Proceedings of the Geological Society of Glasgow

Session 117 (1974-1975) Published 1976

PUBLICATIONS

During the session volume 10, parts 3 and 4 and volume 11 parts 1 and 2 of the Scottish Journal of Geology were published.

Almost 900 copies of the Arran Guide (now £1) and over 550 copies of the Glasgow District Guide (still £1.20) were sold, though sales income was down on last session, when the new Glasgow District Guide was introduced.

MEMBERSHIP

The total membership has now passed 400 for the first time, with 39 new members joining this session and only 11 members being deleted.

On his retirement from the Glasgow Geology Department, Professor T. Neville George was made an honorary life member of the Society. The Society also welcomed the associate membership of the new professors of Glasgow and Strathclyde Universities; Professor B. E. Leake and Professor P. McL. D. Duff.

At the end of session 117 the membership was as follows:—

Honorary Life Members	5
Life Members	4
Associate Members	14
Junior Members	31
Ordinary Members	361
	415

OBITUARY NOTICE

David Jack (1914-1975) was born in Perthshire but was educated in Glasgow, where he lived for the rest of his sixty-one years. He studied architecture for three years before the outbreak of the Second World War, but the inheritance of a family

legacy gave him freedom to cultivate his ever youthful interest in the great outdoors. He became keen on hill-walking at the age of eighteen and his eyes were soon opened to the beauties and wonders of nature. His knowledge of botany and ornithology was impressive and he was an enthusiastic astronomer and geologist.

David joined the Geological Society in 1960, and held the office of Auditor from 1965. Although never professing to be an expert, he had a practical understanding of many aspects of geology which he put to good use in the field, especially in the Glencoe area which he loved so much. David was superbly fit for a man of his age and wishing to conserve some of this wild and beautiful area for future generations, he was one of a small party of walkers who pioneered the cross-country route between Glasgow and Fort William in the hope that, within the near future, their route should become a 'right-of-way.' David had just completed the fieldwork for a similar walk between Kirk Yetholme and Eaglesham before he died on the 21st October, 1975.

It is a tragic irony that one who normally shunned the sophistication and comfort of a motor car in preference to boot-leather, should die as the result of a car accident, enroute to Glencoe.

David is survived by his wife, who shared most of his out-door interest. He will be greatly missed by his many friends.

J. A. Carrick.

THE SOCIETY LIBRARY

Since I last wrote about the library in the Proceedings of sessions 113 and 114, the following new books have been purchased for our shelves in the Mitchell library at Charing Cross:—

Bott. 1971—The Interior of the Earth.
Calder 1972 BBC—The Restless Earth.
Carmichael, Turner and Verhoogen 1975—Igneous Petrology.
Gass, Smith and Wilson 1971—Understanding the Earth.
Macdonald 1972—Volcanoes.
Moore 1969—Oceanography.
Read and Watson 1975—Introduction to Geology, volume 2. Earth History, parts 1 and 2.
Robson 1969—The Science of Geology.
Weiss 1973—The Minor Structures of Deformed Rocks — A Photographic Atlas.
Wilson 1972—Continents Adrift.
Wyllie 1971—The Dynamic Earth.
York and Farquhar 1972—The Earth's Age and Geochronology.

In addition we have obtained a number of I.G.S. publications and a complete set of Geologists' Association Field Guides.

With inflation eroding the value of members' subscriptions and with few requests for new books coming in from members, I have not raised the figure spent annually by the Society on new books. I would welcome suggestions for acquisitions.

Usage of the library has fluctuated in terms of annual numbers of loans since 1972: 90, 40, 63, and 74; the number of members recording loans is 15-20. Such limited usage is almost certainly because of the inconvenient location of our books and I am hoping that we may find a real solution to this problem in the coming year.

I would like to express gratitude to a retiring member, Mrs. A. J. Young, for presenting the library with a number of books, maps and a complete run of the Scottish Journal of Geology.

Jeremy Hall (Hon. Librarian).

A reminder that members may also use the Glasgow University library

When the Society library was reorganised in the late sixties, our foreign journals were incorporated within the Glasgow University library and duplicate sets sold. In exchange we were granted a right of access to the geology section of the University library.

Specifically, members have:—

(a) access to our foreign journals (and may borrow those volumes bearing the Society's bookplate);

(b) the right to browse through all the geological section of the Glasgow University library.

The right to browse on Floor 2 is a very useful asset since the library is more extensive than our own, houses a good set of geological and O.S. maps, and has a large display of current parts of many journals. To obtain access, a member need only enquire at the entrance desk and then proceed to floor 2, by stairs or lift. Membership cards may be needed. Glasgow University library is entered from Hillhead Street (opposite the Refectory and Reading Room). The hours of opening are as follows:—

	Mon.-Fri.	Sat.
Term-time	9 a.m.-9.30 p.m.	9 a.m.-12.30 p.m.
Easter and Summer vacation	9 a.m-5 p.m.	9 a.m.-12.30 p.m.
(mid March-mid April and early July to early October)		
Christmas vacation	9 a.m.-5 p.m.	Closed
(mid December to early January)		

The library is closed on Christmas Day, New Years Day and the next working day, and for a fortnight beginning on the Monday following the last day of the Whitsun Term (mid-June).

FOSSILIFEROUS LOWER OLD RED SANDSTONE NEAR CARDROSS, DUNBARTONSHIRE

by **A. C. Scott, Dianne Edwards** and **W. D. I. Rolfe**

Recent quarrying at Auchensail, near Cardross (NS342798) has exposed the Lower Old Red Sandstone, Strathmore Group (Anderson 1947), with abundant fossil plants. **Psilophyton** and other plants are known at this horizon from further east (Henderson 1932, Lang 1932) but apart from one record in Arran (Lang 1932) this appears to be one of the westernmost records.

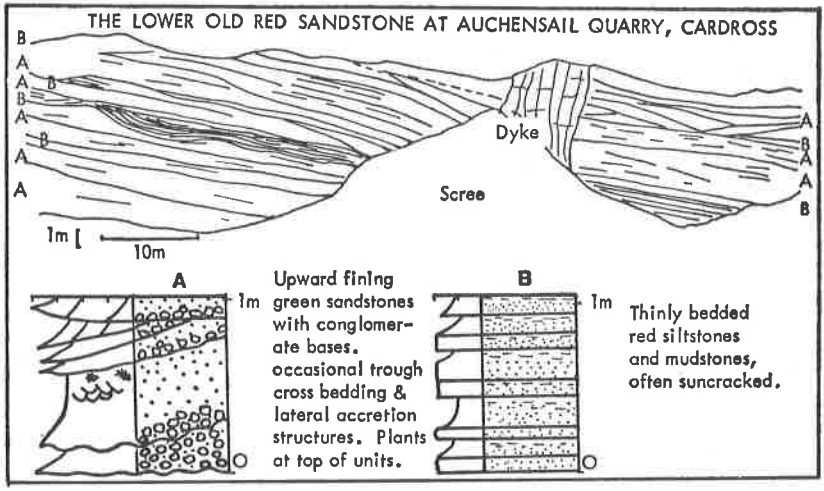
The quarry exposes c. 20m. of two distinctive alternating lithofacies (fig. 1). Facies A consists of upward fining green sandstone units up to 2m. thick. These units have conglomeratic bases (intraformational, with cobbles and pebbles of red mudstone), and fine to medium green sand, occasionally with ripple-drift cross-trough bedding and lateral accretion structures. At the top of these units there are often large 'rafts' of spiny plant axes showing current alignment.

The commonest plant fossils are branching spiny axes resembling those of **Sawdonia ornata** (Dawson) Heuber [= **Psilophyton princeps** var. **ornatum**] but lack of anatomy and reproductive parts prevents unequivocal indentification. Rarer plants are the spine-leaved lycopod **Drepanophycus** [**Arthrostigma**] **spinaeformis** and 5mm—5cm diameter axes of the problematic **Prototaxites.**

Facies B consists of units, up to 2m. thick, of thinly bedded red siltstones and mudstone, often suncracked. Each 20-30 cm. thick bed is a single upward fining unit, generally horizontal, but occasionally filling abandoned channels (fig. 1). Plants are absent from this facies, but a single specimen (Hunterian Museum X1040) of the trace fossil **Beaconites** Vyalov 1962 has been found in a loose block.

The facies are interpreted as being fluviatile in origin; facies A representing channel point-bar sequences of medium size meandering rivers and facies B representing overbank deposits. The occurrence of plants only in the channel facies suggests that they did not live on the floodplain or on the river banks but only within the channel margins, perhaps on point-bars. No plants have yet been found in life position. The absence of plants from facies B may, however, be due to post-depositional destruction by oxidation.

Beaconites [= **Laminites** Ghent & Henderson 1966] has been interpretered as the stuffed feeding-burrow of a polychaete worm or holothurian, the meniscus-fills being formed by defecation backpacking. This explanation has been rejected for non-marine **Beaconites.** It is now thought that these may be locomotion or temporary resting burrows formed by amphibians or reptiles (Pollard 1976, Ridgway 1976) of similar habits to those



which burrow in the beds of seasonal streams in modern deserts, or even the aestivation burrows of lungfish (Archer, personal communication).

The beds probably correlate with lower Emsian strata elsewhere (Owen & Richardson 1972). Wider aspects of the sedimentology of the Lower Old Red Sandstone of western Scotland are being studied by D. Morton of Glasgow University.

Acknowledgments—We thank Miss E. Brock and Mr. D. Beavis for drawing our attention to these fossils, Mr. J. Ritchie for permitting access to his quarry and Dr. B. J. Bluck for sedimentological advice.

References

ANDERSON, J. G. C. 1947. The geology of the Highland Border: Stonehaven to Arran. **Trans. R. Soc. Edinburgh 61,** 479-515.

HENDERSON, S. M. K. 1932. Notes on Lower Old Red Sandstone plants from Callander, Perthshire. **Trans. R. Soc. Edinburgh 57,** 277-85.

LANG, W. H. 1932. Contributions to the study of the Old Red Sandstone flora of Scotland VIII. **Trans. R. Soc. Edinburgh 57,** 491-521.

OWENS, B. & RICHARDSON, J. B. 1972. Some recent advances in Devonian palynology—a review. **C.R.7 Cong. Int. Strat. Geol. Carb. Krefeld 1971, 1,** 325-43.

POLLARD, J. E. 1976. A problematic trace fossil from the Tor Bay Breccias of south Devon. **Proc. Geol. Assoc. 87** (in Press).

RIDGWAY, J. M. 1976. Reply [to Pollard 1976]. **Proc. Geol. Assoc. 87** (in Press).

NEW COLOUR-MARKINGS ON CARBONIFEROUS ORTHOCONES FROM CRAIGENGLEN

by **E. N. Campbell**

The preservation of colour-markings in orthocones is a rare occurrence. Summaries of reported examples are given by Foerste (1930) and by Teichert et al. (1964, pp. K23-25). This paper describes two new patterns discovered on Carboniferous orthocones from Craigenglen, about 2kms. north of Torrance, Stirlingshire [Grid. Ref.: NS 622757]. The beds containing the orthocones were described by John Young (1868), and form the 'type section' of his Craigenglen Beds. These beds lie about 40m. below the top of the Calciferous Sandstone Measures and are believed to be the equivalent of the Hollybush Limestone (Robertson & Haldane 1937, p. 14). Currie (1954) considered that the beds were Viséan, probably of the P_1 stage.

In his description of the Craigenglen Beds, Young states (1868, p. 35) that 'several of the Craigenglen shells still retain traces of colour, one species of **Orthoceras** exhibiting well-marked chevron-shaped bands traversing its surface.' Two specimens in Glasgow Art Gallery & Museum bear chevron markings. One of these specimens (Reg. No. 01-53bkq) is from Young's collection and is identified by him as **Orthoceras cylindraceum** Fleming. The other specimen (Reg. No. G75-85) is also named **O. cylindraceum**, but the donor is unknown.

Fig. 1A illustrates the specimen 01-53bkq, which is uncrushed. The markings are present on only one side of the shell, as is the case with most colour-marked longiconic orthocones. Fig. 1B shows the distribution of the markings relative to the entire circumference of the shell. It is believed that this distribution of markings shows that these orthocones lived in a horizontal attitude with the lower surface of the cone being free of markings (Furnish & Glenister 1964, p. K118). It is not possible in this case to confirm that the unmarked surface is ventral, as the positions of the hyponomic sinus and siphuncle are not clear. The bands themselves are dark brown on the generally lighter brown body of the shell. The pattern differs from most previously reported patterns in being a single chevron instead of a zig-zag. and in having the bands so close together. Plas (1972) has reported a simple V-shaped pattern in an early Permian orthocone, but this consists of very widely spaced obtuse V's.

The second specimen (G75-85) is flattened and shows only about half the shell (Fig. 1C). As with the other specimen the bands are restricted to one side of the shell. The pattern does not appear to have been reported before.

Due to the rarity of preservation of these colour-markings in orthocones it is not known at which taxonomic level they are significant. Yochelson & Kritz (1974) reported two very different

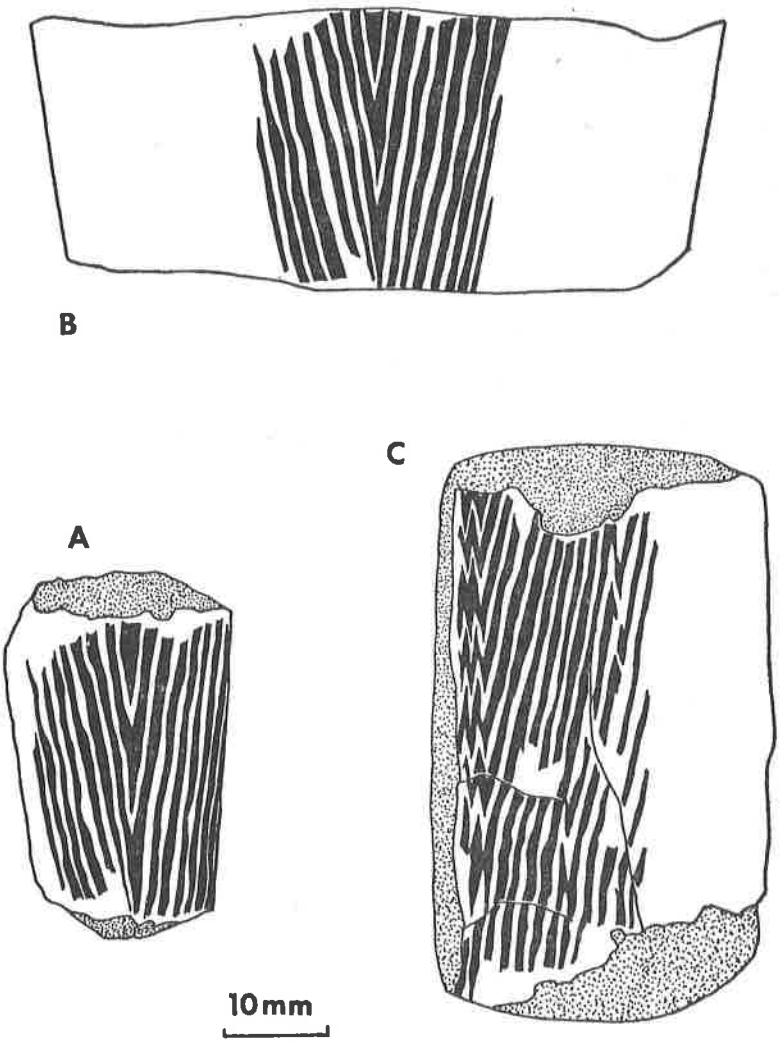


Fig. 1. Carboniferous orthocones from Craigenglen.

A. Ventral? view of 01-53bkq.

B. 01-53bkq with conch 'unrolled' to show extent of markings.

C. Lateral view of G75-85.

patterns in two species of the same gastropod subgenus; and also variation in pattern amongst individuals of the same species. The authors felt that these colour-markings had little taxonomic or functional significance, being merely a by-product of a mantle secretion process connected with growth. However, as they themselves point out, these gastropods had a sessile mode of life with no need for camouflague, and the patterns were not confined to one side of the shell. It seems unlikely that these arguments can be applied to the orthocones, which were active swimmers, and whose patterns were asymmetrical. Probably the colour-markings in orthocones functioned, as in the living **Nautilus**, as a protective pattern which disrupted the outline of the shell, making it difficult to see in shallow water (Stenzel 1964, p. K71).

References

CURRIE, E. 1954. Scottish Carboniferous goniatites. **Trans. R. Soc. Edinburgh 62,** 527-602.

FOERSTE, A. F. 1930. The color patterns of fossil cephalopods and brachiopods, with notes on gastropods and pelecypods. **Contr. Mus. Paleont. Univ. Mich. 3,** 109-150.

FURNISH, W. M. & GLENISTER, B. F. 1964. Paleoecology. in MOORE R. C. **ed. Treatise on Invertebrate Paleontology, Part K (Mollusca 3).**

PLAS, L. P. 1972. Upper Wolfcampian? mollusca from the Arrow Canyon Range, Clark County, Nevada. **J. Pal. 46,** 249-260.

ROBERTSON, T. & HALDANE, D. 1937. Economic geology of the Central Coalfield, Area 1. **Mem. geol. Surv. U.K.**

STENZEL, H. B. 1964. Living Nautilus. in MOORE R. C. **ed. Treatise on Invertebrate Paleontology, Part K (Mollusca 3).**

TEICHERT, C. ET AL. 1964. Morphology of hard parts. in MOORE R.C. **ed. Treatise on Invertebrate Paleontology, Part K (Mollusca 3).**

YOCHELSON, E. L. & KRITZ, J. 1974. Platyceratid gastropods from the Oriskany Sandstone (L. Devonian) near Cumberland, Maryland: synonomies, preservation and color-markings. **J. Pal. 48,** 474-483.

YOUNG, J. 1868. On the geology of the Campsie district. **2nd ed. Trans. geol. Soc. Glasg. 1,** 1-67.

FOSSIL PLANTS FROM THE BARREN RED MEASURES NEAR OCHILTREE, AYRSHIRE

by **A. C. Scott**

Abstract

Fossil plants from the Barren Red Measures of the Burnock Water near Ochiltree are recorded from about 300 metres above the Skipsey marine band and indicate a high Westphalian C, low Westphalian D. age. Other fossiliferous horizons from the area are noted and it is considered that the Barren Red Measures (Upper Coal Measures) represent a Westphalian C to a Low Westphalian D age in the Central Ayrshire District.

Introduction

The Barren Red Measures (the Upper Coal Measures of Scotland) are some 450 metres (1,500 feet) thick in the Ochiltree area. Exposures are accessible in the Burnock Water and more detailed knowledge of the succession has been gained from the Killoch Colliery boreholes (Mykura 1967) and from the Auchinleck borehole (Kidston 1908).

The top of the Productive Measures (Middle Coal Measures of Scotland, Macgregor 1960) in this area is taken at the topmost, or Skipsey, marine band, which has been correlated with the Mansfield marine band of England, (= **Anthracoceras aegiranum —A. hindi** horizon, Calver 1969) which is taken as the Westphalian B/C boundary in north-west Europe. This means, therefore, that the Barren Red Measures represent Westphalian C rocks and above. As no further major marine bands are present above the Skipsey, the C/D boundary must remain only approximate. Fossil plant horizons together with non-marine bivalve horizons may, however, give an age to these measures. The actual age range of the Barren Red Measures has direct implications to the age of the succeeding New Red Sandstone, the basal part of which may be of Westphalian D. age (Chaloner in Mykura 1965) or alternatively of Stephanian age (Wagner 1966 dated by fossil plants from Stairhill, Fig. 1).

The Burnock Water Plant Bed

New fossil plant material has been collected from the Barren Red Measures in the Burnock Water near Back o' Hill (NS 499199), Fig 1, first recorded by Smith (Eyles, Simpson and MacGregor 1949) at a horizon approximately 300 metres (1,000 feet) above the Skipsey marine band, (Fig. 2). The horizon yielded to Smith; **Asterotheca abbreviata** (Brongniart), **A. miltoni** (Artis), **Eupecopteris** sp, **Sphenophyllum emarginatum** Brongniart and **Calamites undulatus** Sternberg.

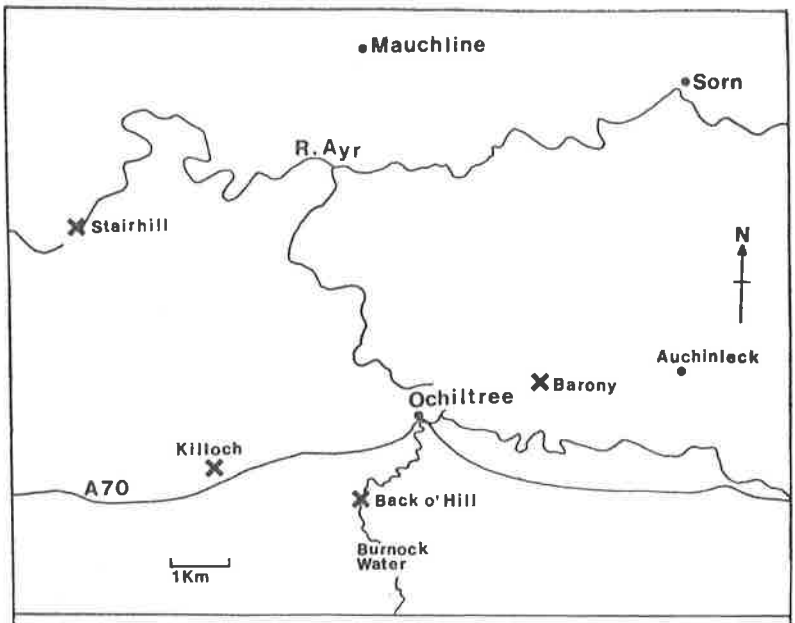


FIG 1. Map showing localities referred to in the text.

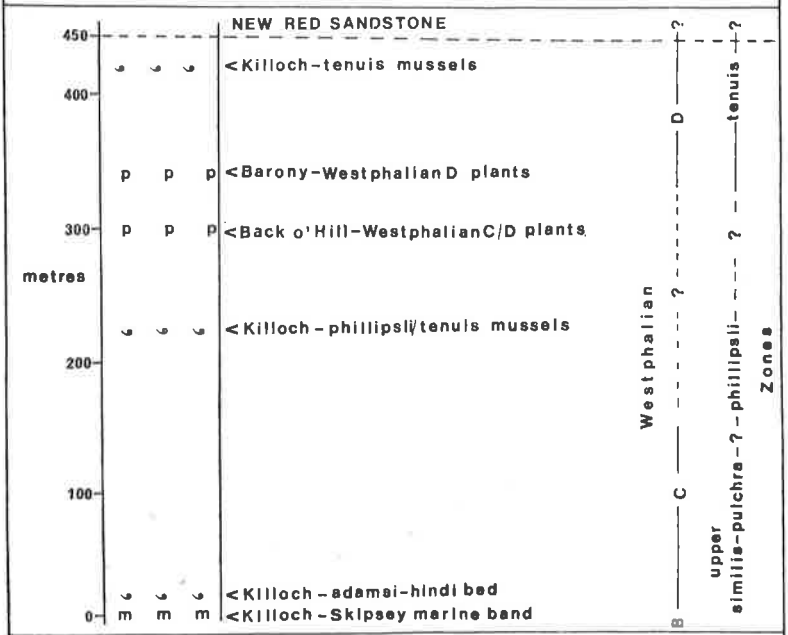


FIG 2. Composite section of the Barren Measures near Ochiltree.

In the mottled (? post-diagenic, Mykura 1960, 1967) friable mudstones in the river bed two horizons of plants have been located, separated by about one metre of strata consisting of a lower horizon of red mudstones, with plants preserved as green impressions; **Neuropteris rarinervis** Bunbury. **Alethopteris** aff **lesquereuxi** Wagner, **Asterotheca miltoni, Pecopteris** sp and **Cordaites** sp, and an upper horizon of purple and yellow mudstones with red plant impressions of **Asterotheca miltoni, Pecopteris** spp, **Sphenophyllum emarginatum,** ? **Cordaites** sp, **Calamites** sp and **Lepidodendron** sp.* Although this assemblage contains no plants of very restricted range, the abundance of Pecopterids with **N. rarinervis, S. emarginatum** and **A.** aff **lesquereuxi** suggests an upper Westphalian C/low Westphalian D. age.

* This material has been deposited in the Hunterian Museum, Glasgow.

The Age of the Barren Red Measures

Very few fossiliferous horizons have been found in the Barren Red Measures. One mussel band has been reported not far above the Skipsey marine band and has been said to be of an upper **similis-pulchra** zone age (low Westphalian C of Fig. 2); measures of that age being very thin in Ayrshire (Mykura 1967). The only certain Westphalian D horizons occur at the top of the succession yielding **tenuis** zone mussels (Mykura **ibid**) (Fig. 2).

Fossil plants were found in a borehole at Barony, Auchinleck, (Fig. 1) (Kidston 1908, Richey, Anderson and MacGregor 1930), some 358 metres (1,170 feet) above the Skipsey marine band and included numerous plants often used as diagnostic of a Westphalian D age; **Asterotheca aborescens** Schlotheim, **A. cyathea** Schlotheim, **Neuropteris flexuosa** Sternberg, **N. scheuchzeri** Hoffmann and **Ptycocarpus unitus** (Brongniart). This horizon is some 60 metres above the level of the Burnock Water plant bed.

From these horizons it may be shown that there are some 60 metres of low Westphalian C measures, 270 metres of high Westphalian C and possible low Wesphalian D measures and 120 metres of certain low Westphalian D measures.

Conclusions

The Barren Red Measures of the Ochiltree area have been shown to contain occasional fossil horizons some of which may be stratigraphically useful. New fossil plant material from the Burnock Water includes some species common in the top Westphalian C and low Westphalian D. The age of the Barren Red Measures, in this district, ranges from Westphalian C to low Westphalian D and therefore leaves open the possibility that the 'New Red Sandstone above may be, in part, of Westphalian D age.'

Acknowledgments

I should like to thank Professor W. G. Chaloner for his helpful comments and for his supervision. This work was carried out under the tenure of a N.E.R.C. Studentship.

Addendum

Recently a new collection of fossil plants has been made by Dr. R. H. Wagner from the Stairhill locality and he now regards these beds to be more likely of Lower Permian age. If this age assignment is accepted then this means that there must have been a considerable hiatus between the Barren Red Measures and the Mauchline Volcanic Group. (Smith **et al,** 1975, p. 23).

References

CALVER, M.A. 1969. **Westphalian of Britain.** Compte Rendu 6e Congres Intern. Strat. Geol. Carbonif., Sheffield 1967, 1 233-25

EYLES, V. A., SIMPSON, J. B. & MACGREGOR, A. G. 1949. **The Geology of Central Ayrshire.** Mem. Geol. Surv. 160pp.

KIDSTON, R. 1908. **List of fossil plants from the red beds about 50 feet from surface, passed through in sinking the shaft of the Barony Pit, at Old Byres Farm, about 1¼ miles west of Auchinleck, Ayrshire.** Summ. Prog. Geol. Surv. 1907, 112-113.

MACGREGOR, A. G. 1960. **Divisions of the Carbonifeous on Geological Survey Scottish maps.** Bull. Geol. Surv. Gt. Brit., 16, 127-130.

MYKURA, W. 1960. **The replacement of coal by limestone and the reddening of the coal measures in the Ayrshire coalfield.** Bull. Geol. Surv. G.B., 16, 69-109.

———— 1965. **The age of the lower part of the New Red Sandstone in south-west Scotland.** Scot. J. Geol. 1, 9-18.

————1967. **The upper Carboniferous rocks of south-west Ayrshire.** Bull. Geol. Surv. G.B., 26, 23-98.

RICHEY, J. E., ANDERSON, E. M. & MACGREGOR, A. G. 1930. **The Geology of North Ayrshire.** Mem. Geol. Surv. 417 pp.

SMITH, D. B. et Al. 1975. **A correlation of Permian rocks in the British Isles.** Geol. Soc. Lond. Spec. Rep., 5, 1-45.

WAGNER, R. H. 1966. **On the presence of probable upper Stephanian beds in Ayrshire, Scotland.** Scot. J. Geol. 2, 122-123

SOCIETY MEETINGS (Session 117)

Held in the Geology Department, The University, Glasgow.

10th October, 1974

Mrs. S. M. Clark, M.A., Miss M. D. Connell, B.Sc., Mrs. P. Sinclair, Mr. W. G. B. Strowbridge, M.B.E., Mr. D. Watson, Mr. R. M. White, B.Sc., Mr. T. Wilson, C.A., were enrolled as members and Professor B. E. Leake, D.Sc. and Mrs. R. M. White as associate members.

Professor P. E. Brown of Aberdeen University delivered a lecture on '**The Lilloise Layered Intrusion, East Greenland.**'

The Lilloise Intrusion is one of the major plutonic bodies in the Tertiary Igneous Province of East Greenland. The intrusion was first reached in 1971 when it was established that it consists of layered gabbroic cumulates heavily injected by late syenitic sheets. A traverse made across the intrusion in 1974 revealed that the layered rocks have undergone intense deformation in cauldron subsidence. Layered feldspathic intermediate rocks, in which there is larger scale folding, appear to link the gabbroic cumulates with the late syenites.

14th November, 1974

A lecture was delivered by **Dr. A. E. Roy**, Reader in Astronomy, University of Glasgow, on '**Models of the Universe.**'

Dr. Roy considered that we are in the position of people in the dark ages who wanted to know if the earth was flat, with an edge, or curved; whether it was changing with time and whether it had a beginning or an end. Such questions are now being applied by us to the universe, and the latest astronomical observations are helping us to answer them.

12th December, 1974 (Annual General Meeting)

The following were enrolled as members of the society:—

Mr. E. Campbell, B.Sc., Mr. B. Cromwell, M.A., Mr. W. C. Fisher, Mr. H. Holden, Miss A. Kelly, B.Sc., Mr. S. N. A. MacCall, Mr. A. D. Mann, Mr. I. O. Morrison, B.Sc., Mr. R. A. Nicholls, Mr. R. F. Offord, Mr. B. Pounder, B.Sc., M.Sc., M.Inst.P., Miss S. S. Runcie, Miss M. Smith, B.Sc., Mr. R. C. Standley, B.Sc., F.G.S., Mr. M. Tosh, Mr. H. A. S. de Souza, B.A., M.Sc., and the following as associate members:—Prof. P. McL. D. Duff, B.Sc., Ph.D., F.G.S., F.I.M.M., F.R.S.E., Mr. J. B. Blair, B.Sc., and Mrs. J. Offord.

Dr. C. D. Gribble was re-elected as Editor of the Scottish Journal and Mr. A. G. Edwards as Excursion Secretary, whilst Mr. A. Herriot was elected to the office of Vice-President.

Written reports of council for session 116, which had been previously circulated to members were approved and the President, Dr. W. D. I. Rolfe, introduced a B.B.C.T.V. film made

for the 'Horizon' programme entitled '**When Polar Bears Swam in the Thames.**' Following the film relevant fossils from the Hunterian Museum were displayed for members to view during coffee.

9th January, 1975

Mr. J. McK. Allan, M.B.E., Mrs. J. D. Allan, Mr. B. J. Brown, B.Sc., Mr. F. M. Al-Haddad, B.Sc., Mr. W. G. Holden, B.Sc., and Mr. P. J. Treloar, B.Sc., were enrolled as members whilst Mr. R. H. E. Lawrie was enrolled as a junior member.

Professor D. H. Griffiths of Birmingham University gave a lecture entitled '**The Plate Tectonics of the Scotia Arc.**'

The Scotia Arc connecting the southern tip of South America with Antarctica consists of a series of islands, submarine ridges and trenches. Professor Griffiths briefly described the geology and went on to show how new evidence from his extensive marine geophysical work is helping to clarify the complex plate tectonics of the area.

13th February, 1975 (Members' Night)

Mr. L. Adam, Mr. Z. H. El-las, B.Sc., M.Sc., Dr. C. N. Farrow, B.Sc., Ph.D., Mr. J. J. Proud, A.R.I.C.S., M.I.M.E., Mr. J. C. Shaw and Mr. J. Skidmore, A.R.I.C.S., A.M.I.M.E. were enrolled as ordinary members and Mr. A. Pollock as a junior member.

The following short talks were given by members:—

Dr. E. M. Patterson—Quartz Breccia in the Cairgorm Granite*
Dr. L. G. Jubb —Hippoptamus minutus of Cyprus*
Mr. A. C. Scott —Westphalian B plant assemblages from the Coal Measures of Annbank*
Mr. C. Gillen —Rb/Sr. isotopic studies near the major Pre-Cambrian junction between Scourie and LochLaxford*
Miss J. D. Fletcher—Isle of Man

*Talks illustrated with exhibits.

Additional exhibits were displayed by the following members—

Miss E. R. Brock — Lower Old Red Sandstone plants, Auchensail Quarry, Cardross.
Mr. E. N. Campbell — Selection of rare fossils.
Messrs. A. & R. Gilfillan — Selected Carboniferous fossils.
Mr. Peter Macdonald — Old Red Sandstone fish of Caithness.
Mrs. M. H. McGregor — Illustrations from the combined archaeological and geological excursion around Oban.
Dr. J. K. Ingham — Silicified trilobites from the Upper Ordovician of the Anti-Atlas Mountains, Morocco.

Mr. W. Tulloch — Palaeoniscoid fish from Pumpherston Oil Shale, Queensferry.

Dr. M. C. Keen — Specimens collected on the University Exploration Society's 1974 expedition to the Pyrenees.

The following recent accessions to the Hunterian Museum from Members and others were also displayed:—

N. Amercian Pennsylvanian plants — W. F. Klose.
Postglacial shells from Rhu — Miss A. Rutherford.
Trilobites from **superstes** mudstone, Girvan — R. P. Tripp.
Educational replicas of various fossils — S. A. Baldwin.
Chimaeroid (rat-) fish from Carboniferous of Drumclog, Lanarkshire — R. F. Offord.
Rare minerals from Colle Albano and Colle Cimino, near Rome — obtained by exchange with Sr. Luciano Liotti, of Rome.

6th March, 1975

The joint Celebrity lecture with the Geological Society of Edinburgh was held in the Boyd Orr Building of Glasgow University with the President, Dr. W. D. I. Rolfe in the chair.

After expressing his pleasure at seeing such a large audience, the president welcomed the Edinburgh Society members and introduced **Dr. A. Seilacher** of Tubingen University, who addressed the Societies on **'The Post-Mortem History of Ammonite Shells.'**

Dr. Seilacher explained that due to their regular but complex forms, ammonite shells display characteristic behaviour in processes of sediment formation. Damaged shells, fill structures and burial positions record events in coarser grained sediments while deformation of shells deposited in quiet environments reflect time relationships between shell solution, compaction and cementation in particular associations of rock types.

13th March, 1975

Mr. D. Anderson, Mr. J. McMenemin and Miss E. Napier, B.Sc. were enrolled as ordinary members and Miss A. C. Mirtle as a junior member.

Dr. S. H. U. Bowie, Director of the Geochemistry division of the Institute of Geological Sciences delivered a lecture entitled **'Geochemistry and Mineralisation in certain parts of Scotland.'**

After explaining the growing urgency for discovering new sources of minerals, Dr. Bowie reviewed the techniques being employed in geochemical mineral exploration in Scotland. He explained how a geochemical map was being compiled from thousands of stream sediment samples, and gave some of the results of his departments work in the north of Scotland. These

included the discovery of Uranium near the base of the Old Red Sandstone in Caithness and Orkney and the indications of molybdenum and copper around Grudie.

4th September, 1975

A **special meeting** was held to discuss the raising of the annual subscription. After a full discussion of finances the motion that the annual subscription for Ordinary members be £6 from 1st October 1975, reduced to £5.50 for those paying by bankers orders or otherwise by 1st October 1975 (students by 9th October 1975) was carried by 33 votes to 3.

At the meeting it was agreed that council should look into proposals of reduced subscriptions for those who elect not to receive the Scottish Journal of Geology, for retired members and those on fixed incomes.

The discussion was followed by a programme of cine films on the 'Geology of the Moon and Mars' and the 'Volcanic Eruption of Heimaey in 1973.'

SOCIETY EXCURSIONS (Summer 1975)

April, 12th	—Strachur area of Loch Fyne. Leader: Dr. C. D. Gribble.
April, 26th	—Ardyne platform site and glacial geomorphology of Cowal. Leaders: Dr. J. D. Peacock and Mr. D. G. Sutherland.
May, 10th	—Great Cumbrae. Leader: Mr. C. Gillen.
May, 24th-26th	—Joint excursion with Edinburgh Geological Society to Aberdeen. Leaders: Dr. M. A. Lappin and Dr. M. Munro.
June, 14th	—Carvel Water, Muirkirk. Leader: Mr. M. Yuill.
June, 28th	—Eskdalemuir Observatory. Leader: Mr. G. I. Lumsden.
August, 30th	—Dalbeattie to Auchincairn. Leaders: Dr. J. G. MacDonald and Dr. E. M. Patterson.
September, 13th	—Ardrossan to Troon. Leader: Mr. A. Herriot.

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