



The
University
Of
Sheffield.

The History Of Animal And Plant Sciences In Sheffield.

By Len Hill

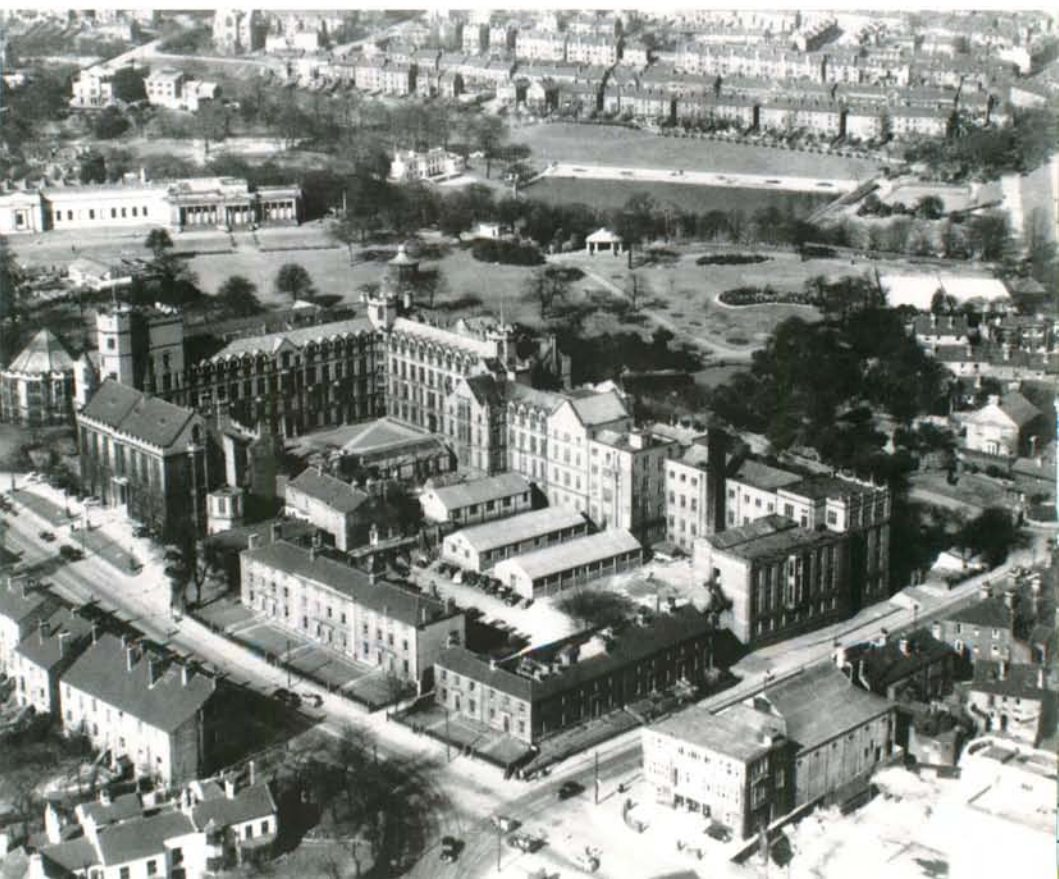
A History of Animal and Plant Sciences in Sheffield

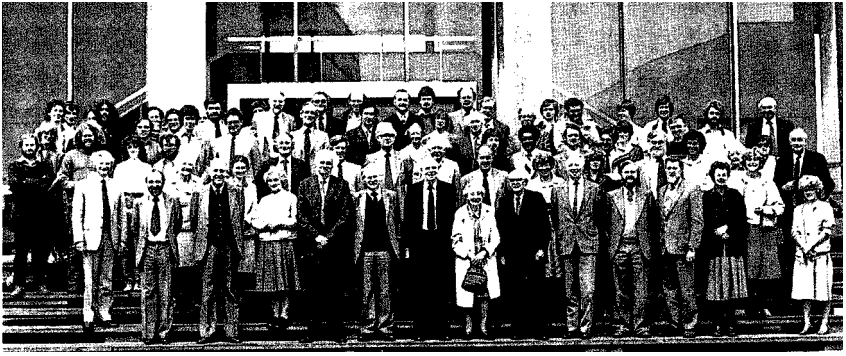
The history of biology in Sheffield extends beyond the centenary being celebrated. Botany was a part of the curriculum of the Sheffield Medical School, which was established in 1827. It was initially taught by medical practitioners, but between 1858 and 1890 the lecturer was Mr E Birks who was manager of the George Street Bank. He gave lectures to medical students at 8.00 am in the Summer Term in order to be at his desk in the bank by 9.00 am.

The first professional biologist in Sheffield was Alfred Denny who was appointed Lecturer in Biology in Firth College in 1884, and in 1888 he became the first Professor of Biology. As the only biologist in Firth College, Denny taught both botany and zoology to science students, and from 1891 to medical students, although he was himself a zoologist. It was not until 1896 that a second biologist was appointed to Firth College. This was Mr BH Bentley, who was a botanist. Immediately following his appointment Firth College joined with the Sheffield Medical School and the Sheffield Technical School to become the University College of Sheffield in 1897. The University College was awarded a Royal Charter in 1905 and became the University of Sheffield.

If the existence of an academic department is dated from the appointment of the first full-time member of staff then a Department of Biology can be said to have existed in the University of Sheffield and its precursors from 1884. However, the fissiparous nature of biology in universities manifested itself early in Sheffield and in 1908 the Department of Biology divided to form separate Departments of Botany and Zoology. This division was not entirely harmonious. Mr Bentley proposed and Professor Denny opposed, perhaps partly on the grounds that at this time the salary of a professor included a share of the tuition fees paid by students, an income that would inevitably decline for Professor Denny if split between two departments.

Western Bank Building 1952





80th Birthday of Professor Roy Clapham. 1984

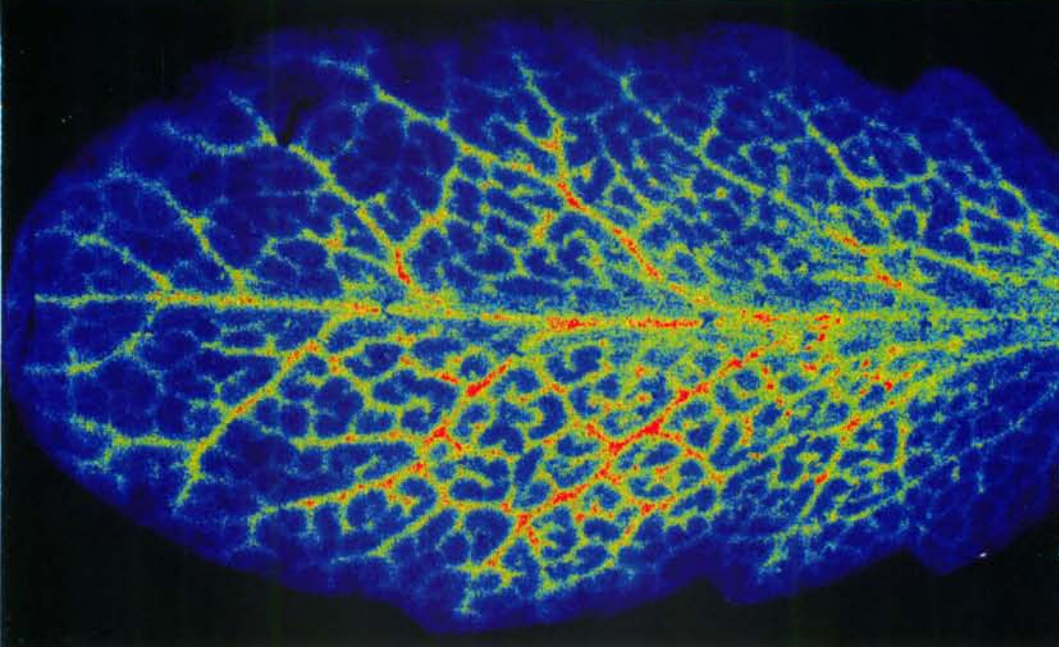
Although it was proposed that a Chair of Botany should be created in 1908, financial considerations prevented this, and Mr Bentley was appointed Lecturer-in-Charge of the Botany Department with a share of the fee income. Botany was to remain a department without a professor until 1931 when Mr Bentley was elevated to a newly created Chair of Botany.

Professor Denny and Mr Bentley were appointed primarily as teachers and neither did any significant research. Professor Denny was co-author of a classic book on the cockroach and was considered by some students to be the best lecturer in the University. He also gave popular public lectures, one series of which on Evolution & Adaptation attracted an audience of over six hundred. Mr Bentley published but a single paper in his entire career, but he was a well-known amateur photographer of wildlife and won national prizes.

The University of Sheffield was a small and locally orientated institution from its establishment until the early 1930s. It struggled for existence during the economically troubled 1920s, which were described as years of grinding poverty for the University. The Departments of Botany and Zoology expanded in the 1920s to the extent that both received an additional member of staff and during the 1930s a third member was added to each department. During the 1920s and 30s both departments depended entirely on teaching for their survival and the major part of this teaching was to medical and dental students. Science students were small in number and without the teaching of biology to medical and dental students the departments could not have survived.

In the Department of Zoology significant research activity started in the 1920s. Dr AJ Grove was appointed lecturer in 1919 and started a programme of research on earthworms. Following Professor Denny's retirement in 1925, Dr HG Cannon was appointed to the Chair of Zoology. Professor Cannon was an active research worker in the field of crustacean functional morphology. He left the University in 1931 and was replaced by Professor LES Eastham, an entomologist with research interests in the respiration of aquatic insects. Dr Grove left the University in 1929 and was replaced by Mr A Graham, who subsequently became an internationally renowned malacologist. He in turn was replaced by Dr ETB Francis in 1933, a vertebrate morphologist who spent the remainder of his career in Sheffield. The research profile of the department was further enhanced in 1936 by the appointment of Dr K Mellanby as Sorby Research Fellow. Dr Mellanby was a medical entomologist who became well-known for his work during the Second World War on the transmission of scabies using volunteers who were conscientious objectors.

By contrast, research activity in the Department of Botany was slow to develop. Dr E Lind was appointed lecturer in 1925 and did a small amount of research on algae. The pace increased in 1930 by the appointment of Dr JG Boswell, a plant physiologist, but it was not until the retirement of Professor Bentley in 1938 that botanical research accelerated. Dr WH Pearsall was appointed to the Chair of



Amino acid movement in a leaf revealed by tracer imaging

Botany. He was a distinguished ecologist with interests in highland vegetation. Professor Pearsall was the first of a series of professorial appointments that raised the standard of ecological research in Sheffield to an international level.

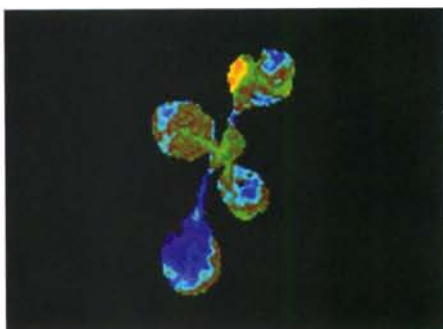
During the Second World War no expansion or development occurred and research was limited to war-related work, but after 1945 the expansion of the universities meant that staff and student numbers increased. In particular the numbers of science students increased and the dependence on medical and dental students decreased, although biology was taught to small numbers of these students until 1999.

In the Department of Botany Professor AR Clapham succeeded Professor Pearsall in 1944 and in the period up to the mid 1960s other notable appointments included Professor JL Harley, who was appointed to a second Chair of Botany, Dr DJ Anderson, Dr DH Lewis, Dr CD Pigottt, Dr DJ Read, Dr J Webster and Dr HW Woolhouse. These appointments and others widened and strengthened the research base of the department. This was further strengthened in the early 1960s by the establishment of a Nature Conservancy Research Unit which subsequently became the NERC Unit of Comparative Plant Ecology, which was led first by Professor IH Rorison and then by Professor JP Grime. The ecological strength of the department was maintained in 1969 when, following the retirement of Professor Clapham, Professor AJ Willis was appointed to the Chair of Botany. Professor Harley left the department at the same time and was replaced by Professor DA Walker, an appointment that introduced photosynthesis as a new area of research. The excellence of research in the department was recognised in 1985 when in the first RAE it was one of only two botany departments in the country to be judged excellent. In more recent times the excellence of research in plant ecology and physiology has been maintained and extended.

Melancholy thistle, an ecological model species



Fluorescent imaging of cold stress in *Arabidopsis*



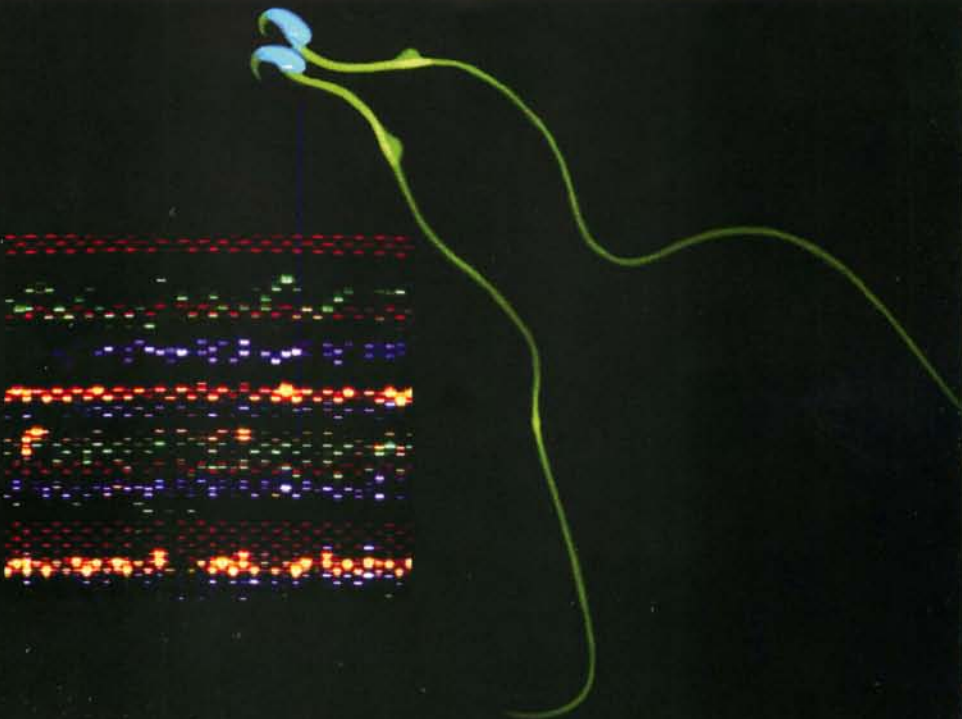


Undergraduate ecology field course, Derbyshire 2008

The Department of Zoology spent the decade after 1945 in the doldrums. New staff appointments were made, but no major research theme emerged. This changed dramatically in 1958 when Professor I Chester Jones replaced Professor Eastham. Professor Chester Jones was a comparative vertebrate endocrinologist and he set about creating a department that was almost entirely devoted to endocrinology. The range of vertebrate endocrinology was increased and the new field of insect endocrinology was introduced. Notable figures in this renaissance were Dr JN Ball, Dr FJG Ebling, Dr IW Henderson, Dr KC Highnam, Dr L Hill, Dr W Mordue, Dr K Norymberski, Dr JG Phillips, and Dr GP Vinson. Two important non-endocrinological appointments were also made, Dr JB Messenger, a neurobiologist, in 1966, and Dr TR Birkhead, a behavioural ecologist, in 1976. Dr Birkhead's appointment foreshadowed the next phase of the department's development.

The divergence of research interests of the Departments of Botany and Zoology in the 1960s meant that a relationship that had never been close did not prosper. A successful joint undergraduate degree course, Animal & Plant Biology, was established in 1975, but like parallel lines the two strands never met. Two years earlier the Department of Botany had joined forces with Geography, Geology and Landscape Architecture to establish undergraduate degree courses in Natural Environmental Science and Landscape Design & Plant Science. These new courses kept the Department of Botany viable in terms of undergraduate students at a time when the numbers of botany students decreased sharply.

Microsatellite markers (inset) can reveal male identity from a sperm sample: these are mouse sperm





Sheffield-born Henry Clifton Sorby devised, in the 1880s, a unique method of preparing animal specimens like this sea cucumber.

An opportunity to broaden the interests of the Department of Zoology came in the early 1980s when several senior staff members retired. The decision was taken not to reinforce the declining field of endocrinology, but rather to seek a new professorial appointment in animal ecology. The appointment of Dr P Calow as Professor of Zoology in 1984 marked a decisive shift in the interests of the department. New appointments were also made in the fields of evolutionary biology and epidemiology and the reputation of the department, which had begun to decline, slowly improved. The department began to establish the international reputation for ecology, evolutionary biology and animal behaviour for which it is known today.

By the early 1980s there were eight biological science departments in Sheffield. This reflected the national trend of fissiparity in academic biology, memorably described as "the balkanisation of biology". Although these eight departments co-operated under the umbrella of a School of Biological Sciences there was a feeling, reflecting a national mood, that fewer and larger departments would be more effective. In 1988 a University Grants Committee Review of the Biological Sciences chaired by Professor Sir Richard Southwood was set up "to advise the UGC on the way in which the biological sciences may be best covered by one or more rationalisation reviews". Sensing the way in which the wind was blowing, the University of Sheffield set up its own review well ahead of the publication of the Southwood Report and as a consequence in 1988 merged its eight departments into three large departments. One of these new departments was a merger of Botany and Zoology to form a Department of Animal & Plant Sciences. This merger worked well largely due to the friendly relationships between the staff and the diplomatic skills of the first Head of the Department of Animal & Plant Sciences, Professor DH Lewis.

Over the past twenty years the Department of Animal & Plant Sciences has been remarkably successful in teaching and in research. An objective measure of this success was the maximum score of 24 points in the QAA Teaching Quality Assessment in 1999-2000 and the maximum score of 5* in the HEFCE Research Assessment Exercise in 2001. Since these assessments the Department of Animal & Plant Sciences has continued to pursue excellence and in 2008, one hundred years after the formation of the Departments of Botany and Zoology, it can claim to be a world leader in whole-organism biology.

Heads of Departments 1884-2008

Biology

Professor A Denny 1884-1908



■ Professor BH Bentley 1908-1938

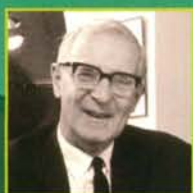
Professor WH Pearsall 1938-1944



■ Professor AR Clapham 1944-1969

Professor AJ Willis 1969-1987

Professor DH Lewis 1987-1988



Zoology

Professor A Denny 1908-1925

■ Professor HG Cannon 1926-1931

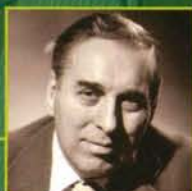
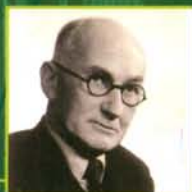
Professor LES Eastham 1932-1958

■ Professor I Chester Jones 1958-1981

Professor FJG Ebling 1981-1983

■ Professor JN Ball 1983-1984

Professor P Calow 1984-1988



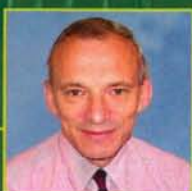
Animal & Plant Sciences

■ Professor DH Lewis 1988-1995

Professor JA Lee 1995-2002

■ Professor MC Press 2003-2008

Professor LL Maltby 2008-present





The
University
Of
Sheffield.

Department of Animal and Plant Sciences
Alfred Denny Building
Western Bank
Sheffield
S10 2TN

T. 0114 2220123
F. 0114 2220002
E. animal.plant@sheffield.ac.uk
W. www.sheffield.ac.uk/aps