

New records of fungi, fungus-like organisms, and slime moulds from Europe and Asia: 7-13

Compiled by Cvetomir M. Denchev

Abstract. *Cladosporium aecidiicola* on spermogonia of *Tranzschelia pruni-spinosae* on *Anemone ranunculoides* is reported from Austria. It is the first record of this species from spermogonia. The following new records are reported for the first time: *Merendera attica*, as a new host of *Urocystis colchici* (from Bulgaria); *Helleborus orientalis*, as a new host of *Urocystis floccosa* – a new species for Turkey; *Cantharellus amethysteus* from Bulgaria; and *Badhamia dubia* from Turkey. New combinations of *Microbotryum viviparum* on *Polygonum viviparum* in *Bauhinus*, and *Neovossia japonica* on *Alopecurus geniculatus* in *Tilletia* are proposed.

Key words: *Anemone ranunculoides*, Austria, *Badhamia dubia*, *Bauhinus viviparus*, Bulgaria, *Cantharellus amethysteus*, China, *Cladosporium aecidiicola*, fungicolous fungi, *Helleborus orientalis*, hyperparasite, Japan, *Merendera attica*, *Microbotryum*, myxomycetes, *Neovossia*, *Tilletia japonica*, *Tranzschelia pruni-spinosae*, Turkey, *Urocystis*

7. *Cladosporium aecidiicola* on spermogonia of *Tranzschelia pruni-spinosae* on *Anemone ranunculoides* in Austria

In April 2008, abundant caespituli of a cladosporium-like hyphomycete have been found on spermogonia of *Tranzschelia pruni-spinosae* on *Anemone ranunculoides* in the botanical garden of the University in Graz, Austria. Based on a monographic treatment of fungicolous *Cladosporium* species published by Heuchert *et al.* (2005), the causal agent of the infected spermogonia was identified as *Cladosporium aecidiicola*. Numerous specimens of *C. aecidiicola* on aecia from various herbaria have been examined (Heuchert *et al.* 2005), but the collection from Austria represents the first record of this species from spermogonia. Some conidiophores have also been observed on the surrounding aecia of *T. pruni-spinosae*, which is a new host for *C. aecidiicola*.

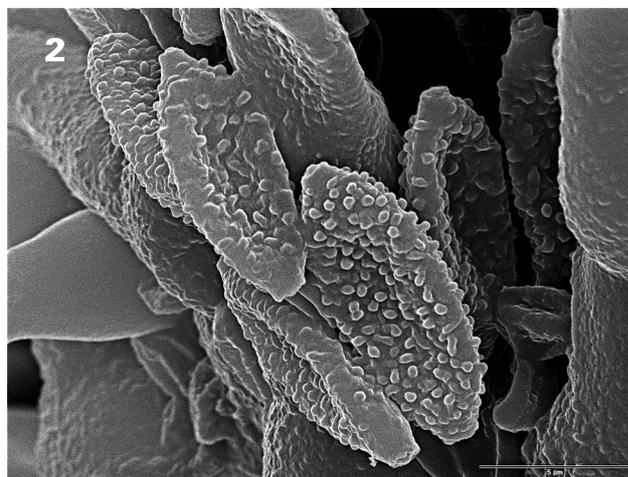
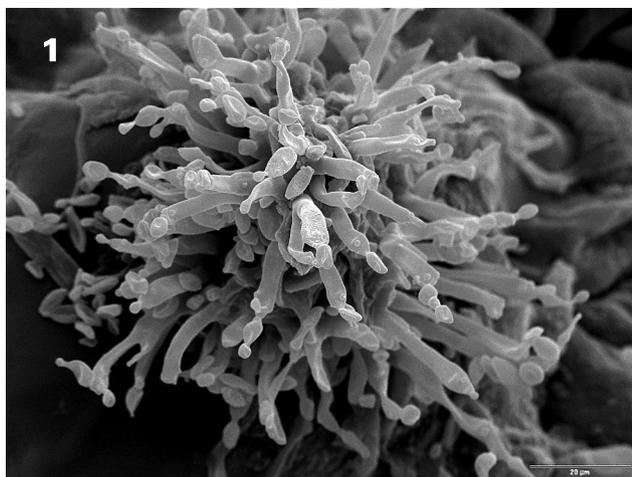
In the general characterization of *C. aecidiicola*, mainly based on herbarium samples, the conidia were described to be 'verruculose, rarely smooth or almost so' (Heuchert *et al.* 2005). The examination of fresh material on spermogonia of *T. pruni-spinosae*, including scanning electron microscopic studies (Figs 1-2), revealed that the conidia of this species are at first smooth or almost so, but later turning faintly rough-walled to distinctly verruculose.

Cladosporium aecidiicola Thüm., Mycoth. Univ., Cent. IV, No. 373, 1876. **Figs 1-2**

Colonies on spermogonia caespitose, loose to dense, olivaceous-brown. **Mycelium** internal and external. **Conidiophores** solitary or loosely to densely caespitose to fasciculate, straight, subcylindrical to strongly geniculate-sinuuous, usually unbranched, 10-100 × 2.5-7 µm, pluriseptate, pale to medium olivaceous-brown, thin-walled, smooth. **Conidiogenous cells** integrated, terminal, occasionally intercalary, 10-30 µm long, polyblastic, sympodial, with several conspicuous conidiogenous loci, coronate, somewhat protuberant, 1-2 (-2.5) µm diam. **Conidia** catenate, in branched chains, 5-22 × 3-7 (-8) µm, 0-2-septate, occasionally somewhat constricted at the septa, pale olivaceous to olivaceous-brown, thin-walled, at first smooth or almost so, later becoming verruculose, ends rounded to somewhat attenuated, hila somewhat protuberant, coronate, 1-2 µm diam.

Specimen examined: AUSTRIA: Steiermark, Graz, botanical garden of the University, 47°04,940' N, 15°27,400' E, alt. 380 m, on aecia and spermogonia of *Tranzschelia pruni-spinosae*, on *Anemone ranunculoides*, 24 Apr 2008, P. Blanz & C. Scheuer (GZU, HAL 2233 F).

Heuchert, B., Braun, U. & Schubert, K. 2005. Morphotaxonomic revision of fungicolous *Cladosporium* species (hyphomycetes). – *Schlechtendalia* 13: 1-78.



Figs 1-2. *Cladosporium aecidiicola* on spermogonia of *Tranzschelia pruni-spinosae*, SEM micrographs. 1. A densely caespitose colony of conidiophores; bar = 20 µm. 2. Verruculose conidia; bar = 5 µm

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8. *Merendera attica*, a new host of *Urocystis colchici* (*Ustilaginomycetes*)

Urocystis colchici is reported from Bulgaria, on a new host plant, *Merendera attica*. For LM observations, the spore balls were mounted in lactophenol solution on glass slides, gently heated to boiling point and then cooled. The measurements of spores are given in the form: min-max (mean ± 1 standard deviation).

Urocystis colchici (Schltld.) Rabenh., in Rabenhorst, Fungi eur., no. 396, 1861.

Sori in the leaves between the veins, forming swellings of various size and shape, often confluent; when young lead-coloured and covered by the epidermis. Spore mass powdery, dark reddish brown. **Spore balls** globose, subglobose, ovoid, broadly ellipsoidal to ellipsoidal, composed of 1-2 (-4) spores [1 = 85 %; 2 = 13 %; 3 = 1.7 %, 4 = 0.3 %] ($n = 250$), completely surrounded by sterile cells; 15-28 × 14-25 µm [when composed of one spore], 25-42 × 22-26 µm [when composed of two spores]. **Sterile cells** in outline suborbicular to elliptical or ovate, 4-16 × 4-11 µm; wall 1-1.5 µm thick, smooth. **Spores** globose, subglobose, ovoid or broadly ellipsoidal, 10.5-20.5 (14.3±1.6) × 9-16.5 (12.3±1.5) µm ($n = 100$), reddish brown; wall 1-1.5 µm thick, smooth.

Specimen examined: **BULGARIA**: Thracian Plain, Plovdiv Distr., near Asenovgrad (as "Stanimaka"), on *Merendera attica* (Spruner ex Tomm.) Boiss. & Spruner (syn. *M. rhodopea* Velen.), 2 May 1896, leg. V. Stribrny (BPI 182 001).

Two collections of *Urocystis colchici* on *Merendera* are known, both from Asia: on *M. trigyna* (Adams) Woronow (Armenia, 22 Jan 1984, leg. E.Ts. Gabrielyan; in Karatygin & Simonjan 1985; Azbukina & Karatygin 1995) and *M. persica* Boiss. (Iran, 15 May 1990, leg. K. Vánky; in Herb. Vánky Ust. – Vánky, in litt.). *Merendera attica* is a new host of this smut fungus.

Acknowledgements. We gratefully acknowledge Dr K. Vánky (Tübingen, Germany) for the information about his Iranian collection provided for the authors' disposal, and Director and Curator of BPI for loan of the cited specimen.

Azbukina, Z.M. & Karatygin, I.V. 1995. [*Ustilaginales*. Fasc. 2. *Tilletiaceae*]. – In: V.A. Melnik [ed.]. [Guide to the fungi of Russia]. Nauka, St. Petersburg. (In Russian)

Denchev, C.M. 2001. [Class *Ustomycetes* (Orders *Tilletiales*, *Ustilaginales*, and *Graphiolales*)]. – In: V. Fakirova [ed.]. [Fungi of Bulgaria]. Vol. 4. Pp. 1-286. Editio Academica "Prof. Marin Drinov" & Editio Pensoft, Sofia. (In Bulgarian)

Karatygin, I.V. & Simonjan, S.A. 1985. [New and rare for USSR species from Armenia and Georgia]. – *Novosti Sistematiki Nizshykh Rastenii* 22:119-121. (In Russian)

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9. *Urocystis floccosa* (*Ustilaginomycetes*) in Turkey

Urocystis floccosa is reported as a new record for Turkey, on a new host plant, *Helleborus orientalis*.

For LM observations, the spore balls were mounted in lactophenol solution on glass slides, gently heated to boiling point and then cooled. The measurements of spores are given in the form: min-max (mean \pm 1 standard deviation). For SEM, the spores were attached to specimen holders by double-sided adhesive tape and coated with gold. The surface structure of spores was observed at 15 kV and photographed with a JEOL SM-6390 scanning electron microscope.

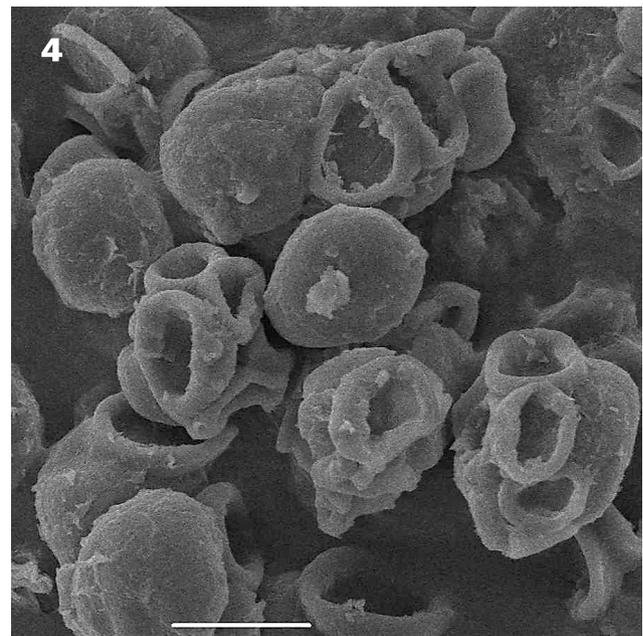
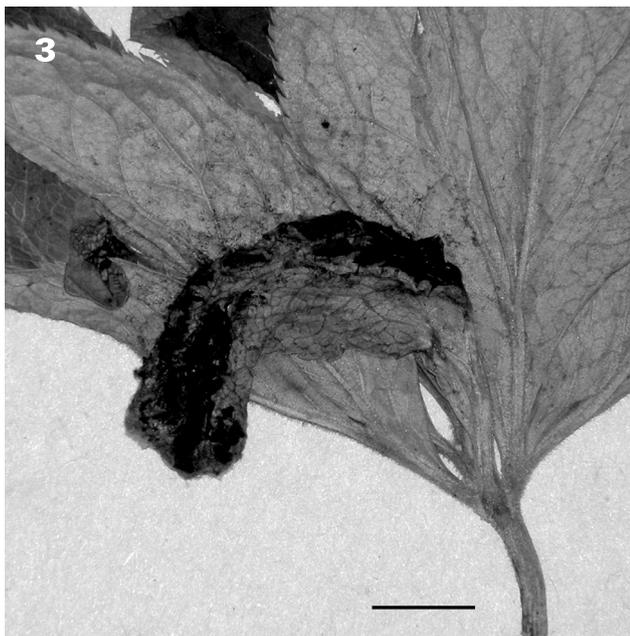
Urocystis floccosa (Wallr.) D.M. Hend., Notes Roy. Bot. Gard. Edinburgh 21: 241, 1955. **Figs 3-4**

Sori in leaves, petioles, and stems, forming swellings of various size and shape, when young covered by the epidermis. Spore mass powdery, black. **Spore balls** subglobose, broadly ellipsoidal, ellipsoidal or irregular, composed of 1-3 (-4) spores [1 = 53.6 %; 2 = 36.9 %; 3 = 7.9 %, 4 = 1.6 %] ($n = 320$), incompletely surrounded by sterile cells, single spores

without a cover of sterile cells often present; 16.5-33 \times 13-24 μm [when composed of one spore], 20.5-39 \times 16.5-30.5 μm [when composed of two spores]. **Sterile cells** in outline broadly elliptical, elliptical, ovate or suborbicular, 7.5-16.5 (-21) μm long; wall 0.5-1 μm thick, smooth. **Spores** globose, subglobose, ovoid, broadly ellipsoidal, ellipsoidal or irregularly angular, 13-20 (15.8 \pm 1.3) \times 11-16.5 (13.3 \pm 1.2) μm ($n = 60$), as an exception, up to 23 μm long, dark greenish brown, with finely granular content; wall 1.5-2 μm thick, smooth.

Specimen examined: **TURKEY**: A4 Bartın Distr., Mugadaya ca 50 m, on *Helleborus orientalis* Lam., 11 May 2006, leg. Z. Kaya, S. Bancheva & A. Pinar (SOMF 27 142).

Helleborus orientalis has been previously cited as a host of *Urocystis floccosa* (Liro 1938; as *Tuburcinia hellebori-viridis*), based on a record of this smut fungus on *Helleborus kochii* Schiffn. from Georgia (Nagorny 1929). Currently, this host record is accepted as *H. caucasicus* A. Braun (Ulyanishchev 1968; Azbukina & Karatygin 1995). *Helleborus caucasicus* is an endemic to the Caucasus (Armenia, Georgia, Azerbaidzhan).



Figs 3-4. *Urocystis floccosa* on *Helleborus orientalis*. 3. A sorus. Bar = 1 cm. 4. Spore balls in SEM. Bar = 10 μm

Azbukina, Z.M. & Karatygin, I.V. 1995. [*Ustilaginales*. Fasc. 2. *Tilletiaceae*]. – In: V.A. Melnik [ed.]. [Guide to the fungi of Russia]. Nauka, St. Petersburg. (In Russian)

Liro, J.I. 1938. Die Ustilagineen Finnlands, 2. – Annales Academiae Scientiarum Fennicae, Ser. A 42(1): 1-720.

Nagorny, P.I. 1929. Die kaukasischen Arten der Gattung *Urocystis* Rabenhorst. – Zapiski Nauchno-Prikladnykh Otdelov Tiflisskogo Botanicheskogo Sada (Tiflis) 6: 104-108.

Ulyanishchev, V.I. 1968. [Guide to the smut fungi of the USSR]. Nauka, Leningrad. (In Russian)

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10-11. *Bauhinus viviparus*, comb. nov., and *Tilletia japonica*, comb. nov.

Recently, He & Guo (2008) described a new species of *Microbotryum*, *M. viviparum*, on *Polygonum viviparum* L. from China (Gansu Province). Because we consider the species of *Microbotryum* as a group reduced only to the anthericolous species on *Caryophyllaceae* (incl. *M. majus* and *M. savilei*) (Denchev *et al.* 2006; Denchev 2007), a new combination is proposed here:

Bauhinus viviparus (S.H. He & L. Guo) Denchev, **comb. nov.**
Basionym: *Microbotryum viviparum* S.H. He & L. Guo (as “*vivipari*”), *Mycotaxon* 104: 455, 2008.

Mycobank: MB 512821

For its description and illustrations see He & Guo (2008).

Based on a conclusion in Castlebury *et al.* (2005), regarding the current status of *Neovossia*, we propose a transfer of *Neovossia japonica* on *Alopecurus geniculatus* L. to *Tilletia*.

Tilletia japonica (Vánky) Denchev, **comb. nov.**

Basionym: *Neovossia japonica* Vánky, *Mycotaxon* 38: 268, 1990.

Mycobank: MB 512823

For its description and illustrations see Vánky (1990).

Castlebury, L.A., Carris, L.M. & Vánky, K. 2005. Phylogenetic analysis of *Tilletia* and allied genera in order *Tilletiales* (*Ustilaginomycetes*; *Exobasidiomycetidae*) based on large subunit nuclear rDNA sequences. – *Mycologia* 97: 888-900

Denchev, C.M., Moore, R.T. & Shin, H.D. 2006. A reappraisal of the genus *Bauhinus* (*Microbotryaceae*). – *Mycologia Balcanica* 3: 71-75.

Denchev, C.M. 2007. *Microbotryum savilei* sp. nov. (*Microbotryaceae*). – *Mycologia Balcanica* 4: 69-73.

He, S.H. & Guo, L. 2008. *Microbotryum vivipari* sp. nov. and *Anthracoidea mulenkoi* new to China. – *Mycotaxon* 104: 455-458.

Vánky, K. 1990. Taxonomical studies on *Ustilaginales*. VI. – *Mycotaxon* 38: 267-278.

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12. *Cantharellus amethysteus* (*Cantharellaceae*) in Bulgaria

Specimens are kept in the Mycological Collection of the Institute of Botany of Bulgarian Academy of Sciences (SOMF) and are documented with color photographs. Microscopic characteristics were observed and measured in water. Identification of the fungus is confirmed by the works of Pegler *et al.* (1997) and Watling & Turnbull (1998).

Cantharellus amethysteus (Quél.) Sacc., *Syll. Fung.* 5: 482, 1887.

Pileus up to 5 cm in diameter, convex to turbinate or depressed, pale yellow to yellowish orange; surface covered by a fine greyish violet tomentum, disrupting later into fine greyish violet to brown-violet or brown squamules; pileus margin inrolled, undulate. **Stipe** up to 4 × 2 cm, obconical, tapering, solid, yellow, pale ochraceous to orange yellow, often spotted violaceous or sometimes nearly concolorous with the cap. **Hymenophore** decurrent, ochraceous yellow with thick furcate and interveined, anastomosing near the stipe folds. **Context** firm, yellowish. Odour and taste agreeable. **Basidiospores** ellipsoid, 7.5-10 (8.4±1.2) × 4.5-5.5 (5.1±0.3) µm, ratio 1.4-2 (1.6±0.2) (*n* = 60). **Basidia** 4-spored, elongate clavate, 52.5-87.5 × 7.5-10 µm. **Cystidia** absent. **Pileipellis** a cutis of thick-walled hyphae; cell walls ca 1-1.5 µm thick. **Clamp-connexions** present.

Specimens examined: **BULGARIA**: Western Stara Planina Mts: Vratsa distr., Vrachanski Balkan Nature Park,

Mizhishnitsa locality, on soil in a beech forest, under *Fagus sylvatica* L., on limestone, 18 Aug 2006, B. Assyov & D. Stoykov (SOMF 26 659); Godech distr., south of the road between the villages Buchin Prohod and Shouma, in mixed broadleaved plantation (birch, sweet chestnut, aspen), presumably under *Castanea sativa* Mill., on limestone, 10 Sep 2005, B. Assyov & I. Assyova (SOMF 25 496).

Easily distinguished macroscopically from the more widespread *Cantharellus cibarius* L.: Fr. by the greyish violet or violet-brown tomentum and/or scales on the cap. In old or dried basidiomata the violet tint is gradually fading and the color becomes more violaceous brown or dark brown. Microscopically the two species are not easily separated, especially if only dried specimens are studied. *Cantharellus amethysteus* has more organized pileipellis of hyphae with thickened walls, while in *C. cibarius* it is composed of thin-walled hyphae.

Pegler, D.N., Roberts, P.J. & Spooner, B.M. 1997. British chanterelles and tooth fungi. An account of the British cantharelloid and stipitate hydroid fungi. Royal Botanic Gardens, Kew.

Watling, R. & Turnbull, E. 1998. *Cantharellaceae*, *Gomphaceae* and xeruloid and amyloid-spored members of *Tricholomataceae* (excluding *Mycena*). – In: D.M. Henderson, P.D. Orton & R. Watling [eds]. British fungus flora. Agarics and boleti. Vol. 8. Royal Botanic Gardens Edinburgh, Edinburgh.

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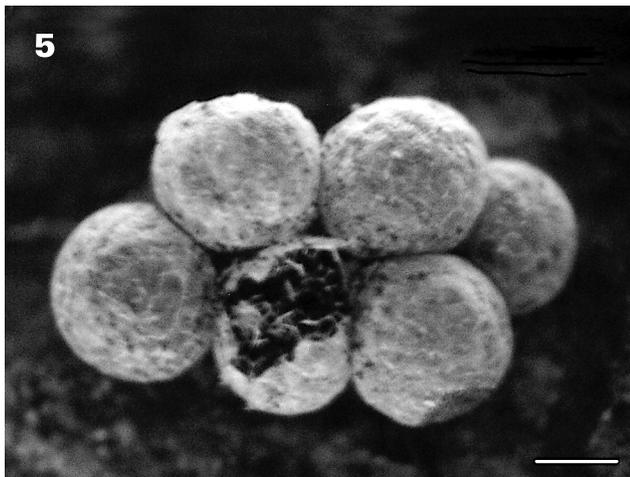
13. A new myxomycete record for Turkish myxobiota: *Badhamia dubia* (*Physaraceae*)

In September 2007, during routine field trips to different localities of Turkey, many samples of myxomycetes were collected. According to the checklists by Sesli & Denchev (2005) and Dülger (2007), *Badhamia dubia* was found to be a new record for Turkey. This taxon was identified with the aid of Martin & Alexopoulos (1969), Nannenga-Bremekamp (1991), and Ing (1999). The specimen cited is deposited in the Herbarium of Canakkale Onsekiz Mart University in Canakkale and in the author's personal collection.

Badhamia dubia Nann.-Bremek., Proc. K. Ned. Akad. Wet., Ser. C, Biol. Med. Sci. 71: 49, 1968. **Figs 5-6**

Sporocarps sessile, crowded in small groups, globose with a narrow base, pale blue gray, 1-1.5 mm diam. Hyphotallus almost colorless and small. Peridium single, usually hyaline, sometimes with some white lime and then dull, otherwise shining and iridescent. Capillitium a rather wide-meshed net of smooth, rather slender tubules, filled with lime. **Spores** in mass black, purple-brown in transmitted light, forming persistent cluster of 7-12 spores, the separate spores spherical or ovoid, 9-12 µm diam., capped with spines or warts on the cluster and with a few low warts on the remainder.

Specimen examined: **TURKEY:** Canakkale, Guzelyali, 40°00'59.98" N, 26°19'19.50" E, alt. 35 m, on dead twig of *Pinus brutia*, 30 Sep 2007, BD (BD 619).



Figs 5-6. *Badhamia dubia*. 5. Stereomicroscopic image of the sporangia. Bar = 0.5 mm. 6. A view of capillitium and spores. Bar = 20 µm

Dülger, B. 2007. Checklist of the myxomycetes in Turkey. – Mycologia Balcanica 4: 151-155.

Ing, B. 1999. The *Myxomycetes* of Britain and Ireland. An identification handbook. The Richmond Publishing Co. Ltd., England.

Martin, G.W. & Alexopoulos, C.J. 1969. The *Myxomycetes*. University of Iowa Press, Iowa City, USA.

Nannenga-Bremekamp, N.E. 1991. A guide to temperate *Myxomycetes*. Biopress Ltd., Bristol.

Sesli, E. & Denchev, C.M. 2005. Checklists of the myxomycetes and macromycetes in Turkey. – Mycologia Balcanica 2: 119-160.

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