

Portug. 70: 146. 1984; Beeston in Alcheringa 14: 325. 1990; Balasubrahmanyam, Geol. Tectonics India: 126. 2006).

However, earlier than Kräusel, in 1913 Mercenier (l.c.: 172) described similar remnants of stems from the Permian sediments of the then Belgian Congo (Democratic Republic of the Congo [Congo-Kinshasa]), that were synonymized later with the type of *Cyclodendron*, *Bothrodendron leslii* Seward from the Permian of South Africa, by authoritative palaeobotanist Jongmans (Foss. Cat. Pl. 16: 357. 1930 & 21: 1015. 1936), and since that time both generic names *Subsigillaria* and *Eusigillaria* have become “nomina oblita”. In last comprehensive world treatment of lepidophytes, Chaloner (in Boureau, Traité Paléobot. 2: 514. 1967) listed Mercenier’s generic names as synonyms of *Cyclodendron*, but it is not correct from the stand point of nomenclature, since *Subsigillaria* Mercenier and *Eusigillaria* Mercenier have priority over *Cyclodendron* Kräusel. In

order to legitimize the present taxonomic situation, i.e., the use of *Cyclodendron* in preference of earlier established generic names, it is proposed to conserve *Cyclodendron* Kräusel against *Subsigillaria* Mercenier and *Eusigillaria* Mercenier.

The precise date of publication of Kräusel’s work has been established from the daily lists of all newly published books in Germany listed in *Börsenblatt für den Deutschen Buchhandel* for 11 Aug 1928 (№ 186, p. 6418).

Acknowledgements

It is a pleasure to thank Valentina Bublik (Fundamental Botanical Library of the National Institute of Carpology, Moscow) for bibliographic assistance with the establishment of the date of publication of Kräusel’s (1928) treatise.

(2093) Proposal to conserve the name *Pecopteris* against *Filicites* (fossil *Botryopteridiopsida* (*Pteridophyta*))

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- (2093) *Pecopteris* (Brongn.) Sternb., Vers. Fl. Vorwelt 1 (Tentamen): xvii. Sep 1825 (*Filicites* sect. *Pecopteris* Brongn. in Mém. Mus. Hist. Nat. 8: 233. Mai 1822), nom. cons. prop. Typus: *P. pennaeformis* (Brongn.) Sternb. (*Filicites pennaeformis* Brongn.)
- (≡) *Filicites* Schlotheim ex Brongn. in Mém. Mus. Hist. Nat. 8: 209, 232. Mai 1822 [Foss.], nom. rej. prop.
- Typus (hic designatus):** *Filicites pennaeformis* Brongn.

Adolphe T. Brongniart, at the age of 21, proposed a new system of classification of fossil plants, in which he employed for the first time what were well known as form-genera of fossil plants (Brongniart, l.c.). Thus for the first time after 1820, when Sternberg’s (Vers. Fl. Vorwelt 1. 31 Dec 1820) new era in systematic palaeobotany started, the form-genus *Filicites* was circumscribed as consisting of five distinct, monotypic sections, *Glossopteris*, *Sphenopteris*, *Neuropteris*, *Pecopteris*, and *Odontopteris*, for which, due to lack of fertile material, Brongniart had left time to find more natural relationships with other fossil ferns. Needless to say, due to their essential differences, these sections soon became distinct genera and even families (*Sphenopteridaceae* Göpp. (Gatt. Foss. Pflanz.: 49. 1842 (*Sphenopterides*’)), *Pecopteridaceae* Göpp. (l.c. (*Pecopterides*’)), *Neuropteridaceae* Göpp. (l.c. (*Neuropterides*’)) and *Odontopteridaceae* Nathorst (in Kongl. Svenska Vetensk. Acad. Handl. 14(3): 33, [23]. 1876 (*Odontopterideae*’)). All of them were transferred from ferns to pteridosperms except for the fern-like *Pecopteris* and the lepidophyte *Glossopteris* (Brongn.) Sternb. (Vers. Fl. Vorwelt 1 (Tentamen): xv. Sep 1825) (non Brongn. 1828, nom. cons.). However, *Filicites*, in spite of the fact that all the species names included in its protologue became types of different generic names in current use, continued to be used by palaeobotanists for ill-defined fossils of fern affinity. When more data on extinct biodiversity of fossil forms came

to light, it was realized that it was desirable to use in systematics more definite form-genera for the fossils and species that had been assigned to *Filicites* and their names were re-combined into other fossil genera. Thus *Filicites* gradually lost its original meaning in the taxonomy of fossil plants and became exclusively a formal genus, a waste basket, for unrelated, ill-defined fossils, and eventually disused in modern fossil plant systematics (Jongmans & Dijkstra, Foss. Cat. Pl. 41: 1208. 1960 & 67: 3873. 1967; Dijkstra & Van Amerom, Foss. Cat. Pl. 89: 219. 1982).

Although the genus has been long understood as a formal entity, its name has not been effectively typified up to now. For example Andrews (in Bull. U. S. Geol. Surv. 1013: 89. 1955) wrote “a type species seems meaningless because of the diversity of fossils assigned to this genus of miscellaneous fern foliage fragments”. His formal proposal (Andrews, l.c.) to designate *Filicites cyatheous* Schloth. as type is erroneous and should be rejected, because the species was not included by Brongniart in the original protologue of the genus, where only five species of *Filicites* were described: *F.* (sect. *Glossopteris*) *dubius* Brongn., *F.* (sect. *Sphenopteris*) *elegans* Brongn., *F.* (sect. *Neuropteris*) *heterophyllus* Brongn., *F.* (sect. *Odontopteris*) *brardii* Brongn., and *F.* (sect. *Pecopteris*) *pennaeformis* Brongn. As *F. dubius* has been shown to be a lepidophyte (≡ *Lepidostrobophyllum* M. Hirmer (1927) ≡ *Lepidophylloides* Snigirevskaja (1958)), it should definitely be excluded from the lectotypification of the generic name, its description and circumscription contradicting that of a fern genus. Since *Filicites* was implicitly used by Brongniart (l.c.: 232) for barren fern foliage, only a definite fern species, *F.* (sect. *Pecopteris*) *pennaeformis* Brongn., is suitable for selection, because other species are now treated as pteridosperms, not ferns, and *F. pennaeformis* is designated above as type of *Filicites* Brongn.

However, as has been outlined above, the names of all species of Brongniart’s *Filicites* came to indicate the types of the names of

distinct genera widely used in modern systematic palaeobotany. The genus *Pecopteris* (Brongn.) Sternb. (1825), founded on Brongniart's monotypic section includes *F. pennaeformis* Brongn., and is currently used for barren fern foliage of Palaeozoic age (vide Corsin, Pécoptridées: 175–370. 1951; Martin in Trav. Lab. Géol. Fac. Sci. Grenoble 1: 1–100. 1960; Jongmans & Dijkstra, Foss. Cat. Pl. 51: 2161. 1962 & 69: 3989. 1968; Dijkstra & Van Amerom, Foss. Cat. Pl. 91: 486. 1985), being attributed to the distinct fossil family *Senftenbergiaceae*

C.F. Reed (*Senftenbergiales* Doweld) of *Botryopteridiopsida* Doweld, should be preserved in palaeobotany and conserved against disused *Filicites* Brongn.

Acknowledgements

The research is a contribution to the *Palaeoflora Europaea* Project and *Palaeoflora of Russia (Palaeoflora Rossica)* Project (NOM-10-2019).

(2094) Proposal to reject the name *Filicites* (fossil *Embryopsida*)

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- (2094) *Filicites* Schloth. ex Brongn., *Classific. Vég. Foss.*: 9. 1822, nom. utique rej. prop.
Typus (vide Doweld in Taxon 61: 1126. 2012): *Filicites (Pecopteris) pennaeformis* Brongn.

The generic name *Filicites* was first used by Schlotheim (*Pentrefactenkunde*: 403–413. 1820) for 23 species of Carboniferous fern fossils. However, the name was not validly published there as Schlotheim's book pre-dated the starting point for valid publication of taxonomic names of plant fossils (31 December 1820—Art. 13.1(f) of the *Vienna Code*; McNeill & al. in *Regnum Veg.* 146. 2006). Moreover, as pointed out by Kvaček (in *Taxon* 31: 319. 1982), no diagnosis was given and so the name would, in any case, not have been validly published according to Art. 32.1 of the *Vienna Code*. Most palaeobotanists have, therefore, ignored the name *Filicites* for taxonomic purposes.

However, this overlooks the fact that shortly afterwards, and after the starting date for fossil nomenclature, Brongniart (l.c.) validly published *Filicites* by providing a diagnosis (*Fronde dispose dans un même plan, symétrique, nervures secondaires simples, dichotomes ou rarement anastomosées*). Aware that such a diagnosis could encompass a wide range of fern-like fronds, Brongniart divided the genus into five sections, each with a diagnosis and a clearly indicated type: *Filicites (Glossopteris)* Brongn., *Filicites (Sphenopteris)* Brongn., *Filicites (Nevropteris)* Brongn., *Filicites (Pecopteris)* Brongn. and *Filicites (Odontopteris)* Brongn. However, the resulting trinomial nomenclature did not find wide favour among palaeobotanists, who either ignored the sections and assigned species to an undivided *Filicites* (e.g., Artis, *Antediluv. Phytol.*, 1825), or raised the sections in rank to genera and dispensed with the name *Filicites* (most notably Sternberg, *Vers. Fl. Vorwelt* 1(4): Tent. xiv–xxi. 1825). The latter position rapidly became widely accepted, including by Brongniart (*Prodr. Hist. Vég. Foss.*: 49. 1828).

A few palaeobotanists have retained *Filicites* for fragments of fern-like frond that are too poorly preserved to be included in one or other of these genera; a full list of publications where *Filicites* has been used in this way is given by Jongmans & Dijkstra (*Foss. Cat. Pl.* 39: 1208–1219. 1959). However, such usage has not been widespread and would anyway require some taxonomic and/or nomenclatural changes before it became compatible with the *Vienna Code*: either

we would have to revert to Brongniart's (l.c.) generalised generic concept of *Filicites* that would encompass all fern-like frond fossils, a suggestion that most palaeobotanists would undoubtedly reject; or *Filicites* would have to be conserved with a different type to any of those given in the protologue—a type which would in effect have to be characterised by being unidentifiable, at least at the generic rank.

Since it cannot be rejected simply because it is “disagreeable” (Art. 51.1 of the *Vienna Code*) *Filicites* must either be (1) conserved with a totally different type under Art. 14 of the *Vienna Code*, (2) rejected under Art. 56 of the *Vienna Code*, or (3) used for one of Brongniart's sections (now genera). The first option has little merit, as it would merely be resurrecting a long-unused name to replace an existing name with no obvious benefit to the science. Doweld (l.c.) has followed the third option and has designated *Filicites (Pecopteris) pennaeformis* as the lectotype. Doweld argued that this was the only choice as this is the only one of the five candidate types in the protologue that is still regarded as having fern affinities. This is in fact irrelevant as the diagnosis in the protologue of *Filicites* made no mention that it was only to include remains of fern fronds; in the discussion Brongniart (l.c.: 232) merely stated that these fossils were analogous with ferns. Doweld's designation was nevertheless an effective one and has to be followed. As a consequence, however, Doweld (l.c.: 1126–1127) then needed to conserve *Pecopteris* against *Filicites* to avoid significant disruption to taxonomic nomenclature. *Pecopteris* is one of the most widely used fossil genera of fern foliage: in the latest part of the *Fossilium Catalogus* to deal with these fossils (Dijkstra & Van Amerom, *Foss. Cat. Pl.*: 91. 1985), 199 *Pecopteris* species are listed as being described or listed in the literature between 1968 and 1985, and without conservation new combinations would be required for many of these.

Although Doweld's proposal would successfully remove *Filicites* from palaeobotanical taxonomy, it has the unfortunate consequence of requiring the abbreviation “nom. cons.” to be added to the name *Pecopteris* whenever the latter is formally cited. A far simpler way of quarantining *Filicites* without also having to encumber *Pecopteris* with this nomenclatural “clutter” would be to place *Filicites* in the list of *nomina utique rejiciendum* under Art. 56 of the *Vienna Code*. As all other things are equal, greater simplicity is surely a strong argument in supporting this latter proposal.