

ON THE NOMENCLATURE OF *PTERUCHUS JOHNSTONI* (FEISTMANTEL) COM. NOV.

By

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(With one figure.)

ABSTRACT

The holotype of the species hitherto called *Pteruchus africanus* Thomas is redescribed and refigured; on grounds of priority this species must now be called *Pteruchus johnstoni* (Feistmantel) com. nov. The specimen named *Stachyopitys annularioides* Shirley is redescribed and considered to be identical with *P. johnstoni*.

INTRODUCTION.

The type species of the genus *Pteruchus* has hitherto been called *Pteruchus africanus* Thomas (1933), but Thomas and others (Jones and de Jersey 1947, Townrow, 1961) have pointed out that certain specimens described earlier might be identical with *P. africanus*, and if so, that the earliest of their names might have priority. These specimens are as follows:—

1. *Sphenolepis rhaetica* Geinitz, 1876, p. 12, pl. 2 figs. 23, 24. (Location of specimen unknown.)
2. "Male flower of *Baiera tenuifolia*" Johnston, 1888, pl. 27 figs. 2D and E (see also Feistmantel, 1890, p. 113, pl. 10, fig. 5; and Walkom, 1924, pp. 85-86, figs. 15, 16). (Tasmanian Museum: No. B 1049.)
3. *Stachyopitys annularioides* Shirley, 1898, p. 13, pl. 18, fig. 1. (Geological Survey of Queensland: No. F. 142.)

Thanks to the kindness of the Director, the Tasmanian Museum, and the the Government Geologist, Geological Survey of Queensland, I have been able to examine Johnston's and Shirley's specimens.

Geinitz's specimen is indeterminable from his figure. Until the specimen is re-examined his name *Sphenolepis rhaetica* must be written off as a *nomen vanum*, a name applied to an indeterminable type.

DESCRIPTION AND DISCUSSION

(1) *Johnston's specimen: Tasmanian Museum B 1049.* Sporophyll 2.5 cms. long, base not seen, rachis maximum width 2 mm., four alternate pinnae present, but no vegetative pinnules. Pinnae expanding into more or less round sporangial

heads, preserved sporangial surface uppermost. Diameter (including projecting pollen sacs) about 5 mm. (largest 8 x 6 mm.). Pollen sacs very close set, at least 30 per head, about 2 mm. long and 1 mm. wide, slightly inflated, apex bluntly pointed, dehiscing by a longitudinal slit flanked by narrow cells. Rachis showing imprints of cells comprising a wing of narrow cells (about 150 μ x 35 μ), and a central band of wider cells with stomata, measuring about 180 μ x 70 μ . Pollen sac impressions showing imprints of elongated cells about 250 μ x 74 μ . No cuticle or pollen preserved.

This specimen was first figured by Johnston (1888), but he did not give a name, believing it to be attached to a specimen of the leaf *Czekanowskia* (originally *Baiera*) *tenuifolia*. Feistmantel (1890) gives another figure and also a name, *Trichopitys johnstoni*. He also believed the pollen organ and leaf to be attached. Walkom (1924) pointed out that the leaf and pollen organ are not joined, but he accepted the view that they belong to the same plant and he also reverted to Johnston's nomenclature.

Walkom was correct; the leaf and pollen organ are not joined. They not only lie at different levels in the rock but point in opposite directions, see fig. 1A. There are, indeed, no grounds except association for believing that the two fossils have anything to do with one another. The leaf itself I cannot identify. It probably is *C. tenuifolia*, but it could be a specimen of *Xylopteris* (older name *Stenopteris*) *elongata*, which is probably present in the Lord's Hill locality (see Johnston, 1888, pl. 27, fig. 7).

Specimen B 1049 agrees in every available feature, including such cellular detail as is visible, with better preserved material called *Pteruchus africanus*, and differs distinctly from the other two species, *P. dubius* and *P. simmondsi*. It is therefore identified. Feistmantel's name is the earliest given to the pollen organ as such, and therefore becomes the specific name for the species, and the specimen B 1049 becomes the holotype.

The record has additional interest in that it is another record of association between *Pteruchus johnstoni* and the leaf *Dicroidium odontopteroides*, since it has been suggested (Townrow, 1961) that these two fossils are parts of the same plant. *D. odontopteroides* is recorded from Lord's Hill, and is present on B 1049.

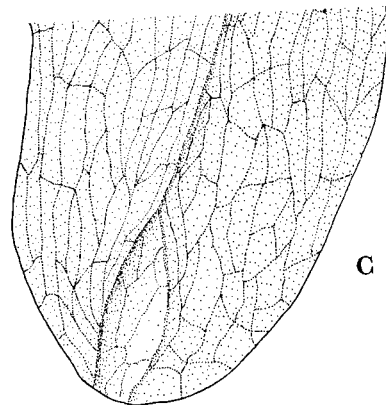
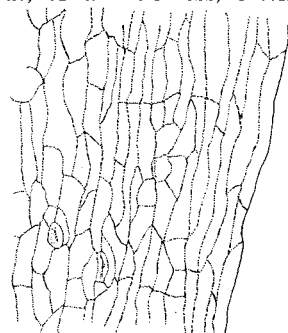
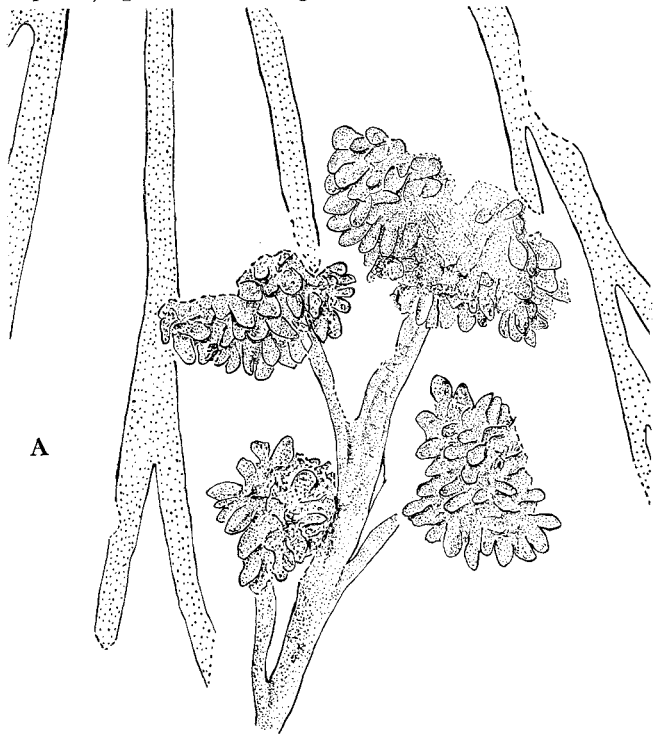
(ii) *Shirley's specimen*: *Geological Survey of Queensland* F 142. This specimen which lacks a counterpart and is an impression only, shows the remains of at least two sporophylls. The surface of the fossil is very uneven, and I think there is little doubt that the specimen has split through the plant material (or the space left by its absence) leaving about equal quantities on part and counterpart, though in the absence of the counterpart this cannot be confirmed. No sporangial heads are complete, the most complete show the remains of about 25 pollen sacs, so the original number was probably greater than this.

The number of pollen sacs is an important point, for the only definite difference between *P. johnstoni* and *P. annularioides* is that the latter was supposed to have fewer pollen sacs per head. It now appears the number of pollen sacs is about the same.

In dimensions, in showing the cast of a strongly rugose non-sporangial surface of the head, and so far as visible, in size and form of the cellular impressions, this specimen agrees with the holotype of *P. johnstoni*, and is united with it, the name *annularioides* becoming a synonym. Besides Shirley's specimen only two other fossils have been called *Pteruchus* (or *Stachyopitys*) *annularioides*. They are in Jones and de Jersey (1947) text-fig. 38, which is hardly identifiable, and in Halle (1913), pl. 6, figs. 13, 13a, which is probably distinct.

CITATION AND HOLOTYPE

1888 Male flower of *Baiera tenuifolia* Johnston, pl. 27, figs. 2D and E (figs. 2C and 2B distinct).



LEGEND FOR FIGURES.

- A. The holotype B 1049. Tasmanian Museum. X 2-5.
 B. Imprints of cells and stomata from the rachis B 1049/X 120.
 C. Imprints of cells and the dehiscence slit on a sporangium B 1049 X 120.

1890 *Trichopitys johnstoni* Feistmantel, p. 113, pl. 10, fig. 5. (Johnston's specimen refigured.)

1898 *Stachyopitys annularioides* Shirley, p. 13, pl. 18, fig. 1.

1933 *Pteruchus africanus* Thomas, pp. 235-237, pl. 24, figs. 71, 72, text-figs. 34, 35.

1961 *Pteruchus africanus* Thomas: Townrow, pp. 293-296, pl. 24, fig. 4, pl. 25, figs. 1, 2, pl. 26, figs. 2, 4-11; text figs. 1-3, 6-10.

(Diagnosis and full synonymy given.)

Holotype: Tasmanian Museum B 1049.

Locality: Lord's Hill, Hobart, Tasmania.

Horizon and Age: Feldspathic Sandstone Series, Triassic.

Collector: R. M. Johnston, in about 1880.

Emended Diagnosis. Microsporophyll about 2 cms. long, rachis about 1.5 mm. wide at base. About eight (4-9) long, normally unbranched pinnae present. Heads round to about four times as long as wide, width about 5 mm., non-sporangial surface strongly rugose, about 10 lobes per head, lobes small in proportion to size of head. Pollen sacs 30 or more per head, about 2.5 mm. long and 1.5 mm. wide. Cell outlines faint, 1μ or less, sinuosities small, sometimes absent, about 1μ long, usually obtuse, not pointed. Stomata somewhat sunken, poles exposed, pit not overlapped by cutin flanges. Pollen bisaccate, corpus normally deeper than wide, rarely rounded (polar view). Aposaccate areas (polar view) obtuse or bluntly pointed, grain as high as wide, or higher, outline trapezoid. Cappa convex, other surfaces more or less flat. Roots of sacchi markedly offset distally, proximal roots normally inserted distally to widest part of corpus. Sacchi as deep as corpus, or a little less, often slightly

inflated. Ornament on sacci: brochi ca. 3μ in diameter, muri ca 1μ wide. Cappa normally slightly uneven, sometimes thickened (up to ca 2μ). Dimensions (fiducial limits bracketed): corpus depth 45.3μ (3.56), width 32.2μ (3.70); width of total grain 62μ (3.51); height of sacci 35.5μ (1.88).

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