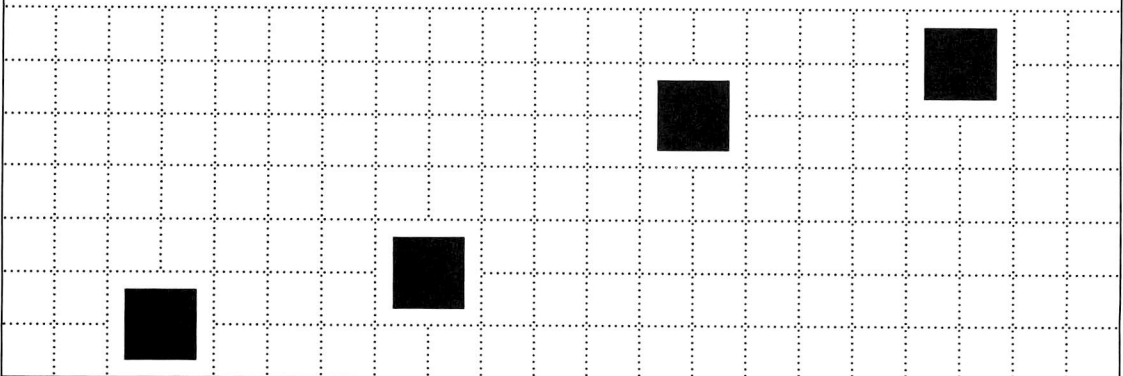
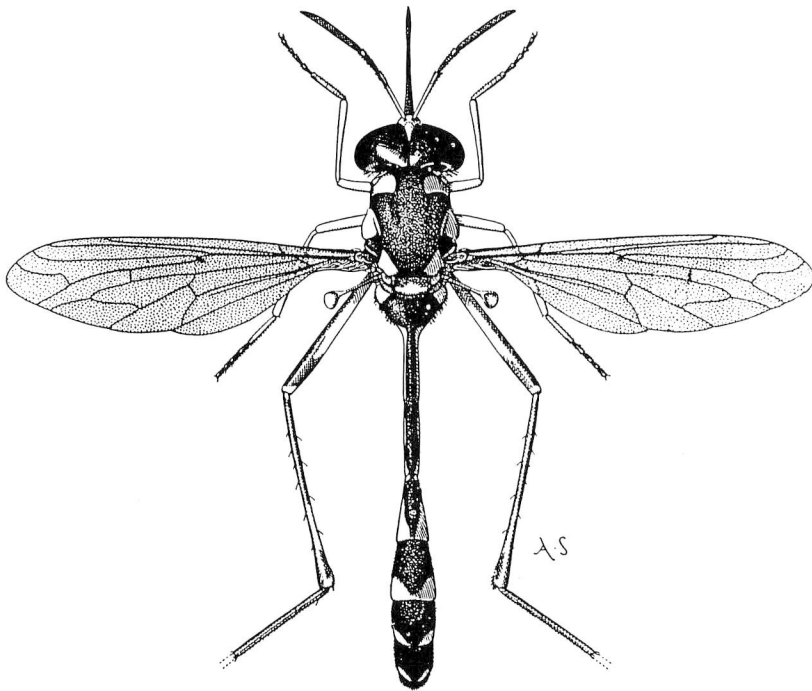


Newsletter

No. 3

February 1992

*Kagoshima University Research Center
for the South Pacific*



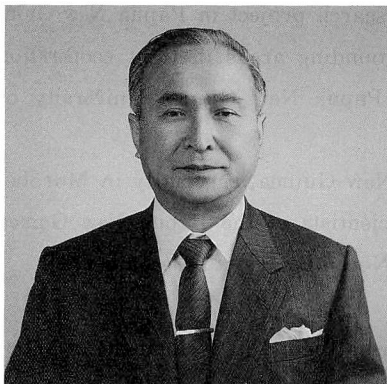
Systropus maccus (Enderlein) (Diptera : Bombyliidae)

The larvae of the family Bombyliidae are external parasites of various insect larvae.

S. maccus is originally described from India (Sikim), and also distributed in China and Korea.

The Research Center for the South Pacific
as a Symbol of Kagoshima University

Akihiro IGATA M. D.
(President of Kagoshima University)



Kagoshima University was inaugurated in 1949, as a national university after the reform of the university system in Japan, following the histories and tradition of pre-war institutions in this area, such as National 7th High School, National College of Agriculture, Fisheries, Medicine, Engineering, and the Normal Schools.

Our university ranks very high in its scale and activities among those in Japan, with many local characteristics of Kagoshima, which is regarded as the Southern Gateway to Japan.

In this meaning, the Research Center for the South Pacific, which was founded in 1981, is one of the most important joint research institutes, supported by all faculties, of our university. Therefore, it is the symbol of Kagoshima University, with a high worldwide reputation in its fields.

This research center is operated by several full-time staff, with more than 90 associate academic staff of our university and some of other universities in Japan. In addition, guest professors from the South Pacific are participating in its activities. The excellent results obtained in this center, including scientific reports, symposia, public lectures, and workshops, all based on the results of joint surveys in the South Pacific, such as Papua New Guinea, Fiji, the Solomon Islands, and Micronesia have been highly evaluated and stimulated the interest of young researchers in the South Pacific and in Japan.

Now, I would like to do my best for its further development, with deep appreciation for its high contribution and success.

Scientific Survey of Papua New Guinea in 1991

Mitsuru HAYASHI (Party Leader)

The Kagoshima University Research Center for the South Pacific has organized a series of research projects called "Scientific Survey of the South Pacific" since 1981, funded by the Ministry of Education, Science and Culture of Japan. In 1983, the first research project in Papua New Guinea was carried out mainly in Port Moresby, Lae and their surrounding areas in tight cooperation with the scientists at the University of Papua New Guinea, the Papua New Guinea University of Technology and other research institutes in Papua New Guinea.

In 1991 this research project was carried out in Papua New Guinea, especially in Morobe, Madang and East Sepik provinces, in tight cooperation of the scientists of the Papua New Guinea University of Technology and other research institutions, from November 1st to December 6th.

The research party was composed of five survey teams;

Team 1 : Development of agricultural resources and land use, Team 2 : Development of aquacultural resources in the coastal region, Team 3 : Seroepidemiological studies of ATLA, Team 4 : Traditional social systems and their transformation, and Team 5 : Oceanic structures and their fluctuation in the tropical pacific.

A presentation of the survey results will be held in April 1992, and the progress report of the survey will be published in October 1992.

Itinerary and members of the research party are as follows :

Itinerary ;

1 November, 1991 Departure from Kagoshima, Japan

11 November, 1991 Arrival at Lea, Papua New Guinea

19 November, 1991 Departure from Lea, Papua New Guinea

21 November, 1991 Arrival at Wewak, Papua New Guinea

27 November, 1991 Departure from Wewak, Papua New Guinea

6 December, 1991 Arrival at Kagoshima, Japan

Members of Team 1 ;

HAYASHI Mitsuru, Professor, Dr., Tropical Crop Science, Faculty of Agriculture, Kagoshima University.

NAKANO Kazutaka, Professor, Dr., Terrestrial Ecology, Research Center for the South Pacific, Kagoshima University.

NEDACHI Munetomo, Professor, Dr., Geology, College of Liberal Arts, Kagoshima University.

SARAVIA Antonio M., Post Graduate Student, Tropical Crop Science, Faculty of Agriculture, Kagoshima University.

Members of Team 2 ;

ENOMOTO Sachito, Professor, Dr., Phycology, Faculty of Science, Kobe University.

INOUE Akio, Professor, Dr., Marine Ecology, Research Center for the South Pacific, Kagoshima University.

KAWAMURA Gunzo, Professor, Dr., Applied Ethology, Faculty of Fisheries, Kagoshima University.

UCHIO Yasuto, Associate Professor, Dr., Natural Organic Chemistry, School of Allied Medical Science, Kagoshima University.

IWAGAWA Tetsuo, Associate Professor, Natural Products Chemistry, Faculty of Science, Kagoshima University.

USUDA Kazuyoshi, Post Graduate Student, Technology of Fisheries, Faculty of Fisheries, Kagoshima University.

ANRAKU Kazuhiko, Post Graduate Student, Applied Ethology, Faculty of Fisheries, Kagoshima University.

Member of Team 3 ;

TERASHI Shin'ichi, Professor, Dr., Pathology, Research Center for the South Pacific, Kagoshima University.

Members of Team 4 ;

TAJIMA Yasuhiro, Professor, Dr., Human Geography, Faculty of Education, Kagoshima University.

MINAMURA Takeichi, Professor, Dr., International Economics, Faculty of Law and Letters, Kagoshima University.

KARAKITA Yasuyuki, Associate Professor, MA. Cultural Anthropology, Research Center for the South Pacific, Kagoshima University.

Members of Team 5 ;

YUWAKI Yasutaka, Professor, Oceanography, Faculty of Fisheries, Kagoshima University.

SHIMADA Kiyoshi, Associate Professor, Oceanography, Faculty of Fisheries, Kagoshima University.

MASUMITSU Sunao, Assistant Professor, Oceanography, Faculty of Fisheries, Kagoshima University.

ICHIKAWA Toshihiro, Associate Professor, Dr., Biological Oceanography, Faculty of Science, Kagoshima University.

HATTA Akio, Associate Professor, MA., Earth Science Education, Faculty of Education, Kagoshima University.

HIGASHI Masataka, Assistant Professor, Oceanography, Faculty of Fisheries, Kagoshima University.

KAMIYA Kyoko, Post Graduate Student, Biological Oceanography, Faculty of Science, Kagoshima University.

Clerkship ;

TAKENOUCHI Noriyoshi, Program Officer, Research Center for the South Pacific, Kagoshima University.

Abstracts from Symposia and Workshops

SYMPOSIUM

Islam in Southeast Asia

—Education, and Agricultural and Seafaring Peoples —

Shinzo HAYASE (College of Liberal Arts, Kagoshima University)

February 1, 1991

The symposium of the Kagoshima University Research Center for the South Pacific "Islam in Southeast Asia - Education, and Agricultural and Seafaring Peoples -" was held on February 1, 1991 at Kagoshima University. This symposium was supported by a research project of the Japanese Ministry of Education, "Urbanism on Islam, a Comparative Study".

Today, nearly 200 million Muslims or about 20% of the total number of Muslims in the world live in Southeast Asia. Moreover, Indonesia has the largest number of Muslims as a nation in the world. However, most Japanese do not realize that such a number of Muslims live near Japan. The aim of this symposium was to understand Islam from Insular Southeast Asia. We selected the keywords to understand each country; education for Indonesia, agricultural peoples for Malaysia, and seafaring peoples for the Philippines. The lectures and commentators were as follows:

Shigeo NISHIMURA of Kyushu University, "Islam in Indonesia: Education" with comments by Setsuo NISHINO of Tokyo University.

Sueo KUWAHARA of Kagoshima University, "Islam in Malaysia: Agricultural Peoples" with comments by Hisao TOMIZAWA of Shizuoka University (Prefecture).

Ikuya TOKORO of Tokyo University (Graduate School), "Islam in the Philippines: Seafaring Peoples" with comments by Shinzo HAYASE of Kagoshima University.

This symposium was chaired by Mitsuo NAKAMURA of Chiba University and was joined by nine Islam specialists from all over Japan. The proceedings of this symposium was published in an Occasional Paper of the Kagoshima University Research Center for the South Pacific.

WORKSHOP ON PAPUA NEW GUINEA SURVEY

Akio Inoue (Res. Cent. South Pac., Kagoshima University)

April 24, 1991

A workshop was held on the results obtained in the 1990 Research Project "Man and the Environment in Papua New Guinea" which had been carried out from November 5th to December 17th in tight cooperation with those scientists from the University of Papua New Guinea, the Papua New Guinea University of Technology, other research institutes and Government organizations.

The titles and authors reported there were as follows :

- 1) Outline of the survey of agricultural group.
HAYASHI, M., TOMINAGA, S., SAKATA, Y., TAURA, S. and NAKAMURA, S.
- 2) Climate and possibility of growing fruit trees in Papua New Guinea.
TOMINAGA, S., TAURA, S. and HAYASHI, M.
- 3) A preliminary study on soil condition of different types of agricultural field in Papua New Guinea.
TAURA, S., MIYAUCHI, M., TOMINAGA, S., HAYASHI, M. and GURNAH, A. M.
- 4) Introduction of tropical plants.
HAYASHI, M., SAKATA, Y., TOMINAGA, S., TAURA, S. and NAKAMURA, M.
- 5) Environmental background of the habitat of *Nautilus* off the southeastern coast of Port Moresby, Papua New Guinea.
ŌKI, K., SHINOMIYA, A., TANABE, K., TSUKAHARA, J., LEKISI, N. H., FROHM, T., KATO, T. and TSUDA, E.
- 6) Underwater still camera works in the habitat of *Nautilus* off the southeastern coast of Port Moresby, Papua New Guinea.
SHINOMIYA, A., ŌKI, K., TSUKAHARA, J., TANABE, K., LEKISI, H. L., FROHM, T., TSUDA, E. and KATO, T.
- 7) Morphological study of the gonad of *Nautilus pompilius* in Papua New Guinea.
TSUKAHARA, J., TANABE, K., SHINOMIYA, A. and ŌKI, K.
- 8) Notes on *Nautilus pompilius* captured from Port Moresby area, Papua New Guinea.
TANABE, K., TSUKAHARA, J., SHINOMIYA, A. and ŌKI, K.
- 9) The contents of some inorganic micronutrients in the coast of Papua New Guinea.
INOUE, A.
- 10) Preliminary survey of ichthyotoxic compounds from Papua soft corals.
UCHIO, Y.
- 11) Seroepidemiological study of anti-adult T-cell leukemia/lymphoma associated antibodies in

Papua New Guinea.

TERASHI, S., BABONA, D. and TALONU, T.

- 12) Objective recording blood pressure measurement of inhabitants of Papua New Guinea.

MIKAMI, S. and NGAHAN, J. M.

- 13) Traditional society and its transformation-Land tenure in Papua New Guinea.

MINAMURA, T.

- 14) Particulate organic carbon and chlorophyll from Lat. 20° S to the equator in the western Pacific Ocean in November 1990.

ICHIKAWA, T. and SUZUKI, H.

- 15) A long oceanographic section from south of Kyusyu, Japan to the equator, 145° E in November 1990.

HIGASHI, M., NISHI, T., MASUMITSU, S. and HIDAKA, M.

SYMPOSIUM

Earthquakes and Volcanoes

Kimihiko ŌKI (Faculty of Science, Kagoshima University)

September 23, 1991

Kyushu Island is located in the northernmost part of the Ryukyu Island Arc ranging from Kyushu to Taiwan. As has been often reported these days, recent volcanic activities in the Ryukyu Arc are remarkable. We can easily count up eight major active volcanic mountains and islands in this area: Unzen, Aso, Kirishima, Sakura-jima, Tokara-iwo-jima, Kuchierabu-jima, Nakano-shima and Suwanosé-jima. In 1990, the "Nansei Tōko Observatory for Earthquakes and Volcanoes" was founded attached to the Faculty of Science, Kagoshima University, with the intention of making researches in the mechanisms of earthquakes and volcanic activities on the Nansei Tōko (the Southwest Island Arc, synonymous with the Ryukyu Island Arc) in connection with the subduction of the Philippine Sea Plate in this area.

A symposium entitled "Earthquakes and Volcanoes" was presented at the Kagoshima Prefectural Museum of Culture Reimeikan to an audience of over 160. In the first half, three speakers delivered lectures from a seismological point of view and in the latter half, two other speakers delivered lectures from a volcanological and mineralogical point of view. All the lectures suggested that the "Nansei Tōko" and the surrounding sea areas are one of the most important objects of the earth-scientific study in the world and bring about the valuable information on geology and tectonics as well as for prevention of earthquake and volcanic hazards.

SYMPOSIUM

Magmatic Contribution to Hydrothermal Systems

Munetomo NEDACHI (College of Liberal Arts, Kagoshima University)

November 10—16, 1991

Geothermal systems and hydrothermal mineralizations often occur around a magma. The relationship between magma and hydrothermal fluid is not known satisfactorily: Some investigators have interpreted the role of magma as a heat source for the convection of meteoric water, and others as a generator of hydrothermal fluid. A Japan-U.S. seminar was held to resolve this problem at Kagoshima University and Ebino Kogen Hotel, from the 10th to 16th of November, 1991. This was supported by the Kagoshima University Research Center for the South Pacific. The participants except the audience, were 18 from Japan, 13 from the United States, 2 each from Canada and New Zealand, and one each from the Philippines, the United Kingdom, and the USSR.

The seminar was organized around the following five major topics:

1. Composition of fluids in equilibrium with magmas.
2. Processes of fluid separation from magma and the nature of hydrothermal systems enveloping magmas.
3. Geometry and dynamics of fluid flow in magma/hydrothermal systems.
4. Signatures and importance of magmatic fluids in active hydrothermal and volcanic systems.
5. Signatures and importance of magmatic fluids in extinct hydrothermal systems.

Each of these topics was introduced by three oral presentations followed by some poster presentations, and further discussed in separate meetings during the seminar. The proceedings of the seminar consisted of the consolidation of present knowledge, the summing up of unanswered questions, and the most groping of promising research directions to answer these questions. The conclusions of the discussion groups were deliberated and surveyed carefully by all participants on the final day.

Abstracts from Seminars

Ecology of the Northern Ryukyu Fruit Bat, *Pteropus dasymallus dasymallus*, in a Warm-temperate Region.

Kimitake FUNAKOSHI (Kagoshima Keizai University)

January 21, 1991

The Ryukyu fruit bat, *Pteropus dasymallus*, occurs from subtropical to warm-temperate regions such as the Nansei Islands and Formosa. Its northern limit is from 24.5 to 30.5°. On the island of Kuchinoerabu-jima, the arrival of the first bat at the feeding sites occurred 41 min after sunset on average, and it was earlier in spring and summer than in autumn and winter. Feeding started soon after arrival at the feeding trees. The basic pattern of feeding activity was unimodal, and the principal feeding period was observed within 3–5 hrs of arrival. During the second half of the night, feeding activity decreased, and resting or sleeping was more prolonged than during the first half.

The bat consumed at least 17 species of fruit, five of flowers, nine of leaves, one of bark and eight of insects. Soft fruits formed the bulk of its diet. *Ficus* eaten by the bat fruited asynchronously among individuals of the same species. In these species, the ratios of trees bearing ripe fruit to all examined trees each month were very low except for *F. erecta*. On the other hand, some plant species showed synchronous fruit production over a short period. Both types of mutually supply fruits in every season. Seasonal dietary shifts and food choice were evident, and flowers, leaves or insects formed a small but nutritionally important component of the diet of the bat.

In winter, the number of bats visiting feeding sites was reduced, and feeding activity was scarcely observed. The time spent sleeping during the night was closely correlated with the ambient temperature, and the duration of sleeping markedly increased when the ambient temperature fell below 10°C. The bats probably reduce their activity levels and their basal metabolic rates during severe winter conditions.

The South Pacific during the World War II

Tooru YONEMORI (Faculty of Fisheries, Kagoshima University)

March 18, 1991

Prior to the speaker's retirement, this final lecture was delivered at the Research Center.

Since the South Pacific has been one of the main fields of investigation for the Center, it is essential for researchers to know the outline of desperate battles fought in this area about 50 years ago. The lecture consisted of the following four parts.

(1) Prelude to the outbreak of the War (1941~42)

The U.S.A. and Britain had been offended at Japan's aggressive acts on the Asia continent after 1931. Moreover the conclusion of the triple alliance with Germany and Italy in 1940 was a definite hostility against the allied countries. Consequently the supply of petroleum to Japan was stopped and Japan determined the outbreak of the War.

(2) Successful term for Japan (1941~42)

Japanese forces attacked Pearl Harbour, and occupied Wake, Guam, Gilbert, Honk Kong, Malaya, the Philippines, Indonesia, New Guinea and the Solomon Islands, while the navy won the several sea battles.

(3) Counteracting term by the Allied Forces (1942~45)

Japan was beaten at the Midway sea fight, Solomon and New Guinea ; then the counter-offensive by the Allied Forces started. The strategy of the U.S. forces was called an "island hopping operation" and was highly efficient. With the operation, numerous islands were occupied and others were ignored to be powerless. Then Japan proper was thoroughly destroyed by air raids and finally driven to accept the unconditional surrender.

(4) Supplement

The War was fought between the Axis (composed of 8 countries including Japan, Germany and Italy) and the Allies (50 countries led by the U.S.A. and Britain). Because of a marked difference in potential between both poweres, it was a reckless war for Japan.

Thus we brought big troubles into those irrelevant countries through the War which we should bear in mind strongly. In spite of these unfavorable experiences the scientists of the areas have been cooperative very much in carrying out the survey of the Research Center since its establishment in 1981. To understand the War is one thing, and another and far more important thing is to deliberate how we can contribute to the countries for their future development and prosperity through scientific research.

Political and Economical Development in Chile and the Role of University

Augusto PARRA Munoz (University of Concepcion)

April 3, 1991

Chile has developed as a democratic republic since the declaration of its independence in 1818. However, Chile's democracy has been interrupted twice; especially in 1973, the army took power and had ruled for 17 years. In 1989, an election for president was held, hence our democracy was reinstated without armed force. In order to consolidate our democracy, we should reform our democratic spirit, increase our economic growth, and restore civil liberties to all people immediately.

The Chilean economy is having a steady growth and a 5% yearly growth is expected in the following few years, because Chile has adopted an open market economy. In near future, furthermore, we will substantially increase exports, since the obtaining of foreign investment and the increase of domestic savings are important. This acceleration is directly related to the availability of mineral resources; which should be given an aggregate value through appropriate industrial processes. Marine and forest resources are also counted. Human resources are evaluated to be high enough to assimilate modern foreign techniques. One of the limitation is the extreme centralization of the decision-making in the capital, Santiago. Decentralization of the economic and political administration is desired.

Universities will take the lead in creating the above situation. Among many universities, the University of Concepcion should play an important role, because it is the oldest regional university and is located in the most important country region of Chile. The university is a research center that has to prepare professionals and technicians that should assume their development role adequately to reach the actual goals of Chile. (Original manuscript in Spanish; translated into English by NEDACHI, M.)

Changing Society and Politics in the Southernmost Muslim Community of Thailand

Takashi HASHIMOTO (Kitakyushu University)

May 28, 1991

The Malay-Muslims in Thailand are concentrated in four provinces bordering on Malaysia, the mother country of their culture, religious, and ethnic sentiments. For this reason, they have a closer identity with the Malay-speaking people in Malaysia than with Thais, and for many years they have been frustrated with Thai rule. Their discontent has appeared in various forms throughout history: for instance, as rebellions and protests in former times, and as extreme separatist activities over the past two decades.

The problems in the southern border provinces stemmed not only from these factors, however, but from other, more complicated factors operating in the area, such as political and economic inequality at various levels and the penetration of the government into religious and cultural affairs.

One of main focuses of my study is the socio-economic changes among the Muslim community and the impact of those changes on the political situation in the Southern Border Provinces.

The comparison of the results from my research there in 1983 and 1990 shows us several aspects of the changes, such as lifestyle, speaking Thai, temporary working in Malaysia and even the consciousness as a Malay-Muslim. As Thailand itself goes through a marked economic and social transition, so has the Southern Border Provinces changed drastically these few years. It is clear that the Muslim community was more influenced by Thailand's economic development than the Buddhist community.

Socio-economically, television has a great impact on the Muslim community. It is playing an important role in the spread of Thai language and people can get more and wider information from TV every day. This makes a contribution to lightening the problems caused by misunderstandings between Muslims and Buddhists.

As a result it seems that the Muslims' feelings on the political and economic inequality is decreasing. At present, the extreme separatist activities as the most serious political problem are sharply decreasing and taking drugs among the youth as the serious social problem is increasing instead.

But now a part of the Muslims have more interest in religious and cultural affairs. Though this issue may be transformed into political problem, it will be handled by legal means, not by extreme activities.

Genetic Studies on Breed Differentiation of the Native Domestic Animals
in Yunnan Province in the People's Republic of China

Tsutomu HASHIGUCHI (Faculty of Agriculture, Kagoshima University)

June 24, 1991

The People's Republic of China has a relatively long history of stock breeding. China has fostered the techniques of the domestication of animals and developed the culture of animal husbandry. Yunnan Province, situated in the south-west of China, is highly blessed with native domestic animals and their wild species in variation as well as in number. This fact attracts our interest if the location of Yunnan is taken into consideration; Yunnan borders on three countries that include the other centers of the domestication of animals; Myanmar, Vietnam and Laos. Yunnan, therefore, plays a significant role as the melting pot of the two major centers, South-East Asia and South Asia centers. Currently, genetic and phylogenetic studies of the native domestic animals and their wild species in Yunnan are being carried out since they are recognized as important animal genetic resources.

The Monbuso International Scientific Research Program introduced and supported this study. A series of negotiations with China finally realized this project.

Folk Religions in the Rural District of the Jiangnan Delta
in Late Imperial China

Atsutoshi HAMASHIMA (Osaka University)

July 12, 1991

We have many studies on the religion of the people in traditional China, but there are few on the subject in the Lower Yangtze Valley, which had been the most developed key economic area in late imperial China. Many source materials described by the literati (*dushuren*) scarcely mention this subject, because they felt that the religion was superstitions in Confucianism and they also despised the folk-beliefs as vulgar practices. Moreover, political pressure by the government and a party based on atheism had driven scholars into the avoidance of the subjects in the later-twentieth century.

The most popular local-god in this area was Jin Yuan-qi, and he assumed the title of "Zongguan". The title means a commander of a convoy of transport ships from Jiangnan for the Metropolis in the Yuan Dynasty, and the mighty works carried out by Jin Zongguan are the protection and rescue of ships. This fact readily suggests that he was a local-god responding to the demands of landowners in this area who were the ruling class of the rural communities and carried out the transportation services for the Ming Dynasty. The stories completely reflect the socio-economic structures of Jiangnan in the early fifteenth century.

The miracles of this god made a change in the late Ming or the early Qing period. Jin Zongguan, in some surveyers' reports on folklore of Jiangnan in 1980's is a local-god who was a lower officer of a convoy, and committed suicide holding himself blamable for the release of food without permission. This change is also a reflection of the change of the socio-economic structures in this highly commercialized area.

Role of Calcium in Abscissions of Citrus

Shuichi IWAHORI (Faculty of Agriculture, Kagoshima University)

September 9, 1991

An addition of calcium acetate to ethephon (2-chloroethylphosphonic acid) completely prevented fruit drop and defoliation of citrus caused by ethephon. Thus, spraying ethephon and calcium acetate on trees accelerated coloration of ponkan (*Cirtus reticulata* Blanco) and kumquat (*Fortunella crassifolia* Swingle) fruit without any abscission, and this method is used commercially to market the fruits earlier.

Trifluoperazine (TFP) and W-7, inhibitors of the calmodulin-calcium complex, accelerated abscission of leaf and fruitlet explants of citrus. An addition of IAA or calcium acetate overcame the accelerating effect of TFP and W-7. This result strongly suggests that calmodulin is involved in abscission processes.

Slocum and Roux's antimonate method, which consists of adding potassium antimonate to glutaraldehyde and osmium tetroxide, enabled us to detect calcium ions within cells by transmission electron microscopy. The preliminary results of detecting calcium ions in cells of the abscission layer and nearby parenchymatous tissue were presented and the role of calcium in abscission was discussed.

Dysbaric Osteonecrosis of Japanese Diving Fishermen

Mahiro KAWASHIMA (Kawashima Orthopedic Hospital)

October 4, 1991

This study was based on the radiological investigation of 818 divers in the Kyushu area from 1972 to 1990. Dysbaric osteonecrosis was found in 458 divers (56.0%). A clear tendency was shown in the incidence of bone lesions being less frequent in the younger generation and much more so in the older generation. It was possible to establish a significant statistical relationship between the amount of diving experience and the incidence of bone lesions. The sites of the bone lesions were located in the upper femur (34.3%), in the upper humerus (34.1%), in the lower femur (15.5%), and in the upper tibia (9.3%). In the group of men with bone lesions, 67.6% were known to have been treated for limb bends. The occurrence of dysbaric osteonecrosis seemed to be closely related to previous bends history.

A high incidence of dysbaric osteonecrosis in Japanese diving fishermen seemed to be related to their diving profile. Most of them dive at depths of 30–60 meters, for three to nine hours, based upon their personal empirical methods. Long bottom times and fast decompression seemed to cause dysbaric osteonecrosis.

On-campus Part-time Researchers of
Kagoshima University Research Center for the South Pacific (KURCSP)

- 1) Position, 2) Faculty (Ed.: Education, Sci.: Science, Eng.: Engineering, Fish.: Fisheries, Med.: Medicine, Dent.: Dental School, Al. Med. Sci.: School of Allied Medical Science, 3) Main Subject, 4) Present Subject of Research, 5) Main Work

Research Project 2: Studies on Aquatic Biological Processes and Resources

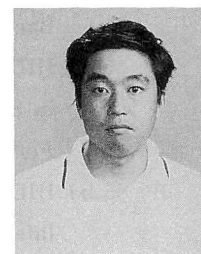
CHAEN, Masaaki ;

- 1) Professor, Dr., 2) Fish., 3) Physical Oceanography, Fisheries Oceanography, 4) Oceanographic Conditions in Coastal and Open Sea Area,
- 5 a) CHAEN, M. 1985. Seasonal Variation in Water Mass Structures in Kagoshima Bay. *Umi to Sora*, 60, 1-14.
- 5 b) ICHIKAWA, H. and CHAEN, M. 1990. The Current Field near a Smallscale Oceanic Front. in *Physics of Shallow Seas*. (W. Huatong *et al.* ed.) China Ocean Press, Beijing, 259-271.



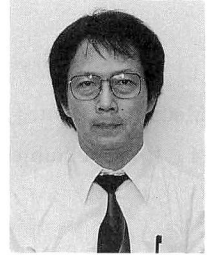
FUWA, Shigeru ;

- 1) Associate Professor, Dr., 2) Fish., 3) Fishing Gear Engineering, 4) Selectivity of Trawl Net, Fish Behaviour to Fishing Gear,
- 5 a) FUWA, S. 1988. Fish Herding Model by Ground Rope (in Japanese). *Nippon Suisan Gakkaishi*, 55 (10), 1115-1119.
- 5 b) FUWA, S. 1989. Fundamental Studies on the Function of Ground Rope of Drag Net (in Japanese). *Mem. Fac. Fish., Kagoshima Univ.*, 38 (2), 103-156.



HATTA, Akio ;

- 1) Associate Professor, MA., 2) Ed., 3) Earth Science Education, 4) Recent and Fossil Foraminifera from the Tropical and Subtropical Zones,
- 5 a) HATTA, A. 1985. Lateral Change of Foraminiferal Fauna at the Horizon just below the Tuffaceous Key Bed, O₇, of the Otadai Formation in Chiba Prefecture, Japan. *Bull. Fac. Educ., Kagoshima Univ., Natur. Sci.*, 37, 11-24.
- 5 b) HATTA, A. *et al.* 1990. Planktonic Foraminiferal Assemblages and Meridional Hydrographic Sections in the West Pacific Ocean. *Kagoshima Univ. Res. Center South Pac., Occasional Papers*, 20, 72-81.



HAYASAKA, Shozo ;

- 1) Professor, Dr., 2) Sci., 3) Historical Geology and Paleontology, 4) Paleocology of the Cenozoic Molluscan Fauna,
- 5 a) HAYASAKA, S. 1987. Geologic Structure of Kagoshima Bay, South Kyushu, Japan (in Japanese). *Assoc. for Geol. Collaboration in Japan, Monograph*, 33, 225-233.
- 5 b) HAYASAKA, S. (ed.) 1988. Marine Ecological Study on the Habitat of *Nautilus pompilius* in Fiji (the Second Operation). *Kagoshima Univ. Res. Center South Pac., Occasional Papers*, 15, 1-84.



HIDAKA, Tomio ;

- 1) Professor, Dr., 2) Fish., 3) Marine Microbiology, 4) Ecological Studies on Marine Microorganisms, Especially Bacteriophages,
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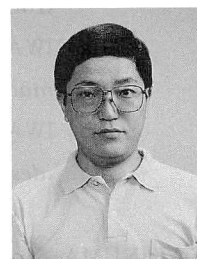
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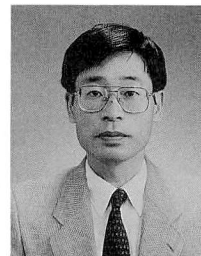
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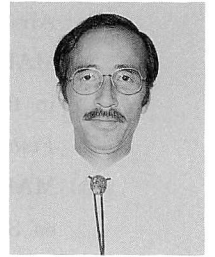
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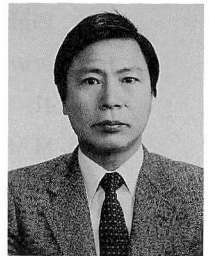
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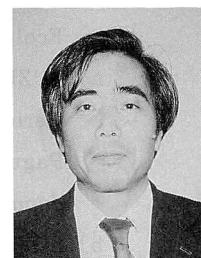
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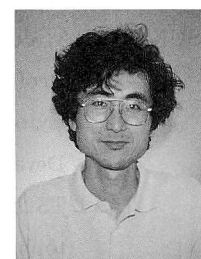
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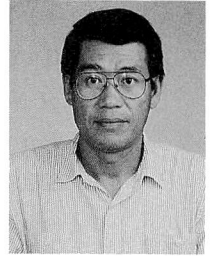
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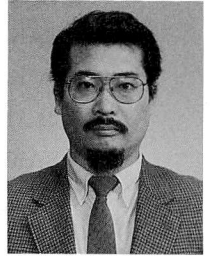
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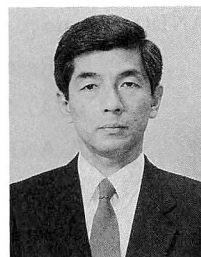
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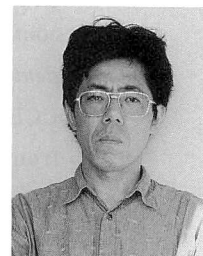
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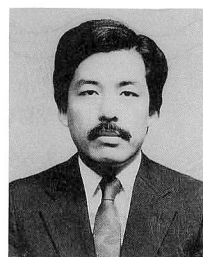
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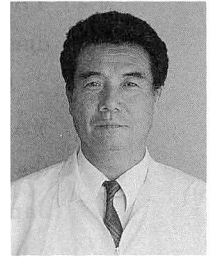
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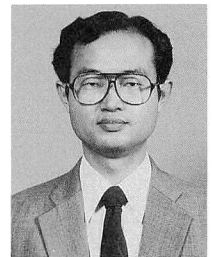
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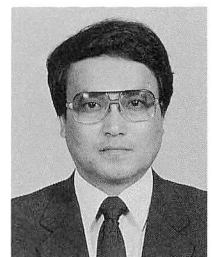
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