



Thomas R. Odhiambo



Mombasa, Kenya, 4 Feb. 1931 - Nairobi, Kenya, 26 May 2003

Title Professor of Insect Physiology and Honorary President, African Academy of Sciences, Nairobi, Kenya

Field Insect Physiology

Nomination 12 May 1981

Most important awards, prizes and academies

Gold Mercury International Award for development, social, cultural and economic cooperation (November 1982); Gold Medal Award, International Congress of Plant Protection (December 1983); Co-sharer (with President Abdou Diouf of Senegal) First Hunger Prize for the Sustainable End of Hunger (June 1987); Honorary Degree of Director of Science, University of Massachusetts (April 1990), University of Nigeria at Nsukka (May 1991); Honorary Degree of Doctor of Humane Letters, Johns Hopkins University (May 1991); Honorary Degree of Doctor of Laws, Notre Dame University (September 1991); Albert Einstein Gold Medal, Unesco (April 1991); Freedom of the City of Tuskegee, Alabama, USA (March 1980); TWAS Medal and Lecture (September 1995); the World Bank-IMF-Africa Club Distinguished Scientists Award (October 1998); Order of the Burning Spear, Kenya (December 1998); Organization of African Unity Silver Jubilee Medal (October 1999); Honorary President of the African Academy of Sciences (April 1999). *Academies*: Foreign Fellow, Indian National Science Academy (January 1977); Fellow, Accademia Nazionale delle Scienze of Italy (March 1979); Founding Fellow and Vice-President, Third World Academy of Sciences (November 1983); Founding Fellow and President, The African Academy of Sciences (December 1985); Founding Fellow and Chairman, Kenya National Academy of Sciences (September 1983); Fellow, Norwegian Academy of Science and Letters (May 1986), World Academy of Art and Science (April 1989), Puerto Rico Academy of Science (December 1987); Foreign Member, Russian Academy of Agricultural Sciences (April 1992); Member of the Pontifical Academy of Sciences.

Summary of scientific research

The main concentration of scientific research over the last thirty years or so in the following problem areas has been:

1. An understanding of the regulatory factors and mechanisms of insect reproduction, taking the tsetse (belonging to the genus *Glossina*) as the experimental target: Tsetse have a very peculiar reproductive biology among insects, in that ovulation, embryonic development, and larval growth and development take place entirely within the mother. The control and timing of each event in this process is therefore complex.
2. Differentiation of cellular tissues in insects under endocrinological influence: Accessory reproductive glands of the desert locust (*Schistocerca gregaria*) are the preferred experimental material. They are differentiated from a single embryonic anlage into several distinct functional types of glands producing easily differentiated proteinaceous products; the development mechanisms responsible for such differentiation are being explored.
3. Science-led development paradigm for Africa, which is culturally-friendly but market-oriented and demand-driven; and reintegrates science into culture.

Main publications

Odhiambo T.R., *Some observations on the natural history of Acanthaspis petax Stål* (Hemiptera: Reduviidae) *living in termite mounds in Uganda*. «Proc. R. Entom. Soc. Lond.», (A) 33, 167-75 (1958); Odhiambo T.R., *Review of some genera of the subfamily Bryocorinae* (Hemiptera: Miriade). «Bull. Brit. Mus., Entom.», 11 (6), 247-331 (1962); Odhiambo T.R., *Growth and hormonal control of sexual maturation in the male desert*

locust, *Schistocerca gregaria* (Forsk.). «Trans. R. Ent. Soc. Lond.», 118, 393-412 (1966); Odhiambo T.R., *The metabolic effects of the corpus allatum hormone in the male desert locust*. II. *Spontaneous locomotor activity*. «J. Exp. Biol.», 45, 51-63 (1966); Odhiambo T.R., *East Africa: Science for development*. «Science», 158, 876-81 (1967); Odhiambo T.R., *The architecture of the accessory reproductive glands of the male desert locust*. IV. *The fine structure of the glandular epithelium*. «Philos. Trans. Roy. Soc. Lond.», (B) 256, 85-114 (1969); Odhiambo T.R., *The regulation of ovulation in the tsetse-fly Glossina pallidipes* Austen. «J. Exp. Zool.», 177, 447-54 (1971); Odhiambo T.R., *International co-operation in the social and life sciences*, pp. 67-80: In: *View of Science, Technology and Development* (Eugene Rabinowitch and Victor Rabinowitch, eds.). Pergamon Press, Oxford (1975); Odhiambo T.R., *International aspect of crop protection: The needs of tropical developing countries*. «Insect Sci. Applic.», 5 (2), 59-67 (1984); Odhiambo T.R., *Assets of an IPM specialist with particular reference of Chilo*. «Insect Sci. Applic.», 11 (4/5), 571-6 (1990); Odhiambo T.R., *Designing a science-less future for Africa: A suggested framework*. «Technology in Society», 14, 121-30 (1992); Odhiambo T.R., *Africa*, pp. 133-46. In: *World Science Report*, UNESCO, Paris (1996); Odhiambo T.R., *Research and Knowledge: Natural and Physical Sciences*, pp. 584-96. In: «*Encyclopedia of Africa South of the Sahara*», volume 3 (1997); Odhiambo T.R., *Scientific Institutions: Contributions, Inadequacies, Failures*, pp. 83-9. In: *Science and Development: Prospects for the 21st Century*, Royal Academy of Overseas Sciences, Brussels (1999).

Commemoration – Thomas Odhiambo was the most influential and internationally known African scientist ever. He was born in Mombasa, Kenya on 4 February 1931 and died on 26 May 2003 in Nairobi, Kenya, at the age of 72. Thomas Odhiambo came from a very poor background, being one of 10 children of a telegraph clerk. He was educated by missionaries and perhaps one of the important things that he acquired from them was a missionary zeal for service to humanity. Those of us who had the privilege of listening to him at the 2002 Plenary Session of our Academy will remember the way he expounded with missionary zeal that day. Thomas Odhiambo took his degree in biology from Makerere College in Kampala, Uganda. Even before that, he always had a deep interest in science and nature; he used to study, for example, wasps, which most people regard as a nuisance because they sting; he was interested in their complicated social behavior. After he finished his degree, he worked for four years in the Ministry of Agriculture of the Uganda government, and with that practical experience went to Cambridge (UK) where he did his PhD in the area of insect physiology. He returned to the University of Nairobi to join the Zoology Department, where he created the first Department of Entomology. In 1967, he wrote an important article in *Science* which defined his philosophy in life. It was entitled 'East Africa: Science for Development'. He had already by then got deeply interested in the problems of his country; in particular, he was moved by the plight of farmers fighting pests on their lands. Insecticides killed everything, good and bad, harmed the environment and were expensive. Did science have an alternative? He proposed the setting up of the International Centre for Insect Physiology and Entomology (ICIPE), in Nairobi, which has since become world famous. Here he analyzed traditional methods of farming in terms of the underlying science and improving on it made it available to farmers at low cost. In his article in *Science* he had also talked about capacity-building, the need for excellence, the need for relevance in scientific research and education, by working on real-life problems; and thus from his deep interest in wasps, his training in biology, particularly insect physiology, his commitment to his people and their plight, he moved on to the use of science in the service of humanity. I remember well his election to this Academy in 1981, for that year Abdus Salam, an outstanding scientist and a great exponent of science for development and I were also elected. Soon thereafter, over a breakfast meeting, where all the Academicians from the developing countries got together, including the then President, Carlos Chagas, we decided to set up a Third World Academy of Sciences – an idea discussed the previous night by Abdus Salam and myself. The Pontifical Academy of Sciences thus gave birth to the Third World Academy of Sciences. Of the group at breakfast that morning six, including Thomas, have gone; there are only three of us left: Crodowaldo Pavan, Hector Croxatto and myself. Professor Odhiambo was awarded the Abdus Salam Medal of the Third World Academy of Sciences; and it was in July 1985 at the inauguration of TWAS in Trieste, where a number of distinguished African scientists were present, that he proposed the idea of an African Academy of Sciences, (of which he was Founder President), with the same objectives that drove him in his life, of putting science to work on real life problems. That was always the passion of his life. The most fitting tribute we can pay to our friend, a great scientist and servant of humanity, Thomas Odhiambo, would be to rededicate ourselves to the objectives, which have also been a major thrust of this Academy.

Mambillikalathil G.K. Menon