Silurian Palynomorphs

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The data obtained from an independent study of acritarchs, chitinozoans and miospores enables the determination of maximum age ranges of samples taken from three wells. These are shown in Fig. 8.

ACRITARCHS

At present, samples have been examined from six wells – A1-46, Core 2; E1-81, Cores 3, 4; F1-46, Core 3; D-31, Core 1; A1-81, Core 3 and C1-31, Core 8. The last mentioned is considered no further here as all samples have to date proved barren. The oldest of the acritarch assemblages are recorded from E1-81, Cores 3, 4 between 1850ft. and 2340ft. (Fig. 8) and from A1-81, Core 3 between 3750ft. and 3773ft. These are dominated by the polygonomorph acritarchs, Veryhachium trispinosum and V. valiente but also include acanthomorphs such as Dixallophosis and Multiplicisphaeridium. The lack of diagnostic acritarchs of post convolutus zone would indicate the age of the samples as Rhuddanian to Early Aeronian but no higher than convolutus zone. Wells A1-46, Core 2 between 9710 to 9721 ft. (Fig. 8); D1-31, Core 1, 6105 to 6160ft. (Fig. 8) and F1-46, Core 3, 8852 to 8858ft. all yield rich assemblages dominated by Multiplicisphaeridium, Dixallophosis and Veryhachium and characteristic species of Visbysphaera, Cymbosphaeridium, Oppilatala and ?Dateriocranida. The presence of forms such as Oppilatala eoploektonica, ?Dateriocranidae monterrosae, Multiplicisphaeridium arbusculiferum, Dixallophosis caperoradiola and Visbysphaera gotlandicum indicate the assemblages are of post-convolutus zone age, thus late Aeronian, as an oldest date.

Regional palynological differences in the acritarch assemblages are observed between North Africa and Great Britain, which are consistent with the views of Cramer (1970 – see Silurian references) and Cramer & Diez (1972). During the Silurian the North African region belonged to one realm (the Neovervychium carminae “facies”) and Great Britain to another, the Deunffia-Domasi realm. Hence genera such as Deunffia and Domasia which are characteristic in Great Britain of equivalent horizons to some of the Libyan material and which are particularly useful in the biozonation of such strata are absent. The attribution of the Libyan assemblages to precise horizon or horizons by comparison with the type area is thus hampered by such variations.

Neovervychium carminae is recorded sporadically in most of the samples under study and is a dominant form in Well C1-44, located in Sirte Basin west of the study area.

CHITINOZOANS

For a long time, well documented information concerning early Llandovery chitinozoans was lacking while uppermost Llandoverian, Wenlockian and Ludlovian assemblages are well known especially from studies carried out in Scandinavia, U.S.S.R., Belgium, Spain and North Africa. Recently investigations in Canada (Achab, 1981) and Estonia (Nestor, 1976, 1980) provided new data on Early Llandovery chitinozoans. Four wells (E1-81, D1-31, A1-81 and A1-46) yielded the Silurian chitinozan assemblages discussed here. Among the species recorded, several are characteristic in Great Britain of

“facies,” and Great Britain to another, the Deunffia-Domasi realm. Hence genera such as Deunffia and Domasia which are characteristic in Great Britain of equivalent horizons to some of the Libyan material and which are particularly useful in the biozonation of such strata are absent. The attribution of the Libyan assemblages to precise horizon or horizons by comparison with the type area is thus hampered by such variations.

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Fig. 8. Age determination of three selected wells using acritarchs, chitinozoans and miospores. 1. formerly *gregarius* (Berry & Boucot, 1970). 2. upper range *sensu* Berry *in* Gray & Boucot (1971).
Formigoso Formation (Cramer & Diez, 1978). From these data it seems likely that the Silurian samples from Wells E1-81, A1-81 and D1-31 (except in D1-31, 6105 to 6106ft., where *Cyathochitina* was not recorded) are not younger than the early Telychian. In addition, in Well D1-31 the occurrence of a few individuals of *Conochitina proboscifera* and *C. (Densochitina) densa* is noted, both species are well represented in the uppermost Llandovery and early Wenlock of Gotland (Laufeld, 1974).

On the basis of chitinozoans, the age assignment of level 9710ft. in Well A1-46 is more difficult to establish. Indeed the individuals are rare and the occurrence of a form, closely related to *Margachitina leonensis* from the Pridoli of Spain (Cramer, 1964), in association with Early Silurian taxa (*P. deichaii* and *C. edjelensis elongata*, and a form quite similar to *P. spongiosa*), is still unexplained, even though a late Llandovery age is expected for this assemblage.

**MIOSPORES**

Silurian miospores have been obtained from core material of two wells, E1-81, (1968 to 1973ft.) and A1-46 (9710 to 9721 ft.). The assemblages from the two wells are distinct although showing some features in common. The older of the two miospore assemblages (Well E1-81) consists entirely of dyads and tetrads with some possible alete spores. Dyads e.g. *Dyadospora murmudensa*, and 'permanent' tetrads, *Nodospora* sp., are the most common. Some of the dyads are surrounded completely by a diaphanous sheath. In these respects, and in the absence of single grain trilete miospores (i.e. those separated from tetrads), the Well E1-81 assemblages resemble those from the Medina Group (Rhuddanian, early Llandovery) of the Niagara Gorge (Miller & Eames, 1982). However, the North African assemblage contains occasional specimens of “loose” tetrads, which may suggest a younger age, but is otherwise less diverse than the Niagara Gorge assemblages. The provisional age for this level is early Llandovery and probably Rhuddanian. The basis for this age is partly the close similarities with the Rhuddanian assemblages from Niagara Gorge. In addition Hoffmeister’s (1959) Libyan assemblages containing *Ambitisporites* were dated on graptolites as early to middle Llandovery and the Well E1-81 assemblage is therefore probably older but few well-dated spore assemblages have been described of this age.

A more varied and younger assemblage occurs in the sample from Well A1-46 (9710 to 9721 ft.). Two species of dyad are present *Dyadospora murmudensa* and *D. murusattenuata*, associated with “permanent” tetrads *Nodosphaera* sp., and Rugosphaera sp., and trilete spores *Ambitisporites dilutus*. The age of this assemblage is post Rhuddanian to earliest Telychian, approximately Aeronian but probably not earliest Aeronian.

This correlation is made on the assumption that the early/middle Llandovery age of Hoffmeister’s material (Berry, in Gray and Boucot, 1971) is roughly equivalent to the middle of the *magnus* zone (early Aeronian).

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Explanation of Plate 8
All figures are ×500

Fig. 1. *Saharidia* sp. 1 Combaz, 1967. A1-46, Core 2, 9714 ft., Slide 2, P43/3, AGC 79.

Fig. 2. *Saharidia* sp. 2 Combaz, 1967. F1-46, Core 3, 8852 ft., Slide 1, K49, AGC 80.

Fig. 3. *Saharidia* sp. 2 Combaz, 1967. F1-46, Core 3, 8855 ft., Slide 1, E37, AGC 81.

Fig. 4. *Tasmanites* sp. (Newton) Eisenack, 1958. F1-46, Core 3, 8852 ft., Slide 2, D26/2, AGC 82.

Fig. 5. *Pterospermella* sp. Eisenack, 1972. A1-46, Core 2, 9721 ft., Slide 1, G29/4, AGC 83.

Fig. 6. *Pterospermella* sp. Eisenack, 1972. F1-46, Core 3, 8854 ft., 5 in., Slide 1, K27/4, AGC 84.

Fig. 7. *?Leiosphaeridia* sp. (Eisenack) Downie & Sarjeant, 1963. D1-31, Core 1, 6105-6106 ft., S. G. 6105-6106/39, AGC 85.

Fig. 8. *Leiosphaeridia* sp. (Eisenack) Downie & Sarjeant, 1963. A1-46, Core 2, 9721 ft., Slide 2, S42/4, AGC 86.

Fig. 9. *Leiosphaeridia* sp. (Eisenack) Downie & Sarjeant, 1963. A1-46, Core 2, 9721 ft., Slide 1, O32/2, AGC 87.

Fig. 10. *Leiosphaeridia wenlockia* Downie, 1959. F1-46, Core 3, 8855 ft. 5 in., Slide 1, E41, AGC 88.

Fig. 11. *Leiosphaeridia wenlockia* Downie, 1959. E1-81, Core 3, 1968-1988 ft., Slide 1, N40/4, AGC 89.

Fig. 12. *Lophosphaeridium parverarum* Stockmans & Willière, 1963. E1-81, Core 4, 2270 ft., Slide 1, L45/3. Cluster, AGC 90.
Explanation of Plate 9
All figures are $\times 500$

Fig. 1. *Eupoikilofusa striatifera* (Cramer) Cramer, 1970. F1-46, Core 3, 8854 ft. 5 in., Slide 1. G42/3, AGC 91.

Fig. 2. *Eupoikilofusa striatifera* (Cramer) Cramer, 1970. F1-46, Core 3, 8854 ft. 5 in., Slide 1. R42, AGC 92.

Fig. 3. *Leiofusa tumida* Downie, 1959. F1-46, Core 3, 8854 ft. 5 in., Slide 1. R29, AGC 93.

Fig. 4. *Leiofusa benderillae* Cramer, 1964. F1-46, Core 3, 8852 ft. Slide 1. S45/3, AGC 94.

Fig. 5. *Leiofusa benderillae* Cramer, 1964. F1-46, Core 3, 8852 ft. Slide 1. D26, AGC 95.

Fig. 6. *Leiofusa fusiformis* (Eisenack) Eisenack, 1938. D1-31, Core 1, 6105-6106 ft., Slide 1. F47, AGC 96.

Fig. 7. *Veryhachium wenlockium* Formgroup Downie, 1959. F1-46, Core 3, 8852 ft., Slide 1, M40/4, AGC 97.

Fig. 8. *Veryhachium trispinosum* Formgroup (Eisenack) Cramer, 1964. J1-81A, 12800-12850 ft., S.G. 12800-12850/35, AGC 98. (Ordovician specimen).

Fig. 9. *Veryhachium valiente* Cramer, 1964. D1-31, Core 1, 6140-6141 ft., Slide 1, M57, AGC 99.

Fig. 10. *Neoveryhachium carminae* (Cramer) Cramer, 1970. F1-46, Core 3, 8852 ft., Slide 1, 030/3, AGC 100.

Fig. 11. *Dateriocradus monterrosae* (Cramer) Dorning, 1981. F1-46, Core 3, 8855 ft., Slide 1, M33/1, AGC 101.

Fig. 12. *Dictyotidium dictyotum* (Eisenack) Eisenack, 1955. F1-46, Core 3, 8852 ft., Slide 1, L41/1, AGC 102.

Fig. 13. *Buedingisphaeridium* sp. D1-31, Core 1, 6140-6141 ft., Slide 1, K57, AGC 103.

Fig. 14. *Tunisphaeridium parvum* Deunff & Evitt, 1968. D1-31, Core 1, 6140-6141 ft., Slide 1, K45/1, AGC 104.
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Plate 9
Explanation of Plate 10
All figures are ×500

Fig. 1. *Cymbosphaeridium pilaris* (Cramer) Lister, 1970. F1-46, Core 3, 8854 ft. 5 in., Slide 1, J36/4, AGC 105.

Fig. 2. *Oppilatala eoplanktonica* Loeblich & Wicander, 1976. F1-46, Core 3, 8858 ft., Slide 1, H39/1, AGC 106.

Fig. 3. *Oppilatala eoplanktonica* Loeblich & Wicander, 1976. F1-46, Core 3, 8854 ft. 5 in., Slide 1, E24, AGC 107.

Fig. 4. *Oppilatala eoplanktonica* Loeblich & Wicander, 1976. F1-46, Core 3, 8852 ft., Slide 1, E42, AGC 108.

Fig. 5. *Oppilatala eoplanktonica* Loeblich & Wicander, 1976. D1-31, Core 3, 6159-6160 ft., Slide 1, G47/2, AGC 109.

Fig. 6. *Multiplicisphaeridium fisherii* (Cramer) Lister, 1970. F1-46, Core 3, 8855 ft., Slide 1, K44, AGC 110.

Fig. 7. *Multiplicisphaeridium fisherii* (Cramer) Lister, 1970. F1-46, Core 3, 8855 ft., Slide 1, T35/3, AGC 111.

Fig. 8. *Multiplicisphaeridium ?fisherii* (Cramer) Lister, 1970. F1-46, Core 3, 8852 ft., Slide 1, H36/1, AGC 112.

Fig. 9. *Multiplicisphaeridium fisherii* (Cramer) Lister, 1970. F1-46, Core 3, 8852 ft., Slide 1, H39, AGC 113.

Fig. 10. *Multiplicisphaeridium arbusculiferum* (Downie) Staplin, Jansonius & Pocock, 1965. F1-46, Core 3, 8858 ft., Slide 1, H46, AGC 114.

Fig. 11. *Multiplicisphaeridium ramusculosum* (Deflandre) Lister, 1970. F1-46, Core 3, 8858 ft., Slide 1, F47/3, AGC 115.

Fig. 12. *Multiplicisphaeridium ramusculosum* (Deflandre) Lister, 1970. D1-31, Core 1, 6105-6106 ft., Slide 1, J51/4, AGC 116.
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Plate 10
Explanation of Plate 11

All figures are × 500

Fig. 1. *Diexallophasis denticulata* (Stockmans & Willière) Loeblich 1969. F1-46, Core 3, 8855 ft., Slide 1, E39, AGC 117.

Fig. 2. *Diexallophasis denticulata* (Stockmans & Willière) Loeblich 1969. D1-31, Core 1, 6140-6141 ft., Slide 1, H46/4, AGC 118.

Fig. 3. *Diexallophasis caperoradiola* Loeblich 1969. F1-46, Core 3, 8854 ft. 5 in., Slide 1, L31/1, AGC 119.

Fig. 4. *Diexallophasis caperoradiola* Loeblich 1969. F1-46, Core 3, 8852 ft., Slide 1, G34/4, AGC 120.

Fig. 5. *Diexallophasis denticulata* (Stockmans & Willière) Loeblich 1969. F1-46, Core 3, 8852 ft., Slide 1, O39/4, AGC 121.

Fig. 6. *Diexallophasis caperoradiola* Loeblich 1969. D1-31, Core 1, 6159-6160 ft., Slide 1, O52, AGC 122.

Fig. 7. *Visbysphaera microspinosa* (Eisenack) Lister 1970. F1-46, Core 3, 8852 ft., Slide 1, D29/4, AGC 123.

Fig. 8. *Visbysphaera microspinosa* (Eisenack) Lister 1970. F1-46, Core 3, 8852 ft., Slide 1, G34/3, AGC 124.

Fig. 9. *Visbysphaera microspinosa* (Eisenack) Lister 1970. F1-46, Core 3, 8852 ft., Slide 1, Q35/3, AGC 125.

Fig. 10. *Visbysphaera gotlandicum* (Eisenack) Lister 1970. D1-31, Core 1, 6159-6160 ft., Slide 1, M42/1, AGC 126.

Fig. 11. *Visbysphaera microspinosa* (Eisenack) Lister 1970. F1-46, Core 3, 8852 ft., Slide 1, Q34/4, AGC 127.

Fig. 12. *?Tylotopalla* sp. Loeblich, 1969. A1-46, Core 2, 9710 ft., Slide 2, N50/3, AGC 128.
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Plate 11
Explanation of Plate 12

Fig. 1. *Plectochitina* sp. aff. *sylvanica* (Jenkins, 1970). A1-81, 3750-3773 ft., Slide 8, 032, ×300, AGC 129. (*P. sylvanica* is an Ashgillian species).

Fig. 2. *Spinachitina* sp. B. A1-81, 3750-3773 ft., Slide 8, 036, ×300, AGC 130.

Fig. 3. *Spinachitina* sp. B. A1-81, 3750-3773 ft., Slide 8, Q37/2, ×300, AGC 131.

Fig. 4 a-b. *Belonechitina postrobusta* *(Nestor, 1980a). A1-81, 3750-3773 ft., Slide 8, Q37/1, 4a: ×300; 4b: ×1000, AGC 132. (*B. postrobusta* is restricted to the Early Llandovery).

Fig. 5 a-b. *Plectochitina pseudoagglutinans* (Taugourdeau, 1963). A1-81, 3750-3773 ft., Slide 8, 038, 5a: ×300; 5b: ×1000, AGC 133. (“Middle-Upper” Llandovery).

Fig. 6. *Spinachitina* sp. C. A1-81, 3750-3773 ft., Slide 8, P37/3, ×350, AGC 134.

Fig. 7 a-b. *Spinachitina* sp. B. A1-81, 3750-3773 ft., Slide 8, P34/2, 7a: ×300; 7b: ×1500, AGC 135.

Fig. 8. *Ancyrochiitina laevaensis* Nestor, 1980a. A1-81, 3750-3773 ft., Slide 8, P32, ×400, AGC 136. (Earliest Llandovery).

Fig. 9 a-b. *Spinachitina* sp. B. E1-81, 2250-2270 ft., Slide 8, P40/3, 9a: ×300; 9b: ×1000, AGC 137. (Early Llandovery).

Fig. 10 a-b. *Sphaerochitina* sp. A. E1-81, 2250-2270 ft., Slide 6, P40/4, 10a: ×300; 10b: ×1250, AGC 138. (Early Llandovery).

Fig. 11. *Cyathochitina* sp. B. Paris, 1981. (= *C. kuckerciana* Eisenack in Achab, 1981 pl. 4, fig. 15). E1-81, 2250-2270 ft., Slide 6, N39, ×200, AGC 139.
Explanation of Plate 13

Fig. 1a-b. *Angochitinula* sp. A. E1-81, 1968-1988 ft., Slide 7, S37/1, 1a: ×250; 1b: ×2000, AGC 140.

Fig. 2a-b. *Angochitinula* sp. A. E1-81, 1968-1988 ft., Slide 7, 034/3, 2a: ×250; 2b: ×1500, AGC 141.

Fig. 3. *Ancyrochitina ancyrea* (Eisenack, 1931). E1-81, 1968-1988 ft., Slide 7, M36/3, ×250, AGC 142. (Late Ashgill – Early Lochkovian).

Fig. 4. *Angochitinula* sp. A. E1-81, 1968-1988 ft., Slide 7, P34/1, ×250, AGC 143.

Fig. 5. *Pterochitina deichaii* Taugourdeau, 1963. A1-46, 9710 ft., Slide 12, N33/4, ×500, AGC 144. (“Middle-Upper” Llandovery).

Fig. 6. *Conochitina edjelensis elongata* Taugourdeau, 1963. E1-81, 1968-1988 ft., Slide 7, L34, ×250, AGC 145. (“Middle-Upper” Llandovery).

Fig. 7. *Plectochitina spongiosa* ?(Achab, 1977b). A1-46, 9710 ft., Slide 12, N36, ×300, AGC 146. (*P. spongiosa* is an Ashgill – Early Llandovery ? species).

Fig. 8. *Plectochitina pseudoagglutinans* (Taugourdeau, 1963). E1-81, 1968-1988 ft., Slide 7, K37, ×300, AGC 147. (“Middle-Upper” Llandovery).

Fig. 9a-b. ?*Margachitina leonensis* (Cramer, 1964). A1-46, 9710 ft., Slide 12, N37, 9a: ×300; 9b: ×1250, AGC 148. (*M. leonensis* is a Pridolian species).

Fig. 10. *Plectochitina* sp. A-46, 9710 ft., Slide 12, N33, ×350, AGC 149.

Fig. 11. *Conochitina edjelensis elongata* Taugourdeau, 1963. A1-46, 9710 ft., Slide 12, N37/2, ×250, AGC 150. (“Middle-Upper” Llandovery).
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Plate 13
Explanation of Plate 14

Fig. 1a-b. *Conochitina proboscifera* Eisenack, 1937. D1-31, 6120-6121 ft., Slide 10, P37, 1a: ×250; 1b: ×1000, AGC 151. (Late Llandovery – Early Wenlock).

Fig. 2. *Conochitina armillata* Taugourdeau & Jekhowsky, 1960. D1-31, 6159-6160 ft., Slide 9, K40/4, ×250, AGC 152. ("Middle-Upper" Llandovery).

Fig. 3. *Conochitina armillata* Taugourdeau & Jekhowsky, 1960. D1-31, 6159-6160 ft., Slide 9, K40/4, ×250, AGC 153. ("Middle-Upper" Llandovery).

Fig. 4. *Ancyrochitina* cf. *tomentosa* Taugourdeau & Jekhowsky, 1960. D1-31, 6159-6160 ft., Slide 9, N40, ×400, AGC 154. (*A. tomentosa* ranges from the Wenlock ? up to the Lochkovian).

Fig. 5. *Cyathochitina* cf. *campanulaeformis* (Eisenack, 1931). (= *C. campanulaeformis* in Achab, 1981, pl. 5, fig. 18). D1-31, 6159-6160 ft., Slide 9, L35/4, ×200, AGC 155. (*C. campanulaeformis* s.l. ranges from the Llanvirn up to the Llandovery, where it never exceeds the Fronian).

Fig. 6. *Pterochitina deichaii* Taugourdeau, 1963. D1-31, 6159-6160 ft., Slide 9, P36, ×500, AGC 156. ("Middle-Upper" Llandovery).

Fig. 7. *Calpichitina* (*Densochitinu*) *densa* (Eisenack, 1962). D1-31, 6120-6121 ft., Slide 10, P37, ×500, AGC 157. (Late Llandovery – Early Wenlock).

Fig. 8a-b. *Conochitina armillata* Taugourdeau & Jekhowsky, 1960. D1-31, 6105-6106 ft., Slide 11, P33, 8a: ×300; 8b: ×1000, AGC 158. ("Middle-Upper" Llandovery).

Fig. 9a-b. *Sphaerochitina* sp. A. D1-31, 6159-6160 ft., Slide 9, L38/3, 9a: ×300; 9b: ×1000, AGC 159.

Fig. 10. *Pterochitina deichaii* Taugourdeau, 1963. D1-31, 6120-6121 ft., Slide 10, T36, ×500, AGC 160. ("Middle-Upper" Llandovery).

Fig. 11a-b. *Sphaerochitina* sp. B. D1-31, 6159-6160 ft., Slide 9, N36, 11a: ×300; 11b: ×1000, AGC 161.

Fig. 12. *Ancyrochitina onniensis* ?Jenkins, 1967. D1-31, 6159-6160 ft., Slide 9, N38/3, ×400, AGC 162. (*A. onniensis* ranges from Late Caradoc up to Ashgill).

Fig. 13. *Sphaerochitina* sp. A. D1-31, 6159-6160 ft., Slide 9, N40/2, ×300, AGC 163.

Fig. 14. *Calpichitina* (*Densochitinu*) *densa* (Eisenack, 1962). D1-31, 6159-6160 ft., Slide 9, L40/2, ×400, AGC 164. (Late Llandovery – Early Wenlock).

Fig. 15. *Ancyrochitina* sp. aff. *ansarviensis* Laufeld, 1974. D1-31, 6105-6106 ft., Slide 11, 030, ×400, AGC 165. (*A. ansarviensis* is an Early Wenlock species).
Explanation of Plate 15
All figures are $\times1000$

Fig. 1. cf. *Tetrahedraletes medinensis* Strother & Traverse, 1979. E1-81, 2520-2550 ft., L39/2, AGC 166.

Fig. 2. "Loose" tetrad. E1-81, 1968-1973 ft., Q33/4, AGC 167.

Fig. 3. "Permanent" tetrad. E1-81, 2520-2550 ft., R33/2, AGC 168.

Fig. 4. cf. *Nodospora burnhamensis* Strother & Traverse, 1979. E1-81, 1968-1973 ft., P33, AGC 169.

Fig. 5. "Loose" tetrad. E1-81, 2520-2550 ft., D40, AGC 170.

Fig. 6. "Loose" tetrad. E1-81, 2520-2550 ft., N44/3, AGC 171.

Fig. 7. *Dyadospora* cf. *murudensa* Strother & Traverse, 1979. E1-81, 2520-2550 ft., E35, AGC 172.

Fig. 8. *Dyadospora murudensa* Strother & Traverse, 1979. E1-81, 1968-1973 ft., K31-L31, AGC 173.

Fig. 9. *Dyadospora murudensa* Strother & Traverse, 1979. E1-81, 1968-1973 ft., 034, AGC 174.
Siurian Palynomorphs

J. B. Richardson
Llandovery Miospores

Plate 15
Explanation of Plate 16
All figures are $\times 1000$

Fig. 1. Archaeozonotriletes cf. chulus var. nanus Richardson & Lister, 1969. A1-46, Core 2, 9710 ft., Slide 816K, F32, AGC 175.

Fig. 2. Tetrad A1-46, Core 2, 9710 ft., Slide 816K, Q43, AGC 176.

Fig. 3. Ambitisporites dilutus (Hoffmeister) Richardson & Lister, 1969. A1-46, Core 2, 9710 ft., Slide 816A, F38/4, AGC 177.

Fig. 4. Archeozonotriletes cf. chulus var. chulus Richardson & Lister, 1969. A1-46, Core 2, 9710 ft., Slide 816, Q43, AGC 178.

Fig. 5. Ambitisporites dilutus (Hoffmeister) Richardson & Lister, 1969. A1-46, Core 2, 9710 ft., Slide 816K, P41/3, AGC 179.

Fig. 6. Ambitisporites dilutus (Hoffmeister) Richardson & Lister, 1969. A1-46, Core 2, 9710 ft., Slide 816A, R41, AGC 180.
