CHAPTER I

TWENTY THIRD GENERAL ASSEMBLY

INAUGURAL CEREMONY

August 20, 1997, 14.00
Kyoto International Conference Hall, Main Hall

Address by Prof. Dr. H. Yoshikawa, President of the Science Council of Japan

Your Majesties the Emperor and Empress, Distinguished Guests, Ladies and Gentlemen.

It is my great pleasure to speak at the Opening Ceremony of the 23rd General Assembly of the International Astronomical Union, in the presence of Their Majesties the Emperor and Empress, on behalf of the Science Council of Japan, The Prime Minister's Office.

The Science Council of Japan is honored to co-host, on behalf of the Government of Japan, with the Astronomical Society of Japan the largest international conference in astronomy held every three years by the International Astronomical Union, which is the union of astronomers from all over the world.

Inter-disciplinary researches and international collaborations have become more and more important in all fields of science. Since its establishment in 1949, The Science Council of Japan has been active in both domestic and foreign affairs to represent Japanese scientists of various fields in order to contribute to the promotion of science, in cooperation with the scientists of all over the world. The Science Council of Japan is making efforts to have better research structure to meet the demand of scientists with the aim of promoting further development of science toward the 21st Century. We have also been promoting international research in collaboration with corresponding organizations in other countries.

Many Japanese participants in this General Assembly are members of the Astronomical Society of Japan, the Physical Society of Japan, and the Japan Society for Planetary Sciences. The representatives of these Societies belong to The Japan National Committees for Astronomy, Physics, Space Research and Planetary Sciences, which are among 180 National Committees under the umbrella of the Science Council of Japan. We recognize the recent progress of astronomy and its important role in the human culture through these National Committees.

We have here many participants from overseas. Astronomers from all over the world meet here together to make research presentations and active discussion on the latest topics in the field. Many people still have memory of the beautiful comet Hale-Bopp. It is quite timely, in terms of both progress and spread of astronomy, to have this General Assembly and Symposia now.

I conclude with my sincere hope that this conference is successful and that participants from overseas promote friendship with Japanese scientists and enjoy their stay in Japan, especially, in Kyoto, the city of traditional Japanese culture.

J. Andersen (ed.), Transactions of the International Astronomical Union Volume XXIIIB, 1–6.

Address by Prof. Dr. H. Okuda, President of the Astronomical Sociey of Japan

Your Majesties the Emperor and Empress, Distinguished Guests, All Participants

It is a great pleasure and honor for the Astronomical Society of Japan to perform the Opening Ceremony of the 23rd General Assembly of the International Astronomical Union. We are particularly honored to hold it in the presence of Their Majesties the Emperor and Empress.

Since the first meeting in Rome in 1922, the IAU General Assemblies have been held every three years excluding a short period during the last War and this is the 23rd General Assembly. Since the last time, we have improved the arrangements by holding the scientific symposia concurrent with the General Assembly. This is indeed the biggest international conference of astronomy where thousands of astronomers gather from all over the world and report their latest scientific results and discuss future research.

In the long history of the IAU General Assembly of 75 years, this is the first time that the General Assembly has been held in our country and the second time in Asia following the conference held in Delhi India in 1985. It is a great pleasure and honor for the Astronomical Society of Japan to host this conference together with the Science Council of Japan, having many participants from abroad.

Astronomy is one of the oldest sciences in human history. But, at the same time, it is also one of the newest sciences.

The invention of the telescope in the 17th century dramatically expanded our visible world and revealed the new faces of the universe. Now the space telescope is flying and many large telescopes with apertures of 8 to 10 m are newly built or under construction. They will see almost to the edge of the universe.

In the latter half of the 20th century, we have had new experiences of seeing invisible worlds by expanding observable wavelength to the full range of electromagnetic waves from radio, to infrared, ultraviolet, X-ray and gamma rays. In addition, observations with high energy particles started with cosmic rays, have been extended to neutrinos and even detection of gravitational waves is expected in the near future. Observations by these new techniques have succeeded in revealing unimaginably diverse morphologies of the universe and the creation of the universe and its global structures.

In the coming 21st century, observations in space will be accelerated together with building up giant observational facilities on the ground, which will give us new dreams in astronomy.

In our country, people have been attracted by astronomical phenomena from the earliest times and we can find many records of astronomical events in the old books beginning with "Kojiki" or "Nihon-shoki" compiled in the 8th century. These have also been drawn in many pictures and modeled in various works of art. In our country, however, modern astronomy as a science started only about a hundred years ago. Fortunately, since then, we have made rapid progress and are making important contributions in fields such as X-ray astronomy and radio astronomy. We are now constructing a large optical/infrared telescope on Mauna Kea in Hawaii and are expecting its completion next year. Now new satellite missions are under development and a large submillimeter radio interferometer is under planning, by which we hope to make much more contribution to the future astronomy.

Needless to say, we cannot talk about modern astronomy without international collaborations. In this conference, many results obtained by such collaborations will be reported. Based on the progress brought by all these efforts, together with the new techniques developed in the 20th century, we can only anticipate the flourishing astronomy of the coming 21st century. I really hope that this conference will be a most fruitful meeting for future research. It is still very hot and humid in Kyoto, but this city is the old capital of our country with a vast cultural heritage and with its unique institutions and culture. I hope, all participants, particularly those from abroad, will have the chance to visit and see some of the treasures of Kyoto and that you will enjoy your stay in Kyoto. I also hope this will be a good chance to renew old friendships and develop new friendships among the participants.

Thank you very much for your attention.

Address by Prof. Dr. L. Woltjer, President of the International Astronomical Union

Your Majesties, Distinguished Guests, Members and Friends of the Union,

It is a pleasure to be here for the XXIII General Assembly of the IAU in Japan, a country in which astronomical science has flourished for so long. We are particularly honoured that this opening ceremony is being held in the presence of Their Majesties the Emperor and Empress.

The oldest astronomical records in Japan go back to the 7th century. Particularly important astronomical observations were made of a guest star which appeared at the beginning of this millennium. In the Meigetsuki, "Diary of the Full Moon" written by Fujiwara-no Sadaie in the thirteenth century, the following report appears: "Third year of the Kanko reign, period of Ichijo In, 4th month, 2nd day, kuei-yu. After nightfall within Ch'i-kuan (part of the constellation Lupus) there was a large guest star." This was the famous supernova of 1006, the brightest exploding star of the last millennium, so bright that objects were clearly visible by its light. It was observed also in China, in the Arab world and in Europe. Already then astronomy was an international science. In the "Gonki" written by Fujiwara-no Yukinari soon after the event, we are informed that on several occasions reports of this "guest star" were read to the Emperor.

This "guest star" of 1006 has left a mass of rapidly expanding matter composed of heavy elements and very energetic particles. Its astonishing characteristics have recently been elucidated by the ASCA satellite launched by the Institute of Space and Astronautical Science in Japan. It is an honour to report to Your Majesties on the most recent developments concerning an object that so interested your illustrious ancestor so long ago.

Of course, there is more to Japanese astronomy than this. Other space crafts study the sun, the environment of the earth, and radio and X-ray sources, while with the Kamiokande neutrino detector, with the new 8-m telescope still under construction and with the radio astronomical instruments at Nobeyama Japan has clearly signalled its ambition to undertake world research at the highest level. Many researchers from around the world are participating in the elaboration of results of your satellites and many Japanese scientists participate in research elsewhere. In this way science advances and at the same time astronomers make their contribution to the harmony between nations. It is the principal function of the International Astronomical Union to facilitate such international collaboration.

The IAU has also many specific tasks. We discuss here questions relating to time, one of the most basic issues in modern society. We discuss information systems, standardisation, the naming of objects and of features on the planets. Such issues are important if effective communication of scientific data and results are to remain possible notwithstanding forever increasing specialisation.

We discuss the need for preserving an environment suitable for astronomical observation. There are many threats to the purity of the space environment, to the freedom from interference at essential radio frequencies, and to the darkness of the night sky which is as much part of the heritage of mankind as other natural or archeological monuments on earth. The IAU is the organization which brings such threats to the attention of the appropriate governmental and intergovernmental organizations and suggests remedies.

Astronomical research has become very expensive. There is, therefore, a need for international joint ventures and for avoiding duplication of effort. The IAU provides a forum for discussing such issues.

All these efforts are necessary. But the principal reason most of us come to this General Assembly and its associated symposia is to learn about the most recent scientific progress, to make plans for the future or just to renew old friendships. To make all of this possible requires a substantial organisational effort and a suitable environment. We are much indebted to the Japanese scientists, to the Science Council of Japan, to the Astronomical Society of Japan, and to the Local Organizing Committee for the General Assembly for the immense amount of effort they have devoted to hosting this meeting in Japan's cultural capital.

Thank you very much. The General Assembly is now in session.

Okotoba (Address) by His Majesty the Emperor

天皇陛下おことば

平成九年八月二十日（水）国立京都国際会館
第二十三回国際天文学連合総会開会式

第二十三回国際天文学連合総会が、世界の各地から多数の天文学の専門家を迎え、ここ京都の地において開催されることを誠に喜ばしく思います。開会式に当たり、総会の開催に尽力された関係者に対し、深く敬意を表します。

古来人々は、天体に深い関心を寄せてきました。世界の各地において、天体に関する物語が生まれ、占星術が行われ、また、暦が作られました。我が国で暦が使われ始めたのは、百済から暦博士が来日したという記録のある、六世紀半ばのころと考えられます。以来、我が国では中国の暦が用いられてきましたが、九世紀末遣唐使が廃されてからは、中国の新しい暦を使うことなく、八百年もの間改暦は行われませんでした。十七世紀に至り、この長年使われた暦の欠陥が指摘されるようになり、初めて渋川春海により日本の地に適した暦が作られています。その後更に正確な暦を作るべく、ヨーロッパの科学に対する関心が深まり、鎖国下の我が国で禁止されていた、科学に関する漢訳洋書の輸入が許されることになりました。後には、オランダ語からの科学書の翻訳も行われ、コペルニクスの地動説も、発表より二百年余を経て我が国に紹介されております。鎖国の厳しい状況下で、ヨーロッパの科学を学び、我が国の科学を育てた先人の努力を思うとき、深い感慨を覚えます。

我が国が諸外国と国交を開いた十九世紀半ば以降、我が国も国際共同観測網の中に組み入れられ、ここに、日本の天文学界は海外の天文学から大きな刺激を受けることになりました。万国緯度観測事業における今世紀始めの木村栄博士の2項の発見は、こうした時代を背景にして生まれた日本天文学界の誇りとする成果であったといえると思います。

我が国のこうした天文学の歩みを振り返るとき、半開の発達における国境を越えた交流、協力の重要性を深く感じるものであります。

最近の天文学は、地上の望遠鏡ばかりでなく人工衛星を利用するなど、高度な技術を駆使して、宇宙に生起する様々な現象を、あらゆる角度から探求する先端的学問に成長しています。宇宙の始まりから、物質世界の進化の過程を解き明かし、同時に多くの天体現象を究明してきた天文学は、人類の文化に重要な地位を占めており、多くの人々から幅広い関心を持たれています。

今回のこの総会が実り多いものとなり、その成果が参加者の今後の研究や活動にいかされるとともに、世界の天文学の進歩と普及に大きく貢献することを衷心より願い、開会式に寄せる言葉といたします。

https://doi.org/10.1017/S0251107X00011883 Published online by Cambridge University Press

Okotoba (Address) by His Majesty the Emperor

English translation of the Japanese original:

It is truly a great pleasure for me to see the 23rd General Assembly of the International Astronomical Union being held here in Kyoto with the participation of many astronomers from all over the world. On this occasion of the opening ceremony, I would like to express my deep appreciation to all concerned for their unsparing efforts in organizing this General Assembly.

From time immemorial, people have shown great interest in the heavenly bodies. In all parts of the world, stories concerning the heavenly bodies came into being, astrology was practiced and calendars were drawn up. The first use of a calendar in Japan may be dated to about the middle of the 6th century when, as extant records have it, a scholar of the calendar came to our country from Paekche. From that time on the Chinese calendar was used in Japan but, after the dispatch of diplomatic missions to Tang Dynasty China was suspended in the late 9th century, new Chinese reforms of the calendar were not put into use, and for some 800 years the calendar remained unrevised in Japan. In the 17th century, upon indication of deficiencies in the calendar used down all those long years, for the first time a calendar better suited to Japan's specific location was worked out by Shibukawa Harumi. Later, in an effort to produce a more accurate calendar, Japanese took a deepening interest in European science. The import of Chinese translations of western books on science, which were forbidden under Sakoku (a policy of seclusion) was eventually allowed. Later on, scientific books were also translated directly from the Dutch language, and Copernicus' heliocentric theory of the universe came to be introduced to Japan a little more than 200 years after its initial announcement. I am deeply moved when I think of the great endeavors of our forebears, who, in spite of their severely restricted circumstances under Sakoku, nevertheless managed to learn European science and nurture the early growth of Japanese science.

From the middle of the 19th century when Japan established diplomatic relations with various foreign countries, our country too was incorporated into the joint international observation network and the Japanese astronomical world came to receive a great stimulus from overseas astronomy. Dr. Kimura Hisashi's discovery of the "Z Term", in connection with the International Latitude Service at the beginning of this century, may be said to be the proud accomplishment of Japanese astronomy against the background of such a time in history.

When I look back over the road trodden by astronomy in Japan, I feel deeply the importance of exchanges and cooperation across national boundaries for the advancement of knowledge.

Modern astronomy, using highly advanced technology, not only ground-based telescopes but also artificial satellites, to explore every aspect of the various phenomena occurring in the universe, has developed into a most advanced science. Simultaneously investigating the multiple phenomena of the heavenly bodies, probing the origins of the universe and elucidating the evolution process of matter, astronomy occupies a position of great importance in human culture, and attracts the wide-ranging interest of a great many people.

In concluding my address at this opening ceremony, I sincerely hope that the present General Assembly will bear much fruit and that its results may be used to advantage by the participants in their researches and activities, thus contributing greatly to the further progress and dissemination of astronomical science.

Telegram message from Mr. R. Hashimoto, Prime Minister of Japan

Pleased to extend a hearty welcome to all participants from all over the world on this occasion of the Opening Ceremony of the XXIIIrd General Assembly of the International Astronomical Union in Kyoto, in the presence of Their Majesties the Emperor and Empress, under the joint-sponsorship of the Science Council of Japan and the Astronomical Society of Japan.

I wish a great success of this General Assembly for advancement in the field of astronomy.

Ryutaro Hashimoo, Prime Minister