

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Illustrations of plant microfossils from the Morrison  
Formation.

I. Plant Microfossils from the Brushy Basin Member

by

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This report is preliminary and has not been reviewed for conformity with  
U. S. Geological Survey editorial standards.

Published palynomorph data from Jurassic formations of western United States is nonexistent. This is due, in part, to the difficulty of finding appropriate lithotypes to sample. Of the hundreds of samples examined by the USGS Denver palynology laboratory only a very few samples from the Upper Jurassic Morrison Formation have yielded significant assemblages.

The purpose of the report is to make available photographs of the taxa found. This report is part of continuing efforts to provide biostratigraphical data from critical rock sequences.

The photographs are primarily for laboratory reference, to be used only as a guide to the recognition and preliminary identification of pollen and spores from the Morrison Formation. The present report concerns samples from the Brushy Basin Member, the uppermost member of the Morrison Formation, and is to be followed by reports on successively older segments of the formation.

The authors have relied primarily on the published reports included in the appended bibliography. No new genera or new species are described, nor have attempts been made to bring the nomenclature up to date. This report is not intended as a formal taxonomic documentation and treatment.

The spores and pollen illustrated were obtained from surface samples from the following localities.

U.S.G.S.

Locality

Paleobotany

Locality No.

- D 1163 and D 1645      Acerson Claim, Sec. 25, T. 23 S., R. 14 E., Emery Co. Utah; 1/2 mile E. of Utah State Hwy. 24, 137 ft. above base of 317-ft thick Brushy Basin Mbr. of Morrison Fm. (stratigraphically lowest samples from Brushy Basin Mbr.) D 1163 collected by L. C. Craig, field no. L.C. 12-55. D 1645 collected by R. A. Scott from same locality, field no. RAS-3-56.
- D 1370      SW1/4 sec. 13, T. 3 S., R. 21 E., Steinaker Draw, Uintah Co., Utah. (Mid Brushy Basin, slightly higher stratigraphically than D 1163, D 1645 samples). Collected by L. C. Craig. field no. L.C. 4-56.
- D 1369 and D 1404      SE1/4 sec. 24, T. 3 N., R. 20 E., Daggett Co., Utah; South of Henry's Fork and approximately 1/2 mile S. of William's Ranch (near top of Brushy Basin Mbr. of Morrison Fm.). Samples collected by L. C. Craig. Sample D 1369, field no. L.C. 5-56, and D 1404, field no. L.C. 6-56.

These localities are shown on the accompanying map, figure 1.

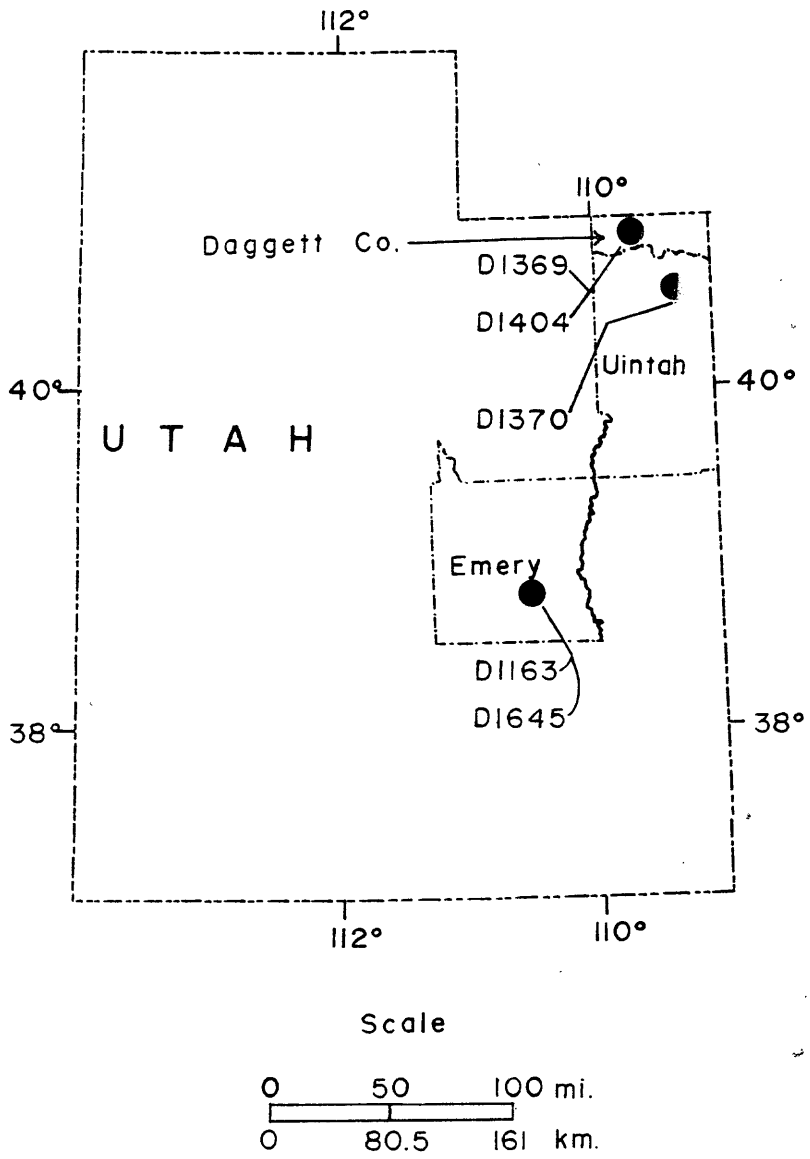


Figure 1 - Map showing Brushy Basin sample localities

All specimens illustrated in this report are preserved on slides deposited in the paleobotanical collections of the U.S. Geological Survey, Denver, Colo. The specimens may be located on the slides by the mechanical stage coordinates given in the plate explanations. In order that others may convert their mechanical stage readings to those recorded for the specimens included in this report, the coordinates for the center point of a 1 X 3-inch standard microscope slide are 108.0 X 12.3 mm. The method of accurately locating the center of a standard microscope slide has been described by R. H. Tschudy (1966, p. D78). With the slide label to the left, the vertical coordinates decrease toward the near edge of the slide, and the horizontal coordinates decrease toward the right edge of the slide. For location of specimens on the slides observe that some coordinates are followed by the letter K. The K indicates that the slide should be placed on the microscope stage with the label to the right. When coordinates are not followed by a K, the slide should be placed on the microscope stage with the label to the left. The above refers to plates 1 through 15.

Plate 1

[Magnification X 1000]

- Figure 1. Undetermined. Sample D1163, slide 3, coordinates 109.8 X 16.7.
2. Trilete spore - undetermined. Sample D1163, slide 3, coordinates 100.1 X 17.2.
  3. Couperisporites cf. C. jurassicus Pocock, 1970. Sample D1163, slide 3, coordinates 82.2 X 9.0.
  4. Crybelosporites vectensis Kemp, 1970. Sample D1163, slide 3, coordinates 109.2 X 22.9.
  5. Cadargasporites reticulatus de Jersey and Paten, 1964. Sample D1163, slide 3, coordinates 111.5 X 2.4.
  6. Tetrad - undetermined. Sample D1163, slide 3, coordinates 81.7 X 3.7.
  7. Lycopodiumsporites circolumenus Cookson and Dettmann, 1958. Sample D1163, slide 3, coordinates 79.8 X 20.6.
  8. Bisaccate pollen - undetermined. Sample D1163, slide 3, coordinates 96.0 X 12.1.
  9. Pseudowalchia ovalis Pocock, 1970. Sample D1163, slide 3, coordinates 99.4 X 19.1.

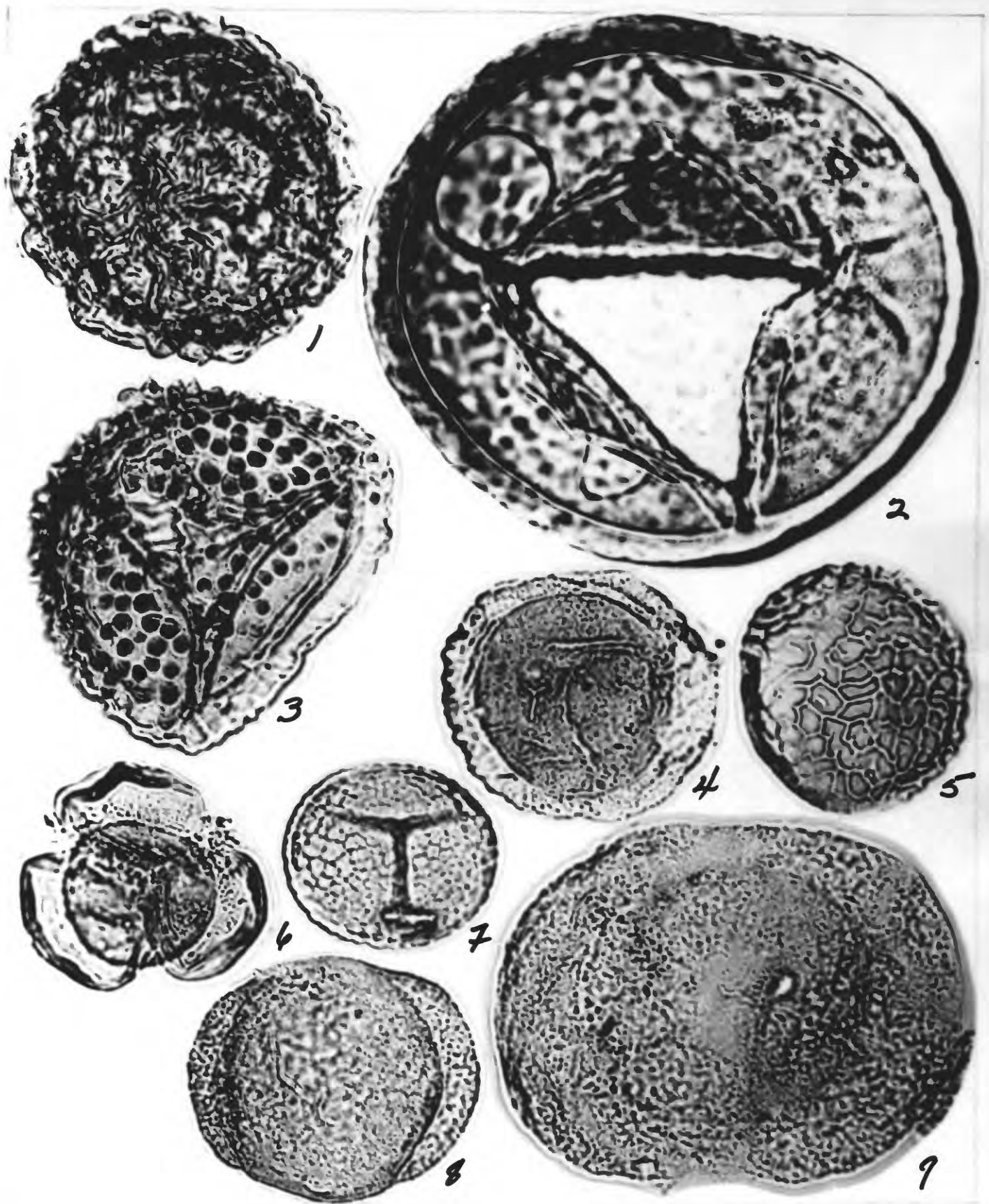


PLATE 1

Plate 2

[Magnification X 1000]

- Figure 1. Laevigatosporites gracilis Wilson and Webster, 1946. Sample D1645-B, slide 1, coordinates 102.8 X 15.2.
2. Deltoidospora hallii Miner, 1935. Sample D1645-B, slide 1, coordinates 95.9 X 21.9.
3. Trilete spore - undetermined. Sample D1645-B, slide 1, coordinates 97.5 X 8.1.
4. Trilete spore - undetermined. Sample D1645-B, slide 1, coordinates 96.8 X 8.0.
5. Trilete spore - undetermined. Sample D1645-B, slide 1, coordinates 94.8 X 11.5.
6. Deltoidospora juncta (Kara-Murza) Singh, 1964. Sample D1645-B, slide 1, coordinates 101.6 X 20.0.
7. Trilete spore - undetermined. Sample D1645-B, slide 1, coordinates 106.3 X 7.1.
8. Trilete spore - undetermined. Sample D1645-B, slide 1, coordinates 100.0 X 6.1.
9. Trilete spore - undetermined. Sample D1645-B, slide 1, coordinates 87.8 X 20.6.
10. Trilete spore - undetermined. Sample D1645-B, slide 1, coordinates 106.1 X 15.7.
11. Callialasporites? Sample D1645-B, slide 1, coordinates 102.9 X 18.8.
12. Nevesiporites vallatus? de Jersey and Paten, 1964. Sample D1645-B, slide 1, coordinates 89.7 X 1.8.



Plate 2 (continued)

- Figure 13. Pristinuspollenites microsaccus (Couper) Tschudy, 1973. Sample D1645-B, slide 1, coordinates 101.6 X 18.9.
14. Paleoconiferus minor Pocock, 1970. Sample D1645-B, slide 1, coordinates 94.8 X 15.8.
15. Alisporites sp. Sample D1645-B, slide 1, coordinates 103.8 X 15.5.

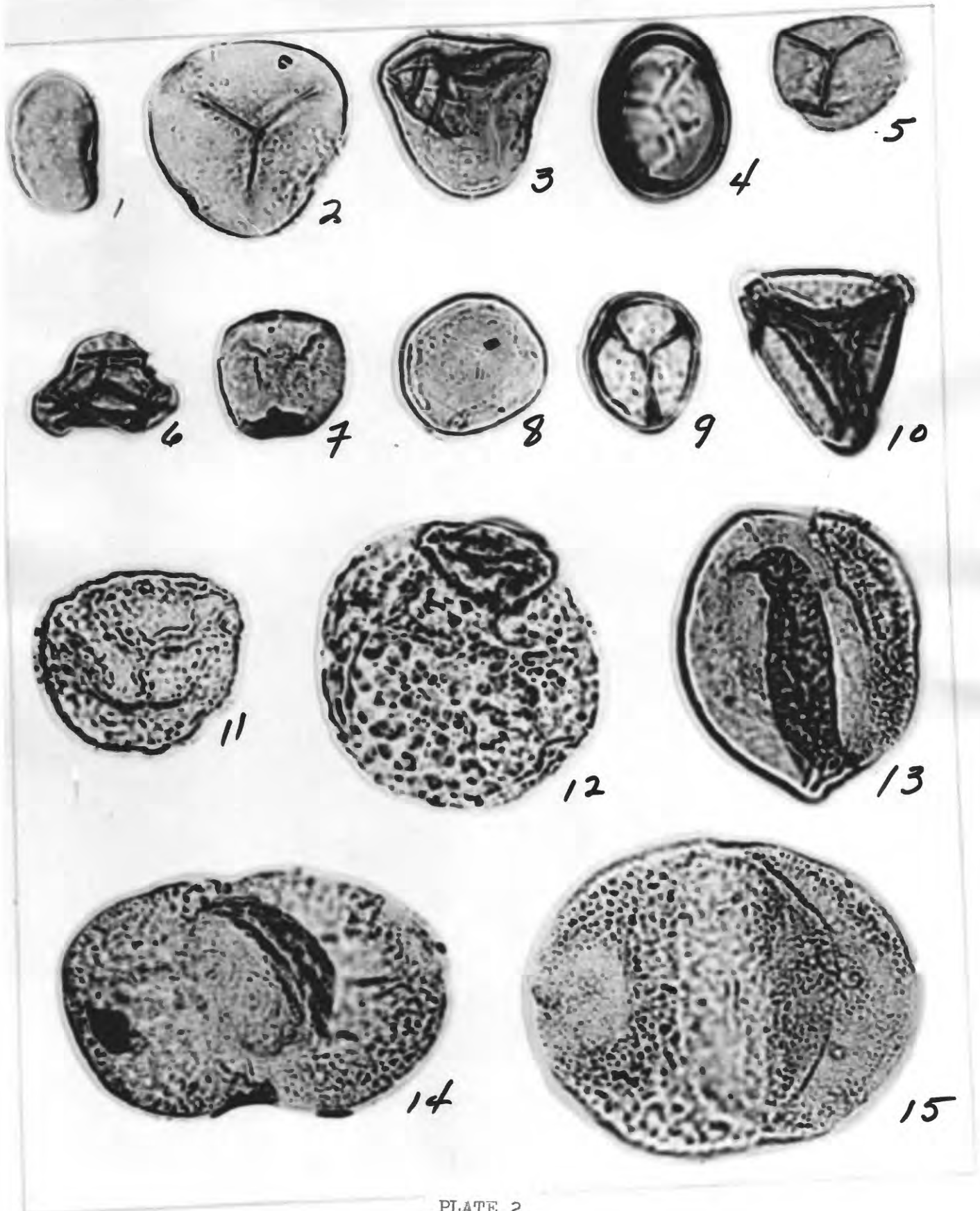
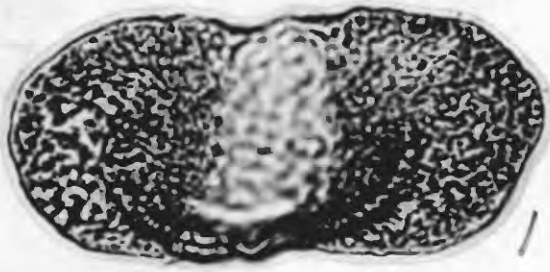


PLATE 2

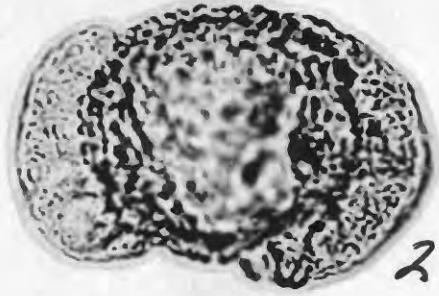
Plate 3

[Magnification X 1000]

- Figure 1. Bisaccate pollen - undetermined. Sample D1645-B, slide 1, coordinates 101.5 X 22.9.
2. Rugubivesiculites woodbinensis Hedlund, 1966. Sample D1645-B, slide 1, coordinates 89.7 X 10.8.
  3. Pityosporites sp. Sample D1645-B, slide 1, coordinates 93.7 X 21.0.
  4. Rugubivesiculites sp. Sample D1645-B, slide 1, coordinates 91.9 X 15.3.
  5. Pristinuspollenites sp. Sample D1645-B, slide 1, coordinates 98.8 X 13.7.
  6. Pristinuspollenites sp. Sample D1645-B, slide 1, coordinates 97.5 X 21.2.
  7. Vitreisporites pallidus (Reissinger) Nilsson, 1958. Sample D1645-B, slide 1, coordinates 94.6 X 17.7.
  8. Araucariacites fissus Reiser and Williams, 1969. Sample D1645-B, slide 1, coordinates 87.0 X 21.6.
  9. Araucariacites fissus Reiser and Williams, 1969. Sample D1645-B, slide 1, coordinates 91.9 X 21.0.
  10. Undetermined. Sample D1645-B, slide 1, coordinates 83.1 X 15.6.
  11. Undetermined. Sample D1645-B, slide 1, coordinates 107.3 X 8.9.
  12. Cadargasporites reticulatus de Jersey and Paten, 1964. Sample D1645-B, slide 1, coordinates 90.7 X 12.7.



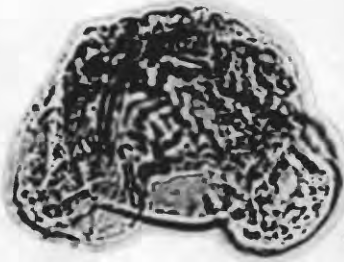
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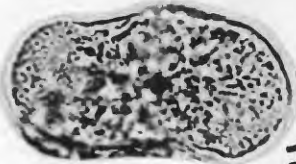
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7



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9



10



11



12

PLATE 3

Plate 4

[Magnification X 1000]

- Figure 1. Undetermined. Sample D1645-B, slide 1, coordinates 98.4 X 23.0.
2. Crybelosporites vectensis Kemp, 1970. Sample D1645-B, slide 1, coordinates 87.7 X 13.0.
  3. Crybelosporites vectensis? Kemp, 1970. Sample D1645-B, slide 1, coordinates 96.0 X 3.5.
  - 4-5. Crybelosporites vectensis Kemp, 1970. Sample D1645-B, slide 1, coordinates 102.6 X 10.3.
  6. Exesipollenites scabratus (Couper) Pocock, 1970. Sample D1645-B, slide 1, coordinates 104.9 X 16.1.
  7. Corollina sp. Sample D1645-B, slide 1, coordinates 107.3 X 11.3.
  8. Equisetosporites sp. Sample D1645-B, slide 1, coordinates 98.9 X 13.8.
  9. Veryhachium sp. Sample D1645-B, slide 1, coordinates 106.3 X 7.3.

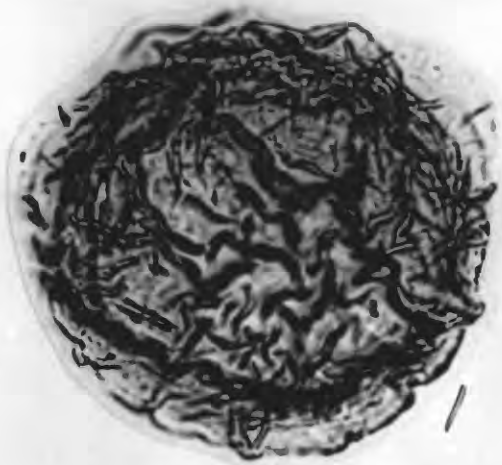


PLATE 4

Plate 5

[Magnification X 1000]

- Figure 1. Laevigatosporites ovatus Wilson and Webster, 1946. Sample D1370, slide 2, coordinates 111.3 X 18.9 K.
2. Trilete spore - undetermined. Sample D1370, slide 4, coordinates 115.2 X 12.1 K.
3. Cyathidites australis Couper, 1953. Sample D1370, slide 14, coordinates 90.4 X 12.3.
4. Cyathidites australis Couper, 1953. Sample D1370, slide 13, coordinates 99.2 X 17.5.
5. Psilatrilletes circumundulatus Brenner, 1963. Sample D1370, slide 6, coordinates 94.8 X 18.7.
6. Trilete spore - undetermined. Sample D1370, slide 2, coordinates 113.0 X 17.0 K.
7. Lycopodiumsporites circolumenus Cookson and Dettmann, 1958. Sample D1370, slide 14, coordinates 99.8 X 10.8.
8. Trilete spore - undetermined. Sample D1370, slide 14, coordinates 112.8 X 4.6.
9. Trilobosporites jurassicus Pocock, 1970. Sample D1370, slide 14, coordinates 113.0 X 15.4.
10. Lycopodiumsporites sp. Sample D1370, slide 1, coordinates 129.3 X 9.1 K.
11. Retitrilletes concavus? Schulz, 1966. Sample D1370, slide 4, coordinates 117.9 X 13.0 K.
12. Trilete spore - undetermined. Sample D1370, slide 13, coordinates 105.7 X 20.0.

Plate 5 (continued)

Figure 13. Trilete spore - undetermined. Sample D1370, slide 14, coordinates  
104.7 X 14.1.

14. Ceratosporites sp. Sample D1370, slide 13, coordinates  
108.9 X 12.2.

15. Ceratosporites sp. Sample D1370, slide 14, coordinates  
96.9 X 19.2.



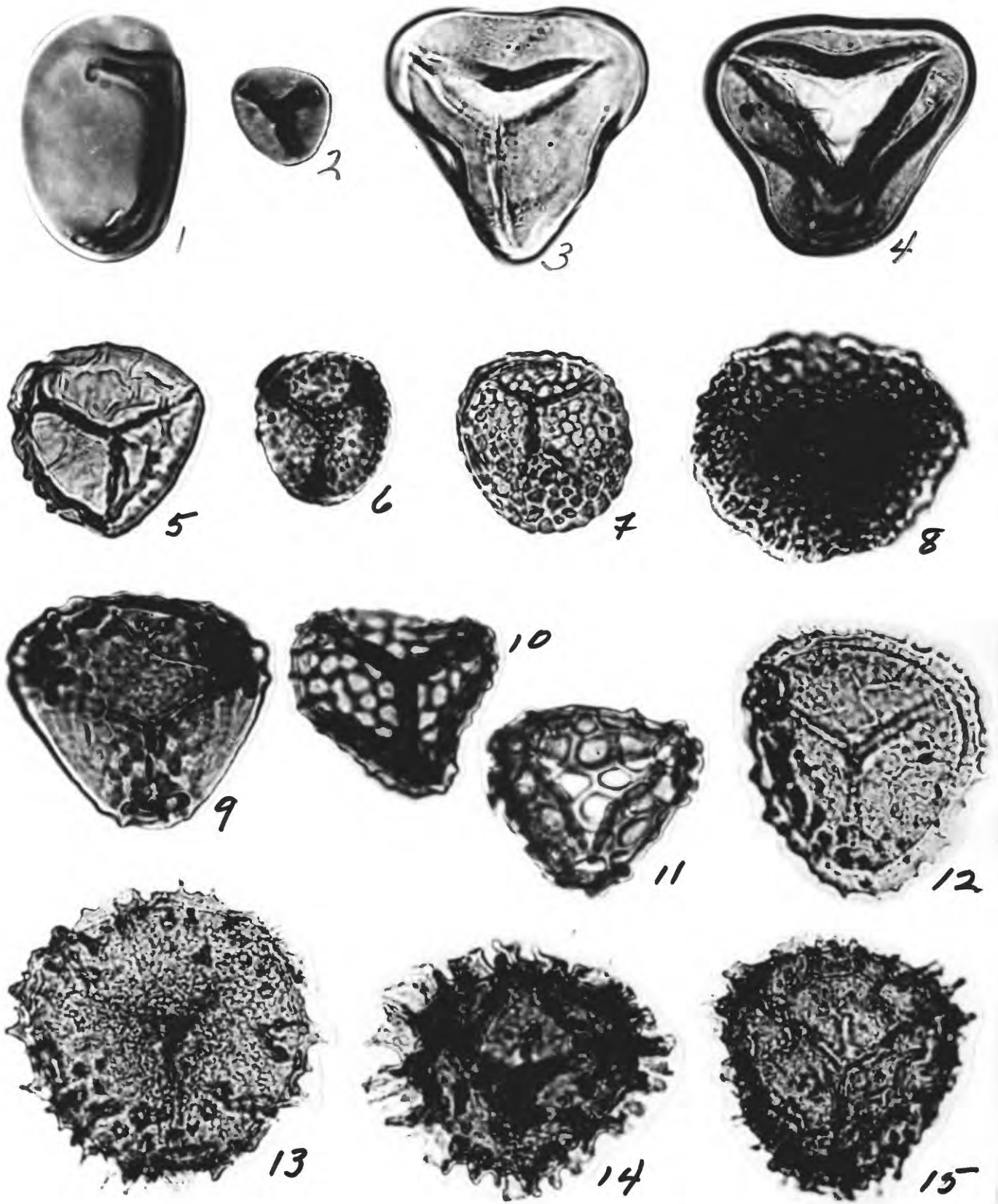


PLATE 5

Plate 6

[Magnification X 1000]

- Figure 1. Ceratosporites sp. Sample D1370, slide 14, coordinates 110.1 X 9.2.
2. Lycopodiacidites baculatus Pocock, 1962. Sample D1370, slide 14, coordinates 101.0 X 18.1.
3. Lycopodiacidites baculatus Pocock, 1962. Sample D1370, slide 13, coordinates 101.5 X 14.9.
4. Alisporites thomasii (Couper) Pocock, 1962. Sample D1370, slide 14, coordinates 92.8 X 18.0.
5. Alisporites grandis (Cookson) Dettmann, 1963. Sample D1370, slide 13, coordinates 91.3 X 12.3.
6. Alisporites thomasii (Couper) Pocock, 1962. Sample D1370, slide 6, coordinates 133.9 X 4.2 K.
7. Bisaccate pollen - undetermined. Sample D1370, slide 13, coordinates 104.7 X 10.5.
8. Alisporites grandis (Cookson) Dettmann, 1963. Sample D1370, slide 13, coordinates 95.3 X 8.1.
9. Bisaccate pollen - undetermined. Sample D1370, slide 14, coordinates 107.8 X 11.0.
10. Alisporites bilateralis Rouse, 1959. Sample D1370, slide 1, coordinates 104.2 X 7.9 K.
11. Podocarpidites cf. P. granulatus Singh, 1971. Sample D1370, slide 4, coordinates 114.6 X 12.2 K.
12. Pityosporites cf. P. nigraeformis (Bolkhovitina) Pocock, 1970. Sample D1370, slide 13, coordinates 99.0 X 18.8.
13. Podocarpidites cf. P. multesimus (Bolkhovitina) Pocock, 1962. Sample D1370, slide 13, coordinates 89.5 X 2.8.

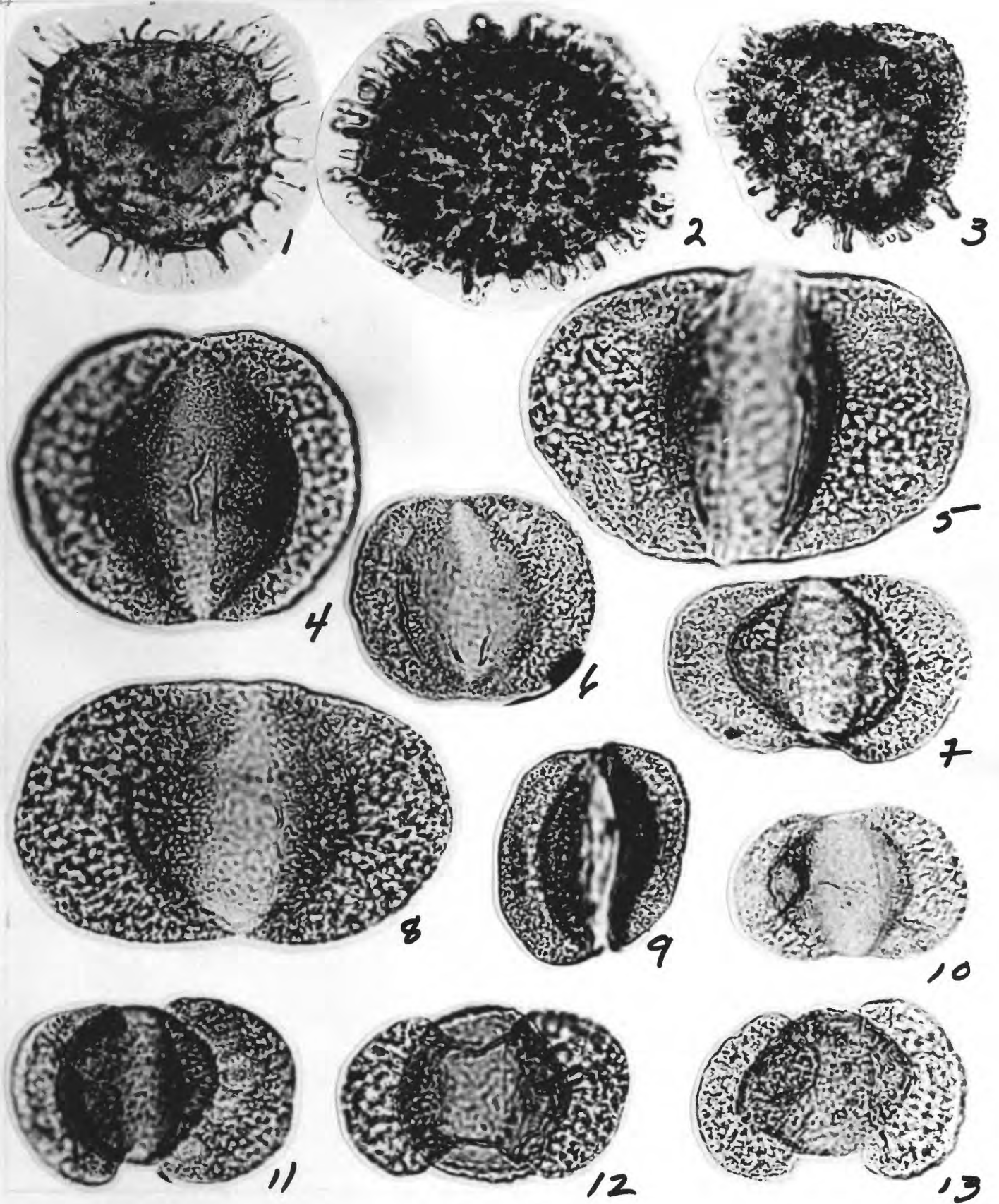


PLATE 6

607

Plate 7

[Magnification X 1000]

- Figure 1. Podocarpidites cf. P. ellipticus Cookson, 1947. Sample D1370, slide 8, coordinates 132.3 X 8.0 K.
2. Bisaccate pollen - undetermined. Sample D1370, slide 7, coordinates 102.4 X 6.1.
3. Pityosporites sp. Sample D1370, slide 13, coordinates 98.6 X 7.1.
4. Podocarpidites cf. P. multesimus (Bolkhovitina) Pocock, 1962. Sample D1370, slide 6, coordinates 117.6 X 4.6 K.
- 5-6. Bisaccate pollen - undetermined. Sample D1370, slide 14, coordinates 80.2 X 16.9.
7. Undetermined. Sample D1370, slide 13, coordinates 107.4 X 16.5.
8. Pseudowalchia ovalis Pocock, 1970. Sample D1370, slide 13, coordinates 105.3 X 16.3.
9. Undetermined. Sample D1370, slide 10, coordinates 109.8 X 21.1 K.
10. Inaperturopollenites turbatus Balme, 1957. Sample D1370, slide 13, coordinates 100.2 X 7.1.

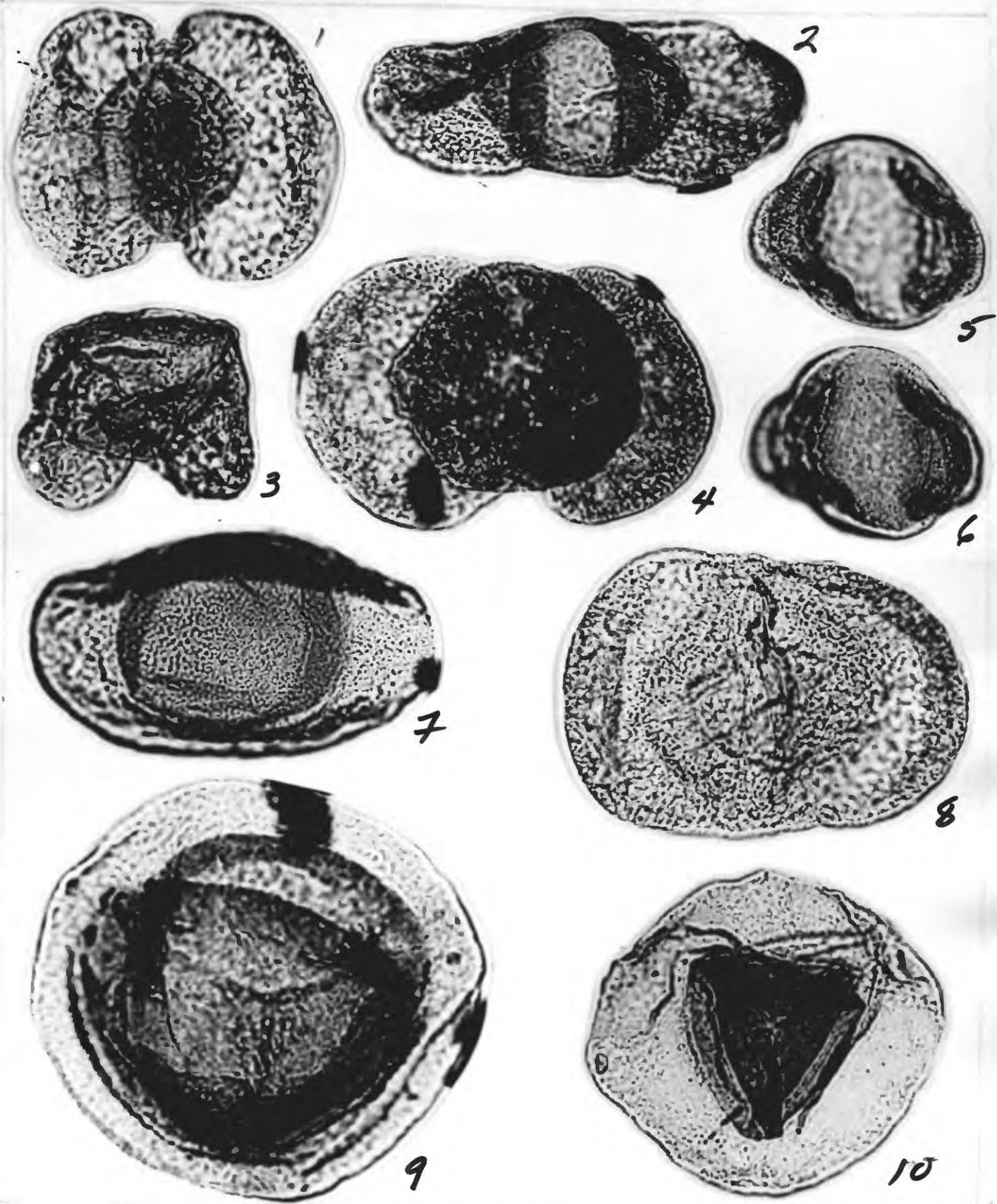


PLATE 7

Plate 8

[Magnification X 1000]

- Figure 1. Inaperturopollenites turbatus Balme, 1957. Sample D1370, slide 6, coordinates 108.0 X 7.1 K.
2. Crybelosporites vectensis? Kemp, 1970. Sample D1370, slide 14, coordinates 81.6 X 11.1.
3. Callialasporites trilobatus (Balme) Sukh Dev, 1961. Sample D1370, slide 14, coordinates 93.1 X 13.2.
4. Callialasporites sp. Sample D1370, slide 13, coordinates 101.2 X 9.2.
5. Callialasporites sp. Sample D1370, slide 14, coordinates 107.4 X 10.6.
6. Callialasporites cf. C. dampieri (Balme) Sukh Dev, 1961. Sample D1370, slide 2, coordinates 123.5 X 17.2 K.
7. Callialasporites dampieri (Balme) Sukh Dev, 1961. Sample D1370, slide 14, coordinates 84.2 X 12.3.
8. Callialasporites dampieri (Balme) Sukh Dev, 1961. Sample D1370, slide 6, coordinates 119.2 X 9.0 K.
9. Callialasporites sp. Sample D1370, slide 14, coordinates 88.4 X 13.7.

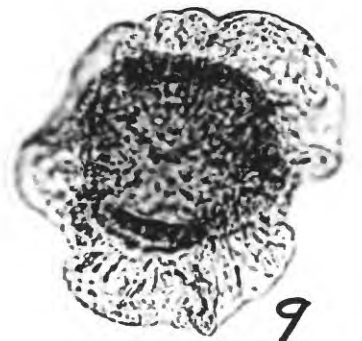
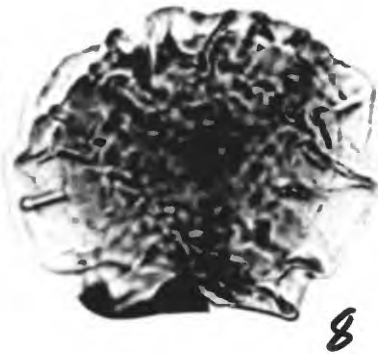
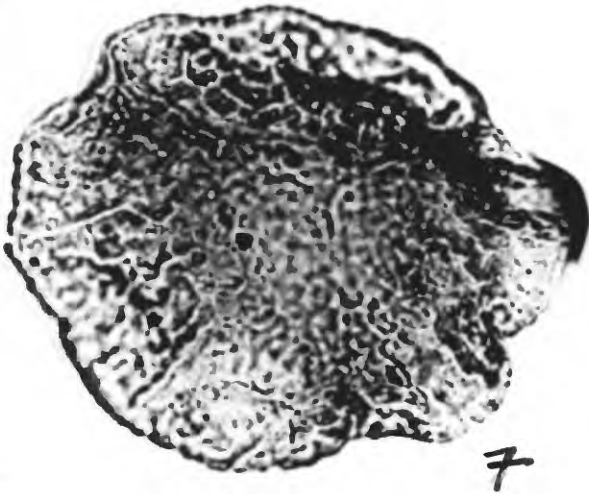
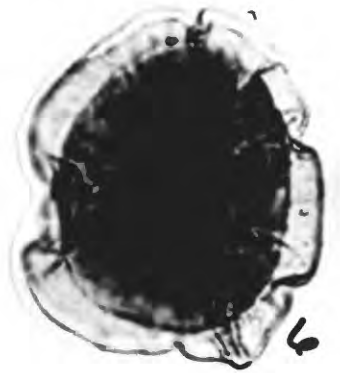
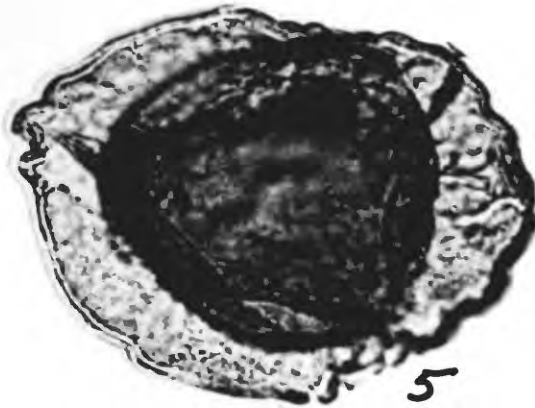
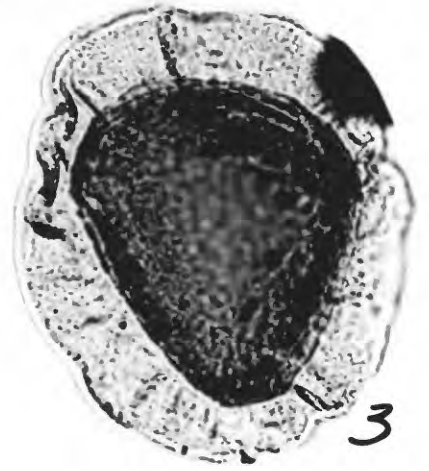


PLATE 8

Plate 9

[Magnification X 1000]

- Figure 1. Callialasporites crenulatus Pocock, 1970. Sample D1370, slide 13, coordinates 87.9 X 3.0.
2. Callialasporites segmentatus (Balme) Sukh Dev, 1961. Sample D1370, slide 13, coordinates 99.1 X 10.0.
3. Undetermined. Sample D1370, slide 10, coordinates 115.2 X 12.5 K.
4. Heliosporites cf. H. altmarkensis Schulz, 1962. Sample D1370, slide 14, coordinates 94.1 X 3.0.
5. Araucariacites? Sample D1370, slide 13, coordinates 114.2 X 11.7.
6. Undetermined. Sample D1370, slide 14, coordinates 96.8 X 15.4.
7. Cadargasporites reticulatus de Jersey and Paten, 1964. Sample D1370, slide 13, coordinates 106.7 X 21.6.
8. Cerebropollenites mesozoicus (Couper) Nilsson, 1958. Sample D1370, slide 14, coordinates 112.9 X 3.4.
9. Cerebropollenites sp. Sample D1370, slide 14, coordinates 78.2 X 21.7.
10. Cycadopites carpentieri (Delcourt and Sprumont) Singh, 1964. Sample D1370, slide 1, coordinates 117.2 X 8.0 K.
11. Monosulcate - undetermined. Sample D1370, slide 1, coordinates 106.6 X 11.8 K.
12. Cycadopites fragilis Singh, 1964. Sample D1370, slide 3, coordinates 115.9 X 11.8.
13. Cycadopites fragilis Singh, 1964. Sample D1370, slide 3, coordinates 100.1 X 13.0 K.
14. Corollina sp. Sample D1370, slide 6, coordinates 115.5 X 4.0 K.



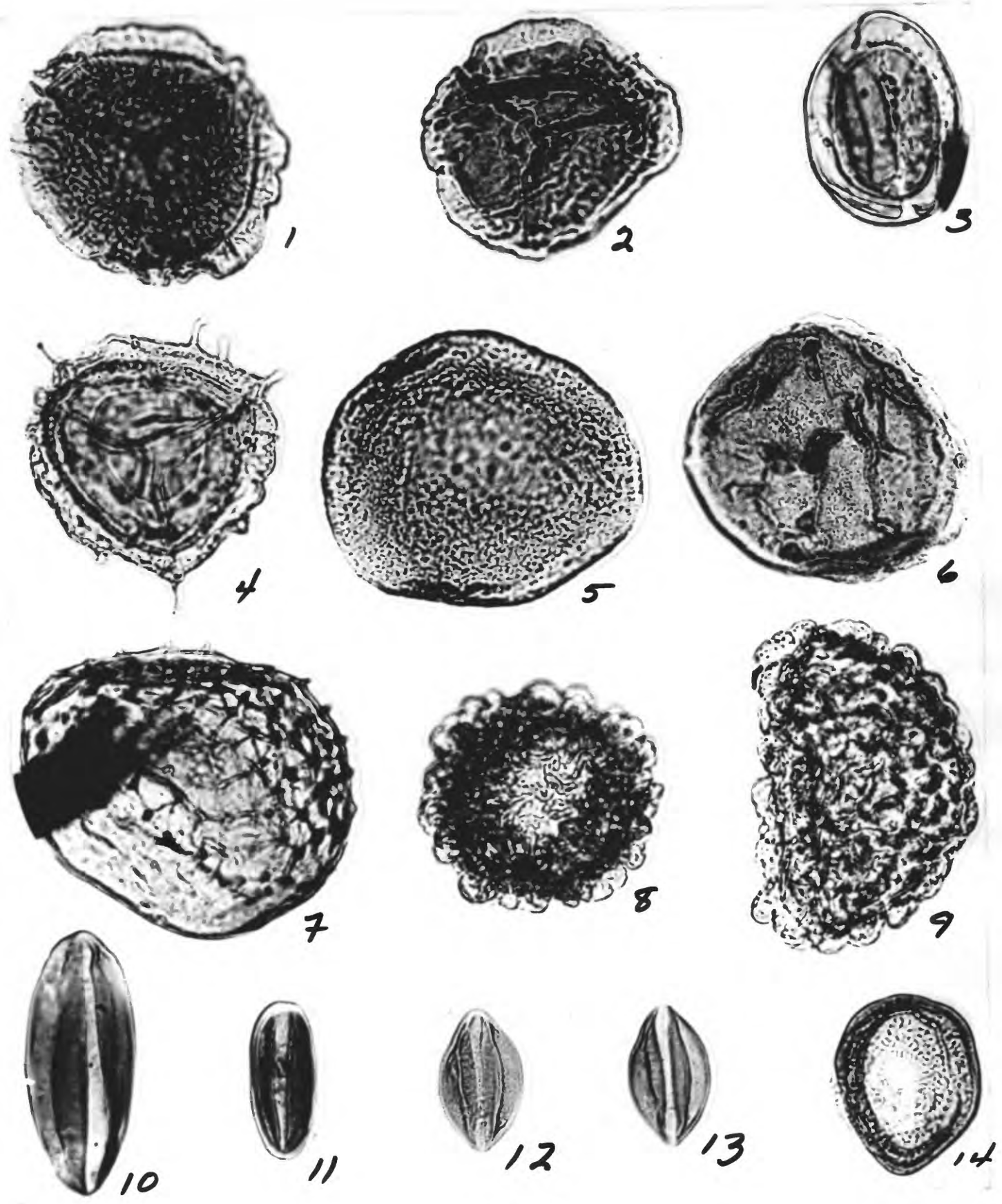


PLATE 9

Plate 10

[Magnification X 1000]

- Figure 1. Cyathidites australis Couper, 1953. Sample D1369, slide 1, coordinates 111.8 X 2.9 K.
2. Undulatisporites sp. Sample D1369, slide 4, coordinates 88.4 X 2.0.
3. Trilete spore - undetermined. Sample D1369, slide 1, coordinates 122.7 X 18.2 K.
4. Concavissimisporites punctatus (Delcourt and Sprumont) Brenner, 1963. Sample D1369, slide 1, coordinates 129.4 X 2.0 K.
5. Concavissimisporites punctatus (Delcourt and Sprumont) Brenner, 1963. Sample D1369, slide 5, coordinates 107.2 X 6.2.
- 6-7. Polycingulatisporites reduncus (Bolkhovitina) Playford and Dettmann, 1965. Sample D1369, slide 4, coordinates 88.6 X 1.9.
8. Undetermined. Sample D1369, slide 5, coordinates 87.2 X 21.5.
9. cf. Anapiculatisporites dawsonensis Reiser and Williams, 1969. Sample D1369, slide 4, coordinates 131.0 X 9.5 K.
10. Concavissimisporites penolaensis Dettmann, 1963. Sample D1369, slide 1, coordinates 134.3 X 9.7 K.
11. cf. Lygodioisporites perrucatus Couper, 1958. Sample D1369, slide 2, coordinates 109.2 X 19.3 K.

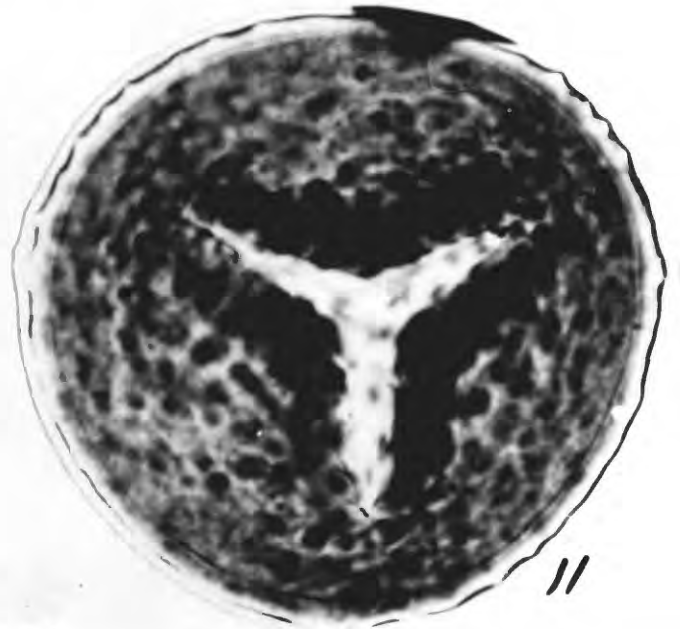
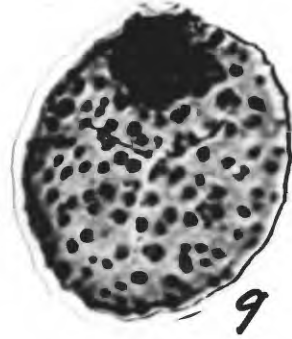
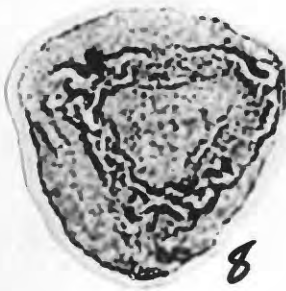
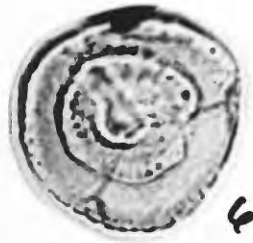
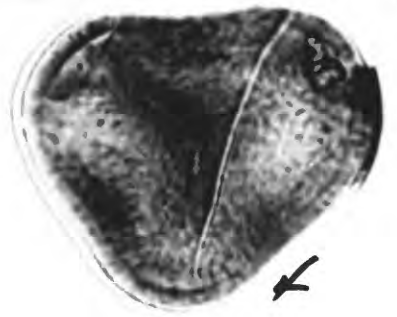
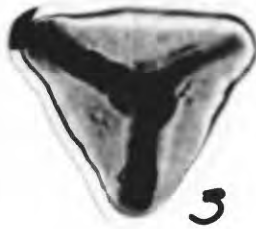
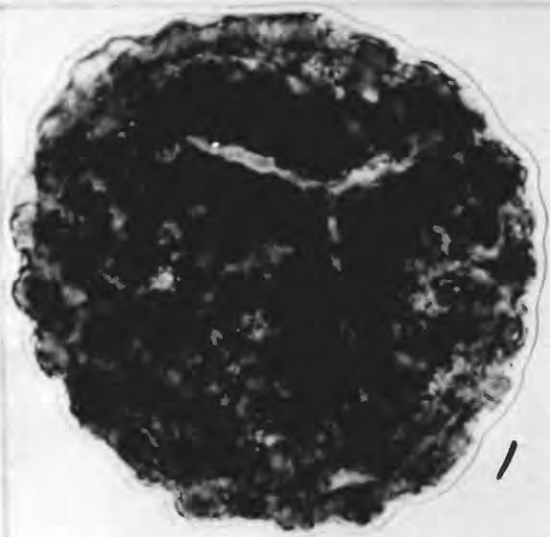


PLATE 10

Plate 11

[Magnification X 1000]

- Figure 1. Trilete spore - undetermined. Sample D1369, slide 1, coordinates 114.7 X 18.9 K.
2. Leptolepidites major Couper, 1958. Sample D1369, slide 5, coordinates 97.3 X 9.6.
3. Staplinisporites caminus (Balme) Pocock, 1962. Sample D1369, slide 1, coordinates 123.8 X 16.7 K.
4. Lycopodiumsporites crassimacerius Hedlund, 1966. Sample D1369, slide 1, coordinates 115.0 X 18.0 K.
5. Lycopodiumsporites crassimacerius Hedlund, 1966. Sample D1369, slide 5, coordinates 102.2 X 10.2.
6. Undetermined. Sample D1369, slide 1, coordinates 129.4 X 6.1 K.
7. Undetermined. Sample D1369, slide 3, coordinates 129.4 X 8.3 K.
8. cf. Alisporites lowoodensis de Jersey, 1963. Sample D1369, slide 5, coordinates 94.7 X 16.7.
9. Alisporites grandis (Cookson) Dettmann, 1963. Sample D1369, slide 5, coordinates 87.5 X 17.0.



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2



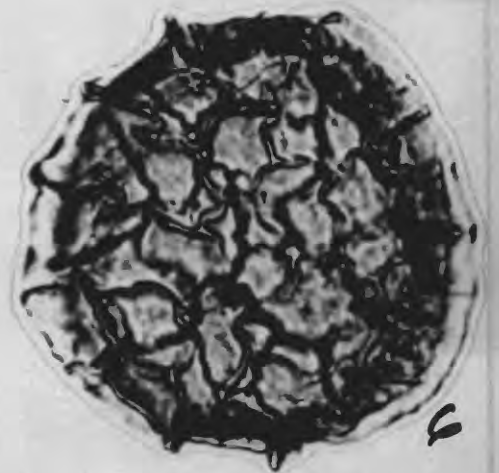
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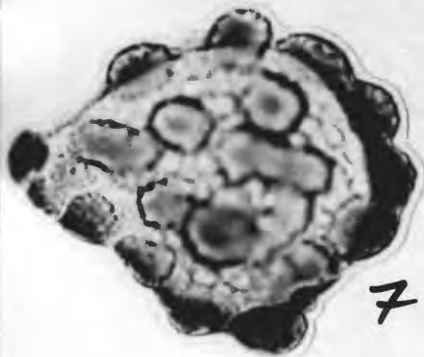
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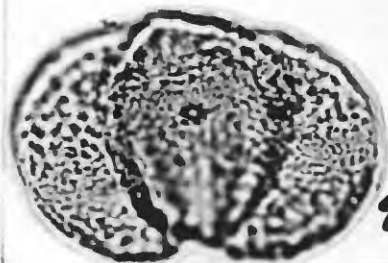
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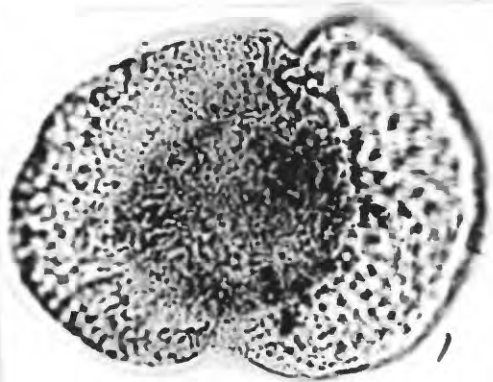
PLATE 11

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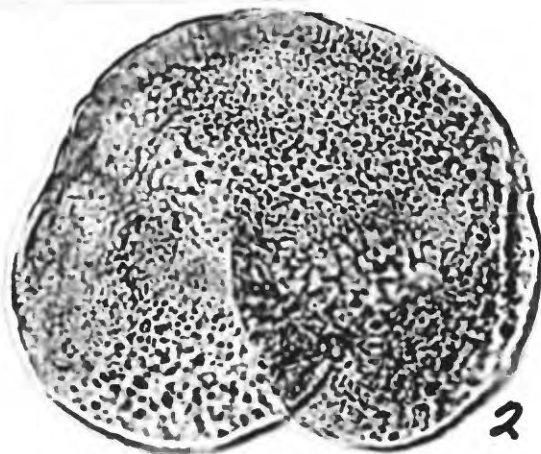
Plate 12

[Magnification X 1000]

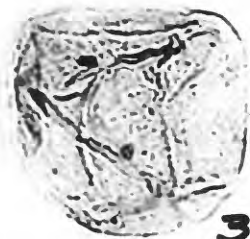
- Figure 1. Podocarpidites cf. P. multicusus (Bolkhovitina) Pocock, 1970.  
Sample D1369, slide 5, coordinates 111.0 X 18.8.
2. Bisaccate - undetermined. Sample D1369, slide 5, coordinates  
81.7 X 6.0.
3. Araucariacites sp. Sample D1369, slide 5, coordinates  
102.2 X 10.0.
4. cf. Protoconiferus funarius (Bolkhovitina) Bolkhovitina, 1956.  
Sample D1369, slide 5, coordinates 104.1 X 2.5.
5. Callialasporites trilobatus (Balme) Sukh Dev, 1961. Sample D1369,  
slide 5, coordinates 110.2 X 21.9.
6. Callialasporites trilobatus (Balme) Sukh Dev, 1961. Sample D1369,  
slide 5, coordinates 112.1 X 11.5.
7. Callialasporites trilobatus (Balme) Sukh Dev, 1961. Sample D1369,  
slide 5, coordinates 110.9 X 20.9.
8. Monosulcites sp. Sample D1369, slide 2, coordinates  
122.4 X 13.7 K.
9. Corollina sp. Sample D1369, slide 5, coordinates 83.0 X 18.4.



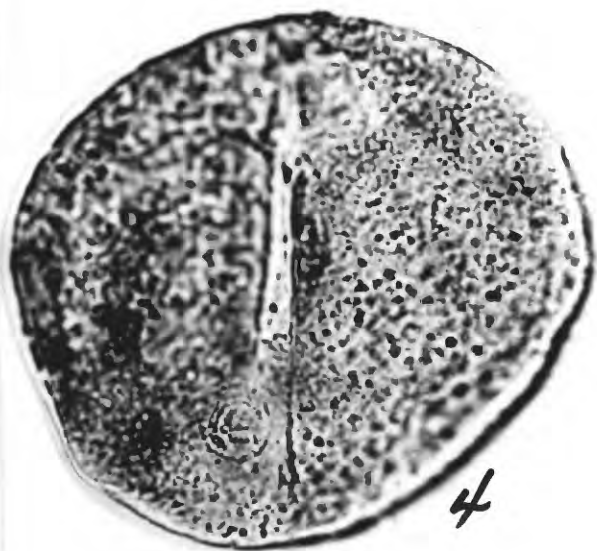
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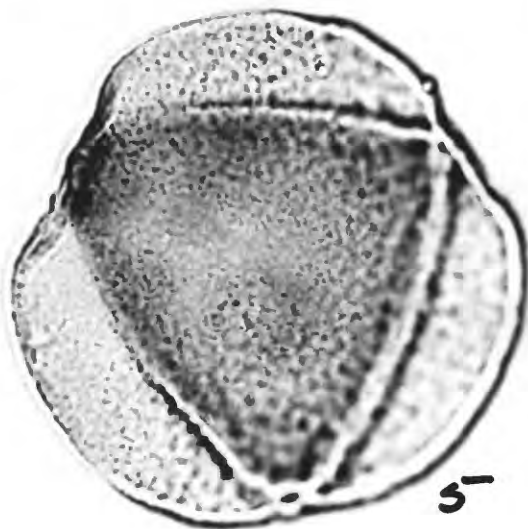
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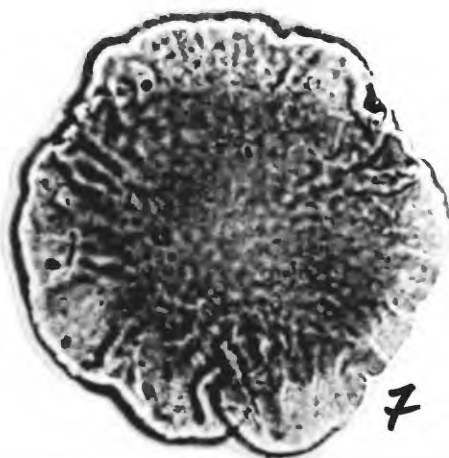
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PLATE 12

Plate 13

[Magnification X 1000]

- Figure 1. Monolete spore - undetermined. Sample D1404, slide 2, coordinates 112.7 X 20.5.
2. Cyathidites minor Couper, 1953. Sample D1404, slide 2, coordinates 107.0 X 12.5.
3. Undulatisporites sp. Sample D1404, slide 13, coordinates 125.0 X 12.5 K.
4. Biretisporites modestus McKellar, 1974. Sample D1404, slide 2, coordinates 99.8 X 15.0.
5. Biretisporites sp. Sample D1404, slide 2, coordinates 96.2 X 19.6.
6. Trilete spore - undetermined. Sample D1404, slide 2, coordinates 107.1 X 19.9.
7. Concavissimisporites punctatus (Delcourt and Sprumont) Brenner, 1963. Sample D1404, slide 2, coordinates 114.3 X 7.7.
8. Concavissimisporites punctatus (Delcourt and Sprumont) Brenner, 1963. Sample D1404, slide 15, coordinates 129.3 X 16.0 K.
9. Trilete spore - undetermined. Sample D1404, slide 2, coordinates 114.3 X 12.4.
10. Todisporites minor Couper, 1958. Sample D1404, slide 2, coordinates 95.7 X 14.2.
11. Trilete spore - undetermined. Sample D1404, slide 2, coordinates 99.8 X 17.7.
12. Osmundacidites wellmani Couper, 1953. Sample D1404, slide 4, coordinates 123.3 X 20.3 K.



Plate 13 (continued)

- Figure 13. Distalanulisporites spurius Pocock, 1970. Sample D1404, slide 2, coordinates 105.3 X 7.8.
14. Concavissimisporites penolaensis Dettmann, 1963. Sample D1404, slide 2, coordinates 104.1 X 9.1.
15. Concavissimisporites penolaensis Dettmann, 1963. Sample D1404, slide 2, coordinates 99.6 X 8.3.

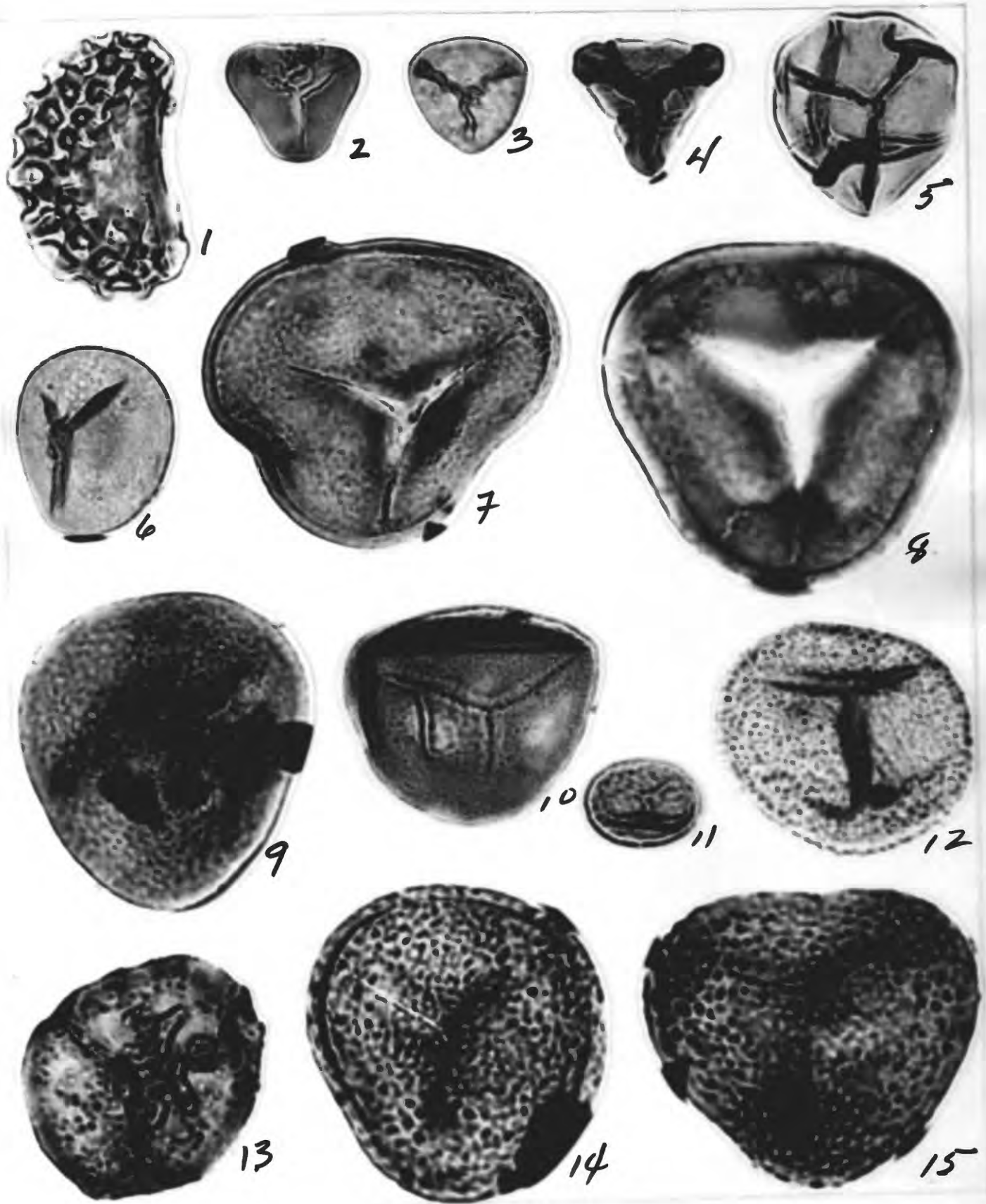


PLATE 13

Plate 14

[Magnification X 1000]

- Figure 1. Converrucosisporites utriculosus (Krasnova) Pocock, 1970. Sample D1404, slide 2, coordinates 104.2 X 9.5.
2. Converrucosisporites proxigranulatus Brenner, 1963. Sample D1404, slide 2, coordinates 101.6 X 12.1.
3. Leptolepidites major? Couper, 1958. Sample D1404, slide 14, coordinates 121.2 X 22.7 K.
4. Lygodioisporites perverrucatus? Couper, 1958. Sample D1404, slide 15, coordinates 124.5 X 16.7 K.
5. Lygodioisporites perverrucatus? Couper, 1958. Sample D1404, slide 2, coordinates 97.6 X 12.9.
6. Undetermined. Sample D1404, slide 2, coordinates 116.4 X 7.0.
7. Lycopodiacidites baculatus? Pocock, 1962. Sample D1404, slide 2, coordinates 107.8 X 11.2 K.
8. Klukisporites pseudoreticulatus Couper, 1958. Sample D1404, slide 2, coordinates 98.1 X 5.2.
9. Lycopodiumsporites crassimacerius Hedlund, 1966. Sample D1404, slide 2, coordinates 97.9 X 8.7.
10. Taurocusporites reduncus (Bolkhovitina) Stover, 1962. Sample D1404, slide 13, coordinates 110.9 X 7.9 K.
11. Perinopollenites elatoides Couper, 1958. Sample D1404, slide 2, coordinates 105.3 X 10.0.
- 12-13. Podocarpidites rousei? Pocock, 1970. Sample D1404, slide 2, coordinates 96.0 X 21.2.
14. Pristinuspollenites microsaccus (Couper) Tschudy, 1973. Sample D1404, slide 2, coordinates 111.0 X 6.7.

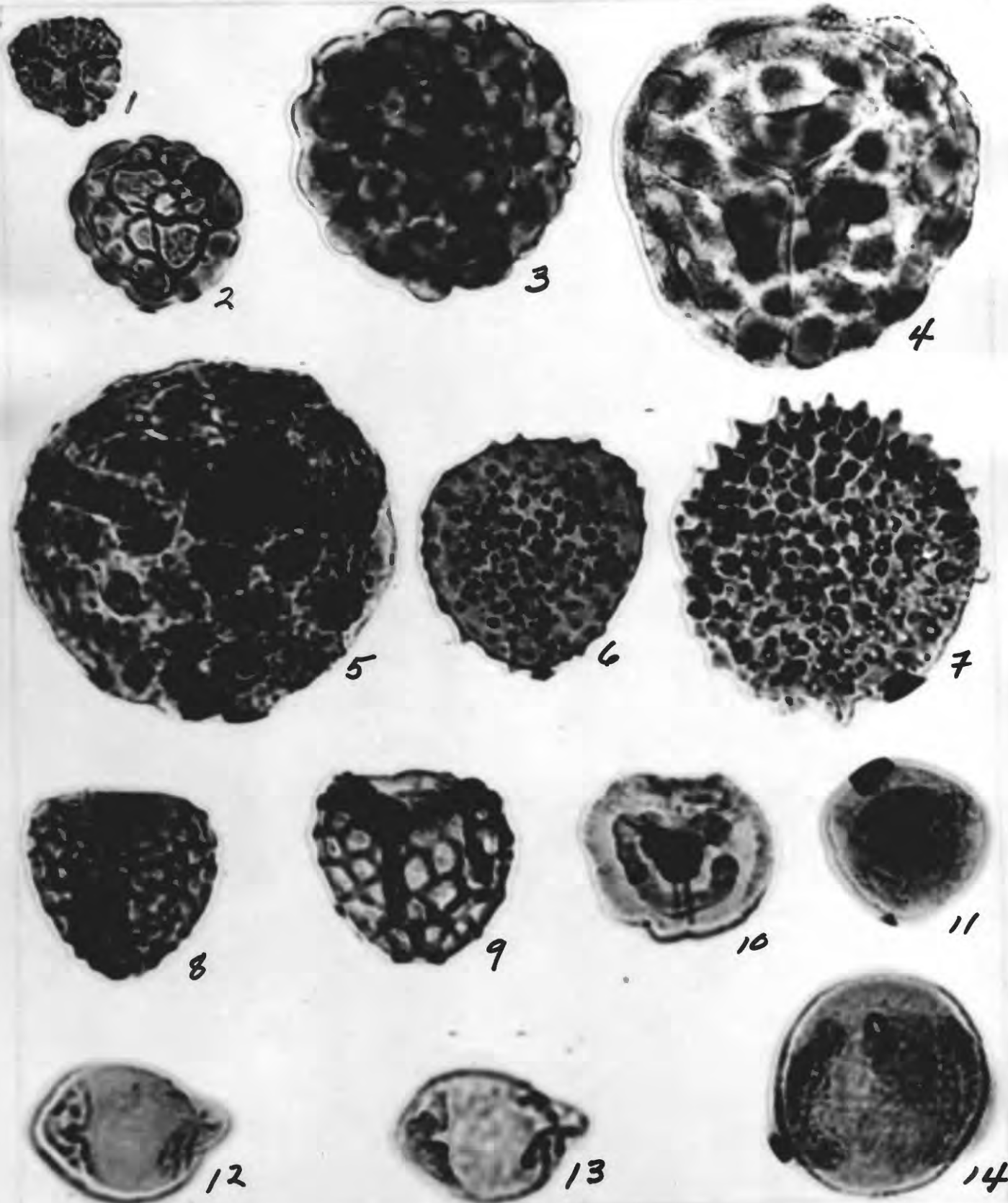
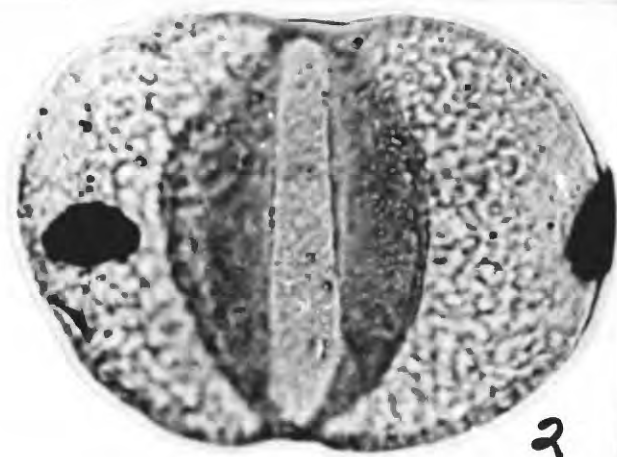


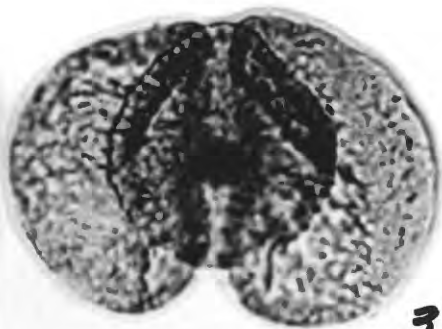
PLATE 14



1



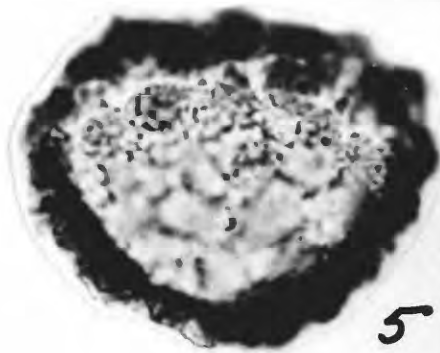
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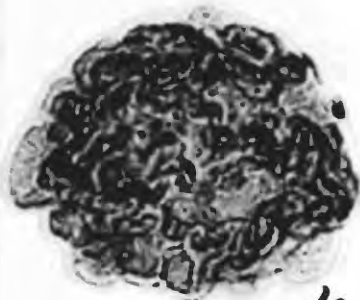
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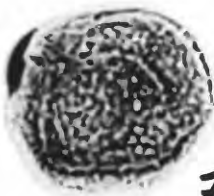
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5



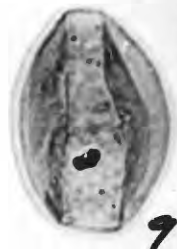
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11



12



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PLATE 15

Plate 15

[Magnification X 1000]

- Figure 1. Pristinuspollenites microsaccus (Couper) Tschudy, 1973. Sample D1404, slide 2, coordinates 94.4 X 3.6.
2. Alisporites grandis (Cookson) Dettmann, 1963. Sample D1404, slide 14, coordinates 133.4 X 2.9 K.
3. Podocarpidites cf. P. ellipticus Cookson, 1947. Sample D1404, slide 13, coordinates 114.3 X 4.4 K.
4. Callialasporites dampieri (Balme) Sukh Dev, 1961. Sample D1404, slide 2, coordinates 115.0 X 16.1.
5. Undetermined. Sample D1404, slide 14, coordinates 126.2 X 3.3 K.
6. Cerebropollenites mesozoicus (Couper) Nilsson, 1958. Sample D1404, slide 2, coordinates 113.8 X 9.7.
7. Undetermined. Sample D1404, slide 2, coordinates 96.5 X 6.8.
8. Monosulcites sp. Sample D1404, slide 2, coordinates 96.5 X 7.6.
9. Cycadopites fragilis Singh, 1964. Sample D1404, slide 2, coordinates 117.2 X 9.2.
10. Undetermined. Sample D1404, slide 2, coordinates 105.3 X 12.5.
11. Corollina sp. Sample D1404, slide 2, coordinates 117.3 X 8.9.
12. Eucommiidites sp. Sample D1404, slide 2, coordinates 112.4 X 16.1.
13. Undetermined. Sample D1404, slide 2, coordinates 93.9 X 13.9.

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