

Infectious enthusiasm

An obituary of T. A. Davis

In the passing away of Professor T. A. Davis on 10 November 1989 the Indian scientific community has lost an outstanding and colourful biologist. Davis had a keen eye for detail, a perceptive and analytical mind. He sought the meaning of form and symmetry in nature. He was an authority on coconut and other palms.

Trupapur Anthony Davis was born on 9 February 1923. He earned the BA degree with first class honours from Madras University in 1944 and a post-graduate diploma in crop physiology from the then Madras Agricultural Research Institute, Coimbatore. Davis served as superintendent of the Sugarcane Research Institute at Coimbatore and Karnal from 1947 to 1952. He worked as coconut physiologist at the Central Coconut Research Station, Kayangulam, Kerala, from 1952 to 1960. He was appointed professor and head of the Crops Science Unit at the Indian Statistical Institute in 1960, a post he held until 1972. He was made professor-in-charge of biology at the same institute from 1972 to 1977.

It was typical of Davis to notice rare and curious things even in situations that would seem ordinary. While walking with him on a street along the river Neva, in Leningrad, I was quite startled when he stopped a young Russian woman and asked her to pose for a picture. The woman was shocked and about to scream on being approached by a strange, dark man with crimson lips and an immaculate set of shiny white teeth. Not knowing the Russian language, I assured her by various gestures that she need not be scared of my friend. It was the bewitching smile of Davis that finally cornered the young woman. Not finding her charming or beautiful, I asked Davis what was so unique about her face. He told me that she was an extremely rare person with locks on the left and right side of her face with the same spirality.

We travelled to Leningrad to attend the Botanical Congress in 1975. In the passport that Davis carried to the USSR, the entry against his profession was 'palm specialist'. Somehow this fact came to be known to the officials of the

Indian embassy. Although several leading botanists had arrived in Moscow *en route* to Leningrad, only Davis was asked to dinner by a senior embassy official. Davis had guessed the reason for being singled out for this unique honour. He persuaded me to accompany him to watch the fun. As expected, several Indian ladies crowded round Davis and stretched their palms to know their future. Without batting an eye, Davis performed the role of a fortune-teller, making such benign statements that we commonly read in weekly forecast columns of newspapers. He enjoyed this experience immensely and told me that it was not the first of its kind.

Davis made a serious study of



asymmetry in nature. He did a statistical study of the left-handed and right-handed spirality of leaves in the coconut palm, and their possible significance in yield parameters. He observed that, in humans, left-handedness increased as one moved away from the equator towards the north and right-handedness increased as one moved down towards the South Pole. He therefore considered the term 'southpaw' a misnomer for a left-handed person.

In an experiment conducted by him in Alaska, he blindfolded a group of children and asked them to run straight towards a target. All of them deflected towards the left. The same kind of experiment in the Antarctic region resulted in a deflection towards the

right. He had noted that the left antlers of caribou in Alaska were always shorter than the right ones, as they were used more frequently to clear the snow to locate lichens, the main food of caribou during severe winters.

Davis studied the number of floral organs in different groups of plants and also the number of spirals of sporophylls in the cones of gymnosperms, and demonstrated the preponderance of the Fibonacci numbers. During the transformation of a vegetative shoot tip of sunflower into a massive capitulum (a head inflorescence), there is an enormous expansion (1000-fold) of the axis. The close packing of over 2000 florets on the capitulum is a highly complicated pattern that had defied interpretation by statisticians. The credit for solving the century-old problem of reconstructing the sunflower head goes to Davis.

Davis was at home in any job or place. Unbounded enthusiasm to observe the most unusual natural events and bring them to the notice of others through fascinating lectures, popular articles and serious technical papers were his forte. He truly fitted the Raman formula of catching the young children's excitement for science. He had a strong background in statistics and mechanics, which enabled him to invent and fabricate gadgets, such as a palm-climbing vertical bicycle, an electronic detector for insects, an angle measurer for sugarcane research, and a hardness tester. He received numerous awards for his creativeness, including the Rolex Award for Enterprise in 1984.

He loved travelling (he used to call himself *Travelling Always Davis*) and was one of the few Indians who have visited biologically interesting areas in Burma, Bangladesh, Indonesia, USA, Canada, New Zealand and Antarctica.

Davis has recorded unusual instances of the intimate relationships between plants, animals and humans. During his visit to the Arctic Circle as a guest of the Arctic Naval Research Laboratory of the US Navy at Point Barrow in Alaska, he felt deeply depressed about not being able to see greenery around him. The scientists of the laboratory invited Davis to see their National

Park This forest consisted of artificial cardboard conifers painted green and installed in the white wilderness to remind the inhabitants of the beauty of greenery.

Davis reported an unusual case, of the tribal women of Irian Jaya (Indonesia) who use kami bark (*Cinnamomum kami*) as a secret weapon against their brutal husbands. On harassment, they would threaten to chew the bark and become sexually sterile. Davis reported that he had seen giant nest mounds of the megapode mallee-fowl (*Leipoa ocellata*) measuring 10 metres across and 4 metres high in southern Australia (Victoria). With their powerful feet, the birds make pits and pile mounds of twigs of mostly *Eucalyptus* species. The hen lays a large egg in a hole made at the top of the mound. The heat caused by the fermenting leaves raises the temperature for the incubation of the egg. The mallee-fowl periodically checks the temperature of the mound and opens it or closes it up, depending on the heat required. Hence birds of the family Megapodiidae are called 'thermometer birds'.

Davis has disproved the alleged exclusive dependence of the giant coconut crab (*Birgus latro*), native to the Pacific islands, Indonesia and South Sentinel Island of the Andaman group of islands, on coconut. It was believed that this nocturnal crab climbs the palm at night, plucks the fruits and rips them open, eats the fleshy meat and climbs down like a thief. In two expeditions to South Sentinel Island, Davis found that the crab loves to eat coconut but can also survive on other foods.

One of the favourite studies of Davis was to trace the evolution of the nesting material of the common crow (*Corvus splendens*) in the city of Calcutta. A bird that catches up with the latest fashions of man, the crow has switched over from traditional materials such as twigs and brambles to metal, nylon and plastics.

One of the most enjoyable accounts

given by Davis pertains to the use of trained monkeys for harvesting coconuts in western Sumatra, western Malaysia, southern Burma and southern Thailand. The most popular monkey for this purpose is the pig-tailed macaque, *Macaca nemestrina*, which accounts for the harvesting of 80% of the coconuts in about 60,000 hectares in western Sumatra alone. Davis reported that a macaque can climb 30-35 palms in a day and harvest 500-700 fruits. Being a professional climber and instinctive botanist, a monkey needs to learn only to respond to instructions conveyed through the main cord tied to its neck strap by the trainer standing below. There is a school in Thailand for training simians in the art of plucking the fruits. In Malaysia, a complete course of training and harvesting coconuts costs about ringetts 50 (US\$ 23.00).

It would be erroneous to presume that Davis carried out only amusing studies. He was a serious scientist, and has published over 200 technical papers on sugarcane, coconut, rice and chick-pea, in a wide range of subjects covering morphology, developmental biology, agronomy, ethology and biostatistics. Because of his knowledge of coconut, Davis was appointed coconut agronomist in Indonesia in an FAO/UNDP project from 1977 to 1983. He worked at the Coconut Research Institute at Manado, North Sulawesi, Indonesia. In this assignment, Davis helped a large number of Indonesian men and women to find their way up in science. He helped organize research activities on coconut and also brought out a beautiful book entitled *Coconut Research Institute, Manado, Indonesia—An overview of Research Activities*. He was compiling a book on the wild date palm in his last days, but did not live to see it in print.

Davis held various positions in learned societies, such as the International Palm Society (USA), Indian Society for Plantation Crops, and Indian Society for Naturalists. He was editorial associate for the *Fibonacci Quarterly*

(USA). He was a visiting professor at the University of Alaska, University of California at Berkeley, and Friendship University in Moscow. He was elected fellow of the Indian Academy of Sciences in 1979.

After retirement, Davis moved to his home 'Cocos' (the Latin name of the genus to which coconut belongs) in Nagercoil. A highly intelligent person with numerous abilities and talents, Davis was totally free of ego. He was warm-hearted, witty and resourceful. To meet him was to love him. That applied to animals too. Davis had befriended a baby orangutan while he was in Sulawesi. I once asked him who his hero was. His pat answer was: J. B. S. Haldane. It was Haldane who spotted Davis and awakened in him the zeal to explore the biological world full of enigmatic phenomena. Davis founded the J. B. S. Haldane Research Centre in Nagercoil in memory of his teacher, with the objective of encouraging young people to take up biology. This centre is in need of support and recognition. The tools Davis used were a camera, a notebook and a pencil. He did wonders with these, especially by capturing a myriad of nature's intricate forms and colours through superb photographs.

We often had discussions about the study of biology in India. He felt that a lifetime was too short to marvel about and unravel the perplexing diversity of the living world. He lamented that curiosity and the spirit of enquiry were disappearing from the youth. Tapping his head with his fingers he told me 'no funding agency could provide the contents of the cranium'. Davis was an interesting person because he was interested in many things. He will be missed by all those who knew him.

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