

**THE FRESHWATER BIOLOGICAL ASSOCIATION AT WRAY CASTLE:  
RECOLLECTIONS OF ITS FIRST DIRECTOR**

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Congratulations to the FBA on having weathered the storm of its recent surgery and now looking forward to continued existence as a scientific association with new responsibilities, and as a research organization, the purpose for which it was created. Nevertheless it continues to surprise many that our present Government, so competent in many ways, preaches Private Enterprise with one voice and with another takes over organizations which are running smoothly and well. The new IFE now looks to the future while building on the past. Professor G. E. Fogg has recounted the FBA's history for its 50th birthday (FBA 1929-1979, The

First Fifty Years. Ambleside, 1979), but some additional recollections of its early years may not be out of place in the pages of the FBA's newest venture.

In the preceding article, Brian Moss has thrown interesting light on the very first phase, especially the definitive meetings of the Founding Fathers in December 1928 and January 1929. These were followed by a period of collecting funds - not easy as the great financial depression got underway - and discussions on where a research centre should be located. Initial ideas about the Norfolk Broads swung to the Lake District, so that part of Wray Castle became occupied by the FBA in 1931. Penelope Jenkin, Philip Ulliyott (as Naturalist-in-charge), and Bobby Beauchamp were the first to conduct research there.

J. T. Saunders at the Zoological Laboratory in Cambridge had already, by 1925, initiated the first British University course in freshwater biology, so potential limnologists were appearing and tended to form the nucleus of Easter classes at Wray Castle which were started without delay. T. T. Macan, who was a member of the Easter class in 1933 and joined the FBA staff in 1935, has recounted a number of entertaining happenings from then onwards in an unpublished script put together posthumously by his son, under the title "What you will *not* find in the Annual Report".

In 1937, eight years after the Association was born, the Development Commission provided an annual grant to pay for a director (at the princely salary of £750 p.a.) and a secretary. Ulliyott had by then moved to the European continent and Beauchamp was preparing for his classical study on the hydrology of Lake Tanganyika. I moved to the Lake District that autumn to find in Wray Castle a group of young enthusiasts busy with the ecology of Windermere. T. T. Macan was working on invertebrates, K. R. Allen on fish, C. H. Mortimer on chemistry and physics of the aquatic environment, and an attractive young lady from Austria, Marie Rosenberg, was studying phytoplankton. They were backed by George Thompson as laboratory assistant, who had been recruited from school at Ambleside, and by Rosa Bullen from New Zealand as secretary.

This small group were not only working and living in the Castle as a team, but were also a lot of fun. Lacking outside entertainment - since Wray Castle is very isolated and transport was scarce - they provided it themselves. An early experience of the new director was on Guy Fawkes' night when the residents arranged fireworks at the boat landing. A rocket refused to rise, buzzed at his feet and, leaping at the explosion, he landed in six feet of cold water. Macan got him into a hot bath, regaled with an ample tot of gin.

K. R. Allen married Rosa Bullen and moved to New Zealand, there developing his distinguished career as a fisheries biologist. Before long

the Wray Castle group was augmented by Winifred Frost from Ireland as fish biologist, J. W. G. Lund to start his international reputation as algologist, C. B. Taylor to initiate studies of freshwater bacteria, and P. H. T. Hartley to study "coarse" fish, financed by the National Federation of Anglers.

The officers of the FBA at the time were influential persons who had been prominent among the founding fathers, and were supportive of our efforts in every way. They were Reginald Beddington (President), F. E. Fritsch (Chairman of Council), W. H. Pearsall (formerly Honorary Director), P. A. Buxton (formerly Honorary Secretary), Sir Albert Atkey (Honorary Treasurer) and J. T. Saunders.

Early in the second world war in 1939, unlike the first world war, an efficient man-power commission instructed qualified people, especially in science, to stay where they were needed, rather than to jump into uniform. In consequence our group at Wray Castle was initially augmented rather than reduced. In 1940 there arrived two young biologists "directed" to work on fisheries, namely David Le Cren and Rosemary Lowe (later McConnell). David concentrated on the perch and after some years married Kate Woolham who was at that time secretary, and stayed with the FBA until the end of his term as Director. Rosemary worked initially on eels in the Lake District, then moved to the Great Lakes of Africa and later Guyana and elsewhere to become an authority on tropical fish and fisheries.

Another scientist at Wray Castle in the early days was Noel Hynes who came for PhD research on Plecoptera. He married Mary Hinks, our secretary and factotum, and then spent years on locust research in Africa before moving across the Atlantic to the University of Waterloo in Canada and becoming a leading authority on the effects of pollution in running waters. Another long-term resident was Gerry Swynnerton, on probation for a career in the Game Department of Tanganyika Territory. Gerry worked on trout and in spare time specialized in practical jokes. For a while one opened doors gently for fear of receiving a bucket of water, and when the Easter Class was in session "things went bump in the night".

In addition to long-term visitors who became, so to speak, part of the establishment at the Castle, we welcomed a good many short-term workers. One such was Norman Hickin who at that time worked in a bank but wanted to change careers to aquatic biology. Trichoptera were suggested to him as a group little known in their larval life. In due course he became not only an authority on that Order of insects but initiator and director of the highly successful firm of Rentokil, and also a long-term treasurer of the Royal Entomological Society.

Professor "Tibby" Marshall and Arthur Ramsay were occasional visitors

from Cambridge, the former bringing with him a welcome bottle or two of college wines and the latter his bag-pipes which he sometimes wailed across Windermere. Then in the summer of 1939 there arrived the colourful figure of Julian Rzoska from Poland, intent on examining zooplankton; but his visit was terminated abruptly by Hitler's invasion of his country. He was back in Poland fighting within a few days. His varied and exciting war experiences were followed by initiating hydrobiology at Khartoum University and later in charge of the freshwater section of the International Biological Programme.

In spite of, or perhaps because of, a suspicion among some local people that the castle was a centre of German espionage, and of such activities as the Home Guard, there was a fair input of jocularly during the war years. However, the over-riding impression was the enthusiasm for research. Among the small group of workers a "9 to 5" mentality had no place. A study, for example, on the behaviour of plankton which required hourly observations in the middle of the lake over a period of 48 hours, or night sessions recording the reactions of migrating silver eels to light during stormy autumn weather, might be followed by a day-off climbing Bow Fell. There was other day and night work, for example in an artificial river constructed in the cellars of the castle.

Some far-reaching discoveries were made. For example, during the bathymetric survey of Windermere, with an early form of echo sounder, by a survey officer supplied by the Royal Navy, Mortimer saw that the records gave information about the bottom deposits below the water interface. This led to recovery of cores with an apparatus devised by Penelope Jenkin's engineering father. Winifred Pennington (who later became "Ann" Tutin) happened at that time to be working on algae at the Castle from Durham University. She examined the cores of Windermere bottom deposits for diatom remains, and so started the discipline of archaeo-limnology. It is significant also that at this time Mortimer, in consultation with Captain Maclean of River Flow Records, was arranging a hydrological survey of the Windermere catchment area, and when analysing water from rain gauges noted significant traces of sulphuric acid after periods of southerly winds. More than thirty years passed before "acid rain" became fashionable. In fishery science the studies of perch, char, pike and eels initiated at that time, have produced results of wide importance well beyond the confines of Windermere.

In all such work George Thompson, promoted to Laboratory Steward, and Harry "Sarge" Moore his No. 2 were integral members of research teams. Recently I had a letter and a gift of books of which he is the author from Fred Buller, now an authority on freshwater angling; this was a token of gratitude for providing him with his first job - as a

temporary lab boy at Wray Castle!

One guiding principle stood out in those early years and is still surely of significance, namely Pearsall's explanation of the evolution of lakes from the rock basin to forest, passing through the stages of oligotrophic flora and fauna, then intermediate mesotrophic phases involving changes in hydrology and accumulation of sediments, to the eutrophic state of high productivity, and later, as sedimentation and rooted aquatic vegetation took over, to swamp and marshland which introduced the succession of terrestrial ecosystems. Many of our studies tended to be measured against this concept of environmental evolution which seems so obvious today, but was not so until terrestrial and aquatic ecologists got together.

As the war progressed, members of the FBA team were drawn away for special duties - Macan to malarial problems of the army in Burma and elsewhere, Hynes to control of the desert locust in Africa, Mortimer to research on mines and on the possibilities of drawing energy from the movement of waves etc. Marie Rosenberg, classified as an enemy alien, was regrettably confined to a centre away from the lake district. Peter Hartley moved to East Anglia to continue his coarse fish studies for a while, but then joined the Church, though continuing to this day as a prominent ornithologist. I was carried off to conduct a survey of scientific activities in countries of the Middle East, with a plan for their enhancement, as a part of intended developments and post-war reparations.

The war brought reinforcements to Wray Castle with W. E. China and D. E. Kimmins working on a large section of the British Museum (Natural History) collection of insects which were brought there from South Kensington for safe keeping. From the fishery laboratory at Lowestoft came H. Buchanan-Wollaston who turned his ingenuity in measuring currents in the sea to guiding migratory eels into traps in an effort to augment the nation's food supplies. His wife relieved the scientific staff of responsibilities for the Castle's domestic affairs.

As the war ended and staff became re-established, two things became evident; one was that Wray Castle was not the ideal building for expansion as a main centre for British freshwater research; and the other was that the focus of FBA work on lakes needed to be expanded to rivers. Both these matters came under active discussion: we looked for a new centre in the Windermere area and at possible sites for a southern station on a river. Early in 1946 I was persuaded to help the development of research overseas and so, with much reluctance, had to withdraw. However, my successor, Hugh Gilson, was successful in achieving both these objectives and thereby follows the growth, coming of age and maturity of the FBA.