

Phycological Trailblazer

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A. A. Aleem

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An important fact to state at the start about Anwar Abdel Aleem is that his contributions to phycology were only part of the story. He was as highly esteemed as an oceanographer (El Sayed & Morcos, 2004). Over a long career he made numerous innovative contributions on marine algae (macro- and micro-, including diatoms and cyanobacteria), marine fungi, seagrasses, fouling organisms, and marine mollusks and other invertebrate groups, and mimicry between seaweeds and invertebrates. His interests were diverse: ecology, succession, technology, systematics, floristics, history, and physiology.

He was an avid student of the history of Arab navigation and was a regular participant at every International Congress on the History of Oceanography. He also was a frequent attendee at International Seaweed Symposia (Fig. 1) and the International Phycological Congresses. Although he spent much of his career holding fellowships or professional appointments at various foreign universities, visiting far-flung marine stations, or on expeditions, Alexandria was always the center of his existence, the place of his birth on 13 December, 1918, his primary and secondary education in local government schools, his home and pivot point from which he

would radiate out into the world. He earned his B.Sc. (Hons.) degree from Cairo University in 1941, followed by the M.Sc. degree from Alexandria University in 1945. The title of his Masters thesis was "A contribution to the study of the marine algae of Alexandria and its vicinity".

Working in England as an Egyptian government scholar with Prof. F. E. Fritsch, the pre-eminent phycologist of his generation, Aleem researched the ecology of British marine littoral diatoms. There was an interesting phenomenon of the appearance of a golden-brown coating that covered the exposed surface of certain mud-flats after the tide receded. Following this phenomenon at Whitstable in

Kent, Aleem found the golden growth to be a community comprised of about 10 species of raphid diatoms. Laboratory studies were carried out to try to understand the movements of the diatoms. Aleem (1950a) demonstrated that the daily periodicity of the diatom community depended mainly on two factors, the light and the tidal cycle. In another study, using a study site in Dorset, he delineated eleven different communities of diatoms based on their littoral distribution, and he determined their various seasonal periodicities (Aleem, 1950b). London University awarded him a Ph.D. in 1949 and a D.Sc. in 1970. Many of Aleem's early

publications were on diatoms. One distinction in his career is that he was the only person to have co-authored a publication (in fact, two of them) with the famous German diatomist Friedrich Hustedt.



A young Aleem, oil painting in his apartment on Wabour El Maya, Alexandria.

Aleem's primary academic affiliation was with the University of Alexandria. He held the professorship in Biological Oceanography for the period 1959 to 1972. During this time he helped develop the curriculum of the Department of Oceanography, and he was involved in the Department's becoming a model multidisciplinary

system. He made sure that the students in oceanography supplemented their education with training at sea (he obtained the first boat to be owned by the Department) and that they spent time at foreign stations, e.g., at Banyuls-sur-Mer, Marseille, and Monaco. This was a new approach.

Prof. Aleem profited immensely from his training gained at various marine stations. In 1949 he received training at the Plymouth Laboratory of the Marine Biological Assoc. of U. K. under Drs W. R. G. Atkins and H. W. Harvey. He learned techniques of making bioassays of natural sea water. He also conducted research at the marine station at Port Erin on the Isle of Man, the Gatty Marine Laboratory in Scotland, and the Dove Marine Laboratory on the Northumberland coast of England. This stay in the British Isles was followed by a year (Aug. 1949 - Aug. 1950) spent at the Marine Botanical Institute in Gothenburg, Sweden, working with Dr. Tore Levring. Next, he spent many months visiting most marine stations in Europe: Den Helder in The Netherlands, both the Kiel and Hamburg Marine Institutes as well as the Max-Planck-Gesellschaft in Plön, Germany. Then he was on to France, with time spent at the National Museum of Natural History in Paris and the Laboratoire Arago at Banyuls-sur-Mer, where



Fig. 1. Prof. A. A. Aleem. Attending the International Seaweed Symposium in Santa Barbara, CA, August, 1977. (Photo taken by W. R. Taylor.)

he collaborated on marine fungi with Prof. Jean Feldmann.

Aleem was always an energetic, highly motivated person, one who in retrospect had many opportunities come his way and who made the most of them. One such opportunity was a Fulbright Foundation scholarship to study in the U. S. A. in 1954-55. He spent

most of 1954 as a research fellow at the Allan Hancock Foundation in Los Angeles, where he was a visiting associate professor at the University of Southern California. From January to July of 1955, he was a research fellow at the Scripps Institution of Oceanography. It was during this time that he learned how to use the relatively new research tool of SCUBA-diving. This greatly facilitated his responsibility of managing a project on kelp ecology. Several papers on this topic were produced. In a paper in *Science* (Aleem, 1956a) the standing crop of the *Macrocystis* beds was estimated to be between 25 and 40 tons/acre and the average annual yield to be about 4-6 tons/ acre (fresh wt.).

Aleem was an exchange research fellow in 1961 at the Institute of Oceanology in Moscow. This stay included one month in Leningrad and some time at the University of Moscow's marine laboratory located on the White Sea. As always, some publications resulted from this stay. In the mid- 1960s at the invitation of the Woods Hole Oceanographic Institution Aleem participated on Cruise #9 of R/V 'Anton Bruun' as part of the International Indian Ocean Expedition. As a member of a scientific group sponsored by the Food and Agriculture Organization (of the United Nations) Aleem took part in an oceanographic and fisheries tour of

the Soviet Union in 1964. From September 1968 to November 1969, Aleem was a holder of a Dohrn Foundation grant that enabled him to conduct research at the world-renowned Stazione Zoologica Napoli. He divided his time between the primary laboratory in Naples and the newly set up satellite laboratory located on Isola de Ischia, the latter having been the residence of Station founder Anton Dohrn.

Thanks to a UNESCO grant, he attended the International Symposium on Marine Sciences in Tokyo in Sept., 1970, where he presented a plenary lecture to the general assembly. The title of his talk was "Man's Intervention in the Sea." In the early 1970's he undertook a mission sponsored by UNESCO to develop a program in the marine sciences at the University of Sierra Leone in West Africa. He worked to set up a curriculum of courses leading to a diploma in marine science and also established a library there. A National Science Foundation grant enabled him to present his research at an International Symposium on Marine Mycology in North Carolina in September, 1979, and he was a visiting researcher professor at the Duke University Marine Laboratory in 1979-80.

His academic appointments included serving as Professor in the Faculty of Science of King Abdul Aziz University in Jeddah, Saudi Arabia, from 1980 to 1985. This was a highly productive time not only for writing many papers on the marine algae of the Red Sea but for establishing the Department of Oceanography (later the Institute of Marine Sciences on the Red Sea) at that University. He spear-headed that effort. Following his academic service in Saudi Arabia, he returned to Egypt and held the title of Professor Emeritus in the Faculty of Sciences, Alexandria University, until his death on 27 October, 1996, at the age of 77. He was survived by his son Hosam and his daughter Eiman.

The most significant characteristic of Dr. Aleem's body of work is its broad encompassing scope. His major research accomplishments can be summarized by the following topics: the marine algae of the eastern Mediterranean and the Red Sea; migration of biota between the Red Sea and the Mediterranean through the Suez

Canal (Aleem, 1948); seagrass ecosystems; marine fungi, particularly those of mangrove communities; the effects of the Aswan High Dam on the marine life off the Nile Delta; the productivity of Egyptian lakes and lagoons; the coastal biota of the Red Sea; and paleoecology of Fayoum Lake in Upper Egypt. The bibliography which follows is largely restricted to his contributions in marine botany and does not include additional papers dealing with marine archaeology, the history of Arab navigation, environmental hazards in the ocean, trends in teaching oceanography in Arab universities, etc. The years 1970-1972 give the false impression of a hiatus in his career, but this absence of papers on marine botany can be explained owing to his publishing several papers on Tilapia fisheries, river outflow management, the ecology of freshwater zooplankton, and the quantitative estimation of bottom fauna, research interests which occupied his attention during that period. He was attuned to his environment and had a knack for seeing research problems to be pursued.

Prof. Aleem left a legacy of accomplishment and service, not just in the academic world. He presided over the Fisheries Committee of the Governate of Alexandria for several years and introduced the Co-operative Fishing Societies, which was an advocacy group for the local fishermen. Late in his career, he served as a consultant for Environment Quality International in Cairo. Honors that came his way included the Egyptian State Prize in Biological Sciences in 1953, the Kuwait Prize for the Advancement of Sciences in 1984 and also their Gold Medal in Biological Oceanography, a Certificate of Merit of the Golden Jubilee of the University of Alexandria, and a Certificate of Merit from King Abdul Aziz University in Jeddah in 1985.

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