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## **Emily Dix, palaeobotanist - a promising career cut short**

**Cynthia Burek**

**University College Chester, Chester, UK**

[c.burek@chester.ac.uk](mailto:c.burek@chester.ac.uk)

Emily Dix, the Coal Measures palaeobotanist, was born on 21 May 1904. She was one of four daughters in a family of five children brought up in Penclawdd - a South Welsh cockling port then surrounded by coal and copper smelting industries near Swansea. Emily was a bright and gregarious girl, gaining at the age of 18 the Central Welsh Board Higher Certificate in History, Botany and Geography with distinctions in history and botany. Her success was an indication of what was to come.

### **Swansea - university days**

Emily gained a scholarship to go to University College Swansea and given the geological diversity of her surroundings it is not surprising that she opted to study geology with subsidiary botany in 1923 and subsidiary mathematics in 1924. She graduated in 1925 with first class honours in geology, and for a year undertook research on the structure and palaeontology of the western part of the South Wales coalfield, completing an MSc on the subject in 1926. Emily was a contemporary of Carboniferous expert T. Neville George at University College Swansea, where they carried out research on the Coal Measures with Professor A.E. Trueman, Emily specializing on a study of the fossil flora, although working occasionally on associated molluscs. She worked on the David Davies collection of flora housed in the National Museum and Galleries of Wales, thus following other famous palaeobotanists including Marie Slopes and Robert Kidston.

Emily was regarded favourably by her contemporaries and peers in the mining industry in Swansea, writing several papers for the South Wales Institute of Mining. She also received funding from the coal mining industry in the form of

government grants, as her work was of economic importance. She was given extensive access to coal mines and open cast quarries, an unusual privilege for a female at that time. In 1929 she was elected a fellow of the Geological Society, and in 1930 moved to a lectureship at Bedford College London, an expert on the flora and invertebrates of the Coal Measures and other Carboniferous strata of South Wales and the English Midlands.

### **Bedford College days**

Miss Emily Dix became Dr Emily Dix in 1933 upon submission to the University of Wales of her research on the correlation of coal seams in South Wales. From 1930 until the outbreak of war in 1939, Dr Dix published landmark papers in palaeobotany and biostratigraphy, notably her 1931 paper which straightened out the palaeobotanical subdivision of the Coal Measures. This provided the possibility of detailed correlation between the successions in both South Wales and the Staffordshire coalfields, and in 1934 she followed it up in establishing a scheme of nine floral zones in the Transactions of the Royal Society of Edinburgh, work for which she received the Murchison Fund in 1936 from the Geological Society of London.

In presenting the award, the President, Dr J.F.N. Green, said:

'During the last 12 years you have published a number of papers dealing with the palaeontology and stratigraphy of the Coal Measures in which you have combined the evidence that can be drawn from both plants and animals, that have thus increased our knowledge of the Upper Carboniferous succession with results not only of scientific but of high industrial value. I may especially mention your work in conjunction with Professor Trueman in correlating the marine bands of Wales and the North of Britain and the extent to which in a more recent paper you have showed that the flora can be used in zoning the Coal Measures. We look to further contributions in this important part of the science of geology.'

As far as we know she made no reply. She was 32.

## **War years**

Emily Dix was evacuated with the rest of Bedford College to Cambridge during the Second World War, from where she kept the department going with the Head of Department, Dr Leonard Hawkes. Emily still managed to publish her work, although travel during the war was difficult and Swansea was a long way from Cambridge. During the bombing of London she lost much of her paperwork, which deeply upset her. The college returned from Cambridge to a war-torn capital in 1944, and her last recorded activity was to lead a field trip for the Geologists' Association to Guildford on 21 June 1945.

By September 1945 she had become ill from mental exhaustion. At the age of 43 she was never to work again, spending the rest of her time quietly in York in a Quaker mental institution. She died in Swansea on 31 December 1972.

## **A lasting legacy**

Emily Dix was an outstanding biostratigrapher, teacher and field scientist. Her contribution to Upper Carboniferous Coal Measures stratigraphy and palaeobotany lives on in the 40 articles and notes on the subject she published in her short academic career. Her collections also survive, in the National Museum of Wales and Galleries in Cardiff, the Hunterian Museum in Glasgow and the Sedgwick Museum in Cambridge.

## **Suggestions for further reading**

Burek, C.V. & Cleal, C. 2005. The life and work of Emily Dix (1904-1972). In: Bowden, A.J. & Burek, C.V. & Wilding, R. (eds) *History of Palaeobotany, Selected Essays*, pp.181-196. Special Publication, Geological Society of London.

Cleal C. 1996. Plant fossils from the Keele formation Central England described by Emily Dix (1935). *The Geological Curator*, v.6, pp.207-8.

Dix E. 1931. The Flora of the Upper part of the Coal Measures of North Staffordshire. *Quarterly Journal of the Geological Society*, v.87, pp.160-179.

Dix E. 1934. The sequence of floras in the Upper Carboniferous with special reference to South Wales. *Transactions of the Royal Society of Edinburgh*, v.57, pp.789.

Thomas B. 1986. *In search of fossil plants the life and works of David Davies (Gilfach Goch)*. National Museums and Galleries of Wales, Geological Series No. 8.

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