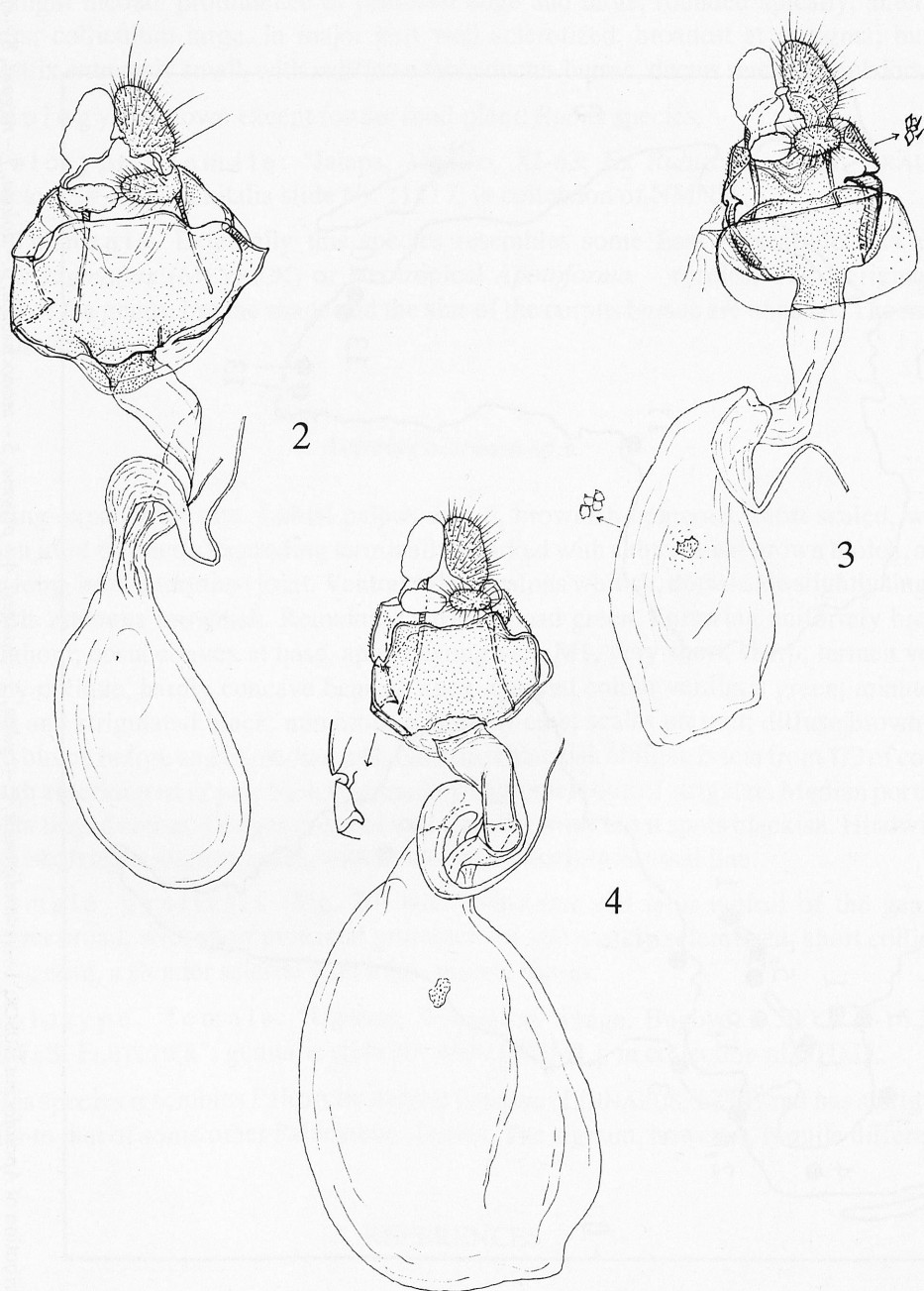
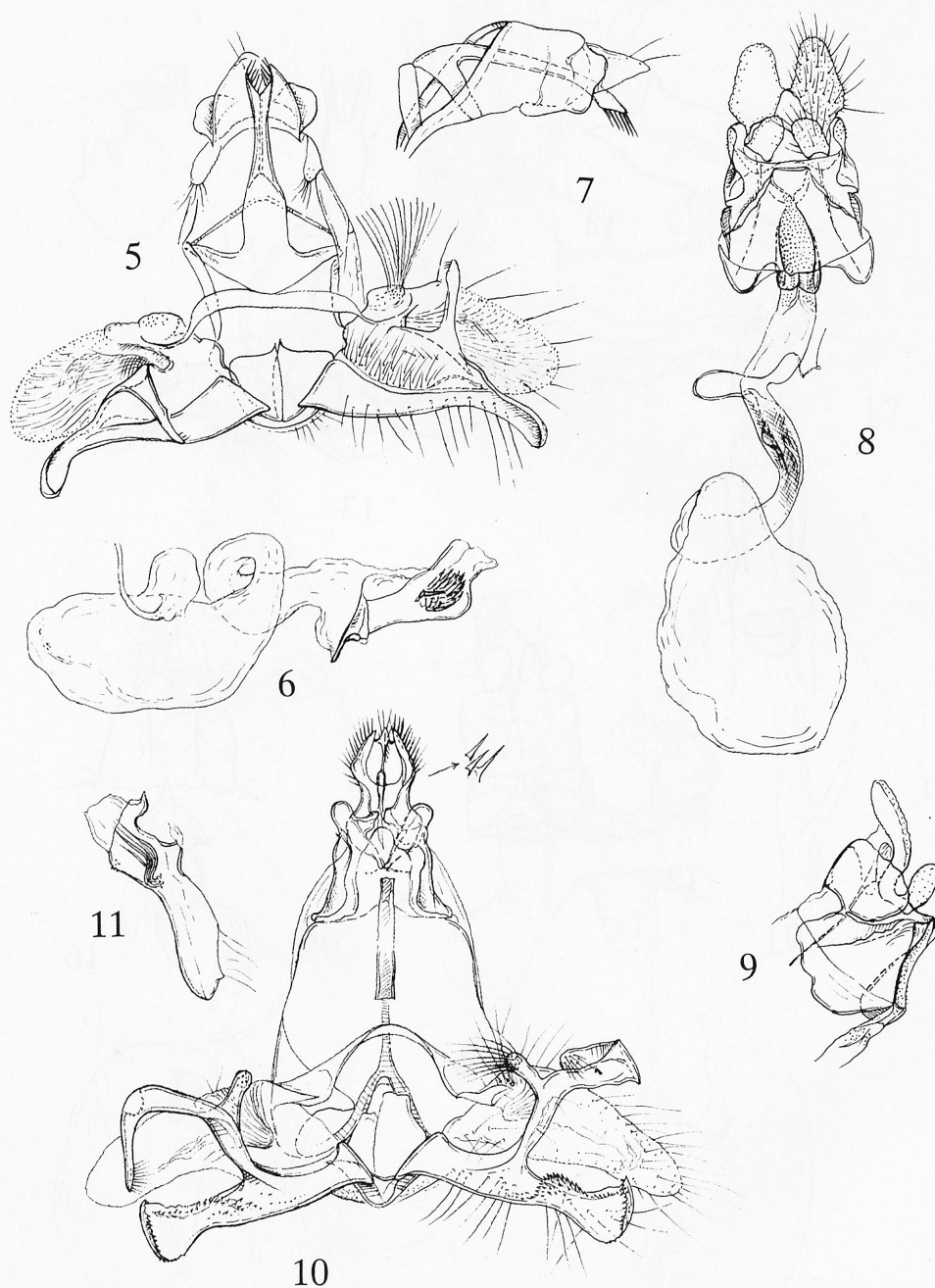


Fig. 1. Distribution of *Apotoforma* BUSCK; 1 - *rotundipennis*, 2 - *cydna*, 3 - *hodgesi*, 4 - *pygma*, 5 - *monochroma*, 6 - *dolosa*, 7 - *negans*, 8 - *epacticta*, 9 - *jamaicana*, 10 - *uncifera*, 11 - *fustigera*, 12 - *cimelia*, 13 - *algoana*.

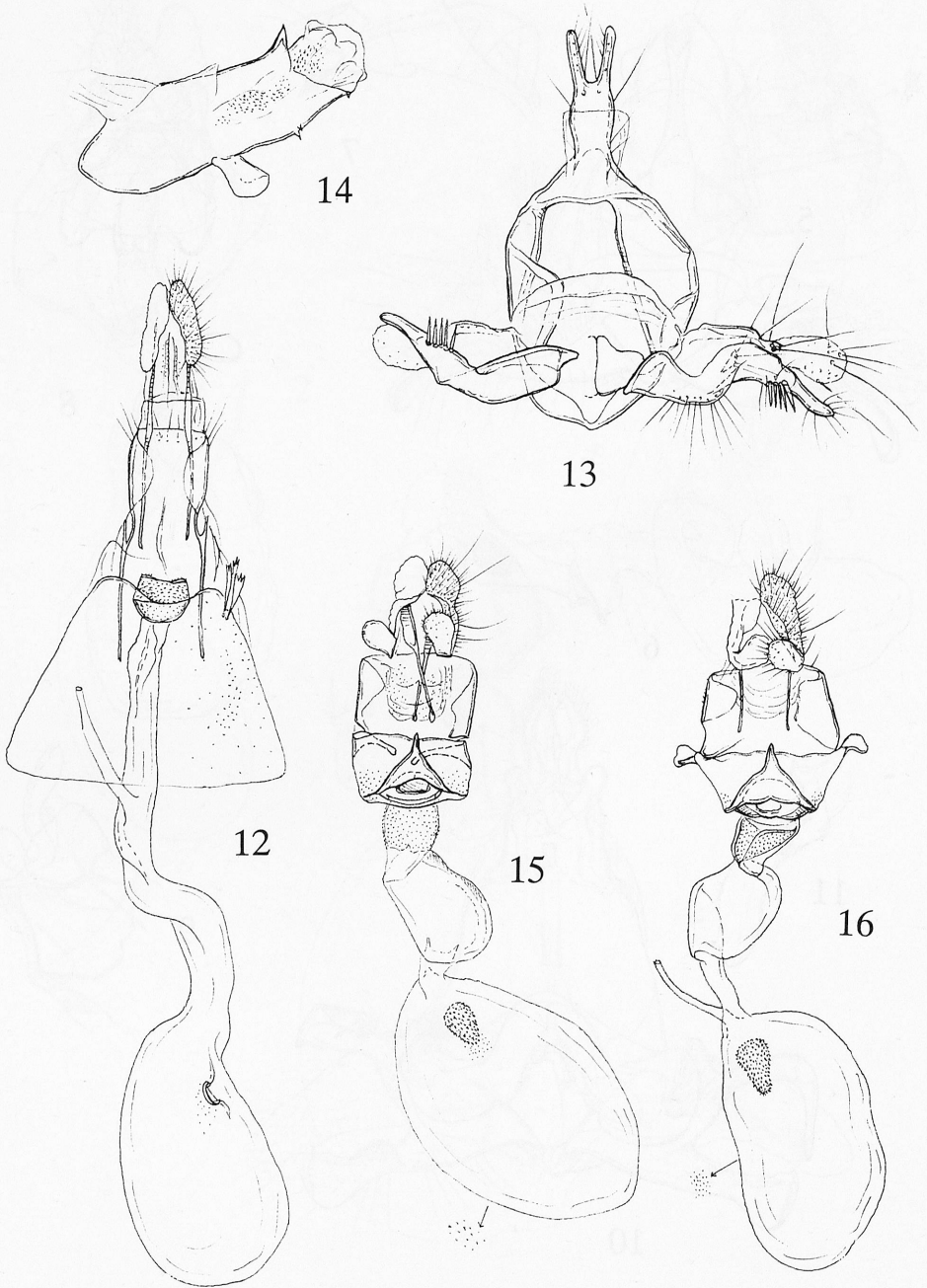


Figs 2 - 4. Female genitalia of the holotypes of *Apotoforma* BUSCK: 2 - *A. cydna* sp.n.; 3 - *A. hodgesi* sp.n.; 4 - *A. ptygma* sp.n.

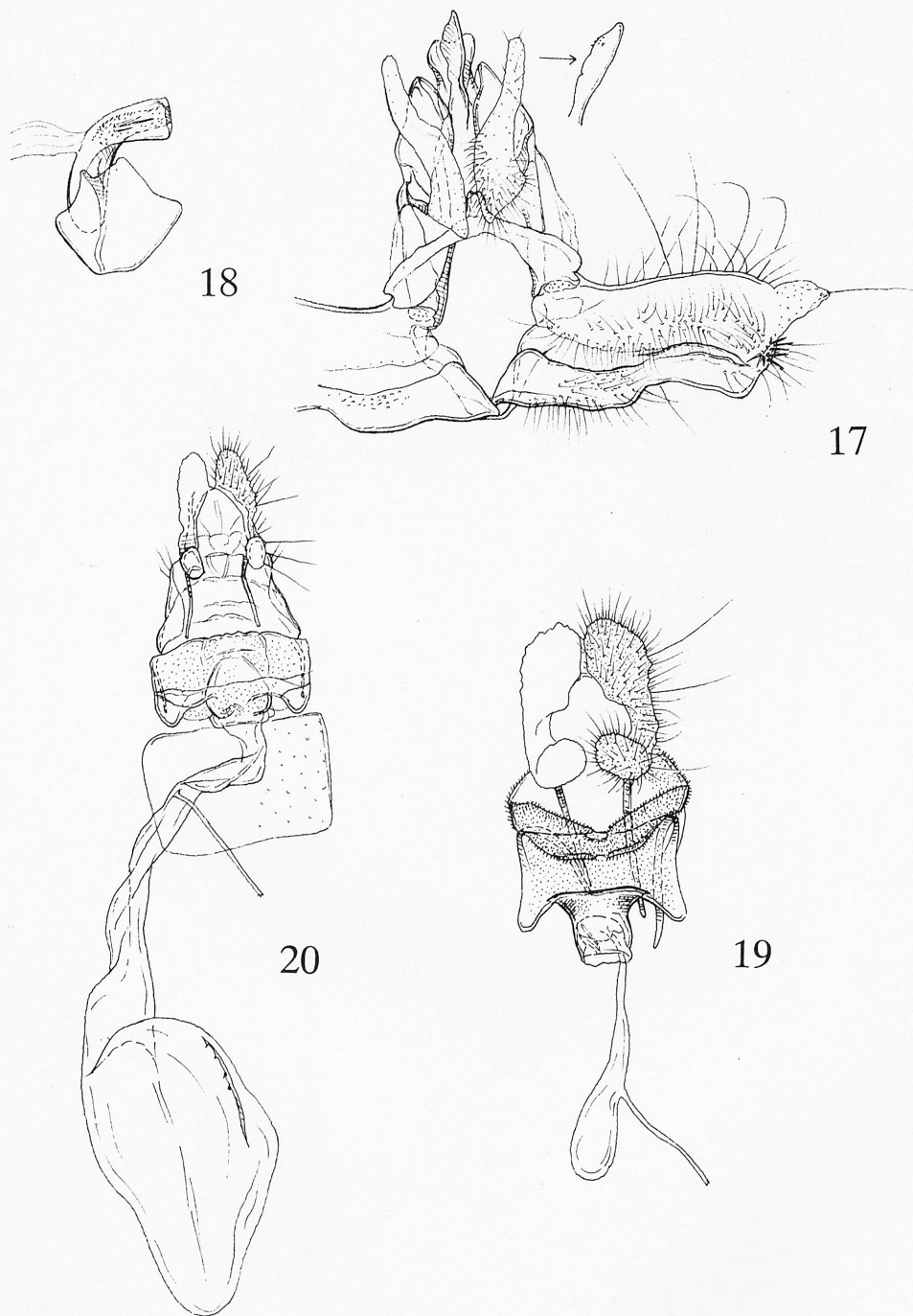


Figs 5 - 11. Male and female genitalia of *Apotoforma* BUSCK: 5-9 - *A. epacticta* RAZOWSKI & BECKER, 10,11 - *A. algoana* (FELDER & ROGENHOFFER).





Figs 12 - 16. Male and female genitalia of *Brachiolia egenella* (WALKER), India: Bengal: Pusa.



Figs 17 - 20. Male and female genitalia of *Acleris* HÜBNER: 17,18 - *A. emera* sp.n., holotype; 19 - *A. retrusa* sp.n., holotype; 20 - *A. chloroma* sp.n., holotype.





# GUIDE TO AUTHORS

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*Acta zoologica cracoviensia* publishes original papers dealing with systematics, biology, faunistics, zoogeography, ecology and paleontology of land and fresh-water animals. All papers are accepted on the understanding that they have not been published or submitted for publication elsewhere. Manuscripts are submitted to referees for evaluation. Their editing may sometimes be extensive, but this will be done in communication with the Author.

Authors will receive the first proof only. Eventual changes of text or illustrations should be kept to a minimum.

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Manuscripts in English should be submitted in two copies, typewritten, double-spaced, with at least 4 cm margin on the left side. All underlining should be avoided. It is welcomed that Authors submit their material stored as WordPerfect or ASCII files on IBM compatible discs together with one printed copy.

The first page should contain: the title of the paper, full Author's name, abstract, key words, repeated author's name and full address (for every coauthor). In papers dealing with lower taxa, the higher ones should be noted in the title [e.g. Nestling food of *Phylloscopus bonelli* (Passeriformes: Sylviidae)]

Longer papers should be divided into several chapters numbered with Roman numerals. Acknowledgements should be gathered under a single heading (acapit) at the end of introduction.

Tables should be typed on separate sheets and numbered with Roman numerals.

Figures (drawings, maps, diagrams etc.) done in black ink, should be submitted as original and one copy (xero), numbered with Arabic numerals [Fig. 1., Fig. 2. ...]; figures, letters and symbols used on illustrations should be drawn so large that they will be at least 1.5 mm high after reduction in print. Photographs must be sharp and contrast; they will be treated also as figures. Every illustration should bear its own number and Author's name. All captions of illustrations should be gathered on a separate sheet (not incorporated in the figure or photograph itself).

Nomenclature. First used binominal Latin names, according to Intern. Codex of Nomenclature, should be used full i.e. together with not abbreviated names of their authors and dates after coma – be careful using brackets [e.g. *Passer domesticus* (LINNAEUS, 1758) but *Aquila pomarina* BREHM, 1831]. If repeated later on in text the names might be abbreviated [e.g. *P. domesticus*, *A. pomarina*].

Citation in text: VOOUS (1962) or (VOOUS 1962), (DEMENTEV & GLADKOV 1952; BROWN et al. 1988).

References. The list of references must be complete and prepared in the following method:

Journal: MACARTHUR R. H., MACARTHUR J. W. 1961. On the bird species diversity. *Ecology*, **42**: 594-598.

Book: VAURIE C. 1959. The birds of the Palearctic fauna. Passeriformes. Witherby, London.

Chapter: OSBORN J. W. 1978. Morphogenetic gradients: fields versus clones. In: P. M. BUTLER and K. A. JOYSEY (Eds.) – Development, function and evolution of teeth. Academic Press, London-New York-San Francisco. Pp: 171-201.

In the case of papers written in the other than Latin letters, if there is English (or German, or French) title in the summary it may be used:

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DEMENTEV G. P., GLADKOV N. 1952. Ptitsy Sovetskogo Soyuza. **2**. or: [The birds of the Soviet Union (in Russian)], **2**.

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