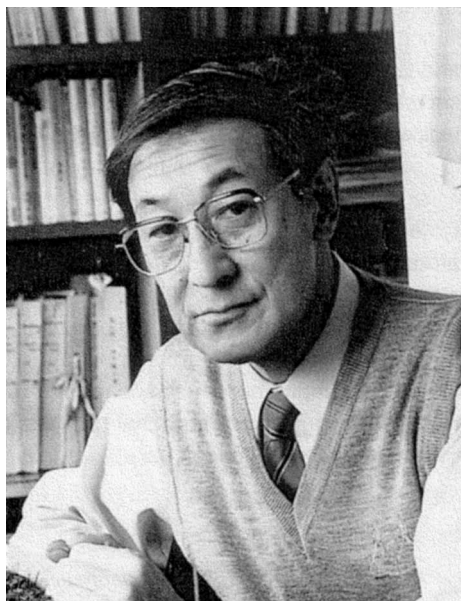


## OBITUARY

**Shôichi Francisco Sakagami  
(1927–1996)**

Dr. Shôichi F. Sakagami, Professor Emeritus of Hokkaido University, passed away at the age of 69 on the 4th of November 1996 from a heart attack, leaving behind wife and a daughter. The news of his sudden death caused great sorrow among his colleagues and students who had known him, researched with him, and learned from him. Sakagami was a Catholic, and his funeral was conducted at a church in Sapporo; a small affair with only his close friends, students, and family present, which was what he and his widow wanted.

Sakagami was born in January 1927 in Chiba prefecture which is near Tokyo. He graduated from the Entomology Department, Faculty of Agriculture, Hokkaido University in 1948. He soon transferred to the Department of Zoology, Faculty of Science of the same, and became lecturer in 1954. He was awarded the degree of PhD the following year in 1955 with his doctorate thesis on the "Perception of Psychology on the Optical Learning of the Honeybees." He became assistant professor in 1956. In 1978 he transferred to the Zoological Laboratory, Institute of Low Temperature Science of the same university, and worked as professor until his official retirement in 1990.

As can be seen from the above, Sakagami spent most of his years as researcher in Sapporo, but went to Brazil as visiting professor to the University of Rio Claro (1961–63) and the University of Ribeirão Preto (1971–72), spending about three and half years in the country. He also frequently went on research to India and Southeast Asia, including Malaysia, Thailand, Cambodia, and Indonesia in the years from 1966 to 1983. His stay in Brazil, in particular, although not so long in duration, had a great influence on his work as well as personal life. He enthusiastically writes about how fruitful and enjoyable his stay was in his book, "Brazil and Tiny Bees" (328 pages, 1975). For his academic contribution to Brazil, he was nominated as a member of Academy of Science of Brazil in 1976.

Sakagami was interested in the so-called "social insects", the most typical of which is the honeybee, and strove to delve into the important biological question of their evolutionary process throughout his long research career that extended over than forty years. He carefully studied the behaviors of honeybees and wild bees including stingless bees, halictine bees, and *Ceratina*, and, sometimes utilizing experimental means as well, attempted to throw light upon the evolutionary origin of social insects by analyzing the huge amount of data thus accumulated from his distinctive viewpoint of comparative insect sociology. In other words, Sakagami, throughout his career, had aimed for the modernization of natural history - which had been introduced to Japan from the West more than a hundred years ago, and yet was on the verge of being forgotten altogether without ever having taken root nor showing any development in this country - and had opened up and developed a new research field. In the forty years, he published some three hundred original papers as well as writing seven books based on his own researches. He was awarded a prize from the Zoological Society of Japan in 1967 for his outstanding work, and also Asahi Prize, one of the most

prestigious awards for scientists in Japan, from Asahi Shinbun in 1993.

Sakagami was very well-read and was usually a rather quiet person, but could be extremely captivating when animatedly talking about his work and life while drinking. One could tell that he loved the bees just as well as he loved his fellow human beings. Sakagami also had a great many followers and taught many students. We regarded it as the "Sakagami School". Some of the young students had read his books during high school, and inspired, had come to him from all over Japan. Indeed, young people came to his laboratory from Brazil and Europe as well, wanting to work under him.

In the summer of 1989, a year before his retirement, Sakagami was hospitalized with his first attack of coronary thrombosis. He fortunately recovered, and retired from Hokkaido University in 1990. He removed the extensive field observation data and the bee specimens he had collected during his years at the university to his study at home, and continued research on wild bees despite his precarious health, quite literally using his life's blood. He published some thirty original papers in the six years after his retirement. He had not been very well of late, and was harried with the deadline coming up for a couple of papers he had been working on, which is likely to have precipitated the fatal attack, according to his wife.

Late that night when Sakagami met with his sudden death, the light was still on in his study with a halictine bee specimen under the binocular microscope and its unfinished sketch lying beside it. He had been working on his research up till the very last minute. Thus the curtain fell on the life of Sakagami, the great researcher and naturalist, who had been loved and respected by many friends, colleagues, and students from not only Japan but Brazil and other foreign countries.

We can no longer see Sakagami or talk with him, but we are sure that his outstanding work will forever leave its mark and that we will always be able to converse with him through what he left us.

Haruo Chino<sup>1</sup> and Masanori J. Toda<sup>2</sup>

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Sakagami's selected publications:

- Sakagami SF, Zucchi R, Portugal Araújo V de (1977) Oviposition behavior of an aberrant african stingless bee *Meliponula bocondei*, with notes on the mechanism and evolution of oviposition behavior in stingless bees. *J Fac Sci, Hokkaido Univ, Ser VI, Zool* 20: 647–690
- Sakagami SF, Maeta Y (1984) Multifemale nests and rudimentary castes in the normally solitary bee *Ceratina japonica* (Hymenoptera, Xylocopinae). *J Kansas Entomol Soc* 57: 639–656
- Sakagami SF, Inoue T, Yamane S, Salmah S (1989) Nests of the myrmecophilous stingless bee *Trigona moorei*: how do bees initiate their nest within an arboreal ant nest? *Biotropica* 21: 265–274
- Sakagami SF (1982) Stingless bees. In "Social Insects Vol 3" Ed by HR Hermann, Academic Press, New York, pp 361–433
- Sakagami SF, Ohgushi R, Roubik DW (Eds) (1990) Natural History of Social Wasps and Bees in Equatorial Sumatra. Hokkaido University Press, Sapporo
- Maeta Y, Sakagami SF, Michener CD (1992) Laboratory studies on the behavior and colony structure of *Braunsapis hewitti*, a xylocopine bee from Taiwan (Hymenoptera, Anthophoridae). *Univ Kansas Sci Bull* 54: 289–333