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A BIOSTRATIGRAPHY OF THE LATE PERMIAN
AND TRIASSIC OF THE SYDNEY BASIN
(PLATES)
Figures 19, 23 Microspores extracted from fertile remains of *Todites narrabeenensis* Burges.

Fig. 19 Todites Slide/1 28.2 108.7
Fig. 23 Todites Slide/1 24.5 107.5

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Fig. 21 Slide 553/1 32.0 115.7
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Fig. 15 Slide 628/3 23.4 107.7, distal focus.

Fig. 16 Slide 628/3 23.4 107.7, proximal focus showing folding of raised labrae.

Fig. 19 Single species mount 647/1 23.4 108.9

Fig. 20 Single species mount 647/1 24.0 108.8, proximal focus showing auriculate bosses at termini of the laesurae.

Fig. 21 Single species mount 647/1 24.0 108.8, distal focus.
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**Fig. 6** Slide 985/3 17.3 99.5, distal focus showing conate sculpture.

**Fig. 2** Slide 985/4 39.8 103.7, proximal focus.

**Fig. 7** Slide 985/4 39.8 103.7, distal focus.

**Fig. 3** Slide 985/4 43.8 110.4, proximal focus showing labrate laesurae and outline of spine attenuation.

**Fig. 4** Slide 985/3 40.5 110.7, distal focus.

**Fig. 5** Slide 985/3 40.5 110.7, proximal focus.

**Fig. 8** Slide 986/2 23.0 117.0, lateral view.

**Figure 10**  
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**Figures 9,13,14,17,18**  
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Balme & Hennelly

**Fig. 9** Slide 985/5 36.4 102.5, lateral view showing disposition of sculptural elements.

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**Fig. 17** Slide 985/4 39.4 104.5, proximal focus.

**Fig. 18** Slide 985/4 39.4 104.5, distal focus.
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Fig. 2  Slide 522/4 19.5 106.5, proximal focus.
Fig. 6  Slide 522/4 19.5 106.5, distal focus.
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Fig. 4  Slide 522/1 21.5 115.0, proximal focus.
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- **Fig. 12** Slide 992/2 38.5 104.2, distal focus.
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- **Fig. 18** Slide 985/4 29.0 120.0, distal focus.
- **Fig. 19** Slide 985/4 29.0 120.0, proximal focus showing raised labrae and diminishing size of sculptural elements approaching the proximal pole.
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Figures 4,5,8,9  \textit{Acanthotriletes prospectensis} sp. nov.

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Figures 6, 7  \textit{Apiculatisporis} sp. 1

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  \item Fig. 6  Slide 628/5 19.0 108.5, proximal focus.
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Figures 11, 15  \textit{Didectitriletes} sp. cf. \textit{D. dentatus} Balme & Hennelly

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38.2 109.0, proximal focus.

Slide 985/4

38.2 109.0, distal focus.

Figures 3,4,7,10,11 Lophotriletes novicus Singh

g. 3 Slide 982/4

29.5 115.0, proximal focus showing darkening of proximal exine adjacent to laesurae.

Fig. 4 Slide 981/3

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Fig. 7 Slide 764/1

26.3 111.0, proximal focus showing open trilete mark with thickened, darkened exine adjacent to laesurae.

Fig. 10 Slide 348/1

34.0 103.3, proximal focus.

Fig. 11 Slide 348/1

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Figures 5,6,8,9 Verrucosisporites sp. cf. V. trisecatus Balme & Hennelly

Fig. 5 Slide 981/3

30.2 113.5, proximal focus showing apparent layering of exine at laesurae.

Fig. 6 Slide 981/6

40.5 105.5, proximal focus.

Fig. 8 Slide 981/3

30.2 113.5, distal focus.

Fig. 9 Slide 981/6

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Figures 1,2  
*Clavatrilletes* sp. cf. *C. hammenii* Herbst

Fig. 1  Slide 661/5  35.0  103.5, proximal focus.

Fig. 2  Slide 429/1  38.5  115.0, distal focus.

Figure 3  
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Fig. 4  Slide 429/1  32.3  108.5, median focus showing darkened outline of contact area.

Fig. 5  Slide 429/1  28.3  110.5, median focus showing equatorial sculptural elements.

Fig. 8  Slide 429/1  28.5  117.8, distal focus.

Fig. 10  Slide 429/1  39.6  108.0, proximal focus.

Fig. 11  Slide 429/1  28.5  117.3, proximal focus showing raised laesurae and contact rim.

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Fig. 7  Slide 1006/2  38.0  117.0,

Fig. 9  Slide 1006/1  27.8  111.4, median focus.

Figure 12  
*Raiistriokia accinota* Playford & Helby

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Figure 13  
*Verrucosisporites* sp. cf. *V. gobbettii* Playford

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Fig. 2 Slide 726/2 47.0 118.0, low distal focus showing negative reticulum.

Fig. 3 Slide 726/2 48.0 99.4, proximal focus - holotype.

Fig. 4 Slide 726/2 45.5 115.0, median focus showing equatorial sculptural elements.

Fig. 5 Slide 726/2 48.0 99.4, median focus - holotype.

Fig. 6 Slide 726/1 21.5 107.0, proximal focus.
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x 700

Figures 1 - 19

Representatives of the *Neoraistrikkia taylori* Playford & Dettmann - *Converru-cosisporites cameroni* (de Jersey) Playford & Dettmann complex.

Fig. 1 Slide 1005/2 42.4 113.5, proximal focus.

Fig. 2 Slide 1005/2 17.0 106.0, proximal focus.

Fig. 3 Slide 391/1 35.0 120.0, proximal focus.

Fig. 4 Slide 1005/1 26.0 112.5, proximal focus.

Figs. 5-8 distal focus of specimens listed above displaying gradual increase in size of sculptural elements from left to right.

Fig. 9 Slide 1005/2 38.0 111.0, proximal focus.

Fig. 10 Slide 1005/2 38.0 111.0, median focus.

Fig. 11 Slide 1005/2 38.0 111.0, distal focus.

Fig. 12 Slide 1005/2 36.0 104.2, distal focus.

Fig. 13 Slide 1005/2 44.0 101.4, distal focus.

Fig. 14 Slide 760/2 38.8 100.5, proximal focus.

Fig. 15 Slide 1005/1 17.5 106.2, proximal focus.

Fig. 16 Slide 1005/1 17.5 106.2, distal focus.

Fig. 17 Slide 429/2 30.3 116.3, distal focus showing concentrations of large sculptural elements in vicinity of the corners.

Fig. 18 Slide 787/2 27.0 115.5, proximal focus.

Fig. 19 Slide 787/2 27.0 115.5, distal focus.
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**Fig. 1**  Slide 726/2  46.5  112.3, proximal focus - holotype.

**Fig. 2**  Slide 726/2  46.5  112.3, distal focus - holotype.

**Fig. 3**  Slide 726/1  25.5  120.0, distal focus.

**Fig. 4**  Slide 726/3  22.5  110.0, distal focus.

**Fig. 5**  Slide 726/3  22.5  110.0, proximal focus.

Figures 7,8,10,14  *Reticulatisporites horribilis* sp. nov.

**Fig. 7**  Slide 744/2  44.5  107.7

**Fig. 8**  Slide 744/2  44.5  107.7

**Fig. 10**  Slide 521/1  36.0  115.0, proximal focus - holotype.

**Fig. 14**  Slide 521/1  36.0  115.0, distal focus - holotype.

Figures 11,12  *Foveosporites* sp. cf. *F. moretonensis* de Jersey

**Fig. 11**  Slide 760/2  43.0  111.0, proximal focus.

**Fig. 12**  Slide 760/2  43.0  111.0, distal focus.

Figures 9,13,15  *Microfoveolatispora raniganjensis* Bharadwaj

**Fig. 9**  Slide 981/3  36.0  121.0, proximal focus.

**Fig. 13**  Slide 981/2  33.3  104.0, showing extremely large foveae.

**Fig. 15**  Slide 981/3  46.2  117.8, compression parallel to polar axis showing shape of proximal and distal surfaces.
Figure 13  ?Dulhuntyispora sp. cf. D. dulhuntyi
Potonié

Fig. 13  Slide 964/3  38.2  112.5
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Figures 1-3  
*Lycopodiumsporites* sp. cf. *L. reticulumsporites* (Rouse) Dettmann

Fig. 1  Slide 391/6  33.0  119.5, proximal focus.

Fig. 2  Slide 391/6  33.0  119.5, distal focus.

Fig. 3  Slide 391/1  16.5  107.0, proximal focus.

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Fig. 4  Slide 985/3  33.3  101.0, distal focus.

Fig. 5  Slide 1006/1  32.5  103.6, distal focus showing weakly developed, incomplete reticulum.

Fig. 6  Slide 764/2  28.7  112.2, median focus.

Fig. 9  Slide 764/1  34.5  118.5, distal focus showing expanded termini of baculae and extension of distal crassitude beyond corners to simulate auricular development.

Fig. 10  Slide 764/2  28.7  112.7, distal focus showing triangular distal crassitude on which reticulum is developed.

Fig. 11  Slide 764/3  36.0  104.2, distal focus showing breakdown of reticulum beyond the limits of triangular distal area.

Fig. 12  Slide 522/4  21.0  107.3, distal focus showing crassitude and its extension to the corners where it projects as auriculae.

Fig. 14  Slide 786/2  39.0  119.4, median focus showing extreme development of projecting sculptural elements.

Fig. 15  Slide 786/2  39.0  119.4, distal focus showing distal crassitude as single reticulum unit.

Fig. 16  Slide 761/2  18.0  117.2, proximal-median focus.

Fig. 17  Slide 761/2  18.0  117.2, distal focus.
| Fig. 13 | Slide 991/4 | 38.0  | 102.0 | proximal focus. |
| Fig. 14 | Slide 991/4 | 38.0  | 102.0 | distal focus.  |
| Fig. 15 | Slide 628/4 | 23.5  | 110.7 | proximal focus showing development of raised labrae accompanying laesurae. |
| Fig. 16 | Slide 992/2 | 32.3  | 100.7 | median focus showing typical development of interradial, equatorial blisters. |
Plate 13
x 700

Figures 1-12, 17-19 *Leschikisporis mutabilis* (Balme) comb. nov.

Fig. 1  Slide 978/1  34.2  111.5, proximal focus.

Fig. 2  Slide 978/1  34.2  111.5, distal focus, both surfaces displaying verru- cate - rugulate elements.

Fig. 3  Slide 978/1  32.4  114.0, proximal focus, showing verrucate - rugulate sculptural elements.

Fig. 4  Slide 978/1  32.4  114.0, distal focus, sculptural elements rugulate with coalescing bases, starting to form pseudo-foveolate pattern.

Fig. 5  Slide 530/1  43.0  105.8, proximal focus showing foveo-microreticulate sculpture, labrate, eccentric laesurae.

Fig. 6  Slide 530/1  43.0  105.8, distal view.

Fig. 7  Slide 530/X  25.0  117.5, lateral focus.

Fig. 8  Slide 530/X  25.0  117.5, proximal focus.

Fig. 9  Slide 978/2  28.0  116.0, proximal focus.

Fig.10  Slide 978/1  32.5  103.2, proximal focus.

Fig.11  Slide 530/1  31.0  114.5, proximal focus.

Fig.12  Slide 978/1  32.5  102.8, proximal focus.

Fig.17  Slide 978/1  34.5  113.5, proximal-lateral view, almost monolete laesura.

Fig.18  Slide 530/1  30.0  109.1, median focus.

Fig.19  Slide 798/1  34.0  108.0, proximal focus.
Figures 14, 15  \( ?Polycingulatisporites \) sp.

Fig. 14  Slide 429/2  32.3  108.5, proximal focus.

Fig. 15  Slide 429/2  32.3  108.5, distal focus.
Plate 14
x 700

Figures 1-5  
Limatulasporites brunkeri sp. nov.

Fig. 1  Slide 555/2  25.4  120.5, proximal focus showing thick, wrinkled labrae (holotype).

Fig. 2  Slide 555/2  25.4  120.5, distal focus showing nature of thin circumpolar incision in distal patina (holotype).

Fig. 3  Slide 555/2  24.4  113.6, distal focus.

Fig. 4  Slide 555/2  24.4  105.5, median focus.

Figures 6 - 13  
?Contignisporites sydneyensis sp. nov.

Fig. 6  Slide 522/1  19.5  104.5, proximal focus showing folded raised labrae.

Fig. 7  Slide 522/1  19.5  104.5, distal focus showing sinuous ridge pattern and cingulum development.

Fig. 8  Slide 522/2  35.0  102.0, proximal focus.

Fig. 9  Slide 522/1  31.3  102.5, distal focus showing reticulate ridge pattern (holotype).

Fig. 10  Slide 522/1  31.3  102.5, proximal focus (holotype).

Fig. 11  Slide 522/2  38.2  104.8, median focus.

Fig. 12  Slide 777/1  34.0  104.8, proximal focus.

Fig. 13  Slide 777/1  34.0  104.8, distal focus.
Figures 13, 14  
*Annullispora* sp. cf. *A. folliculosa* (Rogalska) de Jersey

Fig. 13  Slide 744/1  28.0  102.0, proximal focus.

Fig. 14  Slide 744/1  28.0  102.0, distal focus.

Figures 15, 16, 18-20  *Duplexisporites problematicus* (Couper) Playford & Dettmann

Fig. 15  Slide 782/1  46.2  103.1, distal focus.

Fig. 16  Slide 522/2  43.2  114.3, distal focus.

Fig. 18  Slide 744/3  37.5  106.0, median focus.

Fig. 19  Slide 744/1  25.8  115.5, proximal focus.

Fig. 20  Slide 744/1  15.8  115.5, distal focus.

Figure 17  *Azonotriletes intertextus* (Naumova) var. *triassica* Kara Murza

Slide Olenek/l  46.5  109.8 (material supplied by Drs. Tschalyschev and Varyukhina).
Plate 15  
x 700

Figures 1 - 6  *Limatulasporites fossulatus* (Balme) comb. nov.

Fig. 1  Slide 570/2  35.0  113.2, proximal focus

Fig. 2  Slide 563/1  25.4  108.3, proximal focus

Fig. 3  Slide 563/1  25.4  108.3, distal focus

Fig. 4  Slide 556/1  33.0  99.5, median focus

Fig. 5  Slide 557/2  27.0  107.0, proximal focus

Fig. 6  Slide 570/2  30.0  105.8, proximal focus

Figures 7 - 9  *Tripartites proratus* (Balme) comb. nov.

Fig. 7  Slide 327/1  31.5  115.4, showing indentation and radial plication of auriculae. Note very small auricular "spurs". This specimen is fairly typical.

Fig. 8  Slide 628/5  33.2  106.4, proximal focus showing radial plication of auriculae and well developed auriculate extensions ("Spurs").

Fig. 9  Slide 511/1  27.8  117.5, distal focus showing finely granulate exine.

Figures 10-12  *Limatulasporites* sp.

Fig. 10  Slide 595/1  32.5  108.5, proximal focus.

Fig. 11  Slide 555/1  29.0  108.8, proximal focus.

Fig. 12  Slide 570/1  40.5  120.0, proximal focus.
Fig. 13  Slide 744/1  28.6  101.0, proximal focus, specimen with fine proximal sculpture, cingulum scarcely developed and lacking distal polar crassitude.

Fig. 14  Slide 760/1  25.0  110.0, median focus on small specimen.

Fig. 15  Slide 726/1  19.5  111.5, proximal focus showing well developed cingulum and verrucate sculptural elements.

Fig. 16  Slide 726/2  28.0  110.0, partial tetrad showing cingulum development.

Fig. 17  Slide 774/1  26.7  107.5, proximal focus showing cingulum development, but lacking distal polar crassitude.

Fig. 18  Slide 522/1  19.0  115.2, proximal focus - typical preservation.
Plate 16
x 700

Figures 1-9

Polycingulatisporites dejersyini sp. nov.

Fig. 1 Slide 556/3 32.8 105.8, proximal focus showing typical broad labrae - Holotype.

Fig. 2 Slide 556/3 32.8 105.8, distal focus showing two incisions in patina forming cingulum, circumpolar ridge and distal polar crassitude - Holotype.

Fig. 3 Slide 556/1 40.8 101.0, distal focus.

Fig. 4 Slide 547/1 33.0 114.5, median focus showing raised terminal boss.

Fig. 5 Slide 547/1 42.5 111.5, proximal focus with typical broad, flat labrae, narrowing slightly approaching terminal boss.

Fig. 6 Slide 557/1 37.0 119.0, proximal focus.

Fig. 7 Slide 557/2 32.5 112.0, distal focus showing two narrow incisions in distal patina with slight radial puckering of exine.

Fig. 8 Slide 557/1 31.5 102.5, median focus, slightly oblique compression.

Fig. 9 Slide 547/3 19.4 115.4, lateral compression showing pyramidal shape of proximal surface and hemispherical shape of distal surface.

Figures 10 - 18. Limatulasporites limatulus (Playford) comb. nov.

Fig.10 Single specimen slide 647/7 27.3 116.0, proximal focus showing perfect curvature. Cingulate development is not evident in this particular specimen.

Fig.11 Single specimen slide 647/7 27.3 116.0, high proximal focus, surface raised due to compression onto distal polar crassitude.

Fig.12 Slide 787/2 32.0 110.4, proximal focus, poorly preserved specimen.
Figures 7-9  
*Cadargasporites senectus* de Jersey & Hamilton

**Fig. 7** Slide 429/1  36.0  105.0, proximal focus showing well developed, membranous, raised labrae.

**Fig. 8** Slide 429/1  38.5  104.0, lateral compression, showing contact murus and junction of contact murus and labrae.

**Fig. 9** Slide 429/1  35.3  116.4, proximal focus.
Figures 1-6,10-14 *Cadargasporites wattsae* sp. nov.

**Fig. 1** Slide 726/1 23.4 106.3, lateral view showing cavate exine and relation of intexine to exoexine at contact murus. Note also thickening of exine to form auriculate boss at intersection of lae­surae and contact murus.

**Fig. 2** Slide 726/2 40.0 106.3, proximal view of detached intexine showing scar at point of exoexine attachment on inside of contact murus.

**Fig. 3** Slide 726/2 34.5 113.5, sub lateral compression, proximal focus showing development of auriculate boss.

**Fig. 4** Slide 726/1 25.0 106.5, proximal focus showing typical broad labrate development (holotype).

**Fig. 5** Slide 726/2 46.0 111.3, proximal focus showing breakdown of exoexinal layer on contact area.

**Fig. 6** Slide 726/2 46.0 111.3, distal focus.

**Fig. 10** Slide 726/2 44.0 109.3, lateral compression, median focus showing cavation of exine layers.

**Fig. 11** Slide 726/2 44.0 109.3, lateral compression, focussed on contact area.

**Fig. 12** Slide 726/3 22.0 101.0, distal focus showing granulate sculptural elements.

**Fig. 13** Slide 726/3 22.0 101.0, proximal focus showing contact area with typical labrate development. Note exoexine beginning to break down immediately adjacent to labrae.

**Fig. 14** Slide 726/2 33.7 100.5, proximal focus.
Fig. 13 Slide 786/2 31.0 102.0, showing equatorial sculptural elements.

Fig. 14 Slide 522/4 32.8 117.0, proximal focus.

Fig. 15 Slide 522/4 32.8 117.0, distal focus.

Fig. 16 Slide 522/1 31.5 101.5, proximal focus.

Fig. 17 Slide 522/1 31.5 101.5, distal focus.

Fig. 18 Slide 394/1 29.5 108.3, proximal focus, showing detached intexine.

Fig. 19 Slide 394/1 29.5 108.3, distal focus showing gemmate sculptural elements at the equator.

Fig. 20 Slide 522/1 28.5 110.0, proximal focus.

Fig. 21 Slide 522/1 28.5 110.0, distal focus exhibiting coarser sculptural elements.

Figures 22, 23 Cadargasporites senectus de Jersey & Hamilton

Fig. 22 Slide 744/2 44.5 110.2, proximal focus.

Fig. 23 Slide 744/2 44.5 110.2, distal focus.
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Plate 19
x 700

Figures 1-7  

*Perotriletes raniganjensis* (Bharadwaj) comb. nov.

Fig. 1  
Slide 992/1  34.0  106.0, distal focus.

Fig. 2  
Slide 992/1  34.0  106.0, proximal focus.

Fig. 3  
Slide 992/1  33.7  104.0, distal focus.

Fig. 4  
Slide 985/4  38.7  118.5, lateral compression focussed on equatorial sculpture.

Fig. 5  
Slide 985/4  38.7  118.5, lateral compression focussed on raised labrae.

Fig. 6  
Slide 992/3  27.5  117.3, distal focus, showing well developed spinose sculpture.

Fig. 7  
Slide 992/3  27.5  117.3, proximal focus, showing folded, detached intexine.

Figures 8, 9  

*Perotriletes kuttungensis* (Playford & Helby) comb. nov.

Fig. 8  
Slide 991/5  27.0  112.8, proximal focus showing detached intexine.

Fig. 9  
Slide 991/5  27.0  112.8, equatorial focus showing denser exoexine of cingulum and nature of spinose elements.
Plate 20
x 700

Figures 1-4  
**Lundbladispora brevicula** Balme

Fig. 1  
Slide 728/1  34.5  101.5, distal focus.

Fig. 2  
Slide 728/1  34.5  101.5, proximal focus.

Fig. 3  
Slide 634/6  32.3  114.4, distal focus.

Fig. 4  
Slide 634/6  32.3  114.4, proximal focus showing detached, folded intexine.

Figures 5-7  
**Perotriletetes differens** Helby (comb. nov.)

Fig. 5  
Single specimen slide 647/4  21.5  105.6, proximal focus.

Fig. 6  
Single specimen slide 647/4  21.5  105.6, distal focus.

Fig. 7  
Single specimen slide 647/35  27.0  110.9, distal focus.

Figures 8-11  
**Perotriletetes cuspidus** (Balme) comb. nov.

Fig. 8  
Slide 75/2  29.3  112.6, lateral compression, focussed to show detachment of exine layers and spongyous nature of exoexine.

Fig. 9  
Slide 75/2  29.3  112.6, lateral compression focused on equator showing sculptural elements.

Fig. 10  
Slide 75/2  39.8  109.3, proximal focus.

Fig. 11  
Slide 75/2  39.8  109.3, distal focus.
Fig. 13 Slide 985/4 26.3 106.4, median focus showing detached intexine and marginal disintegration (swelling) of exoexine.

Fig. 14 Slide 985/4 26.3 106.4, distal focus showing small spinose sculptural elements.

Fig. 15 Slide 985/4 33.5 103.0, proximal focus showing shadow of intexinal papillae.

Fig. 16 Slide 985/4 33.5 103.0, median focus.

Fig. 17 Slide 985/4 33.5 103.0, distal focus.
Plate 21
x 700

Figures 1-4

*Perotriletes pallidus* (de Jersey) comb. nov.

Fig. 1 Slide 786/1 39.0 104.0, proximal focus, showing smooth exoexine and raised labrae accompanying laesurae.

Fig. 2 Slide 786/1 39.0 104.0, distal focus, showing scattered, irregular verrucae.

Fig. 3 Slide 940/1 37.5 101.0, proximal focus showing membranous cingulum and folded detached intexine.

Fig. 4 Slide 940/1 37.5 101.0, distal focus showing coarser sculptural elements in vicinity of equator.

Figures 5-17

*Lundbladispora fibulata* (Hennelly) comb. nov.

Fig. 5 Slide 985/ , proximal focus showing exoexine denuded of spines.

Fig. 6 Slide 985/4 26.5 105.5, slightly oblique compression showing sphericity of distal hemisphere with very much reduced projecting sculpture as outer layer of exoexine swells.

Fig. 7 Slide 985/5 27.0 110.0, lateral compression showing cingulum development.

Fig. 8 C.S.I.R.O. T.S. 364 29.5 113.8 - specimen figure by Hennelly (1958, pl.5 fig.9).

Fig. 9 Slide 985/4 29.8 112.5, proximal focus showing slightly raised labrae and shadows of intexinal apical papillae. Note long branching projections.

Fig. 10 Slide 985/4 29.8 112.5, median focus showing pilate elements (no examples of branching are in focus) at the equator.

Fig. 11 Slide 985/4 29.8 112.5, distal focus.

Fig. 12 Slide 985/4 26.3 106.4, proximal focus showing raised labrae.
| Fig. 16 | Slide 548/4 | 36.0 | 114.8, sub-lateral compression. |
| Fig. 17 | Slide 642/2 | 21.5 | 104.2, proximal focus. |
| Fig. 18 | Slide 555/2 | 40.7 | 107.0, proximal focus - Holotype. |
| Fig. 19 | Slide 555/2 | 25.0 | 116.3 |
Plate 22
x 700

Figures 1 - 11

?Cirratriradites bulgoensis sp. nov.

Fig. 1 Slide 453/2 39.0 113.2, proximal focus showing denticulate outline.

Fig. 2 Slide 453/2 39.0 113.2, distal focus showing extreme development of foveo-retticulate sculpture.

Fig. 3 Slide 453/2 39.5 102.6, proximal focus - Holotype.

Fig. 4 Slide 453/2 39.5 102.6, distal focus - Holotype.

Fig. 5 Slide 453/2 44.0 113.0, sub-lateral compression.

Fig. 6 Slide 539/2 18.5 121.0, proximal focus.

Fig. 7 Slide 539/2 18.5 121.0, distal focus.

Fig. 8 Slide 453/2 37.0 115.5, proximal focus.

Fig. 9 Slide 453/2 37.0 115.5, distal focus.

Fig. 10 Slide 539/3 34.5 106.8, proximal focus.

Fig. 11 Slide 539/3 34.5 106.8, distal focus.

Figures 12-14

Densoisporites playfordi (Balme) Dettmann

Fig. 12 Slide 556/3 42.0 102.4, sub-lateral compression showing cingulum, proximal pyramid and distal hemisphere.

Fig. 13 Slide 556/1 28.2 110.5, proximal focus.

Fig. 14 Slide 556/1 22.3 109.8, proximal focus.

Figures 15-19

Densoisporites narrabeenensis sp. nov.

Fig. 15 Slide 555/2 37.0 103.5, proximal focus showing extension of exoexine at corners simulating auriculae.
Plate 23
x 700

Figures 1-9

*Densosporites conollyi* sp. nov.

Fig. 1
Slide 774/1  38.0  113.0, proximal focus showing recessed contact area and relatively smooth exoexine.

Fig. 2
Slide 95/1  32.2  119.5, median focus showing detached, folded intine.

Fig. 3
Slide 95/1  24.0  99.4, median focus showing detached, folded intine and spinose sculptural elements on exoexine.

Fig. 4
Slide 774/2  45.0  117.5, proximal focus showing smooth contact area, with slightly raised labrae.

Fig. 5
Slide 774/2  45.0  117.5, distal focus showing verrucate-rugulate sculptural projections.

Fig. 6
Slide 94/2  23.0  118.0, sub-lateral compression showing relationship of distal and proximal surfaces.

Fig. 7
Slide 94/1  30.5  114.4, proximal focus showing smooth contact area detached folded intine, terminal bosses at junction of laesurae and contact rim - Holotype.

Fig. 8
Slide 94/1  30.5  114.4, distal focus showing finely spongeous exoexine and bizonate cingulum.

Fig. 9
Slide 95/1  39.0  111.4, proximal focus.

Figures 10-12

*Lundbladispora willmottii* Balme

Fig.10
Slide 985/4  41.0  113.0, proximal focus.

Fig.11
Slide 985/5  38.9  109.5, proximal focus showing detached folded intine with distinct apical papillae.

Fig.12
Slide 985/5  38.9  109.5, distal focus showing abundant small spinules.
Plate 24
x 700

Figures 1 - 6  

Endosporites radiatus (Hennelly) comb. nov.

Fig. 1  
C.S.I.R.O. T.S. 367 36.0 113.4 - specimen illustrated by Hennelly (1958, pl. 2 fig. 12).

Fig. 2  
C.S.I.R.O. T.S. 368 39.0 100.8 - specimen illustrated by Hennelly (1958, pl. 2 fig. 10), designated here as lectotype.

Fig. 3  
Slide 985/3 21.0 116.5, proximal focus showing opening of laesurae.

Fig. 4  
Slide 985/3 21.0 116.5, distal focus.

Fig. 5  
Slide 1006/1 33.8 107.2, single exoexine layer showing polygonal outline of reticulation lumens.

Fig. 6  
Slide 985/4 30.3 113.0, proximal focus.
Fig. 32  *Aratrisporites tenuispinosus* Playford, Slide 471/2  19.8  118.0, proximal focus, typical of preservation of carbonised samples.

Fig. 33  *Aratrisporites tenuispinosus* Playford, Slide 647/2  34.6  101.0, lateral compression showing boat like shape.

Fig. 34  *Aratrisporites tenuispinosus* Playford, Slide 471/2  22.0  110.5

Fig. 35  *Tuberculatosporites modicus* Balme & Hennelly, Slide 981/6  39.8  110.0

Fig. 36  *Laevigatosporites vulgaris* Ibrahim, Slide 985/3  28.5  102.5

Fig. 37  *Aratrisporites tenuispinosus* Playford, Slide 647/1  30.7  115.0, proximal focus, showing raised labrae.

Fig. 38  *Aratrisporites tenuispinosus* Playford, Slide 647/1  30.7  115.0, distal focus.

Fig. 39  *Aratrisporites tenuispinosus* Playford, Single Specimen Slide 647/10 12.2  111.8, proximal focus showing folded intexine.
Fig. 22  Sculptatomonoleti indet. Slide 391/6
27.5 113.5, distal focus, showing basic rugulate sculptural elements in low focus.

Fig. 23  Sculptatomonoleti indet. Slide 391/6
27.5 113.5, median focus.

Fig. 24  ?Polypodiisporites ipsviciensis (de Jersey) Playford & Dettmann
Slide 95/1 41.0 102.0, proximal focus

Fig. 25  ?Polypodiisporites ipsviciensis (de Jersey) Playford & Dettmann
Slide 95/1 41.0 102.0, distal focus showing rugulate elements forming imperfect reticulum. This form is closely similar to specimens of Leschiki-sporis mutabilis (Balme) comb. nov., although laesura is distinctly monolet.

Fig. 26  ?Polypodiisporites hamatus (Balme & Hennelly) comb. nov.
Slide 964/1 34.5 112.5, proximal focus

Fig. 27  ?Polypodiisporites hamatus (Balme & Hennelly) comb. nov.
Slide 964/1 34.5 112.5, distal focus

Fig. 28  Microspore extracted from Cylostrobus sydneyensis (Walkom) Helby & Martin. Cylostrobus sydneyensis Slide/1 31.3 102.5

Fig. 29  Aratrisporites tenuispinosus Playford, Slide 647/x 29.2 121.0, median focus showing extreme development and unusually good preservation of spinose sculptural elements.

Fig. 30  Microspore extracted from Cylostrobus sydneyensis (Walkom) Helby & Martin. Cylostrobus sydneyensis Slide/1 35.0 118.7

Fig. 31  Polypodiisporites sp. cf. P. cicatricosus (Balme & Hennelly) comb. nov.
Slide 986/1 31.2 102.5
Fig. 11  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 35.0 111.5, distal focus.

Fig. 12  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 35.0 111.5, median focus.

Fig. 13  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 35.0 111.5, proximal focus.

Fig. 14  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 26.0 100.0

Fig. 15  \textit{Sculptatamonoleti indet.}
Slide 511/2 50.0 116.4

Fig. 16  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 42.0 117.3, proximal focus.

Fig. 17  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 42.0 117.3, distal focus.

Fig. 18  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 24.2 111.0, oblique compression.

Fig. 19  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 95/1 24.2 111.0, oblique compression.

Fig. 20  \textit{Polypodiisporites ipsviciensis} (de Jersey) Playford & Dettmann
Slide 395/1 27.0 113.3

Fig. 21  \textit{Sculptatamonoleti indet.}
Slide 391/6 27.5 113.5, proximal focus showing fine spines surmounting rugulate elements.
Figures 1 - 15


**Fig. 1**

*Tuberculatusporites abadarensis* de Jersey
Slide 395/2   28.5   112.0

**Fig. 2**

*Tuberculatusporites abadarensis* de Jersey
Slide 95/1   29.0   100.0

**Fig. 3**

*Tuberculatusporites abadarensis* de Jersey
Slide 395/2   27.0   117.0

**Fig. 4**

*Tuberculatusporites abadarensis* de Jersey
Slide 760/2   41.6   120.0, showing reduced spines. This specimen could be assigned alternatively to *Punctatusporites walkomi* de Jersey.

**Fig. 5**

*Tuberculatusporites abadarensis* de Jersey
Slide 511/2, showing well developed spinose elements. However, other specimens on this slide lack distinct spines and could be assigned to *P. walkomi* de Jersey.

**Fig. 6**

*Sculptatomonoleti indet.* Slide 985/4
28.5   120.6, proximal focus showing foveo-reticulate sculpture.

**Fig. 7**

*Sculptatomonoleti indet.* Slide 985/4
28.5   120.6, distal focus showing verrucate - rugulate sculptural elements similar to *Polypodiisporites ipsviciensis* (de Jersey) Playford & Dettmann.

**Fig. 8**

*Sculptatomonoleti indet.* Slide 347/1
36.5   115.0, proximal focus.

**Fig. 9**

*Sculptatomonoleti indet.* Slide 347/1
36.5   115.0, distal focus, showing closely spaced rugulate, verrucate and conate sculptural elements.

**Fig. 10**

*Punctatusporites walkomi* de Jersey,
Slide 391/6   35.0   107.0, proximal focus with scattered coni.
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<th>Fig.</th>
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<th>112.0, distal focus showing spongeous (pseudogranulate) exoexine.</th>
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Plate 26
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Figures 1 - 8  *Aratrisporites coryliseminis* Klaus

Fig. 1  Slide 530/1  33.7  104.6, lateral compression showing relative shape of proximal and distal surfaces.

Fig. 2  Slide 530/1  28.0  110.0, lateral compression showing small intexine attached to exoexine along laesura.

Fig. 3  Slide 530/x  44.0  101.0, median focus showing detached, folded intexine and projecting pseudocingulate exoexine on right lateral extremity.

Fig. 4  Slide 530/x  41.0  100.5, displaying foldover of exoexine at lateral extremity.

Fig. 5  Slide 530/x  44.0  118.2, distal focus showing spinose development and folding of exoexine onto right proximal surface.

Fig. 6  Slide 530/x  42.2  106.0, lateral compression showing boat like shape of grain and upward (towards centre of tetrad) projection of lateral exoexine.

Fig. 7  Slide 530/x  45.5  118.8, median focus showing pseudocingulum surrounding grain beyond exine cavity.

Fig. 8  Slide 530/x  45.5  118.8, proximal focus showing raised labrae.

Figures 9-14  *Aratrisporites granulatus* (Klaus) Playford & Dettmann

Fig. 9  Slide 556/1  23.2  112.0, proximal focus showing raised labrae accompanying laesura.

Fig. 10  Slide 556/1  23.2  112.0, median focus showing relation of intexine to exoexine.
Figures 1-4

*Aratrisporites granulatus* (Klaus)
Playford & Dettmann

Fig. 1 Slide 556/3 26.0 100.0, median focus showing boatlike shape of grain and slight cingulum development.

Fig. 2 Slide 556/3 26.0 100.0, proximal focus showing detached intine.

Fig. 3 Slide 556/1 30.0 116.5, distal focus showing detached intine.

Fig. 4 Slide 556/1 30.0 116.5, median proximal focus.

Figures 5-15

*Aratrisporites parvispinosus* Leschik
emend. Playford.

Fig. 5 Slide 490/1 34.5 108.3, partial tetrad.

Fig. 6 Slide 786/1 23.0 115.5, proximal focus showing small detached intine. Also exhibits irregular, almost pilate sculptural elements.

Fig. 7 Slide 786/1 23.0 115.5, distal focus showing irregular distribution of sculptural elements on distal surface.

Fig. 8 Single specimen Slide 647/12, proximal focus.

Fig. 9 Single specimen Slide 647/12, distal focus.

Fig. 10 Slide 429/2 26.5 111.2, proximal focus showing greatly expanded exoexine, with much reduced sculptural projections.

Fig. 11 Slide 429/1 31.2 119.0, proximal focus showing raised, thickened labrae. Note fold over of distal exoexine at extremity of laesura.

Fig. 12 Slide 661/4 20.0 113.0, distal focus showing granulate appearance of exoexine.

Fig. 13 Slide 661/4 20.0 113.0, proximal focus showing detached intine.

Fig. 14 Slide 429/1 26.5 101.0, proximal focus.

Fig. 15 Slide 429/1 26.5 101.0, distal focus.
Figure 4  *Protohaploxipinus amplus* (Balme & Henne- 

lly) Hart

Slide 981/5  32.9  113.0, proximal focus. This specimen displays a similar organisation to *P. microcorpus* (Schaarschmidt) Clarke but is distinguished by the strongly developed taeniae.

Figures 5, 6  *Parasaccites* spp.

Fig. 5  Slide 985/5  42.8  118.5, proximal focus showing darkly stained circular area in vicinity of the proximal apex.

Fig. 6  Slide 985/5  39.5  111.3, proximal focus, faint trace of laesurae visible.

Figures 7, 8  *Bascanisporites undosus* Balme & Henne- 

lly.

Fig. 7  Slide 981/3  46.4  108.9, proximal focus showing outline of eccentric trilete mark.

Fig. 8  Slide 981/2  20.8  107.6

Figure 9.  *Striomonosaccites morondavensis* Goubin

Slide 75/4  41.3  113.5, proximal focus showing typical preservation in which the cappa has been extensively damaged.
Plate 29
x 700

Figures 1–4  ?Crustaesporites sp.

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Plate 30
x 700

Figures 1, 2  Protohaploxyypinus microcorpus (Schaarschmidt) Clarke

Fig. 1  Slide 346/1  42.0  104.8, proximal focus showing typical preservation.

Fig. 2  Slide 76/1  35.2  113.5, proximal focus showing lateral detachment of exoexine approaching monosaccate organisation.

Figure 3  Striomonosaccites morondavensis Goubin

Slide 733/2  23.5  105.0, proximal focus.
Plate 31
x 700

Figures 1-4

*Protohaploxypinus reticulatus* Hennelly comb. nov.

**Fig. 1**
C.S.I.R.O. T.S.375 42.5 119.0, median focus showing straight cappula edge, cappa extensively damaged. Lectotype specimen illustrated by Hennelly (1958 pl. 6 fig. 17).

**Fig. 2**
Slide 75/4 25.0 116.0, median focus showing typical straight edged cappula.

**Fig. 3**
Slide 581/1 29.0 120.5, proximal focus showing typical cappa preservation.

**Fig. 4**
Slide 76/1 28.2 116.0, distal focus showing typical cappula development.
Plate 32  
x 700

Figures 1–5  
*Lunatisporites pellucidus* (Goubin)  
comb. nov.

Fig. 1  Slide 634/2  37.0  105.0
Fig. 2  Slide 634/2  46.0  117.0
Fig. 3  Slide 570/2  44.0  120.0
Fig. 4  Slide 634/1  44.2  112.0, showing arrangement of cappa into five taeniae.
Fig. 5  Slide 634/3  33.0  116.0, showing multitaeniate cappa.

Figures 6–9  
*Lunatisporites* sp. cf. *L. puntii* Visscher

Fig. 6  Slide 555/3  11.5  119/4, distal focus showing distinctive cappula.
Fig. 7  Slide 557/1  43.0  109.7, proximal focus showing extensively damaged cappa. This specimen shows the average preservation of the populations encountered.
Fig. 8  Slide 548/2  20.7  117.7, distal focus showing distinctive folds bordering the cappula.
Fig. 9  Slide 548/2  20.7  117.7, proximal focus showing faint traces of taeniate organisation of the cappa.
**Plate 33**

x 700

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Plate 34
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Figures 1-7

Lunatisporites transversundatus (Jansonius) comb. nov.

Fig. 1 Slide 570/1 32.5 118.0, proximal focus showing ? monolete mark on intexine between central taeniae.

Fig. 2 Slide 570/1 32.5 118.0, distal focus showing smooth cappula.

Fig. 3 Slide 726/1 24.0 107.0, proximal focus showing typical wrinkled taeniae and heavily carbonised corpus.

Fig. 4 Slide 570/4 45.9 99.2, proximal focus.

Fig. 5 Slide 776/1 40.0 116.5, proximal focus.

Fig. 6 Slide 570/2 32.5 104.5, proximal focus of typical diploxylonoid specimen, showing monolete mark between central taeniae.

Fig. 7 Slide 570/2 32.5 104.5, distal focus.

Figures 8, 9, 13-15

Range of specimens assigned to Protohaploxypinus sewardi (Virkki) Hart complex.

Fig. 8 Slide 981/6 37.0 118.7, distal focus showing relatively thin cappula.

Fig. 9 Slide 981/6 37.0 118.7, proximal focus.

Fig. 13 Slide 981/2 28.5 103.3, proximal focus of typical specimen.

Fig. 14 Slide 981/5 38.0 110.0, median focus showing specimen with reduced sacci which are characterised by elongated colu-
mellae.

Fig. 15 Slide 981/5 29.1 105.2, proximal focus.

Figures 10-12

Pollen extracted from sporangia referred to Arberiella Pant & Nautiyal 1960.

Fig. 10 Arberiella Slide 1 37.9 111.5

Fig. 11 Arberiella Slide 1 37.0 111.0

Fig. 12 Arberiella Slide 1 37.0 111.0
Plate 35  
× 700

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<td><strong>Fig. 7</strong></td>
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<td><strong>Fig. 8</strong></td>
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x 700

Figures 1-3  *Strotersporites* sp.

Fig. 1  Slide 726/2  27.0  103.0, proximal focus.

Fig. 2  Slide 726/2  35.4  111.3, median focus.

Fig. 3  Slide 726/1  31.2  115.6, proximal focus.

Figure 4  *Striatopodocarpidites* sp.

Slide 981/2  34.8  114.5

Figure 5  *Striatopodocarpidites* sp. cf. *S. cancellatus*  
(Balme & Hennelly) Hart

Slide 522/4  43.4  107.0

Figures 6-11  *Striatopodocarpidites cancellatus* (Balme 
& Hennelly) Hart

Fig. 6  Slide 981/4  35.6  116.0, distal focus.

Fig. 7  Slide 981/4  35.6  116.0, proximal focus.

Fig. 8  Slide 991/6  39.0  113.0, proximal focus.

Fig. 9  Slide 981/2  20.2  112.3, proximal focus.

Fig. 10  Slide 981/4  26.2  104.5, proximal focus.

Fig. 11  Slide 981/4  26.2  104.5, distal focus.

Fig. 12  Slide 981/5  29.0  116.0, proximal focus showing division of cappa into four taeniae. This form could be assigned alternatively to *Lunatissporites*.

Figures 13, 14  *Striatopodocarpidites pantii* (Jansonius) Balme

Fig. 13  Slide 570/1  30.5  115.4, proximal focus.

Fig. 14  Slide 570/1  30.5  115.4, distal focus.
Fig. 15  Slide 981/6  39.5  101.5, proximal focus showing nature of exoexine development.

Fig. 16  Slide 981/6  39.5  101.5, distal focus showing incipient saccus development and smooth exine of cappula.

Figure 17  

Aumancisporites fasciolatus (Balme & Hennelly) Hart

Slide 985/5  43.6  108.6, proximal focus.

Figures 18-21  Striatoabietites multistriatus (Balme & Hennelly) Hart

Fig. 18  Slide 981/5  31.8  115.0, proximal focus.

Fig. 19  Slide 981/5  31.8  115.0, distal focus showing broad cappula with smooth exoexine interrupted by central "keel" of structured exoexine.

Fig. 20  Slide 981/4  36.5  111.3, distal focus showing incipiently saccate specimen with central distal "keel" of structured exoexine.

Fig. 21  Slide 981/4  36.5  111.3, proximal focus.
Plate 37
x 700

Figures 1 - 11  *Marsupipollenites triradiatus* (Balme & Hennelly) *emend.*

Fig. 1  Slide 981/3  45.5  112.0, proximal focus showing detail of exoexine surrounding the trilete mark.

Fig. 2  Slide 981/3  45.5  112.0, proximal - median focus.

Fig. 3  Slide 981/3  45.5  112.0, distal focus showing smooth exine area between subparallel "distal folds".

Fig. 4  Slide 981/4  25.5  116.0, proximal - median focus showing oval outline of capulla on grain without distal folds or sacci development.

Fig. 5  Slide 981/4  20.5  101.8, sub-distal focus showing single distal fold at edge of capulla.

Fig. 6  Slide 981/2  23.7  105.6, median focus showing sub-parallel distal exine structures which I interpret as incipient sacci.

Fig. 7  Slide 981/5  30.0  113.5, proximal focus showing folds accompanying the laesurae.

Fig. 8  Slide 981/5  30.0  113.5, distal focus showing smooth exined, parallel sided capulla.

Fig. 9  Slide 981/2  21.0  105.0, proximal focus.

Fig. 10  Slide 981/2  21.0  105.0, proximal focus.

Fig. 11  Slide 981/4  26.4  110.0, median focus showing oval shaped capulla.

Figures 12-16  *Scutatipollenites scutatus* (Balme & Hennelly) comb. nov.

Fig. 12  Slide 981/6  25.8  110.5, lateral view showing differentiation of exoexinal extremities to form incipient sacci.

Fig. 13  Slide 981/6  25.8  120.5, showing smooth capulla.

Fig. 14  Slide 981/6  25.8  120.5, proximal focus showing incomplete nature of cappa.
Fig. 17 Slide 981/5 33.0 101.5, distal focus showing tear (question of significance) in exine of cappula.

Fig. 18 Slide 981/5 33.0 101.5, proximal focus showing well developed, slightly eccentric trilete mark and same evidence of contact faces.

Fig. 19 Slide 981/4 31.0 115.0, distal focus showing smooth, unstructured exine of cappula - Holotype.

Fig. 20 Slide 981/4 31.0 115.0, proximal focus showing small, slightly eccentric trilete mark. Not long columellae in cappa exoexine at edge of the grain - Holotype.

Figures 21-23 Klausipollenites sp.

Fig. 21 Slide 981/5 32.5 120.0, sub-lateral compression showing distal inclination and disposition of sacci.

Fig. 22 Slide 981/5 36.0 109.7, proximal focus.

Fig. 23 Slide 981/5 36.0 109.7, distal focus showing smooth unstructured exine of cappula.
Plate 38
x 700

Figures 1 - 5 Vesicaspora ovata (Balme & Hennelly) Hart illustrating a gradation from almost monosaccate to bisaccate organisation.

Fig. 1 Slide 981/6 36.5 117.0, distal focus.
Fig. 2 Slide 981/3 29.0 102.0, distal focus.
Fig. 3 Slide 981/6 25.2 117.8, distal focus.
Fig. 4 Slide 981/6 26.0 115.0, distal focus.
Fig. 5 Slide 985/3 23.2 111.5, distal focus.

Figures 6 - 20 Valesipollenites evansii gen. et sp. nov.

Fig. 6 Slide 981/5 22.9 110.0, lateral compression showing relatively thick cappa, elongate columellae of the sacci and smooth exoexine of the cappula.
Fig. 7 Slide 981/5 40.0 120.0, folded specimen showing gap in cappa exoexine at the trilete mark.
Fig. 8 Slide 981/3 27.0 115.8, folded specimen.
Fig. 9 Slide 981/2 19.0 106.0, distal focus.
Fig. 10 Slide 981/2 19.0 106.0, proximal focus showing well developed, slightly sinuous laesurae.
Fig. 11 Slide 981/4 26.2 104.8, distal focus.
Fig. 12 Slide 981/4 26.2 104.8, proximal focus showing small trilete mark.
Fig. 13 Slide 981/2 24.0 105.2, distal focus.
Fig. 14 Slide 981/2 24.0 105.2, proximal focus showing long almost straight laesura.
Fig. 15 Slide 981/4 31.5 101.5, distal focus showing typical smooth cappula.
Fig. 16 Slide 981/4 31.5 101.5, proximal focus showing well developed, slightly eccentric trilete mark.
Plate 39
x 700

Figures 1 - 6  
*Falcisporites nigracristatus* (Hennelly) comb. nov.

Fig. 1  Slide 530/1  34.0  117.0, distal focus.

Fig. 2  Slide 985/4  29.5  116.0, distal focus.

Fig. 3  Slide 985/5  28.5  110.5, distal focus.

Fig. 4  Single specimen slide 647/13  21.0  111.0, lateral compression.

Fig. 5  Slide 530/1  41.0  105.0

Fig. 6  Slide 530/1 location not recorded.

Figures 7, 8.  *Voltziapites balmei* sp. nov.

Fig. 7  Slide 981/3  25.0  114.0, distal focus.

Fig. 8  Slide 981/6  40.0  117.0, distal focus.

Figure 9  *Vestigisporites* sp.

Slide 981/6  25.3  112.0
Plate 40
x 700

Figures 1, 2  
Vitreisporites sp. 1

Fig. 1  Slide 760/1  31.2  111.6
Fig. 2  Slide 522/5  38.0  107.0

Figures 3, 4  
Vitreisporites pallidus (Reissinger) Nilsson.

Fig. 3  Slide 985/4  31.5  104.2
Fig. 4  Slide 985/4  39.3  105.5

Figure 5.  
Vitreisporites sp.

Slide 985/4  43.8  102.1

Figures 6, 7  
Sulcosaccispora lata de Jersey & Hamilton

Fig. 6  Slide 522/2  44.0  104.0
Fig. 7  Slide 760/1  26.2  103.3

Figure 8  
Minutosaccus sp. 1

Slide 522/4  29.0  106.0

Figures 9-15  
Praecolpatites sinuosus (Balme & Hennelly) Bharadwaj & Srivastava

Fig. 9  Slide 991/1  42.1  109.3
Fig.10  Slide 992/1  31.0  120.0
Fig.11  Slide 992/1  38.2  113.5
Fig.12  Slide 981/3  27.0  102.0
Fig.13  Slide 991/6  27.5  103.8
Fig.14  Slide 981/4  25.5  110.0

Figures 16-20  
Falcisporites similis (Balme) comb. nov.

Fig.16  Slide 391/1  23.5  118.2, proximal focus.
Fig.17  Slide 391/1  23.5  118.2, distal focus.
Fig.18  Slide 391/1  19.5  106.0, distal focus.
Fig.19  Slide 391/2  36.4  110.7, proximal focus.
Fig.20  Slide 391/2  36.4  110.7, distal focus.
Plate 41  
× 700

**Figures 1-12**  *Welwitschiapites australiensis* sp. nov.

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<td>103.5, showing sculptural boss at lateral end of grain.</td>
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**Figures 13-19**  *Cycadopites follicularis* Wilson & Webster illustrating gradational opening of sulcus. All specimens are from sample 522.

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**Figures 20-23**  *Ephedripites stevesi* (Jansonius) de Jersey & Hamilton.

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<td>Fig.22</td>
<td>94/1</td>
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<td>111.0</td>
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<tr>
<td>Fig.23</td>
<td>522/4</td>
<td>33.0</td>
<td>105.5</td>
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**Figures 24, 25**  *Alisporites opii* Daugherty

<table>
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<td>Fig. 24</td>
<td>Chinle/1</td>
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<td>116.5</td>
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<td>Fig. 25</td>
<td>Chinle/1</td>
<td>48.0</td>
<td>112.0</td>
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**Figure 26**  *Cadargasporites* sp.

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<td>524/1</td>
<td>34.5</td>
<td>101.5</td>
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</table>
Figures 39 - 41  *Baltisphaeridium* sp. 2
  Fig. 39 Slide 429/1  29.0  107.8
  Fig. 40 Slide 489/1  28.2  99.5
  Fig. 41 Slide 489/1  28.2  99.5

Figure 42 *Gnetaceae pollenites* sp. cf. *cymbatus* (Balme & Hennelly)
  Slide 981/4  32.8  106.2

Figure 43 *Pilasporites calculus* Balme & Hennelly
  Slide 774/4  22.0  103.4

Figure 44 - 46 *Baltisphaeridium* sp. 1
  Fig. 44 Slide 391/2  31.3  117.7
  Fig. 45 Slide 391/2  31.3  117.7
  Fig. 46 Slide 391/1  17.5  104.0
Fig. 20 Slide 986/2 21.5 116.5, specimen with small fold on body wall opposite the "operculum". Radial puckering of wall quite distinct.

Fig. 21 Slide 986/2 26.5 116.5, specimen with intersecting folds dividing body wall into four fields.

Fig. 22 Slide 986/2 24.0 106.8, larger number of polygonal fields due to more intensive folding.

Fig. 23 Slide 986/2 32.0 116.2, showing "operculum".

Fig. 24 Slide 986/2 32.0 116.2, showing polygonal fields on opposite body wall.

Fig. 25 Slide 986/2 25.5 115.4

Figures 26-29 Micrhystridium sp. 2

Fig. 26 Slide 391/4 38.7 116.0

Fig. 27 Slide 391/4 38.7 116.0

Fig. 28 Slide 482/2 24.3 102.2

Fig. 29 Slide 482/2 24.3 102.2

Figure 30. Micrhystridium sp. 3

Slide 985/5 24.5 107.5

Figures 31-36 Veryhachium sp. 2

Fig. 31 Slide 993/1 24.0 118.0 (Roof of Main Lower Seam, Blackwater).

Fig. 32 Slide 993/1 22.5 112.0 (Roof of Main Lower Seam, Blackwater).

Fig. 33 Slide 963/1 30.5 104.1, multispinoform.

Fig. 34 Slide 963/1 31.2 112.5

Fig. 35 Slide 963/1 36.0 112.0

Fig. 36 Slide 963/3 36.5 102.2

Figure 37 Baltisphaeridium sp. 4

Slide 985/5 33.0 105.3

Figure 38 Baltisphaeridium sp. 3

Slide 985/3 35.9 120.5
Plate 42
x 700

Figures 1-3  
? *Cycadopites* sp.

Fig. 1  
Slide 482/1  22.2  101.0

Fig. 2  
Slide 760/5  35.4  117.0

Fig. 3  
Slide 760/5  40.2  111.8

Figures 4 - 6  
*Pilasporites plurigenus* Balme & Hennelly.

Fig. 4  
Slide 985/5  24.0  106.0

Fig. 5  
Slide 985/5  24.0  110.0

Fig. 6  
Slide 988/5  31.5  111.1

Figures 7-18  
*Micropystrydium* sp. 1

Fig. 7  
Slide 985/4  28.3  108.0

Fig. 8  
Slide 986/2  29.2  107.0

Fig. 9  
Slide 986/2  29.2  107.0, equatorial focus.

Fig. 10  
Slide 985/3  23.7  105.5, showing long attenuated spines and folding around the edge of the grain. The light patch is a hole in the body wall on the other side of the grain.

Fig. 11  
Slide 985/5  28.2  118.0, specimen with long hair-like projections. Trace of hole in body wall visible as light patch.

Fig. 12  
Slide 985/3  36.0  115.6

Fig. 13  
Slide 985/4  37.9  120.7

Fig. 14  
Slide 985/5  24.0  115.2

Fig. 15  
Slide 985/5  32.2  117.5, note hole in body wall.

Fig. 16  
Slide 985/4  31.0  111.6

Fig. 17  
Slide 985/4  33.0  110.5

Fig. 18  
Slide 985/5  25.2  107.0

Figures 19-25  
? *Cymatosphaera* sp.

Fig. 19  
Slide 985/5  37.0  107.0, unfolded specimen with large open operculum. There is evidence of the beginning of puckering at the edge of the operculum.
Fig. 14 Slide 985/5 20.5 109.5, isolated hemisphere.
Fig. 15 Slide 986/2 22.9 119.7, unruptured specimen.
Fig. 16 Slide 774/1 25.0 117.5, equatorial focus.
Fig. 17 Slide 774/1 25.0 117.5, polar focus.

Figures 18, 19  *Tetraporina horologa* (Staplin) Playford
Fig. 18 Slide 985/3 37.0 117.5
Fig. 19 Slide 985/3 28.0 118.0

Figures 20, 21  *Quadrisporites horridus* Hennelly.
Fig. 20 Slide 988/1 29.4 103.8
Fig. 21 Slide 985/1 24.5 100.0

Figures 22, 23  *Tetraporina* sp.
Fig. 22 Slide 986/2 39.0 102.5, shows typical badly eroded specimen.
Fig. 23 Slide 986/2 39.4 108.1, a typical specimen - note inflated projections at the corners.
Veryhachium sp. 1

Fig. 1  Slide 985/4  26.0  112.6, showing specimen with "girdle" of small spines surrounding "tear" in body wall.

Fig. 2  Slide 985/4  26.0  117.6

Fig. 3  Sample 985, location not recorded.

Veryhachium sp. 3

Fig. 4  Slide 391/1  27.2  109.5

Veryhachium sp. 4

Fig. 5  Slide 482/1  41.3  109.5 (lower left hand spine has been broken off).

Baltisphaeridium sp. 3

Fig. 6  Slide 963/5  30.5  114.5

Circulisporites parvus (de Jersey) Norris

Fig. 7  Slide 1005/1  17.5  106.0, both hemispheres of body still in contact, but rupture evident.

Fig. 8  Slide 1005/1  35.0  102.0, unruptured specimen with hemispheres still partially in contact.

Fig. 9  Slide 985/4  31.8  109.0, ruptured specimen with hemispheres still partially in contact.

Fig. 10  Slide 985/4  42.8  120.0, isolated hemisphere of a ruptured specimen.

Circulisporites sp. cf. C. parvus (de Jersey) Norris.

Fig. 11  Single specimen slide 530/1  22.5  106.5, showing ruptured specimen with both sides still in contact.

Peltacystia venosa Balme & Segroves

Fig. 12  Slide 985/1  15.0  101.1, showing reticulate ornament in polar region of isolated hemisphere.

Fig. 13  Slide 985/4  38.0  100.0, equatorial focus showing girdle and ornament projections.