John Anthony Allen, BSc, PhD, DSc(Lond), FRSB
27 May 1926 – 6 June 2020

John Allen's interest in marine biology began conventionally when as a child he discovered the marine life of rock pools during holidays on the east coast of England. Thereafter his eventual drive and enthusiasm to pursue a career in the subject defied convention as he developed into a leading world authority on life in the deep ocean.

At an early stage, despite initial enthusiasm for biology he would have preferred to follow his father as an engineer, changing in response to parental opposition and the influence of two exceptionally gifted natural sciences teachers at High Pavement Grammar School, Nottingham, where he undertook his secondary education from 1937 to 1943. After grammar school he was accepted to study for a degree in Biological Sciences at the University College of Nottingham in 1944, where he had a tantalizingly brief exposure to E J W. Barrington's lectures on Embryology. However, at the end of his first year in university he was immediately called up for army service towards the end of World War II, initially serving in the Sherwood Forester Regiment. Very quickly after basic training he was then transferred to the Royal Army Medical Corps, firstly in the pathology laboratory at Queen Alexandra's Military Hospital, Millbank, and then as a Demonstrator in the Department of Hygiene at the Royal Army Medical College. He had by then gained considerable experience in medical biochemistry and parasitology. Even then his peripatetic lifestyle was in full flow and he was, for the last eighteen months of his military service, transferred to the Chemical Defence Experimental Establishment at Porton Down.

Even during his military service he took every opportunity when time permitted to continue his studies in Zoology and Marine Biology, initially at Chelsea Polytechnic and later at University College of Southampton. He also attended intensive short courses held during equinoctial tide periods at Eastertime at the Plymouth Marine Laboratory and at the University College of North Wales, Bangor. At Southampton, under the influence of J E G. Raymont, he consolidated his biological credentials by completing his previously interrupted undergraduate course, graduating from what he described as the fearsome External BSc Honours Degree of the University of London in two years, in 1950. Focussed as he was, during each of the two summer vacations of his undergraduate years at Southampton, John also sought and was offered employment by the Scottish Marine Biological Association. He worked at the Association's Millport Laboratory under R B Pike on the fauna of the Clyde Sea area, specifically on molluscs and swimming decapod crustaceans and their relationships with sediments.

After graduation he was awarded a prestigious Research Training Grant by the Development Commission, a precursor of the UK Natural Environment Research Council (NERC), continuing his research on marine molluscs at Millport. Here he met and later married his first wife Marion, also a marine biologist, working on tube-building amphipod crustaceans. Soon after his arrival, just beginning PhD studies, his scientific potential was recognised and he was invited in 1952 to become an Assistant Lecturer in Zoology at the University of Glasgow by Professor C M (later Sir Maurice) Yonge. He joined a galaxy of talent, including R B Clark, G Owen, O Lowenstein and J D Robertson being assembled by Maurice Yonge in his Department of Zoology during the period of development of universities following WWII. Three very stimulating and very happy years followed for him. The appointment delayed for a while his submission for a doctorate but it was a shrewd move nevertheless. The appointment enhanced his life-long interest in bivalve molluscs, under the guidance of one of the UK's most eminent marine biologists who had similar enthusiasm for the study of marine molluscs. Notably during the term of his Assistant Lectureship, encouraged by Yonge, he was awarded one of the first Royal Society John Murray Studentships, allowing him to visit marine laboratories in France, West Indies, Bahamas and the USA. Thus began a study of the morphology and adaptations to habitat in the Lucinacea (Lamellibranchiata) which later formed the basis of his PhD. It was easy to perceive that John saw Maurice Yonge as a role model thereafter as he began to publish prolifically from 1953 onwards, particularly on the functional morphology and adaptations to habitat of bivalve molluscs.

After three years, in 1954, John was appointed to a Lectureship at the Dove Marine Laboratory, a facility of King's College Durham (and later University of Newcastle). After his stellar links with the University of Glasgow, this move originally proved to be traumatic, with unhappy colleagues and poorly equipped laboratories, and finding himself allocated a box room 6ft x 6ft and 14ft high. The effect was to immerse himself in research, first completing his PhD as an external candidate of the University of London and then successfully submitting for his DSc at the same university at the early age of 36. Meantime facilities at the laboratory had begun to improve and continued to be enhanced after the retirement of H O Bull when John was appointed Reader in charge of the laboratory until 1976. During that time, in 1968 he was elected as a Fellow of the Royal Society of Edinburgh, serving as a Member of Council of the Society from 1970-1973.

It was during his time at the Dove Marine Laboratory that he consolidated his collaborative links with deep sea researchers around the world, notably in the USA. He worked as a Post-doctoral Fellow at the Wood's Hole Oceanographic Institution in 1965, 1966, 1969 and 1972, held an NSF Research Fellowship at Scripps Oceanographic Institute in 1968, was Visiting Professor at the University of Washington in 1968, 1970 and 1971, British Council Lecturer in the University of Bergen in 1972, and Royal Society Visiting Professor at the University of West Indies in 1976. Through these links he participated in many deep sea research cruises in the Pacific and Atlantic, and was the first British marine ecologist to investigate the deep benthic fauna of the Phillipine Trench on board the RV Thomas Washington. During his visits to Wood's Hole he also developed a very successful and long-lasting research partnership with Howard Sanders. Their first joint publication appeared in 1966 and their last two in 1996. The driving force of the collaboration was to discover adaptations to the deep-sea environment. John's major contribution was to provide a wealth of anatomical data on deep sea bivalves that illustrated their diversity, functional morphology and adaptive radiation. He played an important role in characterizing over 100 new taxa of these molluscs in samples that came from low nutrient regions of the deep ocean. He and Sanders were struck by the high diversity, low density and small sizes of samples from seemingly similar, light-less environments, leading to the establishment of Sander's Stability/Time Hypothesis.

In 1976 John returned to Millport, now part of the University of London, where he became Director and Professor of Marine Biology of the University. His teaching commitments were low, enabling him to continue with his research and with visits to Wood's Hole. The visits were greatly stimulating for John, and he and his second wife Margaret looked forward to them as they developed new friends and social contacts in the Wood's Hole locality. It was fitting that another outcome of the visits was John's election as a member of the Honorary Deep-sea Biological Society established in the tradition of Edward Forbes, a pioneer in the use of dredges to collect samples in the deep ocean and establish for the first time that the deep sea did indeed house living organisms, contrary to previous beliefs of biologists (including originally Forbes himself) that life did not exist at the ocean's greatest depths with the lack of external light.

Over this period John also served on various national committees, including the UK Natural Environment Research Council (NERC)(1977-83), Scottish Marine Biological Association (1977-83), Marine Biological Association UK (1981-83, 1990-93), Nature Conservancy Council (1982-90) and British National Committee for Oceanic Research (1988-90). He was elected to serve as President of the Malacological Society of London (1982-84) and became a Fellow of the Society of Biology (now Royal Society of Biology) in 2009. His time spent on NERC was particularly challenging when he was appointed as Chairman of the Council's Preparatory Group for the support of marine environmental research in British universities. The Council was charged with ensuring an appropriate balance of funding between universities and the Council's own laboratories, requiring mature judgement concerning Antarctic research in the aftermath of the Falkland's War and concerning increasing awareness of global climate issues.

John continued to publish in retirement when he was elected Emeritus Professor and Honorary Research Fellow from 1991 until the closure of the University Marine Biological Station in 2013. Until that time he continued to lead by example by his dedication to seagoing sampling and his

bench work microscopy when he produced anatomical drawings of molluscs, for which he will be remembered, particularly as molecular geneticists begin to test his ideas concerning bivalve interrelationships.

Even in his later years he continued to savour his passion for sea going when, at a time of increasing frailty he would take the ferry from Millport to Largs and back for his morning coffee.

All who have worked under his guidance have appreciated his passion for the discipline and for his patience, endless help and friendship. His reputation as an outstanding marine biologist is assured.

He is survived by his wife, Margaret, his son, Hamish, daughter, Elspeth, step-son, Andy and seven grandchildren.

Ernest Naylor, OBE

John Anthony Allen, BSc, PhD, DSc(Lond), FRSB. Born 27 May 1926. Elected FRSE 1968. Died 6 June 2020.