Award of Medals

The Seventy-fourth Annual Award of Medals was held on Monday, June 11, 1984, 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: 25 a.m.

The Recipients of Prizes and the Subjects of Their Studies

Seizen Nakasone

A Dictionary of the Nakijin Dialect in the Okinawa Island
— Studies on the Nakijin Dialect: the Part of Vocabulary —

The dialects of the Okinawa Island can be divided into two geographical entities: the Central-Southern dialects (represented by the Shuri dialect) and the Northern (or Kunigami) dialects. The latter are those of the territory which is assumed to have been closely connected with the Hokuzan, in the era when the Ryukyu Kingdoms stood in a triangular position: Chūzan, Nanzan, and Hokuzan.

The Kunigami dialects are well-known for preserving some archaic features, which have by now been lost in the Central-Southern dialects. For example, Kunigami *pana* «flower; nose»: Shuri *hana* «id.».

We have *A Dictionary of the Okinawa Language* (*Okinawago Jiten*, 1963), which is in reality that of the Shuri dialect, so that the publication of a similar comprehensive dictionary of a Kunigami dialect has been awaited for a long time by students of Japanese linguistics.

Professor S. Nakasone's dictionary is a purely synchronical description of the dialect of the Yonamine hamlet, the Nakijin village in Kunigami District, i. e. the dialect of his own and his father. He was born in 1907 in this hamlet, which is very close to the ruins of the Hokuzan castle. After having graduated at the Tokyo Imperial

University in 1932, he began to describe his native dialect, while teaching in the Third Prefectural Middle School of Okinawa (now in Nago City). In 1945, as a misfortune of the War, he lost all his materials, and had to start his work anew.

The dictionary contains more than fifteen thousand entry words, transcribed both in notation based on Kana and in phonological notation, as well as with accent marks. The meaning is described in Standard Japanese, with abbreviated names denoting the parts of speech and the conjugational pattern. Basic words are especially provided with many textual examples, and stylistic sememic features such as infantile, archaic, bookish, new, rare, etc. are mentioned when it is necessary. Related folk customs are often described.

Classics such as the *Kojiki*, the *Nihonshoki*, the *Man'yōshū*, etc., and the Ryukyuan documents such as the *Omorosōshi*, the *Konkōkenshū*, the *Ryūkyūkoku-yuraiki*, etc. are referred to, and the corresponding forms in the modern Japanese dialects, especially the Kyushu dialects, are shown. Special attention is paid to the related words in the *Okinawago Jiten*, the *Amami-hōgen Bunruijiten*, the *Nippon Hōgen Chizu*, and the *Zusetsu Ryūkyūgo Jiten*.

In the Commentary, the phonology, the conjugation of verbs and adjectives, and the accent-patterns are explained in detail, with the appended succinct lists of conjugational forms of verbs, adjectives, etc.

The Index enables one to find the Yonamine words by means of Standard Japanese.

The Appendices contain, among others, Ryukyuan place-names in the Yonamine pronunciation.

In short, this dictionary, which describes an extremely small dialect of one hamlet, is the most precise, comprehensive, and systematic one ever published in Japan. In spite of its geographical limitation, it has established a very important and reliable basis for the diacronical-comparative studies of Japanese in the broadest sense.

Gakuzo TAMURA

Studies on an Isoprenoid Precursor, Hiochic Acid and a Specific Inhibitor of Polyprenol-Mediated Glycoconjugate Biosyntheses

Organic life on this earth consists of several common components such as nucleic acids, proteins, polysaccharides and lipids, which include the isoprenoids and glycoconjugates.

During the past 40 years Dr. Tamura has devoted his efforts to research on microbiology, biochemistry and cell physiology, and has contributed greatly to the life sciences as well as industry. Some of the most important contributions from his extensive research have been in the field of biosynthesis of isoprenoids, and their roles and functions in living processes.

Native Japanese rice wine, "sake", is one of our country's unique products in the world. The so called "hiochi" phenomenon, the unusual destroyer of "sake", threatened the Japanese brewers for a long time. More than 300 years prior to the discovery of the effects of pasteurization by Louis Pasteur, the Japanese brewers knew empirically how to prevent "hiochi" by using low temperature sterilization. In the Meiji era, Dr. Atkinson, an English professor of chemistry invited to The University of Tokyo, found that "hiochi" was caused by bacterial contamination. The "hiochi" bacteria are unique, since they would not grow in any artificial media unless an appreciable amount of "sake" was added. This property of the "hiochi" bacteria evoked a deep interest in Japanese scientists but their intensive research remained unsettled, only suggesting that some unknown growth factor must be present in "sake".

In 1956 Dr. Tamura first succeeded in isolating the growth factor from the culture filtrate of koji fungus, *Aspergillus oryzae* and elucidated its structure as 3,5-dihydroxy-3-methyl-valeric acid. He named it hiochic acid.

At approximately the same time, Dr. K. Folkers, an American biochemist, and his colleagues isolated an acetate-replacing factor for *Lactobacillus acidophilus* that requires acetate for growth, and named it mevalonic acid. In 1958 Dr. Tamura and Dr. Folkers had jointly confirmed that hiochic acid and mevalonic acid were identical substances.

The discovery of hiochic acid was fruitful and timely, since it was soon established that it is the common precursor of diverse isoprenoids. Owing to its discovery, biochemists have been able to evaluate many new biosynthetic pathways of isoprenoids.

Complexed carbohydrates are also essential elements for life. Cell surfaces are covered with inherent complexed polysaccharides whose carbohydrate moieties are first intracellularly synthesized, and then translocated to the cell surface via the polyprenol-mediated mechanism. During his studies on antiviral antibiotics, Dr. Tamura and his colleagues found in 1971 a new antibiotic that produced specific morphological changes in sensitive microorganisms. This suggested that the antibiotic inhibited the biosyntheses of certain components on the cell surface or envelope. He named it tunicamycin

from *tunica* in Latin meaning coat, envelope or surface. Dr. Tamura and his colleagues have shown that tunicamycin selectively inhibits the biosyntheses of polyprenyl-carbohydrate conjugates such as dolichyl pyrophosphoryl-N-acetylglucosamine and undecaprenyl pyrophosphoryl-N-acetylmuramylpentapeptide. Through their studies, tunicamycin has become a popular tool among the biochemists who study complexed polysaccharides, *i.e.*, the glycoconjugates. At the present time tunicamycin is a standard agent for the studies of the biosyntheses, roles and functions of glycoconjugates.

At the start of his scientific carrier, Dr. Tamura isolated the unknown isoprenoid precursor, hiochic acid, then expanded his research to isoprenoids and polyprenol-mediated glycoconjugates. From this point of view, it is needless to say that the backbone of his research is isoprenoids. His pioneering works on hiochic acid and glycoconjugates have opened new fields in the life sciences, especially in microbiology, cell physiology and membrane biochemistry.

Arikiyo SAEKI

A Study of the Chronicle *Shinsen Shoji-roku*: Commentary Part

The chronicle *Shinsen Shoji-roku* is a kind of register book which contains the facts, officially recognized and recorded in 815 AD by the then existing Government, regarding ancestors and their personal histories of the families residing in the central provinces in Japan. This book has been regarded as by men of letters an important classical work indispensable for the studies on ancient history in general as well as those on lineages and family names. Dr. Hiroshi KURITA's *Shinsen Shoji-roku Kosho* (A commentary on the chronicle *Shinsen Shoji-roku*) has, since its publication in 1900, been generally recognized to be one of the most reliable annotated editions of the chronicle *Shinsen Shoji-roku*. In the meantime, however, it has turned out that Dr. KURITA's commentary is in some aspects unable to correspond to the later progress of the learned society concerned.

Prof. SAEKI, after making a thorough and prolonged investigation into this chronicle, published his *Shinsen Shoji-roku no Kenkyu* (A study of the chronicle *Shinsen Shoji-roku*), composed of two parts, namely, Part of Text Critique and Part of Researches from 1962 to 1963. The former is a revised text of the chronicle *Shinsen Shoji-roku*, standardized by collecting and comparing various kinds of

handwritten and printed editions. The latter is a result of his research and introduces his new views, attained by criticizing many results of past researches and clarifying many questions posed in regard to the chronicle *Shinsen Shoji-roku*.

This historical study presented by him received favorable reviews at that time as an epoch making study of the chronicle *Shinsen Shoji-roku*. Prof. SAEKI, however, continued to make ceaseless researches into this subject and spared no efforts to complete a word by word interpretation of the text. The fruit of his hard work of 20 years, this Commentary Part in 6 volumes appeared between 1981 and 1983. These volumes, completely based on the revised standard text, first give a transliterated reading of the text and then detailed accounts concerning as many as 1182 families, of the origins of family names, personal histories of ancestors, distribution of families, and activities of an individual family member, making the most use of all the historical documents referring to this subject.

The results of his study greatly contributed to the increase in reading of the text which had long remained inaccurate, to the explanation of the origin of family names and to the elucidation of historical facts, such as the distribution of families and the activities of individual family members.

For these reasons, Prof. SAEKI's present work must be valued highly for the merits of having laid a solid foundation for the advancement of researches in the field of ancient history of Japan.

Zuihō YAMAGUCHI

A Study of the Establishment of the T'u-fan Kingdom

This study deals with the process of the establishment, in the first half of the seventh century, of the ancient Tibetan T'u-fan kingdom which became a powerful contestant of China under the T'ang Dynasty. The book consists of a series of critical studies about historical facts of this period and is divided into three parts.

In Part I, entitled "Critical Researches on the Protohistory of T'u-fan", the author begins his work by making a historical survey of previous studies, adding critical comments (chap. 1, 2), and explains the nature of source materials: classical, medieval and others (chap. 3). He then proceeds to analyze the number of generations in the traditionally-believed ancestry of the Yar-lung dynasty, which became the nucleus of the ancient T'u-fan kingdom, and confirms

that there actually existed only six generations before Srong-btsan-sgam-po, the founder of the unified kingdom (chap. 4). The author argues that the forefathers of the Yar-lung dynasty belong to the Phyva tribe which practiced intermarriage with the dMu tribe of the Western region, and the Bon religion practiced by the latter was transmitted to the former, and that the former became more powerful in the Eastern region (chap. 5). He then identifies the names of the tribes and kingdoms described in the Chinese sources (chap. 6).

In Part II, named "the Development from the Yar-lung Royal Family to the T'u-fan Kingdom", Yamaguchi traces the history of the transition from the local dynasty of the Yar-lung valley to the leading political power in Central Tibet under King Khri-slon-mtshan (chap. 1), studies the genealogy of Srong-btsan-sgam-po and the names of his prime ministers (chap. 2), traces the political events during the first half of his reign, paying special attention to the relations with T'u-yü-hun and the war with T'ang (chap. 3), clarifies the date (A.D. 640) of the entry of the Chinese princess Wên-ch'êng kung-chu (Mun-chang kong-co) into Tibet (chap. 4), explains the circumstances under which Srong-bstan-sgam-po ascended the throne for the second time (chap. 5), relates the process of establishment of the unified T'u-fan kingdom supported by the oath of eternal allegiance of major clans (chap. 6), and finally describes the achievements of the reign of this king: the creation and establishment of the Tibetan alphabet, the system of official ranks, the judicial system, the unification of weights and measures etc. (chap. 7).

In Part III, entitled "Foreign Relations and Domestic Administration of the T'u-fan Kingdom", the author investigates the birth and death dates of Srong-btsan-sgam-po (chap. 1), explains the establishment of *chiu-shêng* (maternal grandfather and grandchild) relationship between T'ang and T'u-fan (chap. 2), describes the process of the first marriage of Wên-ch'êng kung-chu with Gung-srong-gung-rtsan and her second marriage with Srong-btsan-sgam-po who had reascended the throne (chap. 3). Yamaguchi then explains the expansion of political power of T'u-fan over T'u-yü-hun and the relations of the former with Nepal (chap. 4, 5), the legal system of the T'u-fan period (chap. 6) and finally the military organization, including the "Great Conscription and Requisition System".

Although there remain some debatable points, the author's critical views and new ideas, formulated by frequent use of Tibetan texts found in Tun-huang written, at the latest in the first half of the ninth century, can be regarded as showing the highest level of achievement ever reached by Tibetologists concerning controversial problems pertaining to the ancient history of Tibet.

Masao ISHIMOTO

A Study of the Liability without Fault: *Culpa levissima* in Roman Law from a Comparative Perspective, Vols. 1 & 2

This work is an unprecedented attempt by the author to find a historical basis of the contemporary doctrine of strict liability (or liability without fault) in civil law through a painstaking comparison of changing rules and their interpretation in Roman law of different ages. The author's effort centers in elucidating the meaning of *culpa*. The concept of *culpa* in Roman law, being an approximate equivalent of English culpability or German Verschulden, constituted a prerequisite for a civil liability and consisted of both objective and subjective elements.

In the first volume the author follows the evolution of the meaning and function of *culpa* through different eras of ancient Rome, from Republican to Byzantine. He finds that, at the time, the main component of *culpa* was an objective element of the lack of precaution, *diligentia*. In certain situation where an utmost precaution, *diligentia exactissima*, was required, what was called *culpa levissima* or a lightest culpability was enough to constitute a liability. Moreover, there existed also a special strict liability of *custodia*. He explains that the liability arising from *culpa levissima* shared the same nature as that of *custodia*, and from that concludes that an equivalent of the today's strict liability was recognized throughout the ages of ancient Roman law.

In the second volume the author proceeds to follow the development of interpretation by the glossators and post-glossators of later ages, who tended to attach more importance to the subjective element, viz., the duty of precaution, eventually opening an avenue to the modern concept of *foreseeability* as a basis of civil liability. But at the same time, interestingly enough, the liability based on *culpa levissima* kept receiving an unchanged recognition, according to the author.

The author's contribution to the legal scholarship through this 2 volume work can be summed up as follows:

He introduced a novel and original method called the *historical comparison* in order to determine the function of a legal concept in the past and probe its possibilities in the contemporary art of legal interpretation. Thus, he analyzed the concept of *culpa levissima* and its functional trasition in the long history of Roman law. This led to his criticism of the over-simplified present-day dichotomy between fault and non-fault. This is a suggestion of a multi-variable approach

to the problems of civil liability, which seems much needed, in our view, to solve novel questions arising today in this area of law. His message is of particular practical interest, therefore, when we realize that our courts have already been adopting something very similar to the doctrine of *culpa levissima* in order to grant relief to pollution victims, for example.

Takashi TSUJI

Theoretical Study of the Outer Layers of Cool Stars

Cool stars, the effective temperatures of which range from approximately 1500° to 4500°K, are classified into three branches of spectral type M, S, and R-N(or C). The spectral features of these three types are generally characterized by the predominance of TiO, ZrO, and C_2 and CN bands respectively. As the understanding of the physical properties of cool stars is closely connected with the theoretical development of stellar nucleogenesis and evolution, it is necessary and important to study the outer layers of these stars.

Tsuji intended to analyse theoretically the chemical composition and some physical properties of the outer layers of cool stars. For this purpose he studied the molecular abundance, molecular opacity and atmospheric structure of these stars. The quantitative analysis of spectra of cool stars was also one of the items of his studies. Through these studies he became known throughout the world as one of the pioneers of the theoretical study of the outer layers of cool stars and many investigators concerned could effectively develop their research work by following his basic ideas.

Tsuji discussed in detail the problem of dissociative equilibrium in cool stars by taking into account many polyatomic molecules composed of various combinations of H, C, N, O and many metallic elements. In his calculation he tried to use up-to-date molecular constants as much as possible. It should be stated that his prediction for the appearance of such polyatomic molecules as HCN, C_2H_2, CH_4 and C_2H etc. in cool stars was proved by the observational results obtained with large optical and radio telescopes.

The model atmosphere approach in cool stars is especially difficult in comparison with that in hot stars. Since in cool stars many molecular compounds are contributors to the opacity of the outer layers, theoretical treatment of non-grey atmospheres is not as easy. Tsuji developed a new method which is useful for the calculation of

non-grey atmosphere. Finally he established the model atmospheres of M giants, M super giants, and carbon stars. The energy flux obtained from his model atmosphere calculations shows good agreement with photometric observations. Thus Tsuji's model atmospheres of cool stars became standard models by which many investigators in the world could try and extend their own models in connection with the theoretical study of the outer layers of cool stars.

The temperature scales of M giants and M super giants, which were derived from the energy distribution calculated by Tsuji's model atmospheres also show good agreement with the observations obtained from interferometric study of angular diameters of these stars.

Further, Tsuji obtained the chemical abundance of important elements in some cool stars by comparing his own spectroscopic observations with his calculated model atmospheres and gave some interesting theoretical interpretations on the outer layers of these stars.

Due to his distinguished contributions to the astronomical world, Tsuji was invited to several research institutions in the U.S.A., Germany and France where he could carry out his research programs by himself or occasionally in collaboration with his research colleagues.

Hiromu SUZUKI

Researches on High Precision Tandem (Continuous) Rolling

Since 1925, the stress and strain in material being rolled have been analyzed by many researchers and the results of their analyses form the basis of present-day Rolling Theory.

Dr. Suzuki has pointed out that further improvement of gauge accuracy of rolled materials and rolling productivity, both of which are most important subjects in the field concerned, could not be accomplished independently, simply by the above-mentioned Rolling Theory alone. He has, however, revealed that the paths to making improvements in these two areas could be clarified by solving the simultaneous equations of deformations of rolls and the rolling mill, the dynamic characteristics of a rolling mill, and the rolling forces calculated from the Rolling Theory.

Through his extensive studies, he has obtained many pioneering theoretical results concerning highly accurate and highly productive tandem-rolling of strip and, in this way, has contributed significantly to the rapid progress in the actual rolling technology of the steel industry today.

The following are some of the major results and findings of his works.

1) Flow Stress of Metals

Flow stress of metals is indispensable to the integrated analysis of plastic deformation of materials being rolled and the mechanical characteristics of a rolling mill. Measured values of flow stress have been rarely published because of the necessity of difficult and complicated experiments. He has, however, completed extensive measurements, over 10 years, of about 70 different kinds of metals for practical use and has obtained many valuable results.

2) Optimum Mill Modulus

Thickness-accuracy of rolled strip and sheet is affected by numerous factors falling into three different categories, namely, fluctuations in the thickness and strength of material being rolled, elastic and thermal deformations of the rolling mill, and variations in actual rolling conditions.

He has revealed the existence of the optimum mill modulus, which minimizes the overall influence on many of the factors above. He has applied this theory to reverse and tandem mills and has made not only significant scientific but also valuable technical contributions to the rolling process.

3) Characteristics of Tandem Rolling

He has analyzed the characteristics of both cold- and hot-tandem rolling of strip by tens of simultaneous equations covering variables which determine rolling conditions.

Technical problems such as: (1) the determination of mill settings for any rolling purpose; (2) optimum allotment of mill modulus to each stand; (3) transient characteristics of tandem rolling during acceleration and deceleration periods; (4) changing mill setting without stopping the mill; and (5) optimization of automatic gauge and speed control systems; were clarified by solving these equations.

Kahee NIIMI

Studies on the Thalamus

The thalamus is regarded as a complex relay center between the cerebral cortex and the lower brain stem and spinal neural structures. Dr. Niimi has made a comprehensive study on the thalamus of vertebrates, including man. At first he studied the comparative anatomy and ontogenesis of the thalamus, and succeeded to trace its

derivation and to establish homologies of thalamic nuclei throughout the vertebrate series. On the basis of these investigations, he classified the thalamic nuclei of mammals into the median, anterior, medial, intralaminar, lateral, pulvinar, geniculate and ventral groups.

Dr. Niimi then carried out extensive studies on the fiber connections of the mammalian thalamus, particularly of the cat, using the new axonal transport techniques, such as the horseradish peroxidase, autoradiographic and fluorescent retrograde double labeling methods. The results obtained are as follows: The median group, which has been regarded as having no cortical connections, projects to the hippocampal and limbic cortices and to some neocortical areas. The anterior group of nuclei send fibers to the limbic cortex in a topical manner. The medial group (dorsomedial nucleus) and parts of the ventral group (medial ventral and submedial nuclei) project to the prefrontal cortex. The intralaminar group projects diffusely to almost the whole extent of the neocortex, particularly to the suprasylvian, motor and limbic cortices. The lateral group sends projections to the anterior and middle suprasylvian, posterior limbic and peristriate areas. Of the pulvinar group of nuclei, the medial pulvinar nucleus projects to the periauditory belt and to the middle and posterior suprasylvian gyri. The lateral pulvinar nucleus sends fibers to the entire suprasylvian gyri and to the parastriate, peristriate and posterior limbic areas. The inferior pulvinar nucleus projects to the Clare-Bishop area (lateral bank of the middle suprasylvian gyrus) and to the visual cortex. The geniculate group consits of the medial and lateral geniculate nuclei. The former sends fibers to the primary auditory area and the periauditory belt whereas the latter projects to the striate, parastriate and peristriate areas and to the Clare-Bishop area. The posterior ventral nuclei projects to the first and second somesthetic cortices in a somatotopically organized manner. The lateral ventral and anterior ventral nuclei project both to the motor and premotor areas and to areas 5 and 7 in the suprasylvian gyrus.

Finally, it can be said that Dr. Niimi has contributed greatly to the traditional morphology of the thalamus, particularly regarding its derivation and homologies, and to the recent progress in the fiber connections of the thalamus.

Yoshio BAN

Studies of the Synthesis of the Indole Group of Alkaloids

Dr. Yoshio Ban, who has been engaged in the studies of the synthesis of nitrogen-containing heterocycles for the last forty years, made a remarkable contribution to the promotion of the studies of synthetic indole alkaloids and is a scientific pioneer, whose works are internationally highly acclaimed.

Indole alkaloids involving biologically important substances such as reserpine and yohimbine, generally possess a variety of complex structures, which are classified into about twenty different types. Their synthesis has been elucidated mostly in the past few decades. Some of Dr. Ban's brilliant achievements in this field are outlined here.

He developed the novel convenient method of synthesis of β-carboline derivatives through a one-pot reaction. This method was applied to the synthesis of flavopereirine, sempervirine, alstoniline by himself, and of flavocarpine by Büchi, and of another by Ziegler.

Dr. Ban also succeeded in the stereo-specific and stereo-selective syntheses of oxindole derivatives to establish the stereochemistry of oxindole alkaloids, whose total syntheses were achieved by further improvement of this method. Thus, dl-rhynchophylline, dl-formosanine, dl-mitraphylline and their iso-derivatives were stereoselectively synthesized. The method was further extended to the synthesis of aspidosperma alkaloids, including dl-aspidofractinine, dl-deoxyaspidodispermine, dl-1-acetylaspidospermidine and dl-fendleridine, etc. The cyclization mode developed during the course of his work, was adopted into his biosynthetic studies by A. I. Scott, who hypothesizes from his own experimental evidence that such a type of cyclization occurs in nature, providing Strychnos and the Aspidosperma alkaloids.

Subsequently, the newly-designed photoisomerization of 1-acylindoles accompanied by the conversion of indole to indolenine, produced 3-acylindolenines, a so-far unknown reactive species, as a major product. This reaction was thoroughly investigated and applied with success to the total synthesis of Strychnos, Aspidosperma, Schizozygane and Eburnamine alkaloids through a versatile intermediate 9-membered ring system, synthesized in a one-pot reaction by photolysis and a simultaneous ring enlargement. Thus, the syntheses of dl-tubifoline, dl-tubifolidine, dl-1,2-dehydroaspidospermidine, dl-aspidospermidine, dl-quebrachamine, dl-strempeliopine and dl-eburnamine were successfully completed, which illustrates a gen-

eral synthetic pathway through the "forest" of these important alkaloids.

Prior to the above works, Dr. Ban established the absolute molecular configuration of reserpine and yohimbine by chemical means, finally proving that the orientation of the hydrogen atom at the C-15 position is invariably in the alpha side of all of the indole alkaloids. This work encouraged further biosynthetic studies in this field, and the theory of starting the synthetic process from secologanin as an initial precursor has been established and generally accepted for the present time. Therefore, his contribution to the establishment of synthetic and biosynthetic routes of indole alkaloids may well be greatly acclaimed and appreciated by the world of science.

PROCEEDINGS AT THE 780TH GENERAL MEETING

The 780th General Meeting of the Academy was held on Tuesday, Jun 12, 1984, at 1:05 p.m., Dr. Hiromi ARISAWA, President, taking the chair. One hundred and six members were present, and the following communications were made:

Recent changes in the law of the sea . . . Kisaburo YOKOTA, M. J. A.

On foreign leaders who were invited by the government and contributed to the modernization of economic structure of Japan after the Meiji Restoration . . . . . Takao TSUCHIYA, M. J. A.

On the origin of the Japanese race. Studies of genetic markers of the immunoglobulins . . . . . Hideo MATSUMOTO
Communicated by Osamu HAYAISHI, M. J. A.

A rotary model of F_1F_0 ATPase based on a loose coupling mechanism . . . . . Shigeru HAYASHI and Fumio OOSAWA
Communicated by Masao KOTANI, M. J. A.

On obstructions of infinitesimal lifting . . . . . Takeshi USA
Communicated by Heisuke HIRONAKA, M. J. A.

Self-twisting characteristic of cytoplasmic gel of *Physarum*. I. Aspects of torsional and contraction-elongation oscillations . . . . . Soichi NAKAMURA, Yasuaki YOSHIMOTO, and Noburo KAMIYA, M. J. A.

Self-twisting characteristic of cytoplasmic gel of *Physarum*. II. The effect of high temperature . . . . . Soichi NAKAMURA, Yasuaki YOSHIMOTO, and Noburo KAMIYA, M. J. A.

Phylogeny of land plants deduced from 5S rRNA sequences . . Byung Lak LIM, Mikio KUBOTA, Kenji KATOH, Hiroshi HORI, and Syozo OSAWA
Communicated by Motoo KIMURA, M. J. A.

Cytogenetical characteristics of the progeny from the heteroploidy in the rainbow trout . . . . . Takayoshi UEDA and Yoshio OJIMA

Chromosomal study on the three local races of the striated spined loach (*Cobitis taenia striata*) . . . . . Kenji SAITOH, Akinori TAKAI, and Yoshio OJIMA

A chromosome study of a patient with Wilms' tumor . . . . . Tetsuji KADOTANI, Yoko WATANABE, and Hiroko SHIMODA
Above three, communicated by Sajiro MAKINO, M. J. A.

Correlation of the spicule assemblage in the sediment with the spicule assemblage of living sponges in Sagami Bay, Central Japan . . . . . Masao INOUE
Communicated by Teiichi KOBAYASHI, M. J. A.

On the Euler-Poisson-Darboux equation and the Toda equation. II . . . . . Yoshinori KAMETAKA

Factorization of entire solutions of some difference equations . . . . . Niro YANAGIHARA

Index, localization and classification of characteristic surfaces for linear partial differential operators . . . . . Sunao ŌUCHI

Representations of Weyl group and its subgroups on the virtual character modules . . . . . Kyo NISHIYAMA

Huygens' principle for a generalized Euler-Poisson-Darboux equation . . . . . Kimimasa NISHIWADA

Accretivity and duality map in Banach space . . Hidekazu ASAKAWA
Above six, communicated by Kôsaku YOSHIDA, M. J. A.

Fusibility of related colonies in the colonial ascidian, *Perophora* . . . . . Hiromichi KOYAMA and Hiroshi WATANABE
Communicated by Kiyoshi TAKEWAKI, M. J. A.

γ-Glutamyltranspeptidase in urine of ascites hepatoma rat detected on isoelectric focusing in agarose gel . . . . . Toshiaki SHINOHARA
Communicated by Shoei ISEKI, M. J. A.

Establishment of new cell lines from leafhopper vector and inoculation of its cell monolayers with rice dwarf virus . . . . Ikuo KIMURA

An infectious low molecular weight RNA was detected in grapevines by molecular hybridization with hop stunt viroid cDNA . . . . . Eishiro SHIKATA, Teruo SANO, and Ichiro UYEDA
Above two, communicated by Naohide HIRATSUKA, M. J. A.

On the extremal ray of higher dimensional varieties . . Tetsuya ANDO

The spaces of Siegel cusp forms of degree two and the representation of $\mathrm{Sp}(2, F_p)$ . . . . . Ryuji TSUSHIMA
Above two, communicated by Kunihiko KODAIRA, M. J. A.

Variational problems governed by a multi-valued differential equation . . . . . Toru MARUYAMA

The unit indices of imaginary Abelian number fields . . . . . Mikihito HIRABAYASHI and Ken-ichi YOSHINO

Confluent hypergeometric functions on an exceptional domain . . . . . Shōyū NAGAOKA

Invariants of reductive Lie groups of rank one and their applications . . . . . Haruhisa NAKAJIMA

On semisimple Lie algebras over algebraically closed fields . . . . . Takeshi HIRAI

On the spaces of self homotopy equivalences of certain *CW* complexes . . . . . Tsuneyo YAMANOSHITA

On capitulation of ideals of an algebraic number field . . . . . Katsuya MIYAKE
Above seven, communicated by Shokichi IYANAGA, 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. Seiichi YOSHIDA, M. J. A., had passed away on June 9, 1984. The members rose from their seats in silence, expressing profound sense of grief.

Next, Dr. Takeo HIRAOKA, M. J. A., paid a tribute of admiration to the late Dr. Kiichirô KANDA's meritorious services to academic circles.

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

After that, 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: Juichi KATSURA, Sanji SUENOBU, Kazuo OKOCHI, Masao KOTANI, Kiyoshi MUTO, Kin-ichiro SAKAGUCHI, Yasuji KATSUKI, and Toshio KUROKAWA.

The meeting adjourned at 5: 17 p.m.

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