

Sir Frederick Henry Stewart

Fred Stewart was charming, canny, perceptive, patient, incisive, highly intelligent, ever so stubborn and completely laid-back. These qualities served him well in his career as an industrial chemist, academic geologist, Dean of the Science Faculty at Edinburgh University, Chairman of the Natural Environment Research Council and Chairman of the Advisory Board of the Research Councils for the UK.

He was born in Aberdeen. His father was a Lecturer in Civil Engineering at both the University of Aberdeen and at Robert Gordon's Technical College. The Stewart family can be traced back to John Stewart who arrived at Nether Downam in Glenlivet, Banffshire in 1636 and his descendants were farmers, landowners and army officers. His maternal grandfather was the owner of the Aberdeen 'Free Press' until it amalgamated with the 'Journal'. One of his uncles (Henry) became Lord Provost of Aberdeen. Stewart Grainger, the film actor was a cousin.

Fred was educated at Angusfield Preparatory School until 1927, Fettes College (1927-32) and briefly at Robert Gordon's College (January - April 1933). One of his uncles, William Alexander, an amateur geologist, had introduced Fred in his early youth to the pleasures of collecting rocks. Professor W.T. Gordon, a friend of his father, gave him a small collection of minerals and took him to hunt for fossil fish at Stonehaven. Fred's father was a keen bird photographer and natural historian. It was not surprising then that Fred entered Aberdeen University with the intention of pursuing a career in Zoology or Geology. After taking both subjects for three years he elected to concentrate on geology in his final year and graduated with a First Class Honours degree in Geology. After postgraduate research at Aberdeen and Emmanuel College, Cambridge he was employed as a mineralogist with ICI from 1941-43. He became Lecturer in Geology at the University of Durham (1943-56) and was appointed to the Regius Chair of Geology and Mineralogy in the University of Edinburgh in 1956 from where he retired in 1982.

Stewart's early researches were devoted to the igneous rocks in Skye and Belhelvie in Aberdeenshire – the latter also being the subject of his Honours research project - but his wartime translation to ICI (1941-43) confronted him with a very different set of problems associated with the genesis and distribution of the economically valuable salt deposits in Yorkshire. ICI asked him to examine drill cores left behind after an unsuccessful attempt by the D'Arcy Exploration to find oil and gas in Yorkshire. Stewart found valuable potassium salts in the cores. They were strategically vital to the Allied war effort because the German Stassfurt deposits were no longer available. These 250 million years-old Permian sediments, formed in salt lakes in ancient deserts were fiendishly complex. The water-soluble rocks were extremely difficult to prepare for microscopic examination and the minerals had undergone many changes after their formation. His meticulous work was recognised by awards from both the Geological Society of London and the Mineralogical Society of America. American geologists were especially intrigued because the Yorkshire salt deposits were very similar to those in Texas and New Mexico. Fred Stewart described himself at the time as a simple petrological policeman looking for places to put his large feet. The climax of his research on salt deposits was a major paper published by the U.S. Geological Survey. He later returned to carry out further research on Scottish rocks in the NE of Scotland and the volcanic complexes of the Scottish islands. He was elected a Fellow of the Royal Society of Edinburgh in 1957 and the Royal Society of London in 1964.

On his appointment as Regius Professor of Geology, Stewart set about building up the Grant Institute of Geology. Through argument and hard work he tripled the size of the department and by the mid 60s had received enough funding to build and equip an experimental petrological unit, a high-temperature-and-pressure laboratory capable of examining the behaviour of rocks formed in the earth's mantle. The laboratory was chosen by NASA for the analysis of lunar samples under vacuum to simulate conditions on the surface of the moon. In 1965 Fred Stewart became Dean of the Faculty of Science at the University of Edinburgh. His somewhat unkempt look and friendly unassuming manner masked a brilliant intellect and formidable incisiveness in debate. As Dean he oversaw the birth of Science Studies, Geophysics, Microbiology, the development of Integrated Biology and Engineering Science - and the siting of the new Institute of Geological Sciences at King's Buildings. He brought about a fairer distribution of University funding for the Faculties, perhaps not surprisingly to the benefit of the Faculty of Science. He became a member of the Council for Scientific Policy in 1967 and for the next 12 years much of his time was spent in London as a scientific statesman.

Stewart was appointed Chairman of the Natural Environment Research Council in 1971. Initially few members of Council realised that Fred Stewart, mineralogist, was also a most competent natural historian. He had of course studied zoology for three years at Aberdeen and was moreover an expert ornithologist. Stewart was heavily involved in the emotional politics associated with the hiving-off of the Nature Conservancy from the NERC. He was also engaged in the aftermath of the Rothschild Report on the framework of Government Research and Development, and on the reorganisation of marine science in the United Kingdom. In 1973 he became a member of the Advisory Board of Research Councils and a year later Chairman of the Board. In that capacity he was responsible for advising the Secretary of the Department of Education and Science on science policy including the funding of the ARC, MRC, NERC,

SERC, SSRC, the British Museum (Natural History) and the Royal Society with an annual budget at that time of around £500 million. He was Chairman of subcommittees on post-graduate support, the dual-support system and energy research and was heavily involved in modifying the worst excesses of the Rothschild report. During his six years of office he served under four Secretaries of State including Mulley, Prentice, Thatcher and Williams. They further honed his skills on the political intricacies of Government science. Public recognition of his work came with the conferment of a knighthood in 1974 and honorary degrees from five universities. Among honours bestowed on him were the Lyell Fund (1951) and Lyell Medal (1971) of the Geological Society of London, the Mineralogical Society of America Award (1952), the Clough Medal of the Edinburgh Geological Society (1971) and the Sorby Medal from the Yorkshire Geological Society (1975). He served as a Trustee of the British Museum (Natural History) from 1983 until 1987 and as a Member of Council of the Scottish Marine Biological Association from 1983 – 1989.

In 1980 the Stewarts bought a new house – a former hotel actually in the village of Lochawe in Argyll and gradually converted it into their retirement home. There were 25 acres of garden for his wife, Mary, who was the gardener, and a newly built lab for Fred and his rocks. It was always a delight to visit them. Mary showed friends round her lovely garden of mature trees and huge rhododendrons sloping down below Ben Cruachan to Loch Awe, and Fred, happily identified birds, other wild animals and even animal droppings. But not plants! He had taught Mary to be an ornithologist but she failed to teach him to be a botanist. He had a great love for the Scottish hills and occasionally he and his wife were to be found strolling on the top of the Scottish mountains, through the simple expedient of hiring a helicopter.

Always a keen fisherman he was able to add the River Orchy to his love of the Tweed and the lochs of Caithness and Harris. His exceptional ability as a trout fisherman was recognized in an article in *The New York Times*, accompanied by a photo of him wearing his elderly fore-and-aft tweed hat. He was also an excellent salmon fisherman and held the local record for the River Orchy of a catch of eight salmon in one day. He brought to his sport shrewdness, patience and determination, qualities that had stood him in good stead as a scientist and administrator. He continued to collect fossil fish from the Old Red Sandstone, a passion he had had since childhood, and minerals in igneous and metamorphic rocks ranging from Precambrian to Tertiary. In his later years he founded MESS (Mull Expeditionary Sapphire Society) and collected from an igneous dyke in the Hebrides the largest sapphire, some three inches long, ever found in Scotland. It was exhibited in the National Museum of Scotland and then taken by special courier to the new museum in Valencia, Spain to be put on display in the year 2000 as one of Scotland's finest gemstones. He bequeathed his superb and so meticulously catalogued collection of some 3000 minerals and fossil fish to the Royal Museum of Scotland. Beneath this 20th century scientist was hidden a 19th century naturalist.

A school report once recorded that Stewart worked well under pressure, leaving the reader to speculate on what happened when the pressure was off! He was one of those rare men who achieved most when apparently working least. Beneath Fred's Model-T Ford exterior purred a Rolls-Royce engine. As one of his former students said 'They don't make models like that any more.'

Fred Stewart married Mary Stewart (nee Rainbow) in 1945. She has a highly successful career as a writer and survives him. There were no children of the marriage.

Gordon Craig

Sir Frederick Henry Stewart KB, BSc, PhD, FRSA, HonDSc (Aberdeen, Leicester, Heriot-Watt, Durham, Glasgow): born 16 January 1916; elected FRSE 4 March 1957; died 9 December 2001.