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OF
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PAPER 64-55

ILLUSTRATIONS OF CANADIAN FOSSILS

TRIASSIC, JURASSIC, AND LOWER CRETACEOUS
SPORES AND POLLEN OF ARCTIC CANADA

(Report, 1 figure and 10 plates)

D. C. McGregor



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Illustrations of Canadian Fossils

TRIASSIC, JURASSIC, AND LOWER CRETACEOUS SPORES AND POLLEN OF ARCTIC CANADA

INTRODUCTION

In 1962, the Geological Survey of Canada initiated a series of reports illustrating Canadian fossils of Western and Arctic Canada, designed for the use of geologists in the field. Much of the data incorporated in these reports was accumulated in the last ten to fifteen years as a result of an intensive programme of systematic geological mapping on the northern mainland and the Arctic Islands by the Geological Survey of Canada.

Palynological information also has been accumulated rapidly during this period, some of it from rocks for which the age is well established by stratigraphic relations and palaeontological evidence. However, the few reports published to date illustrating spores and pollen of the Canadian Arctic have been restricted to the Devonian and Tertiary (e.g. Chaloner, 1959; McGregor, 1960; Manum, 1962). No illustrations or descriptions of Mesozoic spores or pollen of northern Canada have been published, in spite of the fact that thick sequences of Mesozoic sedimentary rocks are known, particularly from the Sverdrup Basin of the Queen Elizabeth Islands (Tozer, 1960) and the northwestern mainland (Jeletzky, 1958).

The purpose of this report is to illustrate spore-pollen assemblages that have been extracted by the writer from selected Mesozoic rocks of the Canadian Arctic. All the samples used have been independently dated by means other than palynology. It is hoped that illustration of these assemblages will be useful, as far as the obvious limitations of such a presentation permit, for comparative purposes until such time as full systematic treatments of Mesozoic plant microfossils are available for these regions. This report is designed primarily for laboratory reference, since conditions usually are not appropriate for extraction and examination of spores and pollen in the field. It is not intended as a key for quick, accurate identification of Arctic miospores, but merely as a guide to the recognition and preliminary identification of Arctic Triassic, Jurassic, and Lower Cretaceous miospores. No such treatment can serve as a substitute either for thorough systematic documentation or for accurate determinations based on examination of fossils by a competent palynologist.

The present writer has relied almost entirely on descriptions and illustrations in the literature for identification of the fossils illustrated in this report. The nomenclature applied is that used by the authors of the most closely comparable forms in the literature, and no attempt has been made to be thorough in bringing the nomenclature up to date.

For example, the spores referred to as Sphagnumsporites psilatus on the following pages should probably be assigned either to Stereisporites or Cinguliriletes (see Dettmann, 1963, pp. 25 and 69); Deltoidosporites, used here in the sense intended by Danzé-Corsin and Laveine (1963, p. 66), is not a valid taxon; and the distinction between Cycadopites and Ginkgocycadophytus is drawn arbitrarily, to include more or less fusiform pollen in the former genus, and broadly elliptical to subcircular grains in the latter.

As used in the plate descriptions, the prefix "cf." implies that the illustrated grain is very similar to the species named but probably should not be assigned to it; "?" before the generic name indicates tentative identification with the genus, while "?" before the specific name indicates that, although generic assignment is made with confidence, identification with the species is tentative. Where identification is very uncertain or where the specimen probably represents a new species, the word "unidentified" is used.

Redeposited Viséan spores were present in the Upper Jurassic sample from Locality 7063 (Plate V), and Viséan spores were found in the Berriasian sample from Locality 26909 (Plate VI). In most instances the secondary spores were easily recognized and excluded, although some may have been missed (e.g. Plate I, figs. 4-14; Plate V, figs. 7, 8; Plate VIII, figs. 7, 27).

All spores illustrated in this paper were obtained from surface samples collected by field officers of the Geological Survey of Canada, in the eastern part of the Sverdrup Basin in the Arctic Islands, or in the Richardson Mountains - Peel Plateau region of the northern mainland. For the relative stratigraphic positions of the Bjorne, Heiberg, Borden Island, Awingak, and Isachsen Formations of the eastern Sverdrup Basin, and the unnamed formations of the northern mainland, see Tozer (1963), Douglas et al. (1963), and Jeletzky (1958, 1960). For geographic locations, see Text-Figure 1.

The slides have been deposited in the GSC type collections in Ottawa, numbers in figure descriptions on the plates are GSC fossil plant type numbers. All figures are shown at a magnification of X500.

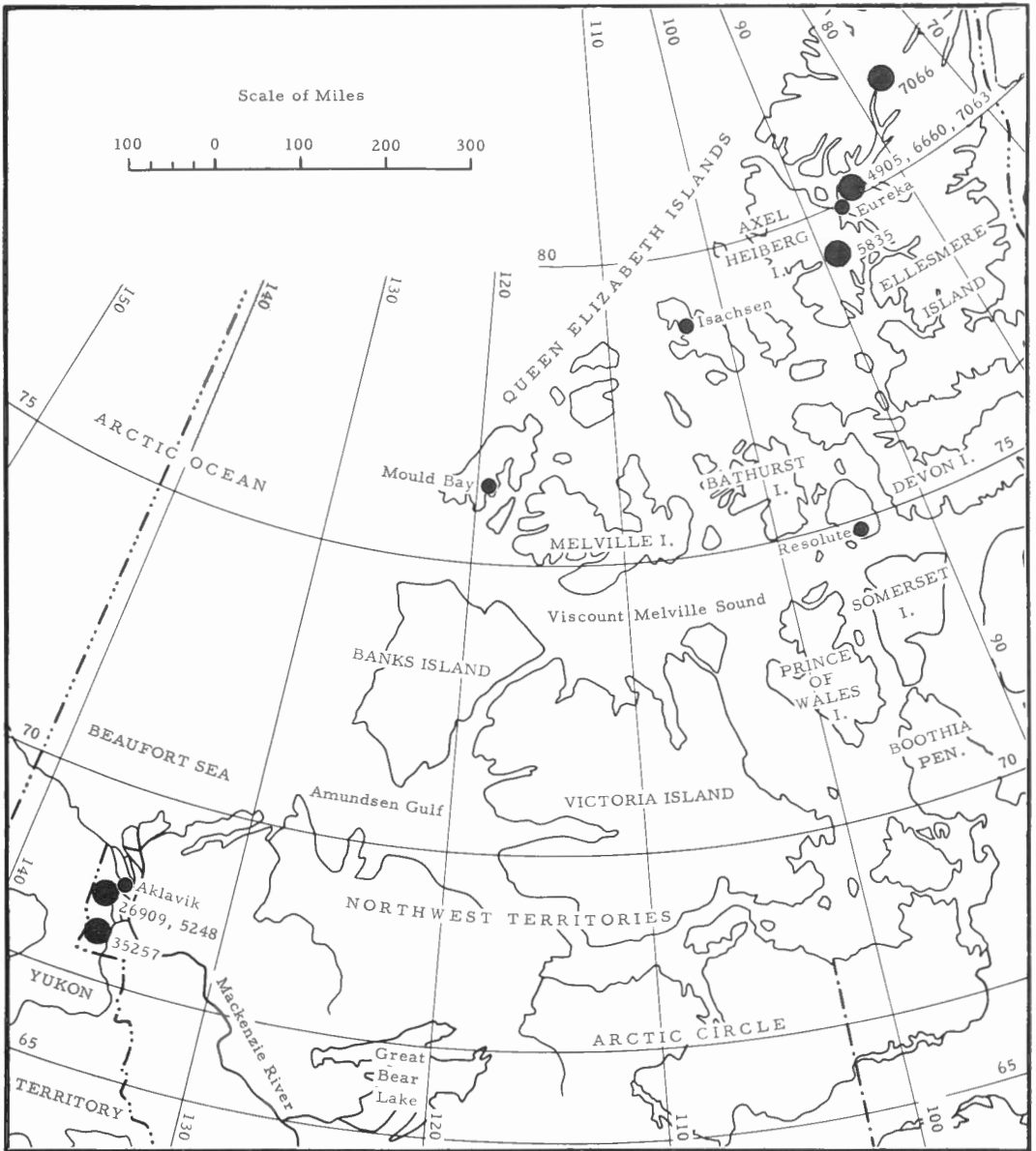


Figure 1. Index of spore-pollen localities.

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- PLATES -

PLATE I

LOWER TRIASSIC

Bjorne Formation, Northern Ellesmere Island, N.W.T., 7 miles northeast of head of Tanquary Fiord. GSC Plant loc. 7066. Collected by R.L. Christie, 1963.

Reference: R.L. Christie, personal communication; see also Tozer, 1963, p. 2.

- Figures 1-3. Planisporites sp. 13630-13632
Figure 4. Verrucosisporites sp. 13633
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Figures 30, 31. Striatites richteri (Klaus) Potonié, 1958, p. 51. 13652, 13653
Figure 33. ?Lueckisporites sp. 13654
Figure 36. ?Fimbriaesporites fimbriatus Singh, 1964, p. 259. 13655
Figures 6, 7, 10, 11, 13, 14, 16, 27, 28, 34. Unidentified. 13656-13665

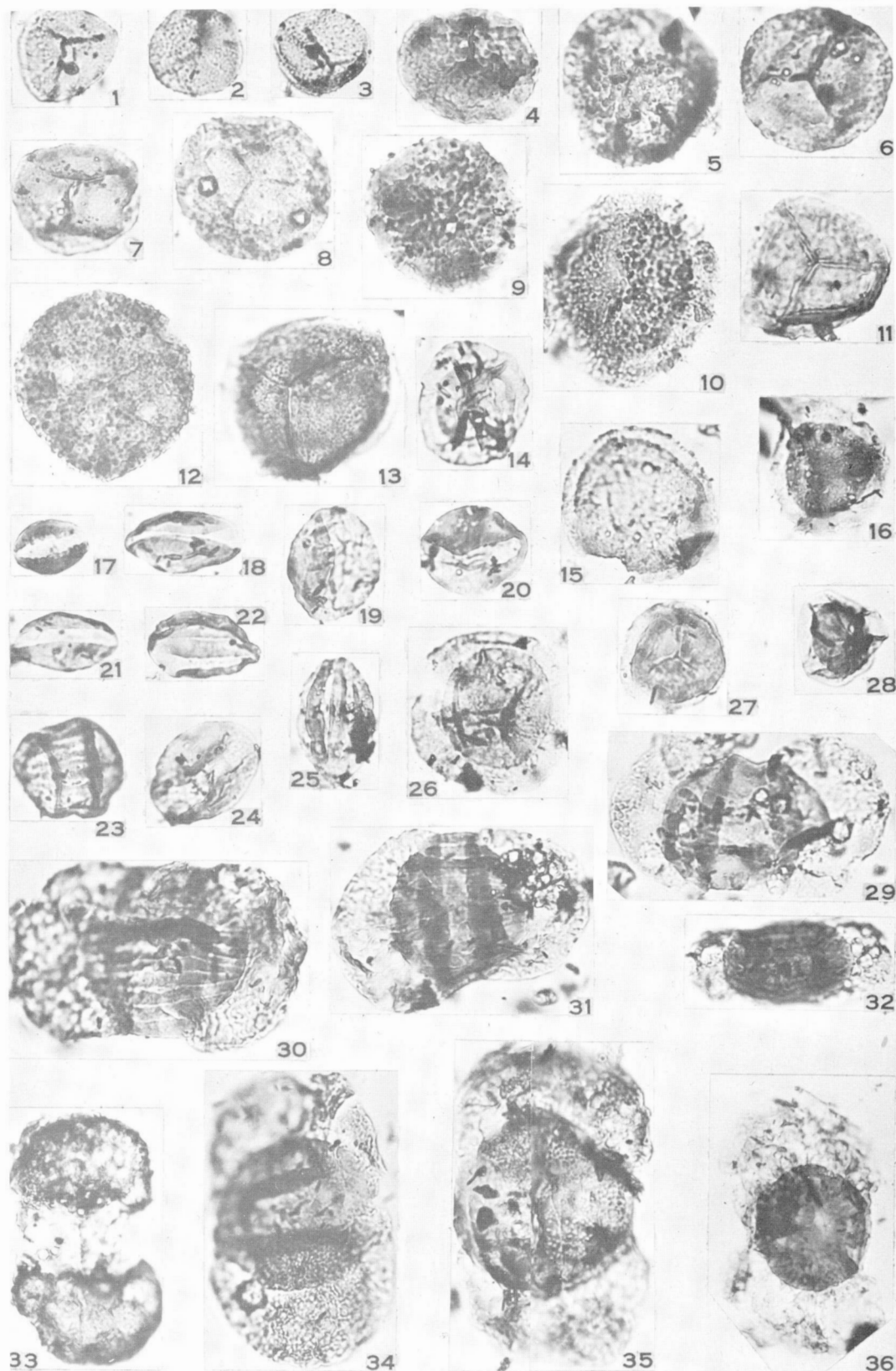


PLATE II
UPPER TRIASSIC
Norian or Rhaetian

Heiberg Formation, upper part, western Ellesmere Island, N.W.T., east side of Black Top Ridge near Eureka. GSC Plant loc. 4905. Collected by E.T. Tozer, 1956.
Reference: E.T. Tozer, 1961, p. 25; see also Fortier, et al., 1963, pp. 79, 432.

- Figure 1. Calamospora diversiformis Balme and Hennelly, 1956b, p. 246. 13666
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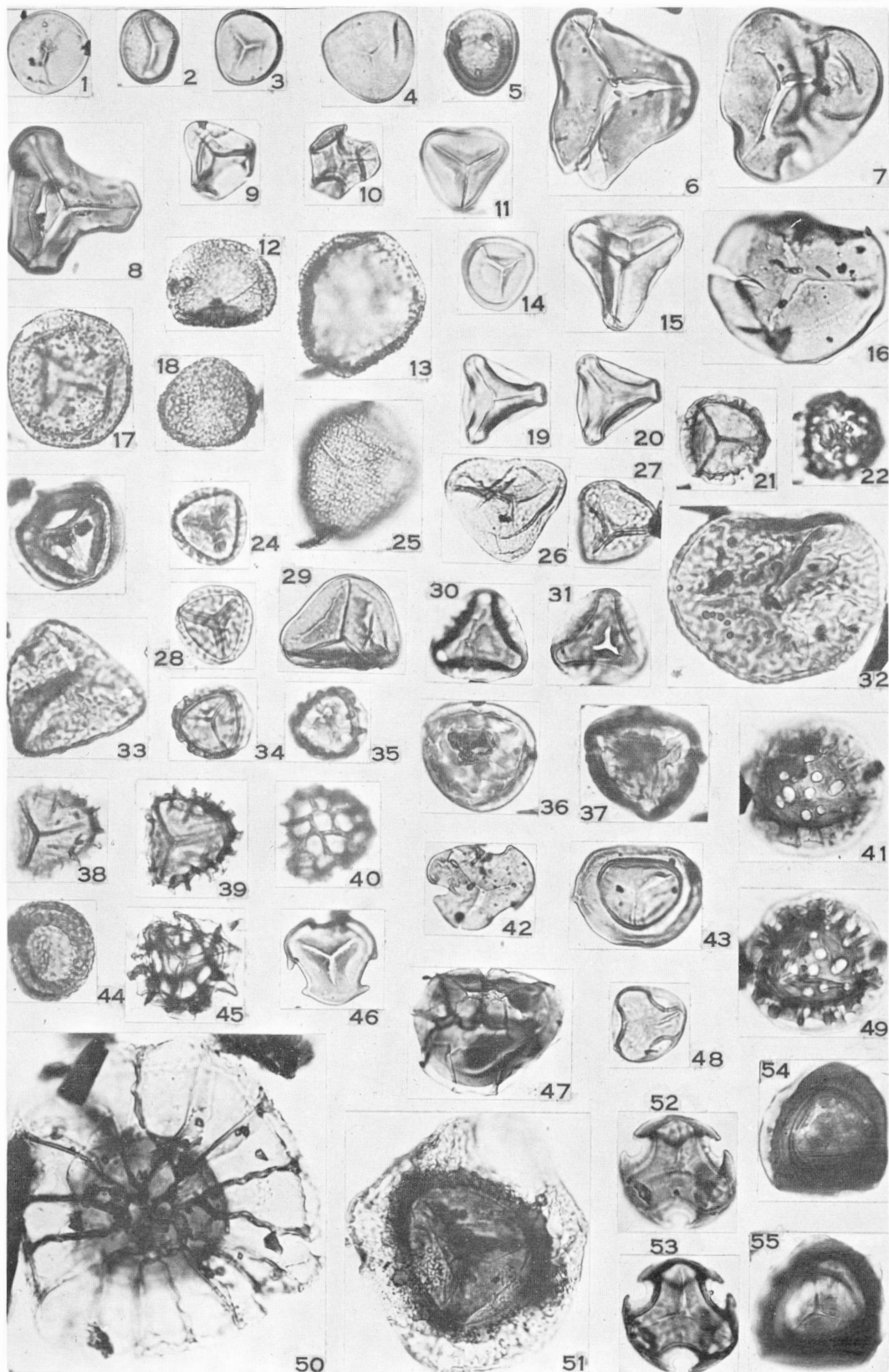


PLATE III
UPPER TRIASSIC
Norian or Rhaetian

Heiberg Formation, GSC Plant loc. 4905, continued.

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LOWER JURASSIC

probably Sinemurian

(definitely post-Norian, pre-Toarcian)

Borden Island Formation, western Ellesmere Island, N.W.T., west side of Black Top Ridge, near Eureka. GSC Plant loc. 6660. Collected by E.T. Tozer, 1956.
Reference: Tozer, 1963, p. 16.

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Figures 46, 49 and 50. Lycopodiumsporites semimurus Danzé-Corsin and Laveine, 1963, p. 79. 13748, 13749
Figures 47, 48. Lycopodiumsporites austroclavatidites (Cookson) Potonié, 1956, p. 46. 13750

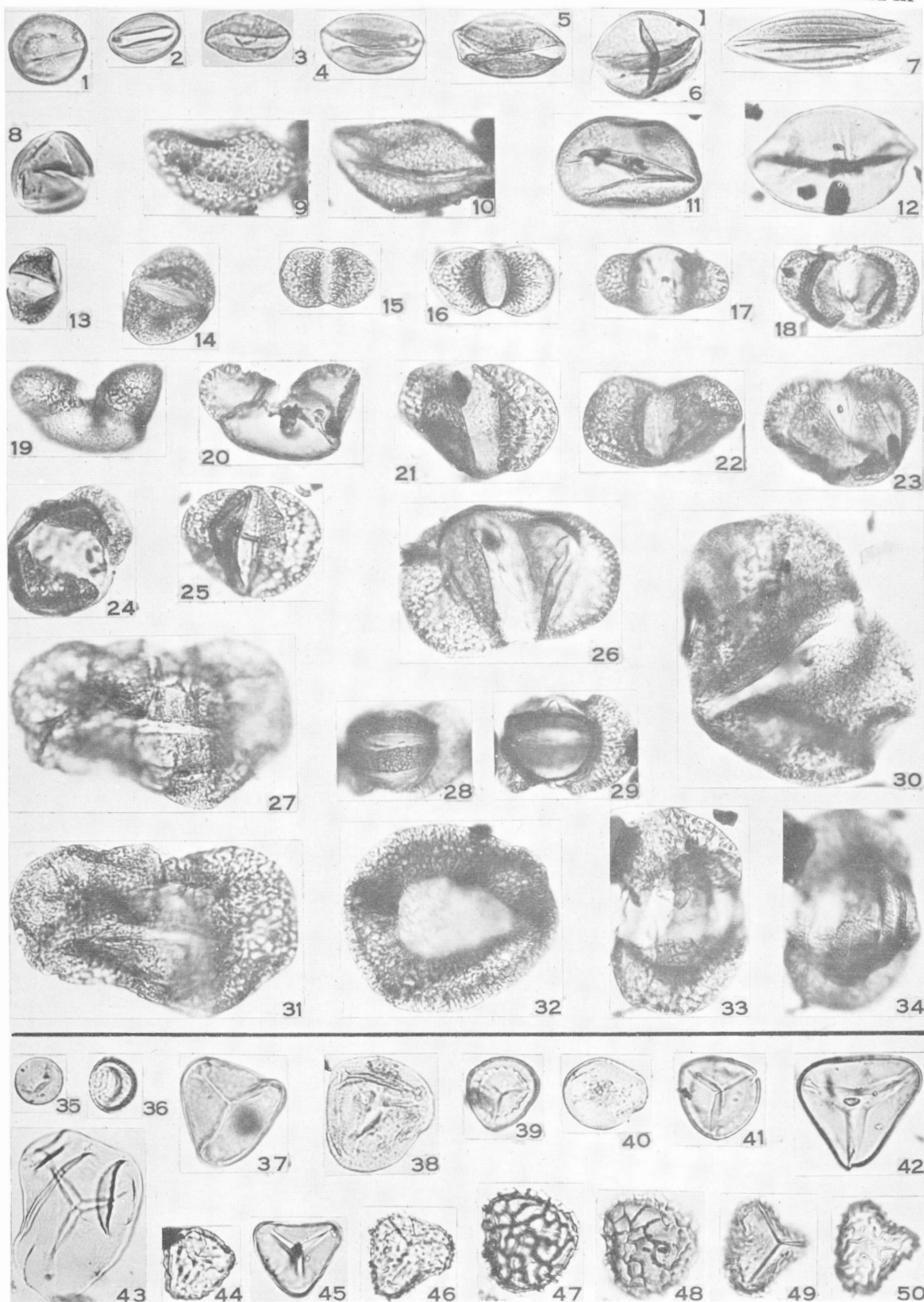


PLATE IV

LOWER JURASSIC

probably Sinemurian

Borden Island Formation, GSC Plant loc. 6660, continued.

- Figure 1. ?Cyathidites australis Couper, 1953, p. 27. 13751
Figure 2. Cyathidites sp., corroded. 13752
Figures 3, 10-12. Baculatisporites spp. 13753, 13754
Figure 4. Baculatisporites comaumensis (Cookson) Potonié, 1956, p. 23.
 13755
Figure 5. Apiculatisporis sp. 13756
Figure 6. cf. Tsugaepollenites mesozoicus Couper in Danzé-Corsin and
 Laveine, 1963, p. 91. 13757
Figure 7. Deltoidisporites hallei var. auriculus Danzé-Corsin and Laveine,
 1963, p. 66. 13758
Figures 8, 9. cf. Bracteolina rotunda Malyavkina, 1953, p. 118. 13759
Figures 13, 14. Lycopodiumsporites ?austroclavatidites (Cookson) Potonié, 1956,
 p. 46. 13760
Figure 15. Lycopodiacidisporites cerniidites (Ross) Danzé-Corsin and
 Laveine, 1963, p. 77. 13761
Figure 16. cf. Cheiropleuria congregata Bolkhovitina, 1956, p. 40. 13762
Figures 17, 18. Taurocusporites sp. 13763
Figures 19, 20. Styxisporites reissingeri Danzé-Corsin and Laveine, 1963, p. 85.
 13764
Figures 21, 22. ?Coptospora sp. 13765
Figure 23. Perotrilites sp. 13766
Figures 24, 25. ?Sciadopityspollenites sp. 13767
Figure 26. Schizosporis cf. S. cooksoni Pocock, 1962, p. 76. 13768
Figures 27, 28. Classopollis classoides Pflug emend. Pocock and Jansonius, 1961,
 p. 443. 13769, 13770
Figure 29. Eucommiidites troedssonii Erdtman, 1948, p. 267. 13771
Figure 30. cf. Ephedracites pseudoretectiniformis Malyavkina, 1958, p. 115.
 13772
Figure 31. Cycadopites fragilis Singh, 1964, p. 103. 13773
Figure 32. cf. Monosulcites subgranulosus Couper, 1958, p. 158. 13774
Figure 33. Vitreisporites pallidus (Reissinger) Nilsson, 1958, p. 77. 13775
Figure 34. Podocarpidites cf. P. ellipticus Cookson, 1947, p. 131. 13776
Figures 35, 41. ?Podocarpidites cf. P. ellipticus Cookson in Dettmann, 1963,
 pl. 25, fig. 10. 13776, 13777
Figures 36, 39. Pinuspollenites vancampoi Danzé-Corsin and Laveine, 1963,
 p. 103. 13778, 13779
Figures 37, 43. ?Abietinaepollenites microalatus Potonié in Couper, 1958, p. 152.
 13780
Figure 38. ?Pinuspollenites vancampoi Danzé-Corsin and Laveine, 1963,
 p. 103. 13781
Figures 40, 42. Abietinaepollenites minimus Couper, 1958, p. 153. 13782,
 13783
Figure 41. ?Podocarpus cf. P. ellipticus Cookson in Dettmann, 1963, pl. 25,
 fig. 10. 13784
Figure 44. Alisporites bisaccus Rouse, 1959, p. 316. 13785
Figure 45. Platysaccus papilionis Potonié and Klaus, 1954, p. 540. 13786
Figure 46. Unidentified. 13787

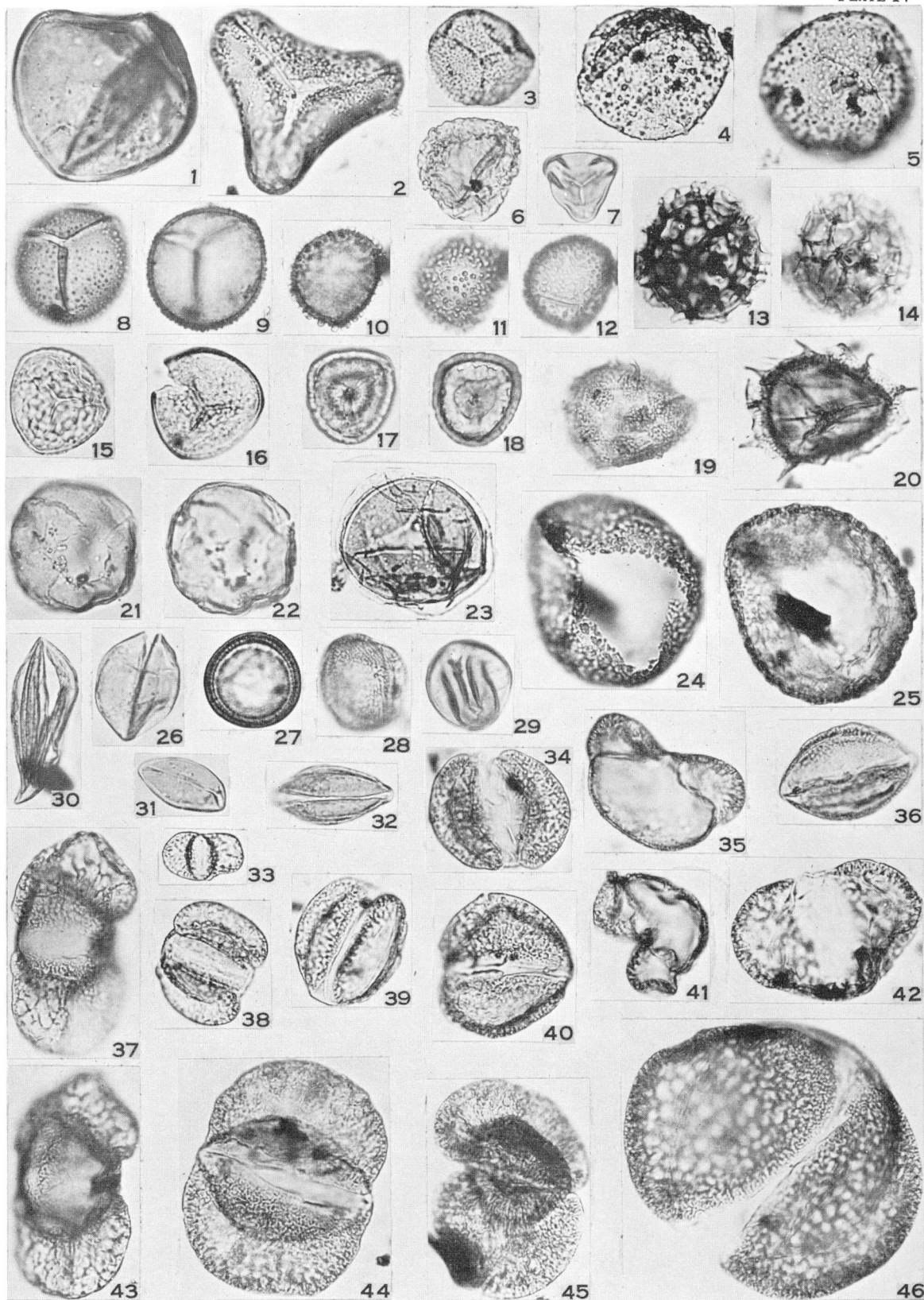


PLATE V

UPPER JURASSIC

Oxfordian or Kimmeridgian

Awingak Formation, western Ellesmere Island, Black Top Ridge, near Eureka. GSC
Plant loc. 7063. Collected by E.T. Tozer, 1962.

Reference: Tozer, 1963, p. 23.

- Figures 1, 2. Cyathidites australis Couper, 1953, p. 27. 13788, 13789
Figures 3, 4. cf. Leiotriletes lineatus Bolkhovitina, 1956, p. 41. 13790, 13791
Figures 6, 13. Trilobosporites sp. 13792, 13793
Figure 9. cf. Cheiropleuria congregata Bolkhovitina, 1956, p. 40. 13794
Figure 10. Selaginella obscura Bolkhovitina in Verbitskaya, 1962, p. 86.
13795
Figure 11. Rogalskaisporites cicatricosus var. rotundus Danzé-Corsin and
Laveine, 1963, p. 80. 13796
Figure 12. ?Lycopodiumsporites sp. 13797
Figure 14. Classopollis sp. 13798
Figure 15. ?Verrucosisporites sp. 13799
Figures 16, 17. Lycopodiumsporites austroclavatidites (Cookson) Potonié, 1956,
p. 46. 13800
Figures 18, 26. Lycopodiumsporites sp. 13801, 13802
Figures 19, 20. Perotriletes sp. 13803
Figure 21. Baculatisporites comaumensis (Cookson) Potonié, 1956, p. 23.
13804
Figure 22. Cycadopites sp. 13805
Figures 23, 24. Monosulcites carpentieri Delcourt and Sprumont, 1955, p. 54.
13806, 13807
Figure 25. cf. Ginkgocycadophytus caperatus (Luber) Samoilovich, 1953,
p. 32. 13808
Figure 28. Podocarpidites sp. 13809
Figure 29. Tsugaepollenites mesozoicus Couper, 1958, p. 155. 13810
Figures 30, 31. Podocarpidites ?canadensis Pocock, 1962, p. 66. 13811, 13812
Figure 33. ?Rubinella media var. parvituberculata Malyavkina, 1953, p. 122.
13813
Figure 34. cf. Disaccites (Phyllocladidites) ruei Cookson, 1947, p. 133.
13814
Figure 35. cf. Orbicularia aliferiniformis Donsk. in Malyavkina, 1956,
pl. 4, fig. 14. 13815
Figure 36. cf. Podocarpus elliptica (Naumova) Kara-Murza in Pervuninskaya,
1961, pl. 2, fig. 7. 13816
Figures 5, 7, 8, 27, 32, 37. Unidentified. 13817-13822

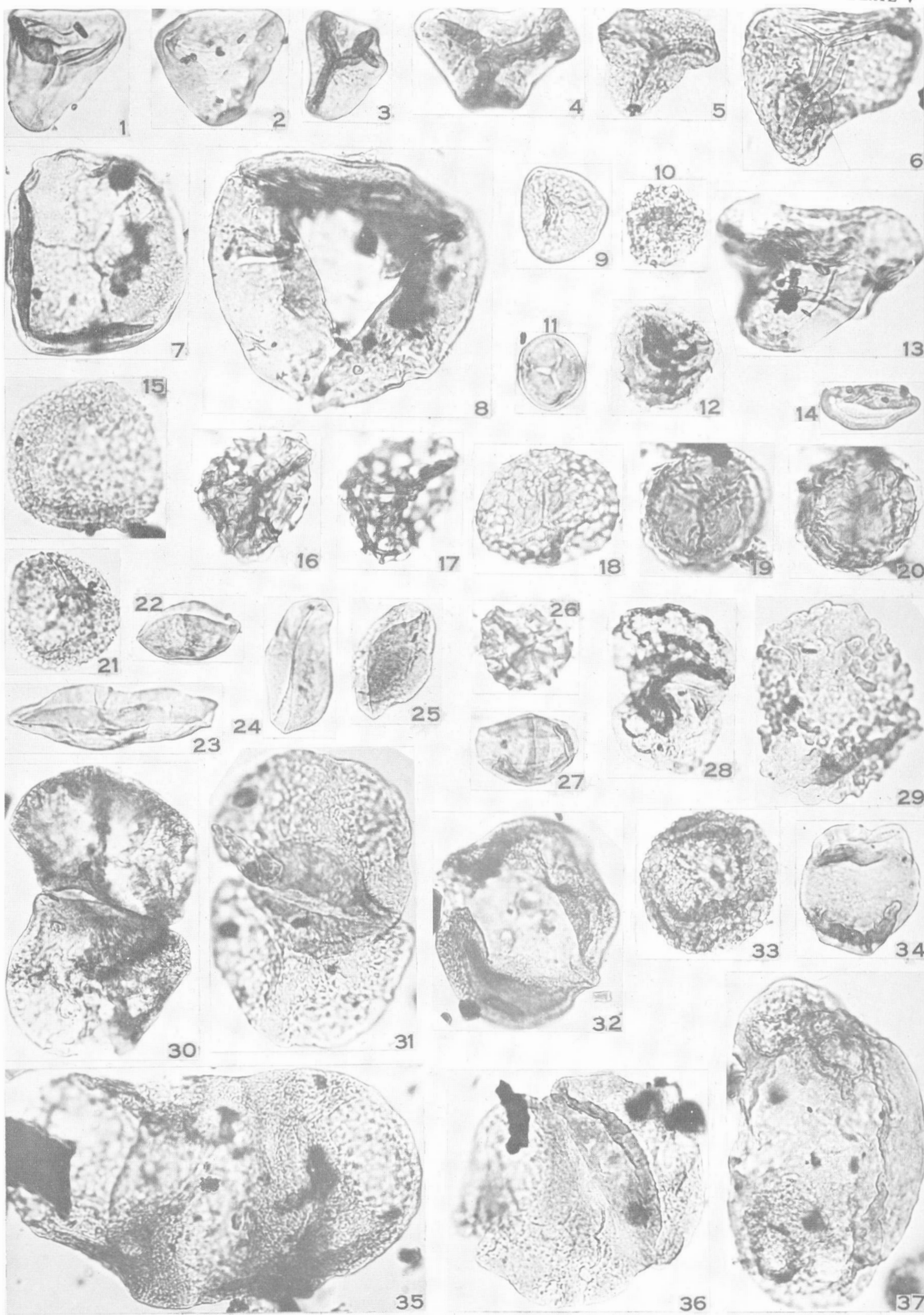


PLATE VI

LOWER CRETACEOUS

Late Berriasian (? or Early Valanginian)

Buchia volgensis s. str. zone

Aklavik Range (Richardson Mountains), N.W.T., Fault Creek Canyon. GSC loc. 26909.
Collected by J.A. Jeletzky, 1955.

Reference: Jeletzky, 1958, p. 33, "bed 50"; see also Jeletzky, 1964.

- Figure 1. Sphagnumsporites psilatus (Ross) Couper, 1958, p. 131. 13823
Figure 2. Deltoidospora sp. 13824
Figure 3. cf. Trilites sinuatus Couper, 1953, p. 31. 13825
Figure 4. Deltoidospora juncta (Kara-Murza) Singh, 1964, p. 81. 13826
Figure 5. ?Gleicheniidites sp. 13827
Figure 6. Gleicheniidites sp. 13828
Figure 7. Osmundacidites alpinus Klaus, 1960, p. 127. 13829
Figure 8. cf. Leiotriletes lineatus Bolkhovitina, 1956, p. 41. 13830
Figure 9. Tripartina cf. T. variabilis Malyavkina, 1949, p. 48. 13831
Figure 11. cf. Lygodium crispaeformis (Bolkhovitina) Bolkhovitina, 1961, p. 92, pl. 36, fig. 1. 13832
Figure 13. Onychiites incertus Kara-Murza, 1960, pl. 7, fig. 11. 13833
Figure 14. Baculatisporites sp. 13834
Figures 15, 16. Contignisporites cf. C. cooksonii (Balme) Dettmann, 1963, p. 75. 13835
Figures 17, 18 and 19. Cicatricosisporites spp. 13836, 13837
Figure 20. ?Concavisporites punctatus Delcourt and Sprumont, 1955, p. 25. 13838
Figures 21 and 22, 24. Trilobosporites bernissartensis (Delcourt and Sprumont) Potonié, 1956, p. 55. 13839, 13840
Figures 23, 26. Trilobosporites apiverrucatus Couper, 1958, p. 142. 13841, 13842
Figure 25. Trilites verrucatus Couper, 1953, p. 31. 13843
Figure 27. Ginkgocycadophytus sp. 13844
Figure 28. Tsugaepollenites dampieri (Balme) Dettmann, 1963, p. 100. 13845
Figure 29. ?Lygodium multituberculatum Bolkhovitina, 1961, p. 92. 13846
Figure 30. Hymenozonotriletes pseudoalveolatus (Couper) Singh, 1964, p. 83. 13847
Figure 31. Tsugaepollenites mesozoicus Couper, 1958, p. 155. 13848
Figure 32. Podocarpidites biformis Rouse, 1957, p. 367. 13849
Figure 35. Podocarpidites cf. P. ellipticus Cookson, 1947, p. 131. 13850
Figure 36. ?Alisporites grandis (Cookson) Dettmann, 1963, p. 102. 13851
Figure 38. ?Alisporites sp. 13852
Figure 39. ?Platysaccus papilionis Potonié and Klaus, 1954, p. 540. 13853
Figures 10, 12, 33, 34, 37. Unidentified. 13854-13858.

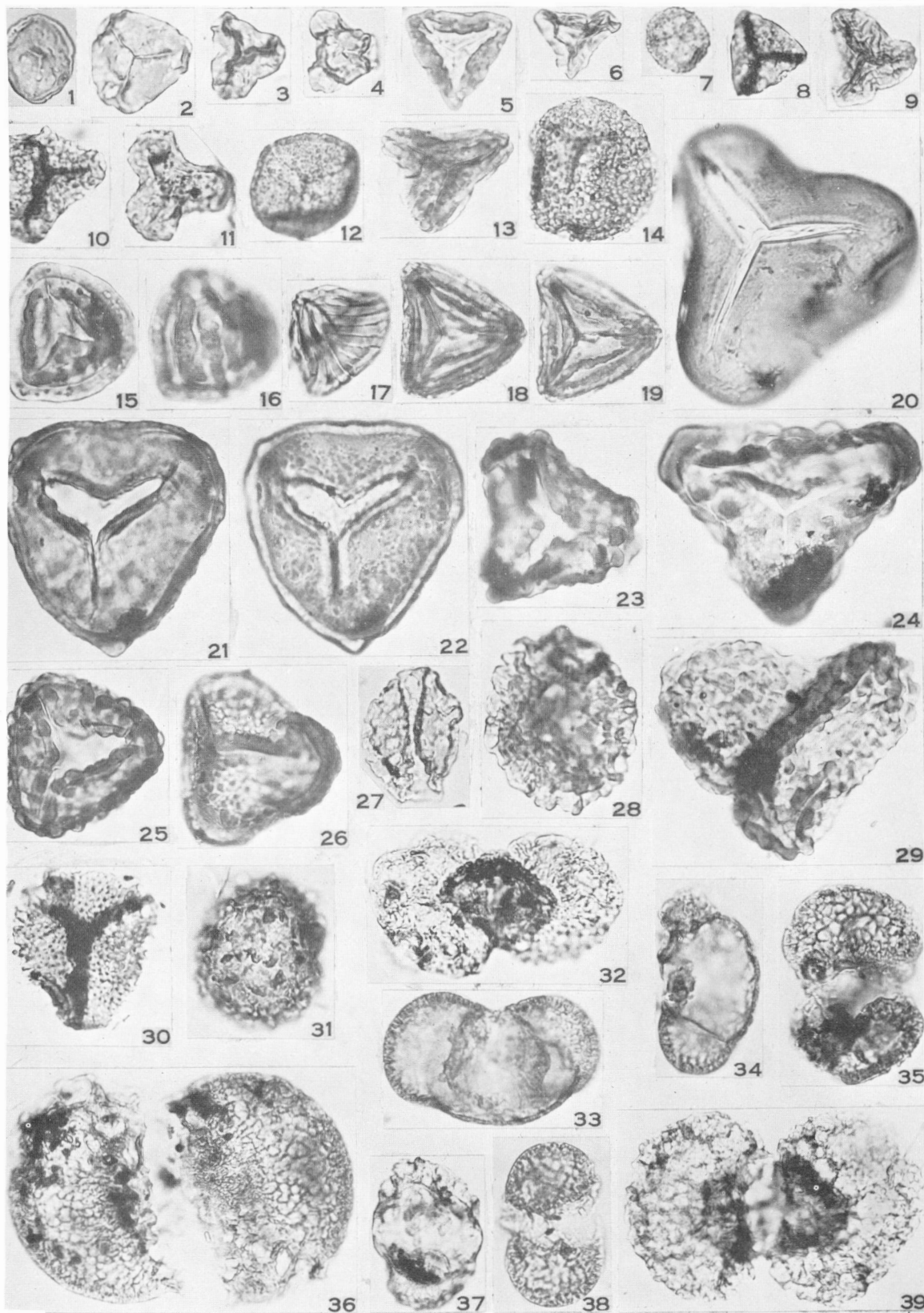


PLATE VII
LOWER CRETACEOUS

Early Hauterivian (? or latest Valanginian)

Aklavik Range (Richardson Mountains), N.W.T., Donna River Canyon. GSC Plant loc. 5248. Collected by J.A. Jeletzky, 1958.

Reference: Jeletzky, 1960, pp. 8-9.

- Figures 1, 2. cf. Matonisporites sp. 13859, 13860
Figures 3, 4. Cyathidites minor Couper, 1953, p. 28. 13861, 13862
Figure 5. ?Gleicheniidites sp. 13863
Figure 6. Sphagnumsporites psilatus (Ross) Couper, 1958, p. 131. 13864
Figure 7. Osmunda-sporites sp. in Rouse, 1959, p. 309. 13865
Figure 8. Lygodioisporites sp. (sensu Singh, 1964, p. 65). 13866
Figures 9, 15. cf. Trilites verrucatus Couper in Reyre, 1964, fig. 11. 13867, 13868
Figure 10. Baculatisporites comaumensis (Cookson) Potonié, 1956, p. 23. 13869
Figure 11. Lycopodiumsporites austroclavatidites (Cookson) Potonié, 1956, p. 46. 13870
Figure 16. Trilites sp. (sensu Dettmann, 1963, p. 62). 13871
Figure 17. Raistrickia sp. 13872
Figure 18. ?Trilites verrucatus Couper, 1963, p. 31. 13873
Figure 20. ?Eucommiidites sp. 13874
Figure 21. cf. Cycadopites fragilis Singh, 1964, p. 103. 13875
Figures 22, 27. cf. Disaccites (Phyllocladidites) rüei Cookson, 1947, p. 133. 13876, 13877
Figure 25. Cycadopites fragilis Singh, 1964, p. 103. 13878
Figure 26. ?Monosulcites couperi Sukh Dev, 1961, p. 53. 13879
Figure 28. ?Cycadopites formosus Singh, 1964, p. 105. 13880
Figure 29. ?Ginkgocycadophytus nitidus (Balme) de Jersey in Dettmann, 1963, p. 104. 13881
Figure 31. ?Pteruchipollenites microsaccus Couper, 1958, p. 151. 13882
Figure 32. ?Ginkgocycadophytus sp. 13883
Figure 33. Alisporites sp. 13884
Figure 34. Tsugaepollenites mesozoicus Couper, 1958, p. 155. 13885
Figure 36. cf. Pityosporites sp. 13886
Figure 37. Alisporites minutus Rouse, 1959, p. 316. 13887
Figure 38. Vitreisporites pallidus (Reissinger) Nilsson, 1958, p. 77. 13888
Figure 39. Alisporites thomasi (Couper) Nilsson, 1958, p. 83. 13889
Figure 40. Podocarpidites canadensis Pocock, 1962, p. 66. 13890
Figure 41. Alisporites sp. 13891
Figures 42, 43. Alisporites cf. A. grandis (Cookson) Dettmann, 1963, p. 102. 13892, 13893
Figure 44. cf. Pseudopinus prolongata Kara-Murza, 1960, pl. 17, fig. 10. 13894
Figure 45. cf. Pteruchipollenites microsaccus Couper, 1958, p. 151. 13895
Figures 12, 13, 14, 19, 23, 24, 30, 35, 46. Unidentified. 13896-13904

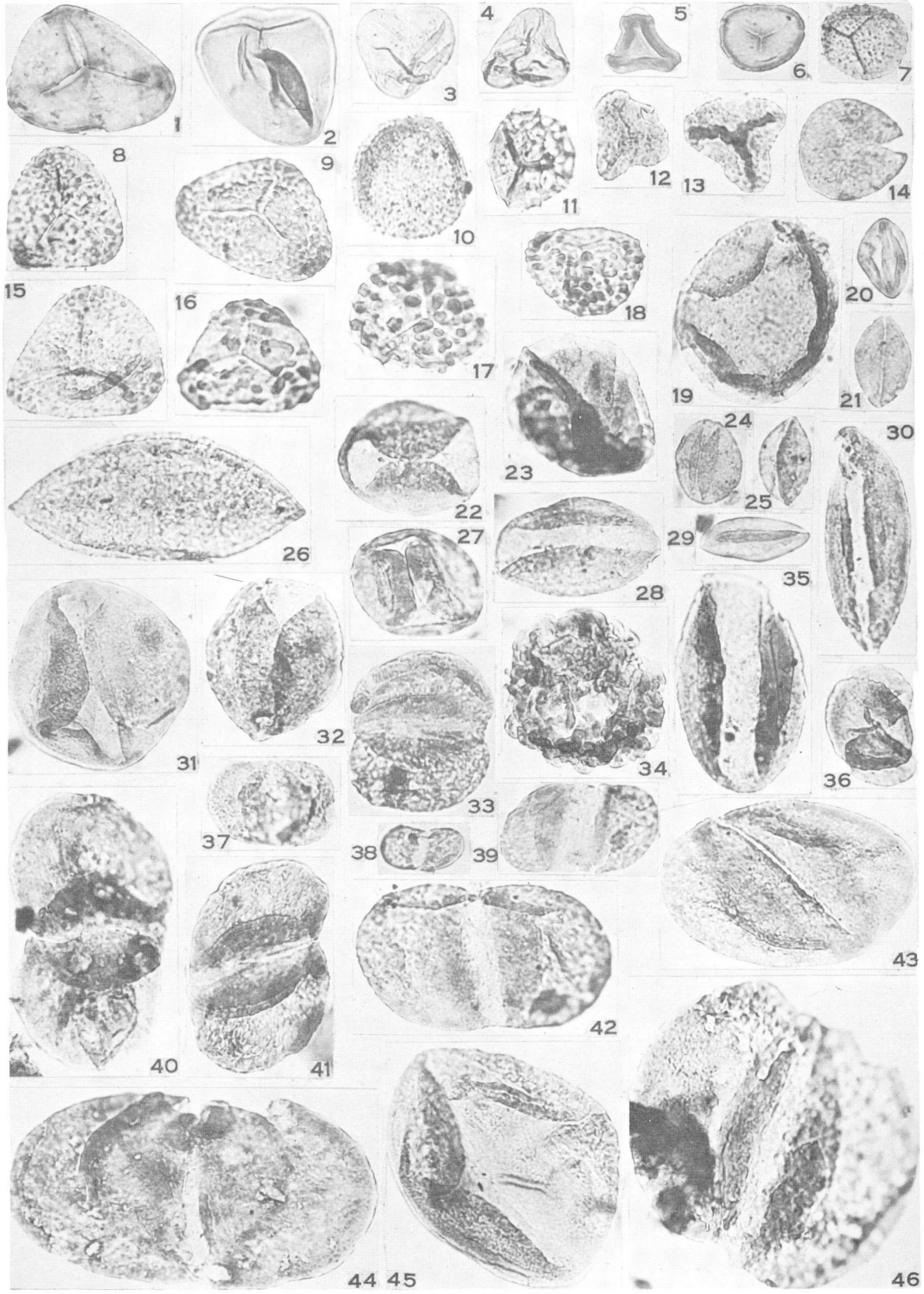


PLATE VIII

LOWER CRETACEOUS

Upper Neocomian (post-mid Valanginian) or Aptian

Isachsen Formation, eastern Axel Heiberg Island, N.W.T., south of Buchanan Lake anticline. GSC Plant loc. 5835. Collected by E.T. Tozer, 1961.

Reference: Fortier et al., 1963, p. 87.

- Figure 1. Deltoidospora sp. 13905
Figure 2. Gleicheniidites cf. G. cercinidites (Cookson) Dettmann, 1963, p. 65. 13906
Figures 3, 4. Cyathidites australis Couper, 1953, p. 27. 13907, 13908
Figure 5. Cyathidites sp. 13909
Figure 6. Sporites adriennis forma mesozoicus Thiergart in Rogalska, 1956, pl. 4, fig. 8. 13910
Figure 7. ?Cingulatisporites rigidus Couper, 1958, p. 147. 13911
Figure 8. Lycopodiumsporites sp. 13912
Figures 9, 20. Tsugaepollenites mesozoicus Couper, 1958, p. 155. 13913, 13914
Figure 10. Convolutispora sp. 13915
Figure 11. Sestrosporites sp. 13916
Figures 13, 14. Cicatricosisporites ?hughesi Dettmann, 1963, p. 55. 13917
Figure 15. Acanthotriletes sp. 13918
Figure 16. Cicatricosisporites sp. 13919
Figure 19. Cicatricosisporites ?ludbrookii Dettmann, 1963, p. 54. 13920
Figure 21. Appendicisporites ?jansonii Pocock, 1962, p. 37. 13921
Figure 22. cf. Trilobosporites bernissartensis (Delcourt and Sprumont) Potonié in Delcourt et al., 1963, pl. 43, fig. 14. 13922
Figure 23. cf. Protoconiferus funarius (Naumova?) Bolkhovitina, 1956, p. 86. 13923
Figure 24. Cycadopites follicularis Wilson and Webster, 1946, p. 274. 13924
Figure 25. cf. Cycadopites formosus Singh, 1964, p. 105. 13925
Figure 26. cf. Bennettites dilucidus Bolkhovitina, 1956, p. 78. 13926
Figures 12, 17, 18, 27. Unidentified. 13927-13930

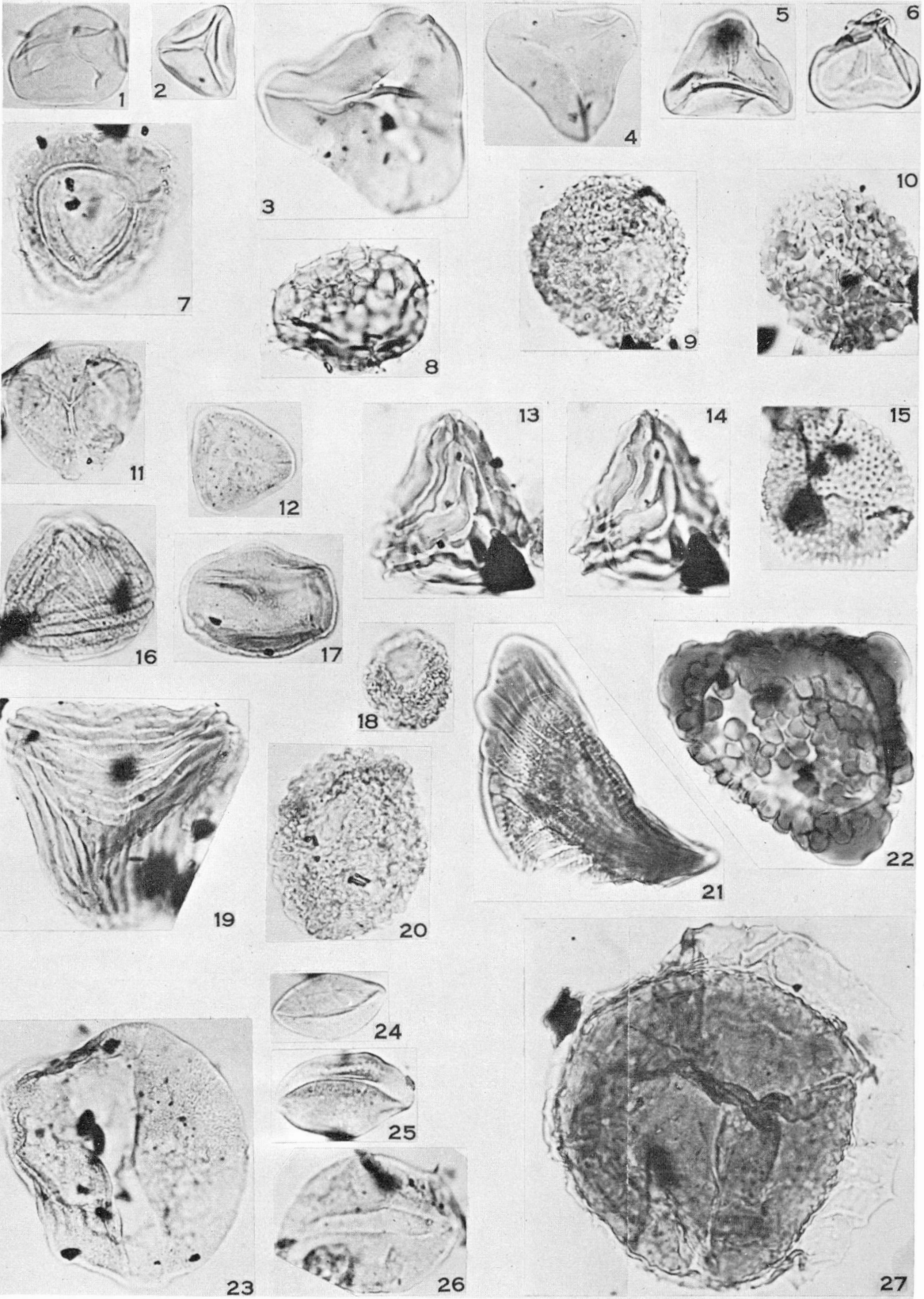


PLATE IX

LOWER CRETACEOUS

Upper Neocomian (post-mid Valanginian) or Aptian

Isachsen Formation, GSC Plant loc. 5835, continued.

- Figure 1. ?Protopodocarpus monstreficaliformis Bolkhovitina in
Verbitskaya, 1963, pl. 7, fig. 78. 13931
- Figure 3. cf. Podocarpus tricocca (Malyavkina) Bolkhovitina,
1953, p. 75. 13932
- Figure 5. ?Pseudopicea monstrosa Bolkhovitina, 1956, p. 95.
13933
- Figure 6. Podocarpidites canadensis Pocock, 1962, p. 66. 13934
- Figure 7. ?Podocarpidites sp. 13935
- Figure 8. cf. Oblatinella rotundiformis Malyavkina, 1949, p. 103.
13936
- Figures 2, 4. Unidentified. 13937, 13938

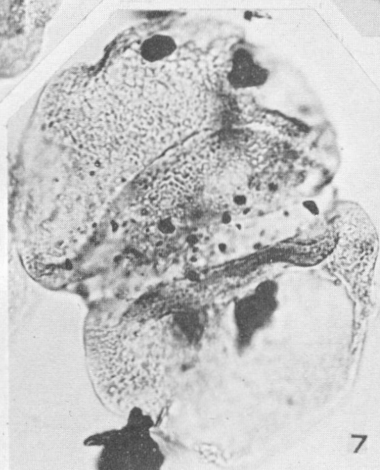
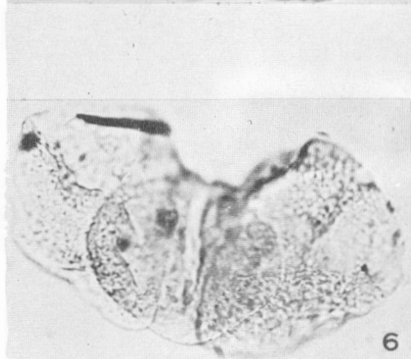
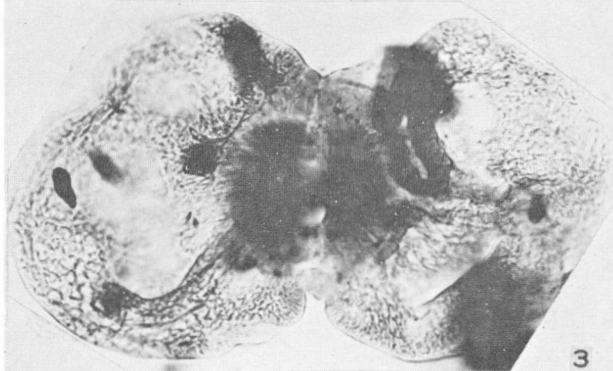
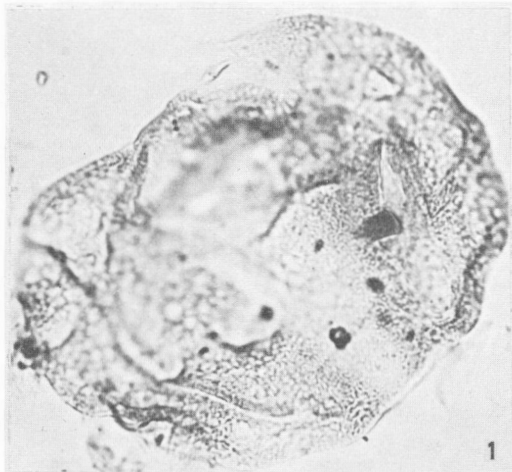


PLATE X

LOWER CRETACEOUS

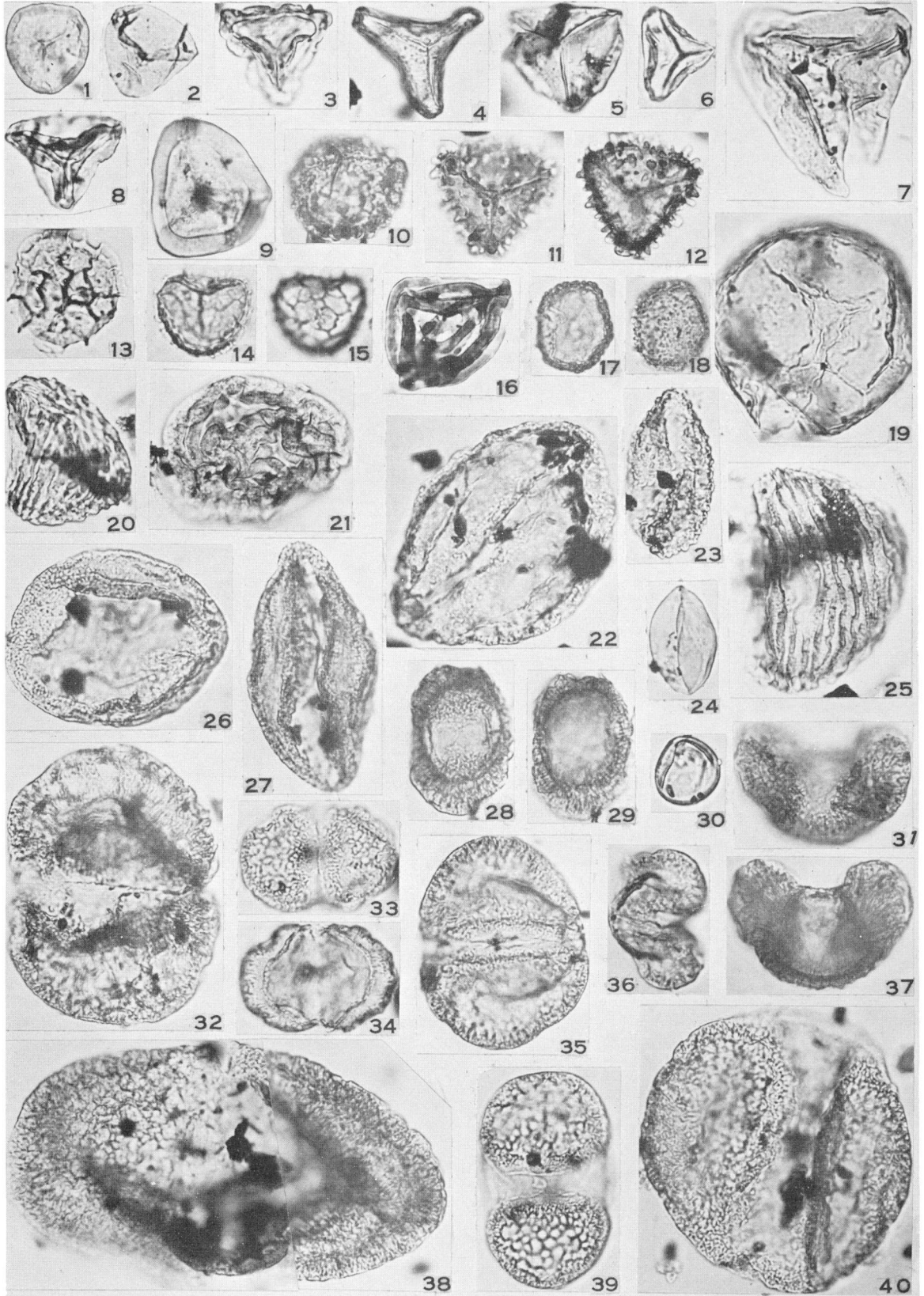
Albian (Late early or early middle)

Beaudanticeras affine fauna

Peel Plateau, N.W.T., Stony Creek, about 18.5 miles upstream from mouth. GSC loc. 35257. Collected by J.A. Jeletzky, 1958.

Reference: Jeletzky, 1960, pp. 18-19, "Albian shale-siltstone division"; see also Jeletzky, 1964, Table 1.

- Figure 1. Sphagnumsporites psilatus (Ross) Couper, 1958, p. 131. 13939
Figure 2. Deltoidospora cf. D. hallei Miner, 1935, p. 618. 13940
Figure 3. ?Gleicheniidites triplex (Bolkhovitina) Grigoryeva in Samoilovich et al., 1961, p. 63. 13941
Figure 5. Gleicheniidites cf. G. cercinidites (Cookson) Dettmann, 1963, p. 65. 13942
Figure 6. Gleicheniidites senonicus Ross, 1949, p. 31. 13943
Figure 7. Cyathidites cf. C. australis Couper, 1953, p. 27. 13944
Figure 8. ?Dictyophyllidites sp. 13945
Figure 9. Murospora mesozoica Pocock, 1961, p. 1233. 13946
Figure 10. Trilites equatibossus Couper, 1958, p. 148. 13947
Figures 11, 12. Neoraistrickia sp. 13948
Figures 13, 14 and 15. Lycopodiumsporites austroclavatidites (Cookson) Potonié, 1956, p. 46. 13949, 13950
Figure 16. ?Appendicisporites sp. 13951
Figures 17, 18. cf. Pollenites verrucosus Rogalska, 1954, p. 46. 13952
Figure 20. Cicatricosisporites dorogensis Potonié and Gelletich, 1933, p. 522. 13953
Figure 21. cf. Onychium amplexiformis Kara-Murza(?) in Bolkhovitina, 1956, p. 58. 13954
Figure 23. ?Sciadopityspollenites serratus (Potonié and Venitz) Raatz in Manum, 1962, p. 42. 13955
Figure 24. ?Ginkgocycadophytus nitidus (Balme) de Jersey, 1962, p. 12. 13956
Figure 25. Cicatricosisporites sp. 13957
Figures 28, 29. Parvisaccites cf. P. enigmaticus Couper, 1958, p. 154. 13958
Figure 30. Spheripollenites psilatus Couper, 1958, p. 159. 13959
Figures 31, 37. Parvisaccites cf. P. radiatus Couper, 1958, p. 154. 13960
Figures 33 and 34, 36. ?Abietineaepollenites minimus Couper, 1958, p. 153. 13961, 13962
Figure 35. Alisporites bisaccus Rouse, 1959, p. 316. 13963
Figure 38. cf. Parvisaccites sp. in Delcourt and Sprumont, 1959, fig. 17. 13964
Figure 39. ?Pityosporites constrictus Singh, 1964, p. 122. 13965
Figure 40. cf. Disaccites grandis Cookson, 1953, pl. 2, fig. 41. 13966
Figures 4, 19, 22, 26, 27, 32. Unidentified. 13967-13972



Illustrations of Canadian Fossils

The following Geological Survey Papers have already been issued under this general title:

Devonian of Western Canada,

- Invertebrates - D.J. McLaren and A.W. Norris
- Plants - D.C. McGregor

GSC Paper 62-4

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- B.S. Norford

GSC Paper 62-14

Triassic of Western and Arctic Canada

- E.T. Tozer

GSC Paper 62-19

Jurassic of Western and Arctic Canada

- H. Frebold

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- J.A. Jeletzky

GSC Paper 64-11

Lower Cretaceous floras of Western Canada

- W.A. Bell

GSC Paper 65-5