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ПАЛЕОНТОЛОГИЧЕСКИЙ ЖУРНАЛ

(ОТДЕЛЬНЫЙ ОТТИСК)

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NOMENCLATURE
NOTES

Jurinodendron—a New Replacement Name for *Cyclostigma* S. Haughton ex O. Heer, 1871 (Lycopodiophyta)

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INTRODUCTION

The genus *Cyclostigma* S. Haughton ex O. Heer was proposed by Haughton for *Lepidodendron*-like plant remains from the Devonian of Kiltorcan, Ireland. The new finding was reported in several simultaneous papers (Haughton, 1860a, b, c). However, this author did not follow the requirements of the International Code of Botanical Nomenclature to validly publish the new generic name Heer (1871) was the first who satisfied all the conditions of the valid publication of the new generic name of lepidodendrophytes. However, during the study of nomenclature of fossil plants described from Russia and allied countries it has been established that the name *Cyclostigma* S. Haughton ex O. Heer is the most recent homonym known in modern botany a long side *Cyclostigma* Hochstetter ex Endlicher, 1842 (Apocynaceae Juss.), *Cyclostigma* Klotzsch, 1853 (Euphorbiaceae Juss.), and *Cyclostigma* R.A. Philippi, 1870 (Solanaceae Juss.). It is noteworthy, that this case of generic homonymy was noticed by Potonié (1901), who proposed to preserve such generic names automatically adding the prefix p- (*p-Cyclostigma*: Potonié, 1900, 1901). However, this proposal was not supported by botanists developing the ICBN, and this homonymy, that should have been corrected, was forgotten for many years. In accordance with the ICBN rules, a new generic name *Jurinodendron* is proposed.

SYSTEMATIC PALEONTOLOGY

Genus *Jurinodendron* Doweld, nom. nov.

Cyclostigma S. Haughton ex O. Heer, 1871, p. 43 [descr. Lat.] (non Hochstetter ex Endlicher, 1842, p. 56 nec Klotzsch in B.C. Seeman, 1853, p. 104 non R.A. Philippi, 1870, p. 197).

Etymology. In honor of A.L. Jurina, famous Russian expert in Devonian floras, and *Lepidodendron*.

Type species (lectotype for *Cyclostigma*: S.A. Miller, 1889, p. 116). *Jurinodendron kiltorkense* (S. Haughton ex O. Heer) Doweld, comb. nov. = *Cyclostigma kiltorkense* S. Haughton ex O. Heer, 1871, p. 43, pl. 11.

All 16 species of the genus *Cyclostigma* are transferred to the genus *Jurinodendron*, except for those belonging to other genera of fossil plants.

Jurinodendron aegyptiacum (W.J. Jongmans et Koopmans) Doweld, comb. nov. = *Cyclostigma aegyptiacum* ("aegyptiaca") W.J. Jongmans et Koopmans, 1940, p. 227, fig. 5a–c. Lectotype (here designated): W.J. Jongmans et Koopmans, 1940, p. fig. 5a–c.

Jurinodendron australe (O. Feistmantel) Doweld, comb. nov. = *Cyclostigma australe* O. Feistmantel, 1878, p. 76, pl. 4, figs. 3, 3a, pl. 5, fig. 1. Lectotype (here designated): O. Feistmantel, 1878, p. pl. 4, figs. 3, 3a.

Jurinodendron brasiliense (Dölianiti) Doweld, comb. nov. = *Cyclostigma brasiliense* ("brasiliensis") Dolianiti, 1963 ('1962'), p. 478, 480. pl. 1, figs. 1–3. Holotype: Coll. Paleobot. Div. Geol. DNPM, no. 1178; Cinzeiro, margem esquenda do Rio Araguaia. Poti; Lower Carboniferous.

Jurinodendron brevifolium (Nathorst) Doweld, comb. nov. = *Cyclostigma brevifolium* Nathorst, 1902, p. 40, pl. 12, figs. 4–8. Lectotype (here designated): Nathorst, 1902, pl. 12, figs. 4–8.

Jurinodendron cambricum (Crookall) Doweld, comb. nov. = *Cyclostigma cambricum* Crookall, 1964, p. 344, pl. 79, fig. 1. Holotype: Geol. Surv. Mus., 76974; Waun-ceirch Collieri, near Neath Station, Gamorgan, UK; Westphalian D.

Jurinodendron dasyphyllum (Mägdefrau) Doweld, comb. nov. = *Cyclostigma dasyphyllum* Mägdefrau, 1936, pp. 214–215, pl. 9, figs. 1–4, pl. 10, fig. 1. Lectotype (here designated): Mägdefrau, 1936, pl. 9, figs. 1–4, pl. 10, fig. 1.

Jurinodendron hercynium (C.E. Weiss) Doweld, comb. nov. = *Cyclostigma hercynium* C.E. Weiss, 1885, p. 175, pl. 7, figs. 5–8. Lectotype (Crookall, 1964, p. 342): Weiss, pl. 7, figs. 5–8.

Jurinodendron macconochiei (R. Kidston) Doweld, comb. nov. = *Pinakodendron macconochiei* R. Kidston, 1903, p. 798, pl. 1, figs. 9–11. = *Cyclostigma macconochiei* (R. Kidston) A. Renier in Cambier et Renier, 1912, p. 57; Crookall, 1964, p. 341. Holotype: Canonbie Coalfield, Kidston Coll. no. 3146; Canonbie Coalfield; Westphalian.

Jurinodendron majum (R. Kidston ex Crookall) Doweld, comb. nov. = *Cyclostigma majum* ("majus") R. Kidston ex Crookall, 1964, p. 343, pl. 79, fig. 2. Holotype: Geol. Surv. Edinb., no. T4133E; Muirend, near Bedlay, Glenboig, Lanarkshire, UK; Namurian.

Jurinodendron pacificum (Steinmann) Doweld, comb. nov. = *Bothrodendron pacificum* Steinmann in Gothan, 1928, p. 296, pl. 13, fig. 3a = *Cyclostigma pacificum* ("pacifica") (Steinmann) W.J. Jongmans, 1954, p. 204. Lectotype (here designated): Steinmann in Gothan, 1928, pl. 13, fig. 3a.

Jurinodendron primorskiense (Zimina) Doweld, comb. nov. = *Cyclostigma primorskiense* Zimina, 1989, p. 97, pl. 10, figs. 1a, 2. Holotype: DVGI, no. 409/103-B (409/103-A); Southern Primorye, village of Shevelevka; Shevelevka Sequence, Upper Devonian–Lower Carboniferous.

Jurinodendron sigillarioides (W.J. Jongmans) Doweld, comb. nov. = *Cyclostigma sigillarioides* W.J. Jongmans, 1955, p. 69, pl. 12, fig. 10a, b. Holotype: Egypt, Ras Gharib; Lower Carboniferous. (pl. 12, fig. 10a, b).

Jurinodendron sinaicum (W.J. Jongmans) Doweld, comb. nov. = *Cyclostigma sinaicum* ("sinaica") W.J. Jongmans, 1955, p. 69, pl. 11, pl. 12, fig. 9a–e. Holotype: Egypt, Sond. Ayun Musa I; Lower Carboniferous. (pl. 11, pl. 12, fig. 9a–e).

Jurinodendron ungeri (W.J. Jongmans, Gothan et Darrah) Doweld, comb. nov. = *Cyclostigma* (*Pinakodendron*) *ungeri* W.J. Jongmans, Gothan et Darrah, 1937, p. 441, figs. 45, 45a. Lectotype (here designated): Jongmans, Gothan et Darrah, 1937, figs. 45, 45a.

Jurinodendron ursinum (W.J. Jongmans) Doweld, comb. nov. = *Cyclostigma ursinum* W.J. Jongmans, 1931, p. 84, pl. 11, figs. 1–3. Lectotype (here designated): Jongmans, 1931, pl. 11, figs. 1–3.

Jurinodendron zafrense (W.J. Jongmans) Doweld, comb. nov. = *Cyclostigma zafrense* ("zafrensis") W.J. Jongmans, 1956, pp. 32–34, pl. 11, figs. 1–3, pl. 12, figs. 12, 14. Holotype: Los Santos de Maimona (Badajoz); Lower Carboniferous. (pl. 11, figs. 1–3, pl. 12, figs. 12, 14).

Species excluded:

Cyclostigma asiaticum ("asiatica") G. Radczenko in Kryshtofovich, 1957, p. 453, fig. 423, nom. nud. (sine descr.); G. Radczenko in Chaloner et Boureau, 1967, p. 507, fig. 349, nom. nud. (sine descr.).

Cyclostigma carneggianum (O. Heer) Nathorst, 1902, p. 40. = *Pseudolepidodendropsis carneggianum* (O. Heer) Schweitzer, 1969, p. 112.

Cyclostigma confertum Frenguelli, 1954, p. 364, pl. 4, figs. 1–2 = *Archaeosigillaria conferta* (Frenguelli) Menéndez, 1965, p. 67.

Cyclostigma densifolium J.W. Dawson, 1871, p. 43, pl. 8, figs. 92–96, nom. inval. = *Drepanophycus gaspi-anus* (J.W. Dawson) Kräusel et Weyland, 1948, p. 84.

Cyclostigma distans Chachlov, 1940, p. 505, fig. 13 = *Ursodendron distans* (Chachlov) V.A. Ananiev, 1974 (after 17 May) ('1973'), p. 185.¹

Cyclostigma irregulare (Schwartz) H.S. Rao, 1940, p. 211. = *Haplostigma irregulare* (Schwartz) A.C. Seward, 1932, p. 359.

Cyclostigma minutum Haught. ex O. Heer, 1871, p. 44, pl. 8, figs. 11–12. = *Pseudolepidodendropsis carneggianum* (O. Heer) Schweitzer, 1969, p. 112.

Cyclostigma rhomboicum ("rhomboica") Chachlov, 1940, p. 504, pl. 4, fig. 8. = *Ursodendron rhomboicum* (Chachlov) Doweld, comb. nov. Lectotype (here designated): Chachlov, 1940, pl. 4, fig. 8 (see Meyen, 1976).

Cyclostigma sara G. Radczenko in Kryshtofovich, 1957, p. 630, nom. tant.

Cyclostigma torenticum Chachlov, 1948, p. 192, figs. 13–15. = *Ursodendron torenticum* (Chachlov) Doweld, comb. nov. Lectotype (here designated): Chachlov, 1948, fig. 14.

Cyclostigma wijkianum (O. Heer) Nathorst, 1902, p. 39. = *Pseudolepidodendropsis carneggianum* (O. Heer) Schweitzer, 1969, p. 112.

The genus *Cyclostigma* is one of the most completely reconstructed fossil plants, and it frequently appears in manuals, text-books, and monographs. Based on this genus, Gothan (1921) established a distinct family of eligulate lepidophytes, Cyclostigmataceae, that was later considered as a separate order Cyclostigmatales by Japanese taxonomist Nakai (1943). The order and/or family are accepted by various researchers constructing the system of the plant kingdom (Koidzumi, 1939; Danzé-Corsin, 1962; Němejc, 1963; Chaloner and Boureau, 1967; Thomas and Brack-Hanes, 1984; Takhtajan, 1986, etc.). Hereafter I validate the family and order based on the valid generic name *Jurinodendron* to keep the taxa in the suprageneric system of the fossil Lycopodiophyta for further phylogenetic and taxonomic studies.

Family Jurinodendraceae Doweld, fam. et nom. nov. = Cyclostigmataceae W. Gothan, 1921, p. 188, nom. illeg. (diagn. in germanice).

Type genus *Jurinodendron* Doweld = *Cyclostigma* S. Haughton ex O. Heer.

D i a g n o s i s. Heterosporous tree-like eligulate (?) lycopodiopsids with leafless stems, with small, rounded clearly differentiated leaf scars (without leaf cushion), parichnos and vascular trace cicatricules, cones of *Lepidostrobus*-type borne terminally on small branches, sporophylls differentiated into well defined lamina and narrow pedicel, sporangia greatly radially elongated, megaspores of *Lagenicula*-type with a gula, spines.

C o m p o s i t i o n. Monogeneric.

¹ The authorship of this combination was erroneously ascribed to Meyen (1976) by himself since *Ursodendron distans* (Chachlov) S.V. Meyen ex Gorelova, 1973, explanation of pl. 2, is nomen nudum for lack of basionym or validated description.

Order Jurinodendrales Doweld, ord. et nom. nov. = Cyclostigmatales Nakai, 1943, p. 205, nom. illeg. (descr. lat.).

Type genus. *Jurinodendron* Doweld; family Jurinodendraceae Doweld.

Composition. Monotypic.

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REFERENCES

- Ananiev, V.A., Lepidophyte *Ursodenron distans* (Chachlov) nov. comb. from the Lower Carboniferous of Minusa Depression and Kuznetsk Basin, in *Priroda Kuzbassa* (The Nature of Kuznetsk Basin), Novokuznetsk: Kuznetsk Branch of the Geographical Society of the USSR, 1974 (1973), vol. 1, pp. 182–187.
- Cambier, R. and Renier, A., Observations sur *Cyclostigma maçonochiei* Kidston et *Omphalophloios anglicus* Sternberg, *Ann. Soc. Géol. Belg. Mém.*, 1912, vol. 3, no. 2, pp. 57–87.
- Chachlov, V.A., Plant Remains of Minusinsk Region, in *Tr. Nauchn. Konf. Izuch. Proizv. Sil Sib.*, 1940, vol. 2, pp. 501–508.
- Chachlov, V.A., Plant Remains from the Southeastern Minusa Depression, in *Tr. Tomsk. Gos. Univ.*, 1948, vol. 99, pp. 183–200.
- Chaloner, W.G., The Cone of *Cyclostigma kiltokense* Houghton, from the Upper Devonian of Ireland, *Bot. J. Linn. Soc.*, 1968, vol. 61, pp. 25–36.
- Chaloner, W.G. and Boureau, E., Lycophyta, in Boureau, E. (ed.), *Traité de Paléobotanique*, vol. 2, Paris: G. Mason, 1967, pp. 435–802.
- Crookall, R., Carboniferous Flora of Great Britain, *Mem. Geol. Surv. Gr. Brit. Paleontol.*, 1964, vol. 4, no. 3, pp. 320–368.
- Danzé-Corzin, P., Les Lépidophytes. Historique et classification, *Ann. Sci. Nat. Sér. 12. Bot. Biol. Vég.*, 1962, vol. 3, no. 2, pp. 293–319.
- Dawson, J.W., *The Fossil Plants of the Erian (Devonian) and Upper Silurian Formation of Canada*, Montreal: Dawson Bros., 1871.
- Dolianiti, E., Vegetais fósseis da Bacia Tocantins-Araguaia, *Anais Acad. Brasil. Cie.*, 1962 (1963), vol. 34, no. 4, pp. 477–481.
- Endlicher, S., *Mantissa Botanica sistens Generum Plantarum Supplementum Secundum. No. 2*, Vindobonae: F. Beck, 1842.
- Feistmantel, O., Palaeontologische Beiträge III. Palaeozoische und mesozoische Flora des östlichen Australiens, *Palaeontogr. Suppl.*, 1878, vol. 3, issue 2, pp. 83–130.
- Frenguelli, J., Plantas devónicas de la Quebrada de la Charnela en la Precordillera de San Juan, *Not. Mus. La Plata. Palaeontol.*, 1954, no. 102, pp. 359–376.
- Gorelova, S.G., Men'shikova, L.V., and Khalfin, L.L., Phytostratigraphy and Identification Key to Plants of the Upper Paleozoic Coal-Bearing Sediments of Kuznetsk Basin, in *Tr. Sib. Nauchn.-Issl. Inst. Geol., Geofiz., Min. Syr'ya*, 1973, issue 140, part 2, pp. 3–170.
- Greuter, W., McNeill, J., Barrie, F.R., Burdet, H.M., Demoulin, V., Filgueiras, T.S., Nicolson, D.H., Silva, P.C., Skog, J.E., Trehane, P., Turland, N.J., and Hawksworth, D.L., *International Code of Botanical Nomenclature (Saint-Louis Code) Adopted by the Sixteenth International Botanical Congress St. Louis, Missouri, July–August 1999*, Königstein: Koeltr Scientific Books, 2000 (Regnum Veg. 138.).
- Gothan, W., Familie Cyclostigmataceae, in Potonié, H., *Lehrbuch der Paläobotanik. 2 Aufl.*, Berlin: W. Engelmann, 1921, pp. 188–189.
- Gothan, W., Bemerkungen zur Alt-Carbonflora von Peru, besonders von Paracas, *Neues Jahrb. Min. Geol. Paläontol.*, 1928, vol. 59, part B, pp. 292–299.
- Houghton, S., On *Cyclostigma*, a New Genus of Fossil Plants from the Old Red Sandstone of Kiltorcan, Kilkenny; and on the General Law of Phyllotaxis in the Natural Orders—Lycopodiaceae, Equisetaceae, Filices, & c., *J. Roy. Dublin Soc.*, 1860a, vol. 2, pp. 407–420.
- Houghton, S., On *Cyclostigma*, a New Genus of Fossil Plants from the Old Red Sandstone of Kiltorcan, Kilkenny; and on the General Law of Phyllotaxis in the Natural Orders—Lycopodiaceae, Equisetaceae, Filices, & c., *Nat. Hist. Rev.*, 1860b, vol. 7, pp. 209–222.
- Houghton, S., On *Cyclostigma*, a New Genus of Fossil Plants from the Old Red Sandstone of Kiltorcan, Kilkenny; and on the General Law of Phyllotaxis in the Natural Orders—Lycopodiaceae, Equisetaceae, Filices, & c., *Ann. Mag. Nat. Hist.*, 1860c, ser. 5, vol. 3, pp. 433–445.
- Heer, O., Fossile Flora der Bären Insel (Flora Fossilis Arctica, vol. 2, no. 1), *Kgl. Svenska Vetenskapsakad. Handl.*, 1871, vol. 9, no. 5, pp. 1–51.
- Jongmans, W.J., Bemerkungen über Porodendron und dazu gerechnete und verwandte Formen, *Jaarverslag Geol. Bureau Heerlen vor 1930*, 1931, pp. 81–86.
- Jongmans, W.J., The Carboniferous Flora of Peru, *Bull. Brit. Mus. Nat. Hist. Geol.*, 1954, vol. 2, no. 5, pp. 191–223.
- Jongmans, W.J., Notes paléobotaniques sur les bassins houillers de l'Anatolie, *Meded. Geol. Sticht. N.S.*, 1955, vol. 8, pp. 55–89.
- Jongmans, W.J., Contribucion al conocimiento de la flora carbonifera del SO de España, *Estud. Geol.*, 1956, no. 12 (29), pp. 32–34.
- Jongmans, W.J., Gothan, W., and Darrah, W.C., Beiträge zur Kenntnis der Flora der Poconna-Schichten aus Pennsylvanien und Virginia, in *C. R. 2ème Congr. L'Avanc. étud. Stratigr. Géol. Carbonif. Heerlen 1935*, Maestricht: éditions "Ernest von Aelst," 1937, vol. 1, pp. 423–444.
- Jongmans, W.J. and Koopmans, R.G., Contribution to the Flora of the Carboniferous of Egypt, *Meded. Geol. Sticht. voor 1938/1939*, 1940, pp. 223–229.
- Kidston, R., The Fossil Plants of the Carboniferous Rocks of Canonbie, Dumfriesshire and of Parts of Cumberland and Northumberland, *Trans. R. Soc. Edinb.*, 1903, vol. 40, pp. 741–833.
- Klotzsch, J.C., *Cyclostigma*, in Seeman, B.C., *The Botany of the Voyage of H. M. S. Herald*, London: L. Reeve, 1853.

- Kryshstofovich, A.N., *Paleobotanika* (Paleobotany), Moscow: Gostoptekhizdat, 1957.
- Koidzumi, G., Phylogenetic and Epiontological Evolution of the Vegetable Kingdom. III, *Acta Phytotax. Geobot.*, 1939, vol. 8, pp. 203–222.
- Kräusel, R. and Weyland, H., Pflanzenreste aus dem Devon, XIII. Die Devon-Floren Belgiens und des Rheinlandes, nebst Bemerkungen zu einigen ihrer Arten, *Senckenbergiana*, 1948, vol. 29, pp. 77–99.
- Mägdefrau, K., Die Flora des Oberdevon im östlichen Thüringer Wald, *Beih. Bot. Centralbl.*, 1936, part B, issues 1–2, pp. 213–228.
- Menéndez, C.A., *Archaeosigillaria conferta* (Frenguelli) comb. nov. del Devónico de la Quebrada de la Chavela, San Juan, *Ameghiniana*, 1965, vol. 4, no. 2, pp. 67–68.
- Meyen, S.V., Carboniferous and Permian Lepidophytes of Angaraland, *Palaeontographica B.*, 1976, vol. 157, pp. 112–157.
- Miller, S.A., *Northern American Geology and Palaeontology for the Use of Students, and Scientists*, Cincinnati: Western Methodist Book Concern, 1889.
- Nakai, T., *Chošakuronbun Mokuroku [Ordines, familiae, tribi, genera, sectiones, species, varietates, formae et combinationes novae a Prof. Nakai-Takenosin adhuc ut novis edita. Appendix. Quaestiones characterum naturalium plantarum]*, Tokyo: Universitatis Imperialis Tokyoensis, 1943.
- Nathorst, A.G., Zur oberdevonischen Flora der Bären-Insel, *Kgl. Svenska Vetenskapsakad. Handl.*, 1902, vol. 36, no. 3, pp. 1–60.
- Němejc, F., *Paleobotanika. T. 2*, Praha: Nakladatelství Československé Akademie Věd, 1963.
- Philippi, R.A., Sertum mendocinum alterum, o sea, catálogo de las plantas recojidas cerca de Mendoza i en los caminos que conducen de Chile a esa ciudad, *Anal. Univ. Chile.*, 1870, vol. 36, pp. 159–212.
- Potonié, H., Palaeophytologische Notizen. 9. Zur Nomenclatur der Fossilien, *Naturwiss. Wochenschr.*, 1900, vol. 15, pp. 313–314.
- Potonié, H., Die Silur- und die Culm-Flora des Harzes und des Magdeburgischen, *Abh. K. Preuss. Geol. Landesanst. N. F.*, 1901, vol. 36, pp. 1–183.
- Rao, H.S., On the Anatomy of *Lycopodiopsis derbyi* Renault with Remarks on the Southern Palaeozoic Lycopods, *Proc. Ind. Acad. Sci. Ser. B.*, 1940, vol. 11, pp. 197–217.
- Schweitzer, H.-J., Die Oberdevon-Flora der Bäreninsel. 2. Lycopodiinae, *Palaeontographica B.*, 1969, vol. 126, pp. 101–137.
- Seward, A.C., Fossil Plants from the Bokkeveld and Witteberg Beds of South Africa, *Quart. J. Geol. Soc. London*, 1932, vol. 88, pp. 358–369.
- Takhtajan, A.L., The Higher Taxa of Vascular Plants Excluding Angiosperms, in *Problemy Paleobotaniki* (Problems of Paleobotany), Leningrad: Nauka, 1986, pp. 135–142.
- Thomas, E.A. and Brack-Hanes, S.D., A New Approach to Family Grouping in the Lycophytes, *Taxon*, 1984, vol. 33, no. 2, pp. 247–255.
- Weiss, C.E., Zur Flora der ältesten Schichten des Harzes, *Jahrb. K. Preuss. Landesanst. Berlin*, 1885, vol. 5, pp. 148–180.
- Zimina, V.G., Lycophytes of the Shevelevka Sequence in Southern Primorye, *Paleontol. Zh.*, 1989, no. 1, pp. 95–102.