

Home Counties North Regional Group



The
Geological
Society

Double Lectures Event
Monday 17th June 2024
5.15 p.m. to 8.30 p.m.

Venue:
Geological Society of London
Burlington House
Piccadilly
London, W1J OBG

Viewing of lecture speakers' panel board displays
and rock specimens in the Lower Library from 5.15 p.m. to 6 p.m.
Refreshments from 5.30 p.m. to 6 p.m.
Lectures from 6 p.m. to 8.15 p.m.

William Joscelyn Arkell (1904-1958):
The U.K.'s greatest Jurassic Stratigrapher

Presented by Owen Green FGS

Deformation of the northern part of
the Moine Thrust

Presented by
Roy P Dunn FGS

Organised by John Wong FGS

Welcome from John Wong FGS, Home Counties North Regional Group Chair

Hello, Home Counties North Regional Group members,

I hope you are all well. We have not had a Home Counties North Regional Group lecture at Burlington House for many years and the committee members and I have not forgotten the large number of the HCNRG members in the London area; I am delighted to announce to you that I have organised two lectures at Burlington House on Monday 17th June 2024.

Before the start of this double-lecture event, there will be displays of the lecture material pictures on the panel boards in the Lower Library; these include hand-coloured research geological maps; there will be displays of rock specimens as well. Both speakers, Owen Green FGS and Roy Dunn FGS, look forward to meeting you and talking you through their displays before the lectures commence.

I look forward to meeting many of you on Monday 17th June 2024. I would arrange double-lecture event again in the not too distance future in different Home Counties North Regional Group areas if the format of general geoscience topics double-lecture is popular and appealing to you. I look forward to your feedbacks.

All the best wishes.

John Wong FGS

Lecture speaker Owen Green FGS



Owen Green retired from the Department of Earth Science (University of Oxford) at the end of July after 34 years, the past 12 years as Manager of the Geo-facilities Laboratories. Before moving to Oxford, he was Curator of Geological Collections at Goldsmith's College, University of London. At Oxford he helped establish the Palaeobiology Laboratories and supported teaching

and research staff, and is co-author on several papers, most notably the studies on the world's oldest (3.5 billion years old) putative fossils from the Archaean of Western Australia.

Other published research interests include a study of the last shallow marine carbonate-platform dwelling foraminifera of the Tethyan Ocean recorded in rocks from the NW

Himalayas 50.5 million years ago as India crashed into Asia, and a study of seasonal growth rings in bones of the flightless New Zealand moa.

Historical studies of the Swedish explorer Sven Hedin (1865-1952) and Oxfordshire's English geological map maker William Smith (1769-1839), have also been undertaken. Developing palaeobiological sample techniques culminated in the publication of a book *A manual of Practical Laboratory and Field Techniques in Palaeobiology* (2001).

He has presented talks for the Geological Society of London, and the Royal Microscopical Society, both of which he is a Fellow, and is a member of the Institute of Science and Technology and the Quekett Microscopical Club, and currently Chair of the Oxfordshire Geology Trust, the geo-conservation charity promoting geology to the public through Outreach events.

William Joscelyn Arkell (1904-1958):

The UK's greatest Jurassic Stratigrapher.



SUMMARY OF TALK:

William Joscelyn Arkell established an international reputation as the UK's greatest Jurassic stratigrapher, yet outside the discipline of geology very few people will know his name or what his contribution to Mesozoic stratigraphy and palaeontology achieved on either the national or the global stage. His reputation was obtained in a very short working career of a little over 30 years, six of which covered the Second World War.

Arkell was born in the Wiltshire market town of Highworth in 1904 and had an interest in Natural History from a very early age following family holidays in Dorset, although on entry

into New College Oxford in 1922 he had intended to read entomology tutored by the evolutionary biologist Sir Julian Huxley.

Persuaded that a career in geology and palaeontology would be more productive, he graduated with a BA First Class Honours degree in geology. Supervised by J. A. Douglass he was awarded his D. Phil in 1927 and commenced publication of a *Palaeontographical Monograph* on British Corallian Lamellibranchia (1929-1937).

His synthesis of British Jurassic strata (*The Jurassic System in Great Britain*) was published in 1933 at the age of 29 and established his international reputation. Numerous publications were produced up to 1940, with only minor delays following his wartime employment as a civil servant. Serious illness in 1943, including hospitalisation and an emergency operation required him to restrict his working hours.

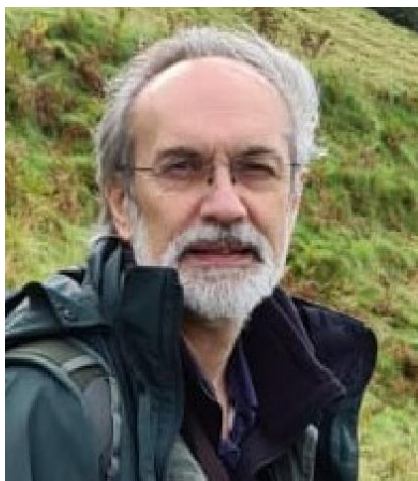
Following the war, he accepted a position of a Senior Research Fellow at Trinity College Cambridge, and in 1947 saw his works *Oxford Stone*, *The Geology of Oxford* and the Geological Survey guide to *The Geology of the Country around Weymouth, Swanage, Corfe and Lulworth* published. Awards and election to the Royal Society followed, and in 1956 *Jurassic Geology of the World* was published.

He suffered a stroke in 1956 which left him partially paralysed and died without regaining conciseness after a second in 1958.

In addition to the above publications his legacy also includes a second *Palaeontographical Monograph* (Ammonites of the English Corallian Beds, 1934-48), and Part L Mollusca 4, Cephalopoda, Ammonoidea of *The Treatise of Invertebrate Palaeontology* (1957).

He campaigned for an International Commission on the stratigraphy of the Jurassic – an organisation now overseen by the International Commission on Stratigraphy. His legacy is lasting and relevant to today's geologists, stratigraphers, and palaeontologists.

Lecture speaker Roy P Dunn FGS



Roy Dunn graduated from Goldsmiths College, University of London in 1981 with a BSc in Geology with Physics and Chemistry.

After a Vacation Studentship in the Education and Museum departments at the Geological Museum in South Kensington, a four year Mud Logging career ended with the largest underground kick then currently known, and rig evacuation. Unfortunately, he was required to stay on board to ride out the killing of the kick, and subsequent coring.

Field work in northwest Scotland had begun in 1982, and continued periodically between spring to autumn field seasons with the winter months working in the lab. There was much shuttling between the bright lights of Aberdeen, Great Yarmouth or Lowestoft or Stavanger, and the calm of northwest Sutherland. Most mapping was completed by 1988, but subsequent re-examination in the 2010s onwards revealed exposures previously covered by windblown sand. Deformed calcite hunting also occurred shortly before the pandemic. One critical sample sat on the unheated fireplace for many years.

After meeting his wife and having two children, the family enjoyed several holidays in the field area in northwest Scotland, whether they liked it or not! Since 2002, a career in Health and Care worker regulation has involved, the management of international applications, IT Management and currently Chief Information Security & Risk Officer.

After hearing about a relatively new technique to determine radiometric dates non-destructively, (Laser Ablation Inductively Coupled Plasma Mass Spectroscopy) Roy registered in 2018/9 academic year at the University of Hull.

Roy hopes to submit his Ph.D thesis this year.

Deformation of the northern part of the Moine Thrust



Roy P Dunn ©

ABSTRACT

The Moine Thrust Zone of the Northwest Highlands of Scotland is where the deep structures of eroded collisional mountain belts were first worked out. Following the publication of Peach & Horne's memoir in 1907, little work was carried out other than an investigation of Mylonites, by Christie 1963 and later Swett, 1965 & 1969 investigating the stratigraphy of the Cambro-Ordovician succession. A spurt of new mapping and application of oil field techniques such as section balancing started in the late 1970's with Elliott & Johnson's 1980 evaluation of the evolution of the thrust belt, and triggered numerous works by Coward, Butler, Holdsworth and others. More detailed dating of intrusions, mylonites and metamorphosed parts of the Moine have revealed sometimes contradictory potential interpretations of the genesis of the whole thrust belt.

Detailed mapping and new work provide a more detailed model of the development of the Moine Thrust in a plate tectonic context. New dates for brittle contraction and extension have been established, using Laser Ablation Inductively Coupled Plasma Mass Spectrometry.

Detailed structural and stratigraphic mapping was carried out over 65 km² at scales of 1:10,000 and 1:5000. Including generally inaccessible cliff exposures. The map area extends from the “reported” undeformed foreland in the footwall to the thrust system to the basal sections of the Moine nappe itself. Regional dip is 12° to 110°. Detailed structural analyses including strain determinations and petrofabric analyses carried out on samples from the alleged foreland, from within the thrust belt, and from the mylonites in the Moine thrust sheet. Balanced and restored cross sections have been constructed for the entire Moine thrust belt in this area. Illite crystallinity determinations were used to determine the low grade metamorphism in the Cambro-Ordovician units both within the thrust belt and in the foreland. Temperature estimates are supported by quartz c-axis opening angles.

The first report of exposures of pseudotachylyte within the Moine Thrust Zone is recorded here, in Quartz Mylonites evidencing seismic locally extensional deformation in the Durness and Hope areas. The area previously reported as foreland, and used to constrain stratigraphy in the most recent publications has been found to be deformed. The lack of acknowledgment of folding, thrust faulting and syncontractual structures within the Durness Carbonate succession used to constrain stratigraphy, casts doubt on the published BGS unit thicknesses.

The ground west of Loch Eriboll, Sango Sands and Faraid Head, is shown to be deformed, contrary to the suggestion of Borradaile 2012. Inconsistencies in the BGS 1:50,000 Loch Eriboll sheet in the Hope Lodge area are also highlighted.

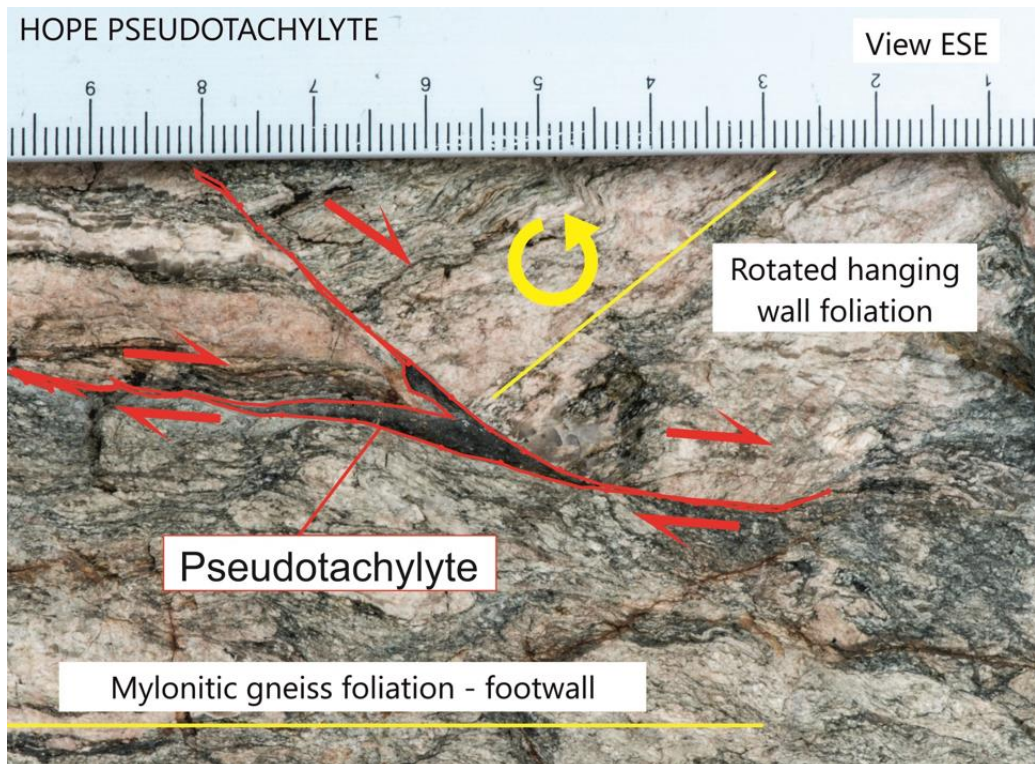
An explanation of the apparent rotation of strain around the North Sutherland coast related to the North Coast Transfer zone is provided.



Mol Mohr duplex. Roy P Dunn ©



Hanging wall cut off. Roy P Dunn ©



Pseudotachylyte. Roy P Dunn ©

This event is free of charge, but registration is essential, priority will be given to Fellows and Student Fellows of the Geological Society who are members of the Home Counties North Regional Group. Fellows and Student Fellows of all other Geological Society Regional Groups are welcome to register their places, also free of charge.

Please book your places on a first-come-first-served basis by e-mail to homecountiesnorthregionalgroup@gmail.com.

**Closing date to book your places is by the close of Tuesday 11th June 2024.
Please provide your FGS membership number when booking.**

For more information on the Home Counties North Regional Group visit the website <http://www.geolsoc.org.uk/hcnrg>

CPD (Continuing Professional Development) hours – This Home Counties North Regional Group event qualifies for your CPD hours spent travelling to/from and attending the event. The content is intended to be suitable for early career through to experienced geologists and related professionals.

Geological Society, Burlington House, Piccadilly, London, W1J 0BG
Tel: +44 (0)20 7434 9944 Fax: +44 (0)20 7439 8975
Email: enquiries@geolsoc.org.uk Web: www.geolsoc.org.uk

Registered Charity No. 210161

This event is supported by



and

