

AWARD OF MEDALS

The Seventy-five Annual Award of Medals was held on Monday, June 10, 1985, at 10:00 a.m., in the presence of His Majesty the Emperor.

The function was opened with an address by the President, in which he made a brief statement of each award. Then the Medals and Prizes were presented to the respective recipients.

After this, congratulatory addresses were given by the Prime Minister and the Minister of Education, Science, and Culture.

The function was closed at 11:35 a.m.

THE RECIPIENTS OF PRIZES AND THE SUBJECTS OF THEIR STUDIES

Ryo SATO

Studies on the Microsomal Monooxygenase System

The microsomal monooxygenase (electron transfer) system is an enzyme system that is located in microsomes of various animal tissues and catalyzes the incorporation of one oxygen atom from molecular oxygen into certain lipids and a large variety of foreign compounds. It plays a crucial role in lipid metabolism as well as metabolic disposal and detoxication of xenobiotics such as drugs, food additives and environmental pollutants. It is also involved in metabolic activation of carcinogens and in attenuation of their oncogenicity as well. Despite its biomedical importance, this enzyme system had eluded the attention of researchers until Dr. Sato's intensive studies initiated in the early 1960s. It is no exaggeration to say that the wealth of information accumulated, concerning this enzyme system, has stemmed largely from his pioneering work.

In 1962, Dr. Sato discovered that a microsomal carbon monoxide binding pigment, which he termed "P-450" (now called cytochrome P-450), is a hemoprotein, in spite of its anomalous spectral properties. This discovery is of special importance, because P-450 has since been shown to be an enzyme directly responsible for many of the microsomal monooxygenase activities. By using an ingenious method, he also succeeded for the first time, in purifying a species of P-450, an unusually labile protein, to homogeneity from liver microsomes. This method and its modifications have permitted the isolation of pure

P-450 preparations from various sources and thus facilitated detailed studies of their molecular and catalytic properties. His purification studies have further confirmed that multiple forms of P-450 occur in microsomes in different animal tissues.

Another achievement of high caliber is his discovery of a function of cytochrome b_5 , another component of the microsomal monooxygenase system. In 1970, he demonstrated that this cytochrome, a mysterious cytochrome, of then unknown function, is involved as an electron carrier in fatty acid desaturation; a monooxygenase reaction. In this study, he also discovered in liver microsomes a second key enzyme, called "cyanide-sensitive factor", which directly catalyzes the desaturation reaction.

Finally, it should be mentioned that, in 1968 Dr. Sato purified intact cytochrome b_5 and showed that it is an amphipathic protein consisting of a catalytically active, hydrophilic domain and a membrane binding, hydrophobic moiety. This was the first clear demonstration of the amphipathic nature of intrinsic membrane proteins and contributed a great deal to later studies of the structure of biomembranes.

Kei SUZUKI

History of Chinese Painting
Vols. I & II-a

The Author, SUZUKI Kei, emeritus professor of the Tokyo University, was professor of the Institute of Oriental Culture, the University of Tokyo, from 1965 to 1980. Specializing in history of Chinese painting, he published excellent reports in the *Memoirs of the Institute* (No. 38, 1965; No. 61, 1973; No. 79, 1979; special number for his Study of Ming Dynasty Painting) and also in the *Journal of the Japan Society of Art History* (No. 109, 1980), the *Kokka* (No. 1047, 1981 & No. 1053, 1982). Stimulated by the active study of Western scholars on Chinese art and painting, he visited many collections of Chinese paintings in museums, temples and private collections, not only in Japan and East Asia, but also in America and Europe. Assisted by his younger colleagues, during some fifteen years of research, he compiled a comprehensive archive of photographic documents of Chinese painting (ca. 200,000 photos) in the Institute of Oriental Culture. Its selected part is published in the Tokyo University Press: *Comprehensive illustrated Catalog of Chinese Painting*, 5 vols., 1982-1983.

This *History of Chinese Painting* is the latest work of his long,

intensive activities as Chinese art historian and connoisseur. In two volumes, he treats the Chinese painting from its origin to the end of the Sung dynasties. In the first volume, the author insists upon the role of Ku Kai Chih for the six dynasties painting and in T'ang period the role of Wu Tao Tsu for the formation of black ink painting, then upon the parallel development of coloured painting and black ink painting with reciprocal influences. The author endeavors to demonstrate the distinguished activity of North Sung painting. No other period in Chinese art history produced so many ingenious painters imbued with various tendencies, said he, and especially discusses the landscape painting of Guo Xi as the summit of North Sung Art at the beginning of XII century. In the second volume, he begins by explaining the real meaning of the Emperor Hui Tzun's leadership in the Art Academy; then, after the transfer of Sung Court to the South, concerning the date of the reopening of the Art Academy, he proposes a later date ca. 1062. This is much later than generally supposed; it will also coincide with the difference of style of Li T'ang's two famous paintings: the heavy coloured early landscape against the black ink later landscape. Finally, the author describes that the predominating Southern school of black ink painting, preparing the art of the Zenist circle, became the leading style of the South Sung painting. Apart from some description of Arhat figures, the author has little to say about the Buddhist painting. Considering the Landscape painting, some times with hermitic personages or birds and flowers, this represents the genuine spiritual main stream of Chinese painting.

As a general history of Chinese painting, each volume consists of two parts, the text and the illustrations, with an annex of detailed notes and index. (Vol. I, Text Part, 354 pages. Annex: Illustrations, 203 pages; Notes & Index, 158 pages, Tokyo, 1981. Vol. II-a, Text Part, 256 pages. Annex: Illustrations, 199 pages, Notes & Index, 107 pages, Tokyo, 1984.) The newly discovered archaeological documents are mentioned in detail, and many recent research reports from Western scholars are quoted. Professor Suzuki's *History of Chinese Painting* contributes to broadening our view point and renewing our sensibility for Chinese art history. His research is highly appreciated abroad, and a Chinese edition of his *History* is under preparation, both in the Continent and Formosa.

Akigoro TAGA
A Study of Chinese Genealogical Books

Zongzu lineage, 宗族 which is defined by the author as an integrated kin-group descended from a single male ancestor, has played a particularly important role in Chinese society through the ages, and genealogical books known as *zongpu* 宗譜 or *zupu* 族譜 were compiled by these kin-groups. The author studies these *zongpus* preserved in Japan, the United States and China, and investigates their origin, development and transmutation in connection with changing aspects of social history.

Family annals *jiapu* 家譜 compiled during and before the Tang dynasty were a product of aristocratic society. It was quite natural that the family annals were supervised by the government during the period when the family grade was the basis of appointment of government officials, but the control still continued after the abolishment of the system down to the Tang period. The author studies remaining family records of the Tang period discovered in the cave of Dunhuang.

The old type of genealogical records had declined along with the fall of the ancient aristocracy, and during the Song period, a new type of genealogical book *zongpu* 宗譜 appeared in connection with the rise of the literati *shidafu* 士大夫 as a social class. In the early stages the *zongpu* contained the information of family members dating back to fifth generation, but in later years the coverage of the contents became extended, placing no limitation on the number of generations to be treated. The compilation of genealogical books grew more and more important because of its function in strengthen the clan cohesion. According to the records found in the extant literary collection *wenji* 文集 of the Song period, we find that the number of genealogies compiled in the Southern Song was five times the number written in the Northern Song. Printed genealogies began to appear at the latest in the Yuan period.

During the period from the fifteenth to seventeenth century, the practice of compiling genealogies spread among the masses, who began to come to the fore economically and culturally. Lineages originally insisted on making strict distinctions between themselves and other lineages, but they began to find it advantageous to band together into larger groups, mainly because of the unstable social situation. As a result many of them began to find ways of compromising by joining together, with other clans, to set up a common ancestor and thus compiled amalgamated clan genealogies *tongpu* 通譜. By the end of the Ming dynasty *zongpu* genealogical books

came to take a standardized form which included sections designed to record blood relations, honourable titles, remarkable achievements, common properties, precepts and rules of a clan etc.

During the Qing dynasty, from the seventeenth to twentieth century, the number of the compilation of *zongpu* continued to increase, except in the area occupied by Taiping forces, in the middle of the nineteenth century, and it reached the peak in the closing years of the dynasty, during the Guangxu 光緒 and Xuantong 宣統 periods. The author's survey of *zongpus* extant in Japan, the United States and China shows that there were fewer compilation of genealogical books in the north than in the south and their contents are less complex in the former than in the latter.

The author then studies the relationship between the lineages and the state through an analysis of clan schools *zushu* 族塾 and public reading practices *xuanjiang* 宣講. Clan schools were the lowest rung on the ladder to the imperial examination system from the Song period to the end of the Qing period, but after the abolition of the imperial examination and the introduction of the new educational system the *zushu* declined. The public reading of imperial edicts, formerly practiced in the local covenant groups and rural villages, was adopted in the later years by lineages. Sacred edicts of Qing emperors as well as clan rules and family precepts were read out loud, but as there existed conflicting ideas between the requirements of the state and the lineage, partial changes of the contents of texts became necessary. Some sort of punishment for a violation of clan rules was executed in the ancestral shrine of the clan.

The author describes the results of his field survey concerning present day genealogy compilation in the Kowloon peninsula in Hongkong. His catalogues of *zongpu* collections existing in the public libraries and institutes of Japan, the United States and China are very useful for future studies.

Although there are some points to be added and corrected, this publication, in two volumes, is regarded to be a pioneering work in a new field of Chinese social history.

Minao HAYASHI

Studies on the Yin and Zhou Bronzes

— Conspectus of Yin and Zhou Bronzes, Vol. I —

The present book forms Volume I of the *Conspectus of Yin and Zhou Bronzes*, a study to be published in three volumes. The Text of this first volume consists of two parts: part I presents a survey of the ritual vessels, while part II presents a detailed typology of

the different bronzes. In part I, a preface is followed by a description of the discovery of the ritual bronzes, and of their collection and study in China, Japan, Europe and America. Part I, Chapter 3 is concerned with the terminology used for the different vessel types. Chapter 4 is concerned with the categories of vessels cast at different dates and with the purposes for which they were used. The author is particularly interested in the subject of the rites, or occasions, on which the vessels were used and in recipients of the offerings. The fourth section of chapter 4 considers the different combinations of vessels used in different periods and suggests related changes in the rites. In the second part of the fourth section of chapter 4, eight charts set out the range of vessels found in particular tombs, together with sets of vessels assembled from several sources (each set being defined by a shared inscription).

Part II of the Text is devoted to a detailed study of the typological changes of the vessel shapes. Before embarking on the analysis of the shapes, the author prefaces this part with a consideration of the chronological frame work. In part II, chapter 1, section 2, the division between the major stages of development are listed. Chapter 1, section 3, contains the main discussion of the typological development of each bronze type. This analysis is set out in the form of a series of charts with an accompanying explanation. The typology of the different bronze types have been related to one another chronologically on the evidence of a corpus of vessel sets. In chapter 2 of part II, the vessel sequences, established in the previous chapter, are used to provide examples of the decoration typical of the different stages of the Yin and Zhou periods. In chapter 3, the same procedure is applied to describe the main characteristics of the inscriptions of different periods. In section 1 of this chapter, the inscriptions are divided by calligraphic style and representative samples of the different stages are illustrated. Section 2 is devoted to a discussion of the evolution of the structure and formulae of the inscription.

The Plate in this volume illustrates photographs of 3,541 vessels from Yin to Western Zhou and early Spring and Autumn period accompanied with rubbings of inscriptions. The photographs are sorted according to vessel type, and arranged in chronological order based on the study presented in part II of the Text.

Toshihide MASKAWA and Makoto KOBAYASHI
Proposal of the Six Quark Model

The quark model was first proposed in 1964 by Gell-Mann and

Zweig. This model assumes that hadrons, namely elementary particles such as protons, neutrons, Λ -, Σ -, Ξ -particles and all kinds of mesons, are composed of quarks. Quarks are strange particles which possess $\pm 1/3$ or $\pm 2/3$ of elementary electronic charge and are never observed in isolation. The quark theory has been extremely successful in elucidating many important facts and predicting new phenomena. Still the ultimate structure of the ultra-microscopic physical world remains unknown and is the goal of intense efforts of physicists of the present day. The work of Maskawa and Kobayashi marked an important step in the recent developments of quark physics.

The original model assumed three kinds of quarks, u, d, and s in order to explain the phenomenological SU(3) symmetry of strong interaction known at that time. The fourth quark was later introduced by Maki, Hara and other investigators and was called the "charm particle". Its existence was confirmed experimentally by the discovery of J/ψ particle by Ting and Richter in 1974. Before this time there were two discoveries which paved the way for the invention of the six quark model. One was the idea of Cabibbo (1964) that quarks are really mixed so that different quarks are not proper states of the mass. This idea was introduced in order to understand the instabilities of quarks against weak interactions. Another was due to Fitch and Cronin (1964) who found experimentally that CP invariance is violated in disintegration process of neutral K mesons.

The Kobayashi-Maskawa theory appeared in 1973. They examined all possible representations of $SU(2) \times U(1)$ gauge group the four quark model can assume in the framework of the Weinberg-Salam theory and proved that the four quark model cannot explain the above-mentioned CP violation. The authors proposed general mechanisms to solve the difficulty. The simplest and most elegant one, which is in harmony with the existent experimental facts, is the six quark model which assumes three generations of quarks. The mass matrix introduced by Kobayashi and Maskawa extending the Cabibbo theory is now widely used as the standard theory in analysis of weak interactions in high energy physics. The existence of the fifth quark, one member of the third generation pair, was confirmed by Lederman, Yamanouchi and their collaborators in 1977. There are experimental indications for the sixth quark, "top quark" as commonly called, but confirmation of its existence remains the target of great efforts in high energy physics laboratories at present. Even so, the Kobayashi-Maskawa theory is already an established theory predicting the existence of three or more generations of quarks and has survived a severe battery of experiments. The far-reaching foresight of the authors is particularly impressive, if one considers the fact that their work was completed at the time when only three quarks were known and the concept of generations had not yet been established.

Tomoko OHTA
Theoretical Studies on Population Genetics
at the Molecular Level

During the last decade and a half, Tomoko Ohta has made many important contributions in the field of population genetics, particularly with respect to the mechanism of evolution and variation at the molecular level. Dr. Ohta's main contributions are as follows:

1) Development of a new, very powerful method, based on the diffusion equation method, to compute the amount of linkage disequilibrium (i.e. non-random association of alleles between different loci) due to random genetic drift in finite populations. Dr. Ohta's work on this subject has become a standard part of population genetics literature.

2) She advocated that, in addition to selectively neutral mutations, we must consider the possibility that a majority of mutations at the molecular level are very slightly deleterious with a selective disadvantage of the order of the mutation rate or slightly larger. This opened the way toward refining and making more realistic, the neutral theory of molecular evolution by incorporating "selective constraint" in terms of the molecular structure and function. Dr. Ohta has done much to formulate mathematical models along this line.

3) More recently, as soon as the "Mini-revolution" of molecular biology started, with new, remarkable discoveries coming one after another regarding genetic organization of eukaryote genomes, she pioneered in incorporating these new discoveries into mathematical population genetics. In this, Dr. Ohta has been eminently successful, and has developed a solid theoretical framework to treat the evolution and variation of multigene families. There is little doubt that this line of work will become more important as time goes on. Dr. Ohta's monograph (1980) entitled "*Evolution and Variation of Multigene Families*" (Springer) has attracted much attention in the field since its publication.

Yoshiaki ARATA
Development of Ultra High Energy Density Heat Source
and its Application to Heat Processing

Dr. Arata is a pioneer in the development and application of ultra high energy density heat sources. By systematically bringing to light the thermal processing characteristics of various high power,

high energy density heat sources, he has opened the way to the establishment of new thermal processing engineering as well as practical applications. The following is an outline of his varied accomplishments.

He developed a high power CO₂ laser welding and cutting device which was the first machine of its kind in the world, thus introducing full-fledged high power laser heat processing. He successfully invented an epochal beam focusing system, for large output lasers, by combining concave and plane mirrors. This was later introduced as the "Arata Laser Focusing System", and is now internationally utilized with the determined recognition.

He also invented a variety of "electron gun for high power output" and "electromagnetic acceleration unit". By combining these units, he succeeded in constructing strong focusing type multi-stage accelerating electron beam heat sources, which were the largest in the world. As a result he successfully developed the "Ultra Thick Plate EB Welding Method". His achievements opened the road to full-scale, large output electron beam welding throughout the world. Moreover, he developed the "Tandem Electron Beam Welding Method", a unique welding method using two electron beams. He also engineered the utilization of a "Non-Vacuum Electron Beam". In these unique welding methods he clarified beam behavior and source characteristics, by which he gained further international recognition. His contribution to the industrial development of plasma heat processing is also noteworthy. He was first to develop the "Plasma Jet", in Japan, and this led the way to the practical application of plasma cutting. By the development of the "Gas tunnel", he achieved the generation of a high energy density plasma beam.

Other achievements of Dr. Arata, acknowledged by specialists throughout the world, are his series of fruitful research work on the interaction between a high energy density beam and various materials, which he described as the "heat processing characteristics". For instance, the basic behavior of beam and beam hole, previously unknown, during heat processing by laser or electron beam was systematically clarified by direct observation with X-ray and optical methods. Each step of this behavior was clearly recorded on film, thus furthering the general understanding of the phenomena involved and earning him even wider recognition, among researchers, around the world. For this accomplishment, he was awarded many prizes. His contribution in this field is easily understood by looking at the many technical terms labeled with the name "Arata", for example, the "Arata Beam Test Method".

Another important contribution dealt with the analysis of the nature of the weld zone, to which Dr. Arata's new heat conduction theory of a "band" heat source was applied. It clarified various

phenomena in the weld zone as well as in the heat treated areas on a scientific basis.

As described above, Dr. Arata's greatest achievements lie in the central contribution he made to the problem of high power, ultra high energy density heat sources, not to mention the numerous practical applications he also pioneered through his research work.

Shosaku NUMA

Studies on the Molecular Mechanism of Neural Signal Transmission

The nicotinic acetylcholine receptor and the sodium channel are membrane proteins that function as ligand-gated and voltage-gated ionic channels, respectively. They modulate the ionic permeability of electrically excitable membranes, thus playing an essential role in neural signalling. Dr. Shosaku Numa's studies on these channel proteins and related themes are summarized below.

He has elucidated the primary structures of all four subunits of the acetylcholine receptor by cloning and sequencing the cDNAs. This investigation has shown that the four subunits exhibit marked amino acid sequence homology and are similar in hydropathy profile and predicted secondary structure, thus being oriented most probably in a pseudosymmetric fashion across the membrane. He has further studied the structure-function relationship of the acetylcholine receptor by means of site-directed mutagenesis of the cDNA combined with functional analysis of receptor mutants produced in *Xenopus* oocytes. This study has allowed the location of functional regions of the acetylcholine receptor, such as those involved in acetylcholine binding and in the formation of the ionic channel.

Dr. Numa has also elucidated the primary structure of the sodium channel by cloning and sequencing the cDNA. It has thus been revealed that this protein molecule has four internal repeats with homologous sequences, which are oriented presumably in a pseudosymmetric fashion across the membrane. Each repeat contains a unique segment with clustered positively charged amino acid residues, which may be involved in the voltage-dependent gating of the channel possibly in conjunction with negatively charged residues clustered elsewhere.

Relevant to neural signal transmission is also his work by which the primary structures of the three opioid peptide precursors and the corticotropin-releasing factor precursor have been elucidated from the cDNA sequences. This investigation has afforded the first example of the discovery of biologically active peptides from the DNA sequences encoding them. The structural similarity found among the

opioid peptide precursors, each containing multiple repetitive units (melanotropin or enkephalin), as well as among their genes suggests that these genes are evolutionarily related.

Thus Dr. Numa's work, introducing recombinant DNA technology into the field of neuroscience, has made an essential contribution to the study of the molecular mechanism of neural signal transmission.

Yuichi YAMAMURA

Cell-mediated Immunity and its Modulation

Dr. Yamamura, who has been engaged in studies of cell-mediated immunity for the last 35 years, has made a remarkable contribution to the understanding of the molecular mechanisms of immune responses, and his works are internationally acclaimed. Dr. Yamamura was first to discover that a tuberculosis cavity can be formed in the lung, by injecting the killed tubercle bacilli into a sensitized rabbit, and determined the pathogenesis of tuberculosis cavity-formation as a consequence of the delayed type-hypersensitivity reaction to the component of the tubercle bacilli, particularly to its constitutive tuberculin-active peptide. He also succeeded in prevention of the tuberculosis cavity-formation by desensitization of animals with tuberculin-active peptide. Subsequently, he found that immunomodulating activity of the tubercle bacilli and its related microorganisms localized, almost exclusively, in the fraction of cell wall skeleton (CWS). He purified CWS from *Bacille Calmette-Guérin* (BCG) and *Nocardia rubra* (N), and found that injection of BCG- and N-CWS induced an augmented generation of killer T cell activity which was highly effective for eradication of the growing syngeneic transplantable tumor in animals. Such anti-tumor activity of BCG- and N-CWS was also demonstrated in the inhibition of carcinogen-induced primary tumors in animals, such as 3,4-benzopyrene-induced murine and rat lung cancer and 3-methylcholanthrene-induced rabbit lung cancer. These findings are particularly important in that a sophisticated system to induce lung cancer in experimental animals was established first, and the activity of aforementioned immunomodulating agents was examined for the prevention of the outgrowth of the primary tumor.

Based on these basic animal experiments, Dr. Yamamura further extended his studies to the examination of the activity of N-CWS by the well-controlled randomized trials on patients in the late stages of cancer, and unequivocally demonstrated that the treatment of N-CWS significantly prolonged the survival time of the non-curative resection patients of stomach cancer and small cell lung-cancer

patients. Particularly important to note, is the fact that intrapleural injection of N-CWS strikingly reduced the pleural effusion of pleuritis carcinomatosa, and strikingly improved the performance status of patients. Furthermore, Dr. Yamamura synthesized and screened a battery of derivatives of muramyl peptide which represents the minimum structure to express the immunomodulating activity of CWS, and eventually determined the quinoyl muramyl peptide as a compound with the most potent anti-tumor activity.

Along with the analysis of the cellular mechanisms of augmented induction of anti-tumor immunity by such immunomodulating agents, Dr. Yamamura also studied the molecular mechanisms of immunomodulation. He established human T cell hybridomas which produce a variety of immunoregulatory factors, and characterized the unique molecules which govern the killer T cell-differentiation or B cell growth and/or differentiation. As a consequence, his findings greatly contributed to the construction of a unique concept for the process of lymphocyte differentiation which comprises a consecutive array of the cellular activation process governed by a series of active immunoregulatory molecule derived from T lymphocytes. In addition, by utilizing T lymphocytes in pleural effusion of a lung tuberculosis patient, he established a T cell hybridoma which produced a suppressor T cell factor specific for immunoglobulin(Ig) E, and demonstrated that the factor is a potent immunomodulator to suppress selectively seder pollen-specific IgE antibody response of the B lymphocytes from allergy patients.

Dr. Yamamura has made a great contribution to the study of immune modulation, particularly relevant to the control of human diseases, and his accomplishments have been greatly acclaimed and appreciated by the world of biomedical science.

PROCEEDINGS AT THE 790TH GENERAL MEETING

The 790th General Meeting of the Academy was held on Tuesday, June 11, 1985, at 1:00 p.m., Dr. Hiromi ARISAWA, President, taking the chair. Ninety-two members were present, and the following communications were made:

- Corporate social responsibility Takeo SUZUKI, M. J. A.
 Reforme of Sumitomo's household by Irie Tomotoshi —*Tsutomekata chō*— Mataji MIYAMOTO, M. J. A.
 A formula of eigenfunction expansions II. Exterior Dirichlet problem in a lattice Kazuhiko AOMOTO
 The Riemann-Roch theorem and Bernoulli polynomials Tetsuya ANDO
 Above two, communicated by Kunihiro KODAIRA, M. J. A.
 Sur la théorie des suites presque-périodiques. II Jean-Loup MAUCLAIRE
 Communicated by Shokichi IYANAGA, M. J. A.
 Age-related protein detected in human brain by isoelectric focusing Toshihiro YASUDA and Koichiro KISHI
 Communicated by Shoei ISEKI, M. J. A.
 Studies on the karyotype differentiation of the Norway rat. XVII.
 Translocation between the pair nos. 9 and 14 in the F-344 strain rat developed after γ -irradiation and its genetical investigations Toshihide H. YOSIDA, Takashi HAMADA, Masayasu Y. WADA, and Hiroshi IKADAI
 Studies on the karyotype differentiation of the Norway rat. XVIII.
 Frequency of the chromosome polymorphism in the pair no. 3 of the wild population in Osaka prefecture Toshihide H. YOSIDA and Masashi HARADA
 A case of mental retardation having pericentric inversion on no. 9 chromosome (inv(9)(p11q13)) Suzue KANATA, Tetsuji KADOTANI, Yoko WATANABE, Nami MATSUO, Hidetoshi KODAMA, and Setsuji KUBO
 Karyotypic studies of five species of Anguilliformes (Pisces) Akinori TAKAI and Yoshio OJIMA
 Above four, communicated by Sajiyo MAKINO, M. J. A.
 The Poincaré lemma for a variation of polarized Hodge structure Masaki KASHIWARA and Takahiro KAWAI
 Virtual characters and constant coefficient invariant eigendistributions on a semisimple Lie group Kyo NISHIYAMA
 The existence of spectral decompositions in L^p -subspaces Earl BERKSON and T. A. GILLESPIE
 Continuum of ideals in $R(\Phi_2) \otimes_{\max} R'(\Phi_2)$ Liang Sen WU
 Universal central extensions of Chevalley algebras over Laurent polynomial rings and GIM Lie algebras Jun MORITA and Yōji YOSHII
 Remarks on a closed subalgebra of a Banach function algebra Osamu HATORI
 On the positive solutions of an Emden-type elliptic equation Nichiro KAWANO, Junkichi SATSUMA, and Shoji YOTSUTANI
 Above seven, communicated by Kōsaku YOSIDA, M. J. A.
 Atrophy of salivary glands and pancreas of rats fed on diet with amino-methyl- α -carboline Shozo TAKAYAMA, Yoko NAKATSURU, Hiroko OHGAKI, Shigeaki SATO, and Takashi SUGIMURA, M. J. A.

- Molecular structure of human renin and its gene Kazuo MURAKAMI and Naoto UENO
 Communicated by Hisateru MITSUDA, M. J. A.
- Electrocardiograms recorded from the body surface of the carp . . .
 Saburo UENO, Hiromasa
 YOSHIKAWA, Yoshinari ISHIDA, and Hisateru MITSUDA, M. J. A.
- The mitochondrion: The prime site for a host-selective toxin (ACR-
 Toxin I) produced by *Alternaria alternata* pathogenic to rough lemon
 . . Keisuke KOHMOTO, Tetsuyuki KOHGUCHI, Yukari KONDOH, Hiroshi
 OTANI, Syoyo NISHIMURA, Shin-ichi NAKATSUKA, and Toshio GOTO
- Nucleotide sequence of grapevine viroid: a grapevine isolate of hop
 stunt viroid Teruo SANO, Kazusato OHSHIMA,
 Ichiro UYEDA, Eishiro SHIKATA, Tetsuo MESHI, and Yoshimi OKADA
 Above two, communicated by Naohide HIRATSUKA, M. J. A.
- μ Cep as an indicator of the telluric H₂O lines in the photographic in-
 frared spectral region Yoshio FUJITA, M. J. A.

After a recess during which the members present met in their respective Sections, the General Meeting was resumed for business transactions.

First, the President announced that Dr. Ryôichi TAOKA, M. J. A., had passed away on May 29, 1985. The members rose from their seats in silence, expressing profound sense of grief.

Next, Dr. Toshio KUROKAWA, M. J. A., paid a tribute of admiration to the late Dr. Shinji TAKAHASHI's meritorious services to academic circles.

Then, the Chairmen of both Sections made reports of the matters dealt with at the respective Sectional Meetings.

Finally, it was reported on the result of election of half the members of the Administrative Committee, which had taken place at the Sectional Meetings. The Committee members elected are: Tatsuro YAMAMOTO, Tsunahiro KIKUI, Yoshitaro WAKIMURA, Yoshio FUJITA, Ichiro TANI, Naohide HIRATSUKA, and Toshio KUROKAWA.

The meeting adjourned at 4:40 p.m.

日本学士院紀要

昭和六十年六月 第六十一巻A 第六号

昭和六十年七月五日 印刷

昭和六十年七月八日 発行

編集兼
発行者 日本学士院
東京都台東区上野公園 七の三十二

印刷所 株式会社 東京プレス
東京都板橋区桜川二丁目二七の十二

印刷者 依田高夫
東京都板橋区桜川二丁目二七の十二

Printed by

TOKYO PRESS COMPANY LIMITED

No. 27-12, Sakuragawa 2-chome, Itabashi-ku,
Tokyo 174 Japan

Tel.: (932) 9291~4

