

Notes and News

WORLD METEOROLOGICAL DAY

The Executive Committee of the World Meteorological Organisation decided that 23 March every year should be celebrated as "World Meteorological Day", it being the anniversary of the day in 1950 when the World Meteorological Convention formally came into force. The celebration of the day is intended to focus the attention of the public on the activities of the National Meteorological Services and the World Meteorological Organisation in the economic and day-to-day life of the countries.

The First World Meteorological Day was celebrated in India in a befitting manner on 23 March 1961. The highlight of the celebrations was a formal national ceremony at the Meteorological Office, New Delhi, inaugurated by Dr. P. Subbarayan, Minister for Transport and Communications. The programme also included a ceremony at the Meteorological Office, Poona and at the Regional Meteorological Centres at Calcutta, Bombay, Madras and Nagpur. A meteorological exhibition was also held on the day at New Delhi, Poona and the other centres. The programme of celebrations also included visits of students and general public to the meteorological installations in the country; newspaper articles; radio broadcasts; lectures by eminent meteorologists and allied scientists at various scientific institutions etc. Shri P. R. Krishna Rao, Director General of Observatories also contributed a newspaper article on "Meteorology in the Service of the Nation" on this occasion.

Welcoming the invitees to the national celebration at New Delhi, the Director General of Observatories described briefly the services rendered by the India Meteorological Department to the various national activities and mentioned the schemes of development

to be undertaken by the Department in the Third Five Year Plan, the more important among them being (a) the expansion of the Radiosonde/Rawin station network to meet the requirements of meteorological service to high altitude jet aviation; (b) the establishment of an Institute of Tropical Meteorology. He stressed the importance of research in the improvement and development of meteorological service. He also stated what he visualised would be the developments in the department in the next 15 years.

Inaugurating the celebrations the Minister, Dr. P. Subbarayan, referred to the varied achievements of the World Meteorological Organisation in International Co-operation and Co-ordination in Meteorology, and made special reference to the establishment of the Northern Hemispheric Exchange Centres for exchange of meteorological data in which India has played a part by establishing RTT links between Delhi and Moscow in January 1960 and between Delhi and Tokyo in January 1961. The Minister also referred to the importance of research in Meteorology and hoped that the establishment of the projected Institute of Tropical Meteorology included in the Third Five Year Plan of the India Meteorological Department would be pursued with vigour. He also hoped that within one or two years, the India Meteorological Department may be able to start meteorological rocket flights at two stations with the help of the Defence Services.

The Minister announced the decision of the Government of India to institute an award (prize or Gold Medal) for the best research paper published every two years in the *Indian Journal of Meteorology and Geophysics*. The first award will be made on the World Meteorological Day on 23 March 1962 for the best paper published in the years 1960 and 1961.

The Deputy Minister for Civil Aviation, Sri Ahmed Mohiuddin, who takes considerable interest in the development of research in the India Meteorological Department also spoke on the occasion and stressed the importance of development of medium range forecasting for agriculturists and hoped that the Institute of Tropical Meteorology would pay attention to this problem. Shri S. Basu, Vice-President of the Indian Meteorological Society read a message from the President of the Society and spoke a few words. The Secretary, Ministry of Transport and Communications; the Deputy Chief of the Air Staff, Indian Air Force; Chairman, Central Water and Power Commission; Director of Civil Aviation; General Manager of Indian Airlines Corporation and representatives of the Indian Navy; the Director General, Health Services and the Indian Institute of Agricultural Research also spoke on the occasion and stressed the importance of the services rendered by the India Meteorological Department to the various national interests.

A booklet entitled "Our Weather Service" was issued on the World Meteorological Day. This booklet describes in popular language the activities of the India Meteorological Department and the services rendered by it to various national interests like aviation, agriculture, shipping, irrigation and public works, hydrology, industries, etc.

GENERAL ASSEMBLY OF THE INTERNATIONAL ASTRONOMICAL UNION

The Eleventh General Assembly of the International Astronomical Union (I.A.U.) will be held at Berkeley, California, U.S.A. in August 1961. Two symposia sponsored by the same organisation are planned to be held at nearby locations on problems of 'Extragalactic Research' and 'The Solar Corona'. The meetings of the I.A.U., which are held once every three years, provide astronomers all over the world an extremely good opportunity for meeting fellow workers engaged in similar fields of interest and for having helpful discussions which often are a source of considerable mutual stimulation.

WORLD HEALTH ASSEMBLY

At the invitation of the Government of India, the Fourteenth World Health Assembly of the World Health Organisation (W.H.O.) was held at New Delhi in February 1961. Shri C. Ramaswamy, Deputy Director General of Observatories, attended the Assembly as a representative of World Meteorological Organisation. Among the many items discussed by the Assembly, were some which dealt with Public Health Problems, like Malaria Eradication Programme, Small Pox Eradication Programme and Radiation Health including protection of mankind from ionising radiation hazards.

PRESENTATION OF A PAINTING TO WMO

The India Meteorological Department presented to the World Meteorological Organisation a replica of the famous Ajanta painting 'Bodhisattva Padmapani' for decoration of their new building at Geneva which was formally opened on 12 July 1960. The replica painting was rendered in water colour by Shri Biswanath Mukerji, the well-known Indian Artist. The presentation of the painting was made by Sri A. S. Mehta, Consul General of India at Geneva to Mr. D. A. Davies, Secretary General of the World Meteorological Organisation, on 9 January 1961.

DELHI—TOKYO RADIO-TELETYPE CHANNEL

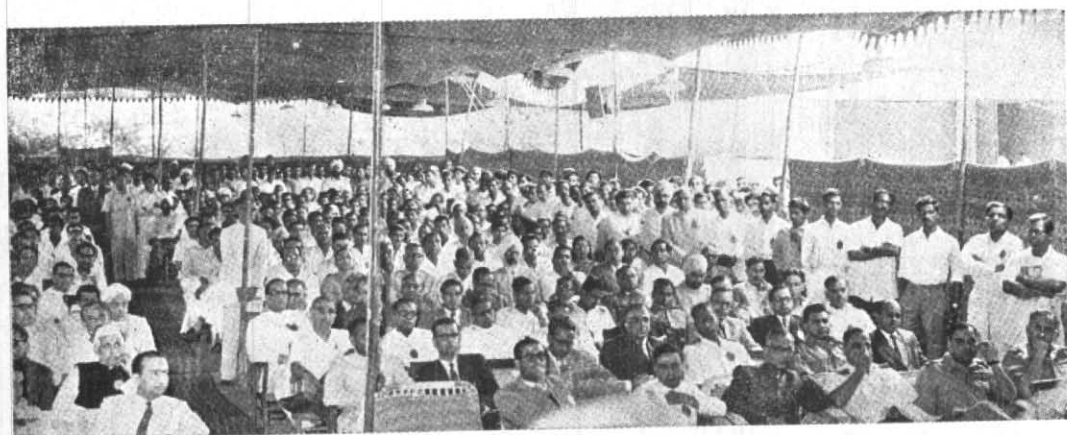
The establishment of a radio-teletype channel between Delhi and Tokyo for exchange of meteorological data was actively pursued during 1960. Details of exchanges of data were finalised during discussions held by Shri P. R. Krishna Rao, Director General of Observatories and Dr. P. Koteswaram, Director, Aviation Services with the Japanese Meteorological Authorities, at the Japanese Meteorological Agency, Tokyo in November 1960 as reported on page 141 of Vol. 12 No. 1 of this journal. After a short period of trial transmissions, routine operation of the channel was inaugurated at 0600 GMT on

WORLD METEOROLOGICAL DAY CELEBRATIONS



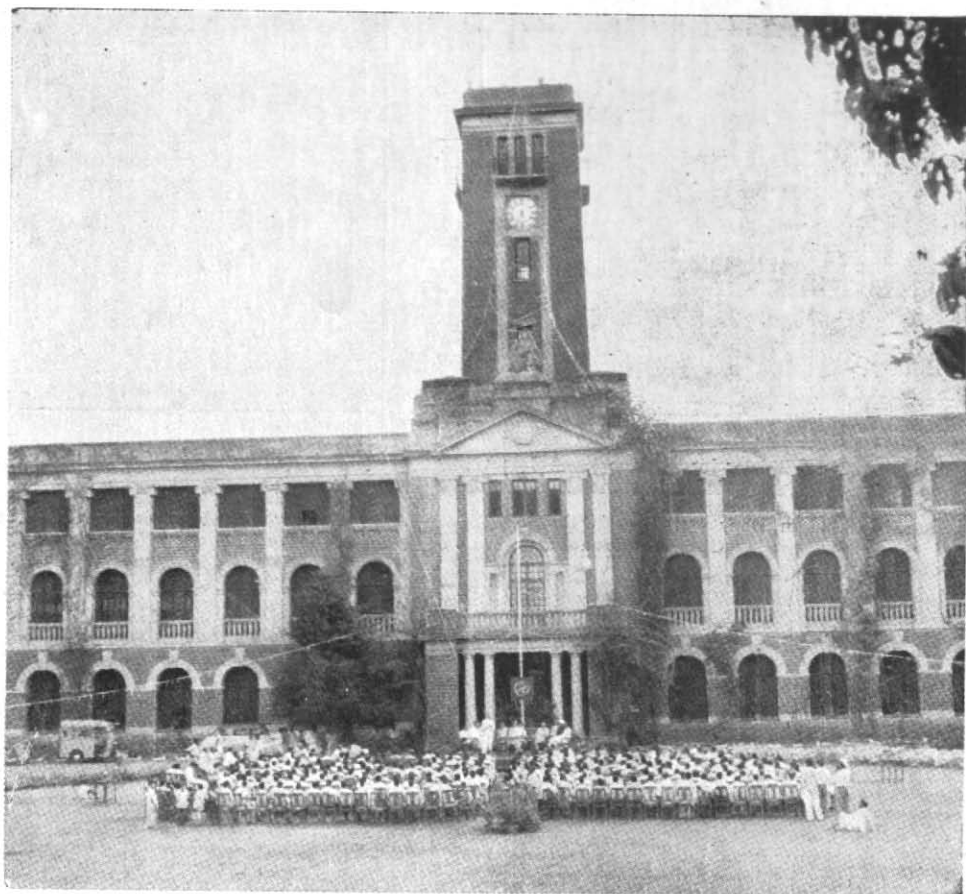
Dr. P. Subbarayan, Minister for Transport and Communications speaking during the Celebrations of the World Meteorological Day at the Meteorological Office, New Delhi on 23 March 1961

Shri Ahmed Mohiuddin, Deputy Minister for Civil Aviation and Shri P. R. Krishna Rao, Director General of Observatories are also seen on the dais in that order



A section of the audience

WORLD METEOROLOGICAL DAY CELEBRATIONS



World Meteorological Day Celebrations at the Meteorological Office, Poona

PRESENTATION OF A PAINTING TO WMO



Replica of Ajanta painting "Bodhisattva Padmapani" at the new building of WMO at Geneva

Seen in the picture (from left) are Shri A. S. Mehta, Consul General of India at Geneva and Permanent Representative to the European Office of the United Nations and Mr. D. A. Davies, Secretary General of WMO

DELHI—TOKYO RADIO-TELETYPE CHANNEL



Inauguration of Delhi—Tokyo radio-teletype channel

Shri D. C. Das, Joint Secretary, Ministry of Transport and Communications and Shri P. R. Krishna Rao, Director General of Observatories are seeing a message exchanged over this circuit

10 January 1961 by formal exchange of the following messages between the Government of India and Japan.

(1) From Dr. P. Subbarayan, Minister for Transport and Communications, India to Mr. B. Kogure, Minister of Transportation, Japan :

"Kindly accept sincere greetings on behalf of Government of India and on my behalf on the occasion of the inauguration of the radio-teletype channel between Delhi and Tokyo for exchange of meteorological information, which constitutes the last major step in implementing programme of the World Meteorological Organisation for exchange of Northern Hemisphere Data. The opening of this new channel adds one more field of co-operation between the Governments of India and Japan and I am sure it will result in increased co-operation and mutual interchange of information and knowledge between the Meteorological Services of two countries".

(2) From Mr. B. Kogure, Minister of Transportation, Japan to Dr. P. Subbarayan, Minister for Transport and Communications, India :

"It is a matter for heartfelt congratulations that a radio-teletype circuit for the exchange of meteorological information between your State and ours is now established. I expect that this circuit will do much towards maintaining the relation between the Meteorological Service of your State and that of ours even closer, and contribute to the development of the World Meteorological Services at large.

May blessings abound on your State".

(3) From Shri P.R. Krishna Rao, Director General of Observatories, India to Dr. Kiyoo

Wadati, Director General, Japan Meteorological Agency :

"Kindly accept my felicitations on the occasion of the inauguration of Delhi-Tokyo radio-teletype channel for exchange of meteorological data. Besides being a major step in the implementation of WMO plan of establishment of Northern Hemisphere Exchange Centres for rapid exchange of meteorological data for preparation of weather charts of a global scale, the RTT link serves to expand and strengthen the field of co-operation between the Meteorological Services of India and Japan. I believe that the opening of this channel will be of the great assistance to both our Services, specially for supplying meteorological information to high flying jet aircraft services between India and Japan. I have great pleasure in conveying to you and the staff of your Service the best wishes of myself and the staff of the India Meteorological Department for the New Year and I hope that there will be continued and increasing co-operation between our two Services".

(4) From Dr. Kiyoo Wadati, Director General, Japan Meteorological Agency to Shri P. R. Krishna Rao, Director General of Observatories, India:

"I wish to congratulate the establishment of the New Delhi-Tokyo radio-teletype circuit, which is one of the Northern Hemisphere Meteorological Data Exchange Programmes in accordance with the resolution of WMO.

It is my firm belief that the meteorological information to be exchanged over this circuit will promise a marvellous development of weather service in every country, which will utilise these data, and will contribute much to the welfare of the people.

Your kind consideration at the installation of this circuit is highly appreciated by us. I hope the co-operation between the India Meteorological Department and the Japan Meteorological Agency will be still more strengthened. Also I expect that our mutual trust and friendly relations will bring about the continued progress and prosperity on both countries".

With this important development, the establishment of a Northern Hemisphere Exchange Centre at New Delhi for exchange of meteorological data as recommended by the Second Session of the Commission for Synoptic Meteorology in 1958 has been completed. With the exception of the Tokyo-New York link, which is expected to begin functioning from March 1961, the rest of the exchange system has been set into motion, thanks to the vigorous efforts of the Meteorological Services concerned which have undertaken the responsibility for establishment of these centres. Data from Offenbach and Moscow areas are being passed by New Delhi to Tokyo and those from Tokyo area to Moscow.

The transmissions from New Delhi Centre are made by the Overseas Communications Service (O.C.S.) of the Government of India. The transmissions to Moscow are directed from New Delhi while those for Tokyo are directed from Poona O.C.S. transmitters which are connected by landline to the Northern Hemisphere Exchange Centre at New Delhi.

UNESCO—WMO SYMPOSIUM ON CHANGES OF CLIMATE

As part of the UNESCO's arid lands programme, a Symposium on 'Changes of Climate' is being organised in Rome from 2 to 7 October 1961 under the joint auspices of UNESCO and WMO. The Food and Agricultural Organisation (FAO), the International Association of Meteorology and Atmospheric Physics (I.A.M.A.P.) and the International Association of Scientific Hydrology have

offered their technical collaboration in organising the Symposium. The purpose of the Symposium is to bring together scientists from a number of disciplines such as meteorology, climatology, geomorphology, palaeobotany, etc so as to present a coherent and comprehensive picture of present knowledge, theories and implications of climatic change. The programme includes subjects such as (i) changes during the period of meteorological records, (ii) changes during the late geological and early historical record, (iii) theories of change of climate and (iv) significance of changes of climate.

Participants of the Symposium wishing to present scientific papers are required to send their titles together with a summary in English or French to UNESCO's Department of Natural Sciences not later than 1 March 1961 and the full texts not later than 1 May 1961. UNESCO proposes to publish the proceedings of the Symposium in its Arid Zone Research series.

SYMPOSIUM ON THE DETECTION AND USE OF TRITIUM IN THE PHYSICAL AND BIOLOGICAL SCIENCES

A Symposium on the 'Detection and use of Tritium in the Physical and Biological Sciences' will be held in Vienna from 3 to 10 May 1961 under auspices of the Joint Commission on Applied Radioactivity of the International Council of Scientific Unions. The Symposium being the first comprehensive international Symposium on the subject, will discuss the usefulness of tritium as a research tool in the Physical and Biological Sciences such as Chemistry, Physics, Biology, Meteorology and Hydrology. Under the heading, "Tritium in meteorology and hydrology" it is intended to cover the distribution of tritium in nature and studies of water movement.

IGY SYMPOSIUM AT NEW DELHI

A Symposium on 'I.G.Y. and Upper Atmosphere' was organised under the auspices of the Indian National Committee for the I.G.Y., Physical Research Committee of the Council of Scientific and Industrial Research

and the Radio Research Committee of the C.S.I.R. at the National Physical Laboratory, New Delhi, from 13 to 16 February 1961. The Symposium was inaugurated by Dr. K. S. Krishnan F. R. S., President of the Indian National Committee for I.G.Y. Papers were submitted on various disciplines of the I.G.Y., viz., Solar Activity, Cosmic Rays, Geomagnetism and Outer Space, Ionosphere, Meteorology, Ozone, Air Glow and Surface and Interior of the Earth. Officers of the India Meteorological Department submitted scientific papers in almost all the disciplines. A delegation was also sent by the India Meteorological Department to the Symposium. Shri P. R. Krishna Rao, Director General of Observatories, gave a talk on "Meteorology of the Lower Stratosphere over India", on the evening of 15 February 1961. A report of the Symposium is expected to be published soon by the Indian National Committee for the I.G.Y.

SYMPOSIUM ON COSMIC RAYS

The Department of Atomic Energy, Government of India, organised a Symposium on 'Cosmic Rays' at the Physics Department of University of Punjab, Chandigarh from 14 to 17 March 1961. Scientific papers under the following heads were discussed—(i) Extensive Air Showers, (ii) High Energy Nuclear and Electromagnetic Interactions, (iii) The Primary Cosmic Radiation and theories of its origin, (iv) Time variations of the Cosmic Radiation including observations in outer space and allied aspects of geomagnetism, (v) Geophysical applications of cosmic ray produced isotopes, and (vi) Physics of Fundamental Particles.

SYMPOSIUM ON UNDERGROUND WATER RESOURCES IN THE ARID ZONE

A Symposium on 'Underground Water Resources in Arid Zone' will be held at Athens in October 1961 under the auspices of the International Association of Hydrology and UNESCO. The programme includes discussions on (i) Hydrological observations in the

search for underground water, (ii) Tests to be made during prospecting for underground water, (iii) Hydrodynamic studies of the principles underlying the control of yield from wells and galleries and means of increasing their effective life, (iv) Hydrodynamic studies of the mutual influences of wells and galleries, and (v) Study of the forecasting of the fluctuations of the water table and of the chemical composition of underground water during its exploitation.

THE NINTH WEATHER RADAR CONFERENCE

Under the joint sponsorship of the U. S. Weather Bureau and the Kanas City Seminar of the American Meteorological Society, the Ninth Weather Radar Conference will be held from 23 to 26 October 1961 in Kanas City, Missouri, U.S.A. These conferences are held every eighteen months and provide a forum for exchange of information in all fields of radar meteorology both with respect to operations and research. Although papers on any aspect of radar meteorology would be welcome at the Conference, papers on the following subjects have been considered to be most appropriate—

(i) Survey papers of national radar programme, (ii) New applications of radar to meteorology, (iii) New Instrumentation, (iv) Basic research in Cloud Physics, and (v) Radar observations of typhoons, monsoons, duststorms and unusual local storms.

SECOND HURRICANE CONFERENCE IN U. S. A.

Under the auspices of the American Meteorological Society, the Second Hurricane Conference will be held at Miami Beach, Florida (U.S.A.) from 27 to 30 June 1961. The Conference will discuss problems regarding development of Hurricanes with special reference to the results of recent National Hurricane Project of the U. S. Weather Bureau.

INDO—U. S. EQUATORIAL BALLOON FLIGHT PROGRAMME

During the period January to April 1961 a series of high altitude flights from Hyderabad are being made under the joint sponsorship of Government of India and U.S.A. Participants on the U.S. side are the Atmospheric Circulation Laboratory, Geophysics Research Directorate, Air Force Cambridge Research Centre, Massachusetts and the U.S. Atomic Energy Commission and on the Indian side are Department of Atomic Energy, Tata Institute of Fundamental Research, Defence Science Organisation and the India Meteorological Department. The objective of the project is to collect stratosphere particulate material and other pertinent data for the study of (a) Stratospheric distribution of particulate aerosols and environmental radio-activities of natural and artificial origin and (b) Inter-hemispherical and troposphere-stratosphere mixing and circulations. The project is global in character and is essentially an extension of similar experiments carried out at temperate latitudes over the United States.

The programme included two series of soundings at Hyderabad. The first series of ten soundings were conducted by a group of the Tata Institute of Fundamental Research, Bombay from the last week of January to the end of February 1961. The American group is conducting about 22 soundings from the middle of March to the end of April for a scientific study of stratosphere from various points of view. An equal number of soundings are also being conducted by them to study the ozone concentration by using Paetzold ozone-sound instruments.

In addition to this there will be two joint ascents specially arranged for long duration studies of cosmic ray energies by the Tata Institute of Fundamental Research. Along with these series of ascents, the India Meteorological Department has also been conducting radiosonde / rawin ascents by attaching specially designed radiosonde instruments to the special balloons. This department has also arranged for atmospheric potential gradient

and electrical conductivity measurements in the upper air both with the Tata Institute of Fundamental Research soundings as well as U. S. soundings.

FORTYEIGHTH SESSION OF THE INDIAN SCIENCE CONGRESS HELD AT ROORKEE IN JANUARY 1961

The Fortyeighth Session of the Indian Science Congress was held at the scenic campus of the Roorkee University from 3 to 9 January 1961. The Session was inaugurated by the President of India, Dr. Rajendra Prasad on 3rd. After the formal opening speech and address of welcome, the General President elect for the Session, Dr. N. R. Dhar, delivered his presidential address on "Nitrogen Problem". In some ways his address was a marked departure from earlier Presidential addresses, in that he demonstrated a chemical experiment on the dais adding the remark that being primarily an experimentalist he did not feel shy to perform experiments. A number of foreign delegates attending and actively participating in the Session were formerly introduced at the inaugural ceremony. On the same evening an exhibition of the Scientific Instruments was opened by Dr. A. N. Khosla. The exhibition gave a good cross-section of the present state of the manufacture and availability of scientific instruments for use in schools, colleges and research laboratories in India. It also included a few exhibits of the scientific and technical publications readily available in this country. After the inauguration, the 13 Sections separated and the first day was devoted to the presentation of the Sectional Presidential addresses of each section. In the Physics Section the address was on the 'Wave forms of Atmospheric and Lightning discharge mechanism' by Prof. S. R. Khastgir, this year's President of the Physics Section.

On 5 January 1961, under the auspices of the Indian Botanical Society, Birbal Sahani Medal was awarded to this year's recipient, Dr. Janaki Ammal.

A large number of joint discussions between different sections were held, e.g.,

(1) Instrumentation in Nuclear Physics, (2) Symposium on many body problem, (3) The Waveforms of Atmospheric and Lightning discharge mechanism, (4) Geology and Geography 'Precambrian Stratigraphy of India', (5) Operational Research and Queing Theory, (6) Science Technology and Society Changes in India, and (7) Role of Geology and Geography of Engineering Projects in India etc.

A number of valuable special lectures were delivered by visiting foreign delegates, as for example (1) Statistical Appraisal of the Hunger problem in the World by Dr. P. V. Sukhatme, F.A.O., (2) Equipment of the Infra-red Department in the Laboratory of Physical Research in Sorbonne by Prof. J. Lecomte, (3) The Fixation of Experience by Dr. R. W. Gerard, (4) Recent Advances in Interference Spectroscopy by Prof. P. Jacquinot, (5) Some New Concepts in Optics by Prof. P. Jacquinot, etc.

Another feature of the Session was the popular lectures delivered in the evening. The General President of the Session Prof. N. R. Dhar delivered a popular lecture on 'World Food Situation and its importance'.

A very noticeable feature of this Science Congress Session was the stress on the food problem of the world and of India in particular and how science in India could serve to ameliorate the suffering from hunger at least to some extent.

Dr. B. Mukerji, Director, Central Drug Research Institute, Lucknow assumed the office of General President of the Association for one year from 1 February 1961. The Fortyninth Session of the Indian Science Congress will be held at Cuttack in January 1962.

INDIAN NATIONAL COMMITTEE FOR I.G.Y.

A meeting of the Indian National Committee for I.G.Y. was held at the National Physical Laboratory, New Delhi on 17 February 1961. Shri P. R. Krishna Rao, Director General of Observatories and

Dr. M. K. Vainu Bappu, Director Astrophysical Observatory, Kodaikanal attended the meeting on behalf of India Meteorological Department.

PHYSICAL RESEARCH COMMITTEE

A meeting of the Physical Research Committee of the Council of Scientific and Industrial Research was held on 16 February 1961 at the National Physical Laboratory, New Delhi. Shri P. R. Krishna Rao, Director General of Observatories, represented India Meteorological Department on this meeting. The Committee discussed various new research schemes under Solid State Physics and Spectroscopy, Geophysics and Atmospheric Physics and other miscellaneous topics. Renewal applications of some old schemes were also considered.

ADVISORY COMMITTEE FOR RAIN AND CLOUD PHYSICS

A meeting of the Advisory Committee for Rain and Cloud Physics of the Council of Scientific and Industrial Research was held on 18 February 1961 at the National Physical Laboratory. Shri P. R. Krishna Rao, Director General of Observatories, attended the meeting on behalf of India Meteorological Department.

THE INDIAN METEOROLOGICAL SOCIETY

The following lectures were arranged under the auspices of the Indian Meteorological Society at New Delhi—

- (i) Prof. A. Harlow Shapley, eminent astronomer of U.S.A., spoke on 'Galaxies' on 9 January 1961.
- (ii) Dr. McIl Roy of the Commonwealth Scientific and Industrial Research Organisation (C.S.I.R.O.), Australia, spoke on 'Evaporation' on 12 January 1961.
- (iii) Shri V. Satakopan, retired Meteorologist and till recently WMO expert on Agricultural

Meteorology in Sudan spoke on 'Cotton yield Prediction in Sudan' on 20 January 1961.

- (iv) Shri C. Ramaswamy, Deputy Director General of Observatories, spoke on 'The measurement of currents and mixing in the Oceans' on 31 January 1961.
- (v) Dr. L. A. Ramdas, retired Deputy Director General of Observatories and now Assistant Director, National Physical Laboratory, New Delhi, spoke on 23 February 1961 on impressions of his visit to various meteorological research centres in the USA in 1960.

VISIT OF FOREIGN METEOROLOGISTS TO INDIA

Dr. Gordon Dunn, Director, U. S. National Hurricane Research Centre, Miami, Florida was on a visit to India in February 1961. Dr. Dunn visited the Meteorological Office at Co'aba, Bombay on 9 February 1961 and the Meteorological Office, New Delhi on 11 February. At New Delhi he met Shri P. R. Krishna Rao, Director General of Observatories and discussed various matters connected with organisation for study of cyclones and issue of cyclone warnings. Dr. Dunn also paid a visit later to the Meteorological Office, Alipore where the Bay of Bengal Cyclone Warning Organisation of the India Meteorological Department was explained to him. References on cyclone studies made in the Department were also discussed with him.

Professor Sir Ronald Fisher, F.R.S. of the University of Cambridge, who has been

an invitee of the Poona University, visited the Meteorological Office, Poona on 3 February 1961. He was shown round the Meteorological Office, Central Agricultural Meteorological Observatory and Agricultural Meteorology Division, Poona.

ARID ZONE RESEARCH IN INDIA

Shri P. R. Krishna Rao, Director General of Observatories as a member of the National Co-operative Committee for Arid Zone Research in India, attended the Second Meeting of the Committee held on 9 December 1960 at New Delhi. In the meeting it was recommended that the Director General of Observatories or his representative may be made a member of the Technical Subcommittee on Agronomy, Silviculture, Irrigation and Agricultural Chemistry.

PHOSPHORESCENCE

Vessel : M. V. *Jaladharna*

Captain : C. B. Sutherland

Voyage : India to U.S.A.

Observer : A. D. Divekar, 3rd Officer

On 21 August 1960 unusually bright phosphorescence was observed after leaving the port of Cochin. It was very bright along the ship-side. Scattered patches, often circular in shape 10 to 15 ft in diameter, were observed for about two hours.

Position—09°58'N, 76° 11'E

Course—278° (T)

Speed—16 knots. Slight sea and low swell.

Light *Airs*. Overcast sky. *Sea Temp.* 27.2°C. *Air Temp.* 26.7°C