

HOEGISPORIS, A NEW AUSTRALIAN CRETACEOUS FORM GENUS

by ISABEL C. COOKSON

ABSTRACT. A distinctive microspore occurring in certain Australian Cretaceous deposits is described as *Hoegisporis lenticulifera* gen. et sp. nov. and briefly discussed.

THE microspore for which the new genus *Hoegisporis* is herein proposed, although well characterized and readily recognizable, does not possess those clear features by which dispersed spores can usually be distinguished from pollen grains. It shows no sign of either a tetrad scar or any kind of germinal aperture—*Hoegisporis* may well represent an inaperturate pollen grain, but whilst its origin remains obscure the term microspore, in the broad sense, seems the better application.

HOEGISPORIS gen. nov.

Inaperturate microspore with a thin exine that is strengthened by a variable number of prominent, lenticular thickenings around the equator. Type species. *H. lenticulifera* sp. nov.

Hoegisporis lenticulifera sp. nov.

Plate 76, figs. 4-9. Holotype figs. 6, 7, Nat. Mus. Vic. P 20510.

Age and occurrence. Probably Aptian: 'Santos' Ltd. Oodnadatta Bore, S.A., between 1,032 and 1,052 ft. Albian: Oodnadatta Bore, at 327 ft.; Moora Bore, W.A., between 86 and 170 ft.; Regan's Ford on Moore River, W.A., Wapet's seismic shot hole L 8 at 240 ft.; Lower Gearle Siltstone, W.A., Wapet's Rough Range no. 1 Bore at 2,750 ft. and Wapet's Rough Range South no. 1 Bore, W.A., between 2,758 and 2,867 ft.? Upper Albian to Cenomanian: Osborne Formation, W.A., Subiaco Bore, at 358 ft.; near Gingin, W.A., Wapet's seismic shot hole B 1 between 190 and 220 ft.; Galbraith, N.Q. Frome Broken Hill Co.'s Wyaaba no. 1 Bore between 1,155 and 1,156 ft.; Haddon Downs, S.A., Bore no. 1 at 431 ft. and Bore no. 5 at 801 ft. Probably Cenomanian: Brickhouse Bore, W.A., at 1,210 ft. Further details regarding these localities may be found in the papers by Cookson and Eisenack, and Cookson and Dettmann cited below.

Description. Microspore always much flattened and showing the equatorial outline, approximately circular in polar view with a \pm wavy outline. Exine less than 1μ thick, intectate, finely (less than 1μ) and closely pilate, frequently dotted with larger club-shaped outgrowths or clavae of variable size; equatorial exinous thickenings 6-11 in number with a circular outline in surface view. Dimensions. Type-diameter 59μ , equatorial thickenings $c. 7 \times 5\mu$ in optical section. Range-diameter $33-60\mu$, equatorial thickenings $7 \times 4\mu$ to $12 \times 7\mu$, clavae $c. 1-4\mu$ wide, up to $c. 3-5\mu$ long.

Comments. It is probable that those examples in which the ornament consists only of pila are specifically distinct from those in which clavate prominences are also present. However, a considerably larger number of examples than, at present, is available will be necessary before this question can be fully resolved.

The only described spore or pollen type with which *Hoegisporis lenticulifera* appears to be at all comparable is the angiospermous species *Pollenites oculis noctis* Thiergart [Palaeontology, Vol. 3, Part 4, 1961, pp. 485-6, pl. 76.]

(1940, pl. 7, fig. 1) from the Oligocene of Germany and the apparently similar unidentified pollen, from the Russian Oligocene, figured by Pokrowskoi (1956, pl. 5, fig. 26) and reproduced herein (Pl. 76, fig. 9). However, in *P. oculis noctis* the conspicuous exinous thickenings which characterize this species are associated with pores whereas those of *H. lenticulifera* have no apertural connexion whatsoever. Furthermore, *H. lenticulifera*, unlike *P. oculis noctis*, has been found, with one exception (Haddon Downs no. 1 Bore at 431 ft.), in beds in which no recognizable angiospermous pollen grains occur, so that an affinity with the Angiospermae seems unlikely.

Dr. W. G. Chaloner has drawn my attention to Leschik's genus *Camerosporites*; *Camerosporites*, however, has equatorial swellings which are described as hollow chambers, whereas those in *Hoegisporis* are solid.

Although never frequent, *H. lenticulifera* has been isolated, to date, from several widely separated Cretaceous deposits in Western Australia, two in South Australia, and one in North Queensland. The exact age of some of these sediments is still in doubt but present indications are that *H. lenticulifera* ranged from high in the Aptian to Cenomanian.

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REFERENCES

- COOKSON, I. C. and EISENACK, A. 1960. Microplankton from Australian Cretaceous sediments. *Micro-paleontology*, **6**, 1-18.
 — and DETTMANN, M. E. 1959. On *Schizosporis*, a new form genus from Australian Cretaceous deposits. *Ibid.* **5**, 213-16, pl. 1.
 EISENACK, A. and COOKSON, I. C. 1959. Microplankton from Australian Lower Cretaceous sediments. *Proc. Roy. Soc. Vic.* **72**, in press.
 LESCHIK, G. 1955. Die Keuperflora von Neuwelt bei Basel. II, Die Iso- und Mikrosporen. *Schweiz. Palaeont. Abh.* **72**, 1-70.
 POKROWSKOI, I. 1956. Atlas oligocenovykh sprovo-pyl'cevych kompleksov razlichnykh rajonov SSSR. *Materialy vsesojuznogo naučno-issledovatel'skogo geologičeskogo instituta (VSEGEI) Novaja serija*. vyp. **16**.
 THIERGART, F. 1940. Die Micropaläontologie als Pollenanalyse im Dienst Braunkohlenforschung. *Schr. Brennstoff-Geol.* **13**, 1-89.

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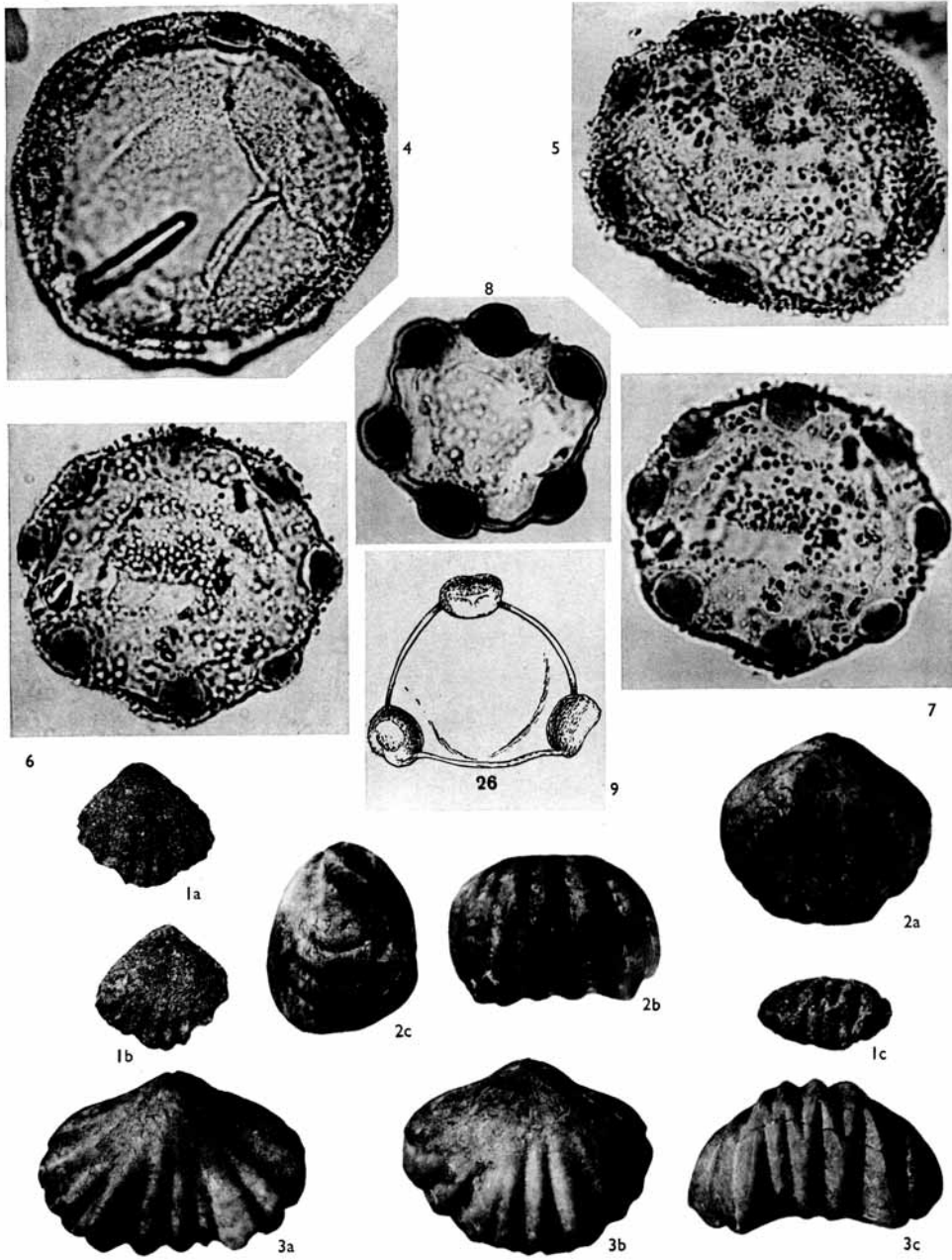
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EXPLANATION OF PLATE 76

Figs. 1-3. *Pugnoides triplex* (M'Coy). 1a-c, Ventral, dorsal, and anterior views of topotype, $\times 5$, Kildress, Co. Tyrone, Ireland, British Museum (Natural History) B 12652. 2a-c, Dorsal, lateral, and anterior views of specimen from Weaver Hills, $\times 4$, B.M. (N.H.) BB 39182. 3a-c, Ventral, dorsal, and anterior views of a specimen from the Weaver Hills which has four costae on fold of brachial valve, $\times 3$, B.M. (N.H.) BB 39180.

Figs. 4-8. *Hoegisporis lenticulifera* gen. et sp. nov. 4, Paratype, Regan's Ford, W.A., seismic shot hole L8 at 240 ft., $\times 1,000$, Nat. Mus. Vic. P 20511. 5, Subiaco Bore, W.A., at 358 ft., $\times 1,000$. 6, 7, Two views of holotype, Subiaco Bore, W.A., at 358 ft., $\times 1,000$. 8, Rough Range South no. 1 Bore, W.A., between 2,758 and 2,867 ft., $\times 800$.

Fig. 9. Reproduction of Pokrowskoi's figure (1956, pl. 5, fig. 26, p. 241) of an 'indeterminate pollen. Angiospermae' from the Oligocene of Russia, $\times 600$.



COOKSON, *Hoegisporis* gen. nov.
PARKINSON, *Pugnoides triplex* (M' Coy)