Proceedings of the Geological Society of Glasgow

Session 108 1967

Publications

Volume 1 (3) and volume 2 (1, 2) of the Scottish Journal of Geology were issued to members in October 1965, February and August 1966 respectively. The first part of the separately issued Proceedings was published in February 1966 and dealt with events of Sessions 106 and 107, 1963-65.

The number of Arran excursion guides sold to date is 877, of which 479 were sold during the current session; 97 Glasgow guides were also sold.

Membership

The number of members at the end of the Session was 256.

Obituary Notices

MURRAY MACGREGOR's association with the Geological Society of Glasgow for a period of fully 55 years—he was elected a member on 13th January, 1910—has been so intimate that a biographical notice for the Society's Proceedings cannot but be very different from any other. My own association with him though not quite so long was close also, and therefore I may be permitted to write in the first person for both the Society and myself.

Murray Macgregor was born in Glasgow on 21st January, 1884 and died on his 82nd birthday. He was the second son of George Macgregor, who taught classics in Woodside School; he himself had the christian name George but from his schooldays he eschewed its use, perhaps because, this is only my surmise, of its Hanoverian association, for he was a Celtic Scot and patriot. His schooling was at Queen's Park School and the High School and he matriculated at Glasgow University in 1902 having taken 17th place in the Bursary competition. His student years being prolonged by ill-health he did not graduate until 1908, B.Sc. in April, M.A. in November of that year. During these years he had class prizes in the ordinary classes in Latin, French and Moral Philosophy and won the Ewing Gold Medal, open to all matriculated students, for the best essay on 'Queen Margaret (Tudor) of Scotland'. His science subjects were mathematics, natural philosophy, botany, and zoology. Having been recommended medically to pursue an open-air

profession he took up the study of geology under Professor Gregory in 1906, winning the class medal (1907) in Part I and taking 2nd place in Part II (1908). In the following year he sat the open competition (in those days written and requiring an examination fee) and with L. J. Wills, Ben Lightfoot, and C. E. N. Bromehead was passed into the service of the Geological Survey. Allocated to the unit under the charge of L. W. Hinxman by John Horne who was at that time Assistant Director in Scotland, he passed his first year of field work on the Upper Limestone Group of the Bathgate district and on the gneisses of the upper reaches of the Brora River, around Ben Armine in Sutherland. In the five years to the outbreak of war in 1914 his stratigraphical work on the Carboniferous extended into Lanarkshire and his survey of the Highland rocks into Glen Lyon and, in holiday time, to Glen Orchy. His medical history prevented acceptance, but not his volunteering, for military service; fortunately, for there is little doubt that he would have enlisted in Glasgow's regiment, the H.L.I., like his younger brother Eric. Urgent examination of home resources of coal, ironstone, refractory materials, oil-shales, and non-ferrous ores and other minerals occupied him during the years of war. In the post-war reorganization of the Geological Survey he was appointed in 1919 District Geologist in charge of work in the Northern Highlands and in the coalfields from Lanarkshire to Fife. His unit consisted at first of only two geologists, for senior officers had retired and recruitment had barely begun; thus return to peacetime activities was made more onerous by the need to train and supervise new officers of whom by 1922 he had five men inexperienced in fieldwork, memoir writing, and production of maps. In 1925 he was appointed Assistant Director in charge of geological work in Scotland and in the Northumbrian coalfield, and in this office he continued until he retired at his own request in 1945. In addition to normal management of the Survey's activities and establishment he was responsible, while Assistant Director, for removal of the Survey offices from 33 George Square and rooms in Sheriff Court to their present site at 19 Grange Terrace, for planning additional rock and fossil accommodation there, for organizing collection and arrangement of the records of borings deeper than 100 ft., the reporting of which had been made compulsory under the Mining Industry Act of 1926, and for supervising preparation of exhibits and handbooks of the five Scottish regions in time for the opening of the new Geological Museum in South Kensington in 1935—himself with A. G. MacGregor preparing the handbook and exhibit for the geology of the Midland Valley. Yet throughout this period his own scientific research never ceased and in 1927 and 1928 we were privileged to have in his Presidential Address 'Scottish Carboniferous Stratigraphy' a masterly synthesis of earlier and current research with his own 20 years of assiduous experience and critical evaluation of the evidence from natural and drilled sections and from mine workings in this fragmented and variable formation.

The early years of his directorship of the Survey's affairs in Scotland were not easy ones, for his service had been comparatively short and there was conflict of personalities, but his scientific, critical, and literary abilities and his tenacity, capacity for selfless service, and humanity ensured from all grades of staff eventual abundant recognition of his moral as well as titular authority. During the years of war from 1939 to 1945, with their new and urgent problems of redeployment of effort, of security of records and collections, of internal administrative difficulties, he was the trusted colleague and capable leader, zealous to employ the resources of his office to their best towards increased contribution to the national needs for coal, constructional materials, industrial minerals rendered scarce by blockade, water supply, and sites for military, security, or constructional works. Only a few months after the war ended, still active and alert but wishing to make place for younger

Photograph by A. Herriot, 1964

officers, he retired from official service, taking with him the regretful good wishes and the respect and affection of his colleagues:

A man whom all men proudly claim as friend;
Who, great of heart, his neighbour's urgent cares
And quiet joys halving and doubling shares;
In whom compassion, grace, and virtue blend;
Who, raised to power, a constant mind doth lend
To larger service, thought nor effort spares
To knit his knowledge to his land's affairs;
And knowledge hoards, more lavishly to spend.
He was our chief and Time that tie has broken
But cannot fray the subtle tissue weaved
Of his ripe wit and rich humanity
Upon our hearts. The word of parting spoken,
God speed him well and grant him golden-sheaved
Long sun-lit days of leisured liberty.

The good wishes were in large measure fulfilled. In the years immediately following his retirement he was not idle but wrote of things congenial to his mind and prepared as President of Section C, Geology, at the Dundee meeting, 1948, of the British Association, his address 'Geology in the development of the Scottish coalfields'. In these years too he was called upon to pay obituary tribute to his old chief, Sir John Flett, and to his old assistant, David Tait, both friends of long standing whom he admired greatly. But he was not long to remain a man of leisure. In 1947 he was invited to take appointment as Divisional Geologist in the Production Department of the Scottish Division of the National Coal Board and this he did with glad alacrity, happy to be employing again his talent in the service of the Scottish economy and, free from administrative impediment, at one and the same time to be adding to his own and the national store of knowledge. In this capacity he remained active, seeming to grow younger as the years passed. In 1957 once again he stepped aside, vacating the post of Divisional Geologist, but continued in the Board's service as Consultant Geologist until his final retirement at the age of 80 in 1964. There were many other public capacities in which he served during his working life. He was on the boards of Fuel Research and Coal Survey, on panels of the Scottish Council (Development and Industry), and on the Management Committee of the Macaulay Institute for Soil Research for fifteen years, during which their association was mutually so happy that for nine of them, after his retirement from the Geological Survey, he was Convener of the Institute's Staff Committee.

I shall not pursue in detail here the record of his scientific achievement as the stratigrapher of the Carboniferous System in Scotland, which indeed can be better appreciated from the list of his publications, but should like to indicate some aspects of his activities more revealing of the man. A glance at the bibliography will show his concern both to apply geology in the development of the coalfields and to bring home to others that geology can so be applied. This concern derived not from any wish for the aggrandizement of geology and geologists but from conviction that knowledge acquired by expenditure of public monies should be applied in the public interest and, more particularly, in the interests of the economy of Scotland by making the utmost use of its main mineral resource, coal. I remember once in our talk, on inflation and better ways of obtaining a return on savings than such traps as Defence loans, I suggested he buy some 'Shell' (then 30s. and returning about 7%); indignantly he repudiated any intention of investing in any competitor with the native product.

His bibliography reveals, too, though only partially, his zeal to interpret the results of geological research simply to the amateur and to share with others his own enjoyment of nature and his own pleasure in scientific deduction from skilful observation. His excursion guides to Assynt and to Arran give testimony; and it should not go unrecorded that the illustrations round which these texts are built were prepared at his private expense so that they might be purchased at little cost. Not only in these and in other guides published in the Proceedings of the Geologists' Association is the evidence to be found, but also in the numerous talks, often unrecorded even in summary, which he gave and in the excursions which he led for the profit of fellow-members of the Edinburgh and Glasgow societies, and in the service which he rendered to these societies in their councils and as their President, Glasgow 1926-29, and Edinburgh 1936-38. He gave freely of his time for over 20 years to editorship of our Transactions from 1937 to 1958 and it was in the early years of this period that he proposed the annual publication to be sponsored by the Edinburgh and Glasgow societies to which he refers in his Presidential Address (1945) in Edinburgh. Nearly 30 years later his foresight has been realized by the début in 1965 of the Scottish Journal of Geology. In the discussions leading to this event he took no small part, insisting always that adequate provision should be made to ensure the continuity of the new journal with the Transactions of the two societies and of the publication of the Proceedings of our own society as a vehicle for the record of meetings, lectures and excursions and for the recording of short papers of importance in local geology.

Dr. Macgregor's high reputation as a stratigrapher of the Carboniferous System is apt to obscure the breadth of his knowledge of Scottish geology for this ranged from the Precambrian to Raised Beach times and indeed spilled over into pre-history. Though he himself wrote little on the metamorphic rocks of Scotland, it is worth recalling that so early as 1914, only 7 years after publication of J. J. Sederholm's 'Om Granit och Gneis', he recorded with reference to his own surveys in the Ben Armine area that 'the main interest of the rocks of Central Sutherland lies in the evidence that they afford of the synthetic origin of certain types of gneiss'.

Nowhere is the wide range of his geological interest reflected better, in miniature, than in the 'Summary of the Geology' in his Arran Guide, remarkable alike for its intellectual scope and the clarity of the presentation. He found keen pleasure in the imaginative aspects of geology—in the vision of Old Red Sandstone cliffs toppling into Jurassic waters, of the rise and fall of ancient seas, of denudation and the sculpture of mountain and valley, of the progression of plant and animal and human life as the glacial cover waned from Scotland. His interest in the evolution of geological thought and his pride in Scotland's contribution thereto were very real.

Murray Macgregor was elected a Fellow of the Royal Society of Edinburgh in 1922, and served on the Council 1930-32. He was a Fellow and Vice-President (1945-47) of the Geological Society of London from which he received award of the Murchison Medal in 1941. Nearer home he was awarded the Clough medal by the Edinburgh Geological Society in session 1943-44. Our own Society honoured and gratified both parties by electing him an Honorary Member on 11th November, 1948. Public acknowledgment of his services was made by the Scottish Coalfields Committee in their Report presented by the Secretary of State for Scotland to Parliament, 1944, where it is stated 'his expert and detailed knowledge of the coal resources of Scotland has been invaluable to us and the ungrudging manner in which he has co-operated with us throughout our investigations must also be recorded'. In these words from the unemotional context of a White

Paper the fundamental tone of Murray Macgregor's character is recognized. Always courteous and kindly, cheerful, humorous and understanding he was welcome alike in the but and ben and drilling shed, in the mining office and at official councils.

In his own office his authority, exercised with justice, discernment, and toleration was undisputed, though his was no iron hand, and rare rebuke was in his disappointment taken the more to heart. Modest to the point, it often seemed, of self-effacement he was forward in acknowledgment of the worth of others, while pretension met only with tolerant shrug or comment in verse wittily pungent yet unwounding. His capacity for versifying on people and things seemed inexhaustible and, delivered with a humorously philosophic benignity peculiarly his own, his verses set the tone of genial good fellowship to many a diverse gathering. As a short example may be quoted his 'Epigramme d'Assynt' recited to a party of many nationalities at the close of the excursion which he led to Assynt in August 1948:

Un peu de soleil et beaucoup de pluie
C'est l'été écossais; c'est aussi la vie.
On est triste quelquefois; quelquefois on sourit;
Mais n'importe ce qu'arrive si nous restons amis.

The essential youthfulness and amiability of his spirit found natural expression in his delightful approach to children, and recognition in their immediate response; at the children's Christmas parties, which, abetted by Mrs. Murdoch his housekeeper, he gave over many years, a hilarious 'Uncle Murray' was one with his guests. His affection for his native city and his devotedness to our own Society and its welfare are known to all of us. So it is that, mourning our loss, we remain the happier for having had some share in his life.

Dr. Macgregor was a bachelor. He is survived by his elder brother Sir Alexander who was formerly Medical Officer of Health in Glasgow.

J.P.

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SAMUEL PARKINSON, who died on 14th June, 1966, was born in Bolton where he attended Pike Lane School. After leaving school he went to work as an apprentice engineer at Dobson & Barbour's, and attended evening classes at Bolton Technical College. He became a qualified fitter at the age of 20 instead of the usual 21. He came to Glasgow as a time study engineer, later becoming a production engineer, and eventually became Work's Manager at Harland & Wolff's, Finnieston, which position he held until his retirement at the age of 62.

Mr. Parkinson was keenly interested in natural history, and in his youth was a member of a local society in his native Lancashire. His main interest was originally botany, but in later years geology took its place. He was a regular attender at meetings and excursions, and served a term on the Council of the Society. He was also a member of The Andersonian Naturalists of Glasgow, being Convener of the Geological Section of that society.

Sam Parkinson was a man of upright character, most unassuming, and although rather reticent in regard to himself and very decided in his opinions, he was not without a sense of humour, and was of a friendly disposition which endeared him to those who knew him.

W.C.C.
A.A.P.

ALEXANDER JAMES YOUNG, C.Eng., A.M.I.Mech.E., M.I.Mar.E., was born on 18th November, 1905 at Ballincollig, Co. Cork, and died at Glasgow on 9th February, 1966. He was educated in Army Schools and at the Royal Technical College, Glasgow. He served his apprenticeship with Alex. Stephen & Sons, Ltd., Linthouse and then worked in their design office. In 1936 he joined Barclay Curle & Co. Ltd. at their Clydeholm shipyard; he was a member of their design staff until 1945 when he was appointed research engineer, specializing in propeller design and shafting systems.

In his youth Mr. Young became interested in mountaineering and spent many leisure hours in the Scottish Highlands. These hours in the field were his introduction to geology which he also studied in the extra-mural classes at Glasgow University. He was elected an Ordinary Member of the Geological Society of Glasgow in 1957 and served on its Council from 1959 to 1962. Mr. Young's great interest in natural studies was evident to those who saw his photographic slides which marked him as a skilled amateur photographer. But it is for his kindness, courtesy and unassuming nature that his friends remember him.

Mr. Young is survived by his wife who is a member of the Society.

R.J.M.Y.

Paper

Note on a temporary exposure of Quaternary deposits at Scotstoun House, Glasgow.

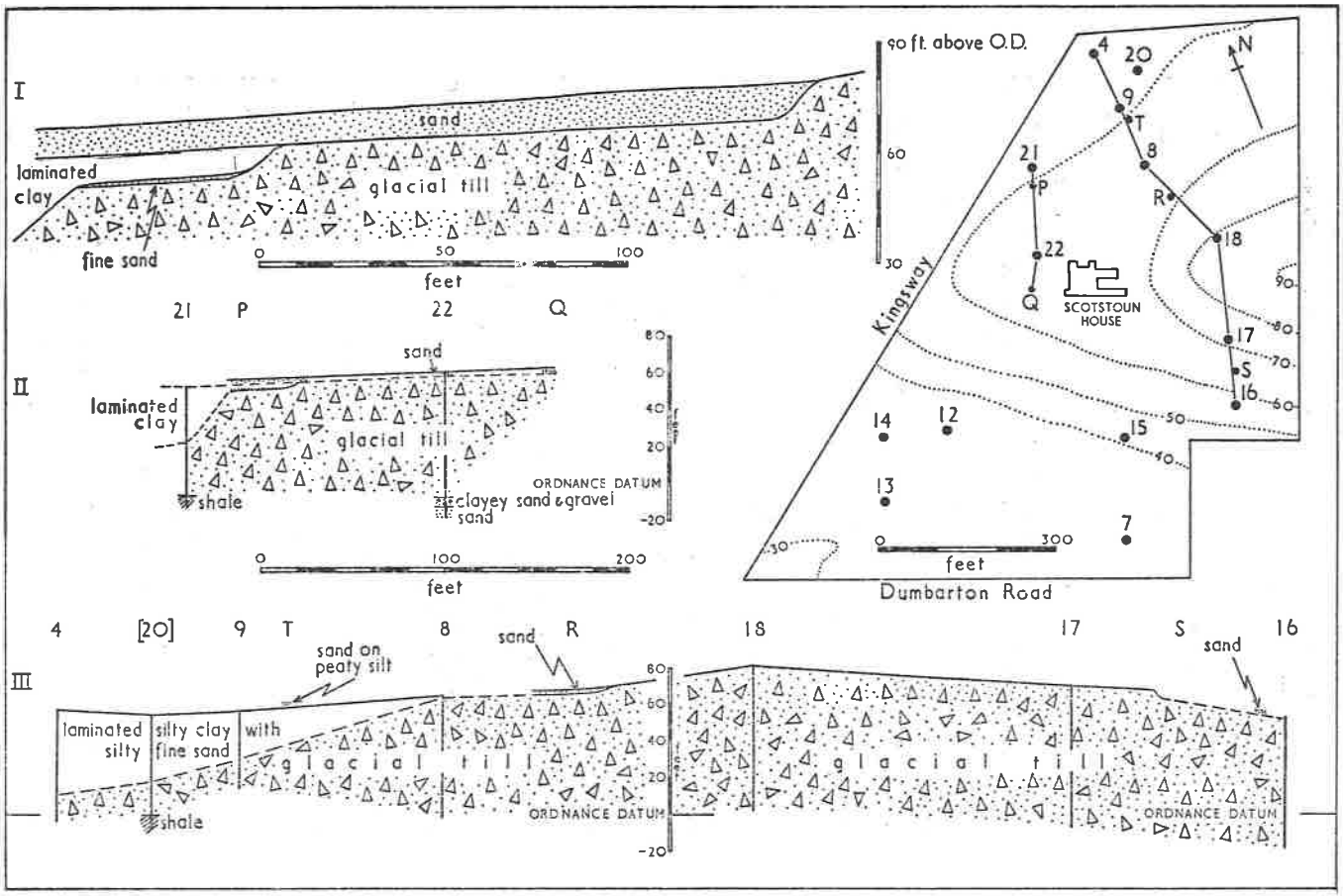
by W. G. Jardine and H. A. Moisley

In 1962 excavations at Scotstoun House (National Grid Reference NS 525680) provided a relatively rare opportunity for the examination of the junction of the glacial tills and overlying stratified deposits of the Glasgow district. Two kinds of till, as observed in artificial exposures and in samples brought to the surface by pile driving, were present at the site. The stratigraphical relationship between the tills was not always determinable, but in a pile-core from near the centre of the site reddish grey (5YR 5/2, Munsell Color Company Inc., 1954) to dark brown (7.5YR 4/2) sandy clay with cobbles of pink gritty sandstone (from the Old Red Sandstone) and pebbles of vein quartz, quartz schist (of Highland origin) and porphyritic basalt, representative of one of the tills, rested directly on the other till, stiff grey (10YR 5/1) clay with pebble-size fragments of grey shale (*cf.* Macgregor *et al.* 1925, p. 225).

Two lithologically distinct units were distinguishable in the stratified deposits. The older, occurring at levels below about 59 ft O.D., comprised up to 46 ft of laminated silty clay with thin layers of silty fine sand or clayey sand. The presence of shell fragments of *Arctica islandica* together with numerous Foraminifera and Ostracoda in pile-cores of these sediments near B.H.9 and B.H.21 (Fig. 1) suggested that these deposits are equivalent to the well-known 'Clyde Beds' of the Glasgow district (*cf.* Brady *et al.* 1874; Macgregor *et al.* 1925, p. 231). Over most of the site the upper group of stratified deposits comprised 4 to 5 ft of rust-coloured sands that either rested directly on the laminated sediments or overlapped on to till (see Fig. 1, sections I and II). At locality T (Fig. 1), however, 3 to 4 ft of ferruginous sand were separated from the underlying clays by thin layers of dark brown peaty silt, dark grey silty clay, and black silty sand and gravel that together totalled 1 to 2 ft.

On the bases of bore hole data and observations in excavations the stratigraphical boundary between the till and the superincumbent deposits was found to be stepped; the relationship between the sediments is shown in the sections in Fig. 1. In summary, a minor local bench, overlain by the uppermost 6 ft of the laminated clays but separated from them by a thin lens of up to 18 in of yellow fine sand (Fig. 1, section I), occurred at 52 to 54 ft O.D., while a more extensive shelf in the till, maximum width 300 ft and covered by rust-coloured sands, was present at 60 to 70 ft O.D.

The evidence raises several problems, particularly with regard to stepped erosion of the till. The narrow ledge, developed locally at P (Fig. 1), appears to have been cut during a short pause in the rise of the sea in which the lower group of stratified sediments was deposited. The origin of the higher, broader shelf is much more uncertain. The close coincidence in height of the abrupt lithological break between the lower and upper units of the stratified deposits on the one hand and the shelf in the till on the other suggests a related origin of the break in lithology and the shelf in the till. The change of physical conditions from deposition (of laminated clays and fine sands) to erosion (of a shelf in the till) was an important one. (If a cause is to be sought for the change, isostatic uplift of the contemporary land might be invoked.) The thin layers of peaty silt and other deposits indicative of terrestrial or semi-terrestrial conditions, together with the presence of the till bench at the same level, suggest that the upper (sand) unit of the stratified sediments rests unconformably on the lower (laminated clay) unit.


I
sand
laminated clay
glacial till
fine sand
0 50 100
feet
21 P 22 Q
II
sand
laminated clay
glacial till
shale
clayey sand & gravel
sand
ORDNANCE DATUM
80 60 40 20 -20
0 100 200
feet
90 ft. above O.D.
60
30
Kingsway
4 20 9 T 8 R 18 17 S 16
21 P 22 Q
14 12 13 15 7
SCOTSTOUN HOUSE
N
90 80 70 60 50 40 30
0 300
feet
Dumbarton Road
4 [20] 9 T 8 R 18 17 S 16
III
sand on peaty silt
sand
sand
laminated silty
silty clay with fine sand
glacial till
shale
ORDNANCE DATUM
60 40 20 -20

If the time-interval represented by the unconformity was short, the broad shelf probably was cut during the last stages of a (relative) rise of sea-level that first led to deposition of clays and fine sands, later to accumulation of several feet of sand as stability of sea-level was reached at about the level that is now 60 to 70 ft above Ordnance Datum.

If the time-interval between deposition of the lower and upper groups of stratified sediments was long, not only is the marine nature of the uppermost sand bed uncertain, but several alternative interpretations of the evidence are possible. Two possibilities are that the shelf in the till was cut during a pause in a period of (relative) rise of sea-level and the sands later deposited when sea-level fell again (with accompanying erosion of sediments above 60 to 70 ft) to approximately the same position, or the shelf was eroded and sand deposition took place in the course of regression from a sea-level maximum at some height higher than 60 to 70 ft O.D.

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MACGREGOR, M., *et al.* 1925. The geology of the Glasgow district. (2nd ed.) *Mem. geol. Surv. U.K.*

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Society Meetings

held in the Geology Department, the University, Glasgow.

14th October, 1965

D. W. G. Cameron, F.R.I.C.S., A.M.I.M.E., R. Carswell, F.R.I.C.S., A.M.I.M.E. Pamela Davison, E.M.S., N.N.E.B.(S)., J. M. Dunn, G. Goswami, M.Sc., C. D. Gribble, B.Sc., Ph.D., F.G.S., Mr. Kyaw Kyaw, B.Sc.(Hons)., W. Lauder, B.Sc., A.M.I.Mech.E., M. S. Lewis, B.A., F.G.S., Mrs. M. O. McArdle, M.A., Sheila M. Macfarlane, M.A., and G. Meechan, A.B.A.A., were elected Ordinary Members.

A lecture entitled 'The Restless Andes' was delivered by Dr. J. V. Harrison.

The geology of Central Peru was considered; attention was drawn to the presence of many unconformities and faults and to the abundant vulcanism from Upper Palaeozoic to sub-Recent. Several raised beaches showing warping occur and records establish the fact that earthquakes have shaken the region throughout historic times and continue to do so up to the present day. The evidence points to persistent restlessness in the mountain chain known as the Andes.

The structural and igneous geology of the region was described.

The Andes fall into two parts, the western area with competent Mesozoic rocks, folded during the Tertiary, and later intruded by the batholith with its edge smothered by ashes, and the eastern area formed by the Palaeozoic massif with its intrusions, folded during the Upper Carboniferous. There has

Fig. 1. Scotstoun House site. Top right: site plan showing locations of bore holes (numbered) and excavations (lettered). Contours are in feet above Ordnance Datum (Newlyn). Section I: composite section, incorporating evidence from a number of exposures and bore holes, to show the suggested relationship of the two stratified units to each other and to the underlying till. Sections II and III: traverses across the building site linking bore hole and excavation data. Scale of Section I twice that of sections II and III. In all sections there is no vertical exaggeration. Bore hole data by Geo. Wimpey and Co. Ltd.

also been vertical movement which is apparently responsible for the present high plateau which was once much wider and is now being rapidly eroded away along both Pacific and Atlantic flanks.

11th November, 1965 (Annual General Meeting)

Elizabeth M. Bell, A. Cassidy, A. G. Fraser, B.Sc., Ph.D., Helen Fullerton, B.Sc., M.Sc., M. B. McGavigan, G. Mackay, J. R. Mirtle, B.Sc., R. K. Park, and A. M. Stevenson, were elected Ordinary Members.

The following Office-bearers were elected:

Members of Council: Dr. B. Bluck and Mr. K. Smith.

Honorary Auditors: Mrs. J. Gilchrist and Mr. D. Jack.

Editorial Committee: Professor T. Neville George and Dr. M. Macgregor.

No nominations were received for Vice-President or for two other Members of Council.

A lecture entitled 'Methods in palaeoecology—tracing fossils backwards into life' was delivered by Dr. G. Y. Craig.

Palaeoecology, the study of fossils as living organisms, can be tackled by two methods, the comparative and the experimental. In the comparative method the mode of life of living relatives is examined and compared with the possible mode of life of the fossil ancestor. The position of the fossil in the sediment may help in deciding whether or not the animal was a surface dweller or a burrower. *Lingula* is a good example of a burrowing form whose life has been unchanged from Ordovician times until the present day. Observations on the Carboniferous clam, *Schizodus*, suggest that it too was a burrower and that its living relatives, when their ecology is studied, may prove to have similar habits. Animal communities can be shown to have existed in the geological past as well as at the present day.

The experimental approach is becoming more common. Some fossils have already carried out the experiments and left tracks and trails which can sometimes be readily interpreted: living-burrows, resting marks, movement trails and feeding trails can all be recognized. Unfortunately the animals creating the marks are rarely preserved. High speed photography has been used to determine the water movements in models of fossil shells such as *Prorichtofenia*.

It is now possible to simulate recruitment, growth, mortality and seasonal cessation of growth in a computer. The size-frequency distribution of the living animal and its accumulating dead counterpart may thus be determined for different environments, growth rates and death rates. The factors controlling the form of the size-frequency distribution of fossil assemblages may therefore be more readily interpreted.

9th December, 1965 (Members' Night)

The following were elected Honorary Members:

J. V. Harrison, M.A., D.Sc., F.R.S.E., F.G.S., J. Phemister, M.A., D.Sc., F.R.S.E., F.G.S., J. E. Richey, M.C., B.A., Sc.D., F.R.S., F.R.S.E., F.G.S. B. C. Barooah, M.Sc. and Miss P. Harvey, L.C.S.T. were elected Ordinary Members.

In accordance with Article XIII of the Constitution, the President announced the following elections on behalf of the Council:

Vice-President: Dr. A. C. McLean.

Members of Council: Dr. W. G. Aitken and Mrs. S. G. Hoey.

Short talks were given by:

Mr. J. Jocelyn—'Dr. Hunter's Mineral Collection'.

Mr. A. Herriot—'Czechoslovakia and Yorkshire'.

Mr. P. Aspen—'A collection of minerals from the Cairnsmore of Fleet Granite'.

Miss E. R. Brock—'An amateur in Church Stretton'.

Dr. W. D. Ian Rolfe—'Recent finds of woolly rhinoceros and a whale from the Scottish Quaternary'.

Mr. M. Lewis—'Carbonate sediments from the Seychelles'.

13th January, 1966

P. K. Chowdhary, M.Sc. and J. A. Kay, B.Sc., F.G.S. were elected Ordinary Members.

In the absence of Mr. G. A. Teichmann, who sent his apologies for being unable to give his promised lecture, Mr. Keith Ellis of the Nobel Division of I.C.I. gave a short talk on some of the technical aspects of the search for oil in the North Sea. This was followed by the showing of a film by Shell entitled 'Underwater Search'.

10th February, 1966

Marilyn Bell, J. E. Coombes, J. W. Duncan, Elisabeth M. Graham, W. W. Kettles, A. C. McArthur, J. A. A. McCallum, Martha McIntosh, D. Mackinnon, J. F. Robertson and G. Stewart were elected Ordinary Members.

The President expressed the regret felt in the Society over the death of Dr. Murray Macgregor and the Society's gratitude to him, particularly for his work on the Transactions and, latterly, the Arran Guide.

The following papers were read by members:

'The possibility of Dalradian rocks in the Southern Uplands?'—Dr. K. A. G. Shiells.

'Subdivision and origin of "Upper" Devonian conglomerates, North Ayrshire'—Dr. B. J. Bluck.

'Chilled picritic magma?'—Dr. D. S. Weedon.

10th March, 1966

D. Bean, R. A. S. Macfarlane, B.Sc., R. McNicol, B.Sc., J. Rose, B.A., A. C. Wilson, and Mrs. M. A. Wilson were elected Ordinary Members.

A lecture entitled 'Organic Chemistry' was delivered by Dr. G. Eglinton.

In recent years new micro methods have been developed for the isolation, separation and identification of organic substances. These methods have been used very successfully by organic chemists in the study of the complex mixtures of substances formed by living organisms.

The same approach can be applied to the study of the organic matter present in most sedimentary rocks and fossils. The discussion dealt not only with materials of high organic content, such as petroleum and the Scottish oil shales, but also very ancient rocks of Pre-Cambrian age containing organic compounds of probable biological origin, albeit in small amounts.

Excursions

2nd April, 1966. Dumbarton Uplands. Sediments and igneous intrusions and faulting in Overtoun Burn; Lang Craigs lavas with underlying ash and sediments. Leaders, Miss E. R. Brock and Mr. A. Herriot.

23rd April 1966. Joint excursion with Edinburgh Geological Society: Dalradian rocks and structures across the flat belt in the Ben Lawers Synform; Caledonian intrusions; glacial features. Leader, Mr. G. Scott Johnstone.

7th May, 1966. Glacial geomorphology. Carstairs esker system; Tinto Hills subglacial drainage system of meltwater channels and eskers; Thankerton

esker gravels; Carlops drainage channels. Leader, Dr. J. B. Sissons.

28th-30th May, 1966. The Moor of Rannoch, Glencoe and the Great Glen. Rocks and structures in the Glencoe cauldron subsidence; fault movements on the Great Glen and Ericht-Laidon wrench dislocations in terms of solid geology and geomorphology; reconstruction of an ancient Highland drainage pattern. Leader, Dr. N. Holgate.

4th June, 1966. Upper Old Red Sandstone of west Ayrshire. [*Proceedings* **107**: 15]. Leader, Dr. B. J. Bluck.

18th June, 1966. Muirshiel barytes mine, Lochwinnoch. Vein barytes in the volcanic rocks of Misty Law vent. Leader, Dr. E. M. Patterson.

2nd July, 1966. Haematite mine at Auchinlongford. Leader, Mr. M. Yuill.

10th September, 1966. Graptolite localities at Leadhills. Leader, Mr. P. Aspen.

8th October, 1966. Geology of Milngavie district. Leaders, Mr J. A. Carrick and Mr K. Smith.

Erratum

Substitute 1956 for 1952 on p. 4 line 15 of *Proceedings* **106, 107.**

Published by the Geological Society of Glasgow, Geology Department, The University, Glasgow, W.2 and printed at St Columba Press, Isle of Arran
Price 3*s*.