

The Pan Indian Ocean Science Congress at Perth (West Australia)—17-24 August 1954

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The Government of India sent the following delegation, representing the various Sciences in India, to the Pan Indian Ocean Science Congress which held its Second Session at Perth in West Australia, from 17 to 24 August 1954—

1. Dr. H. J. Bhabha—Leader (Physics, Nuclear Physics, Cosmic Rays)
2. Dr. L. A. Ramdas—Member (Physics, Meteorology, Geophysics)
3. Shri B. L. Gulatee—Member (Geodesy)
4. Dr. P. K. Ghosh—Member (Geology)
5. Dr. J. N. Mukherjee—Member (Chemistry, Soil and Agricultural Chemistry)
6. Dr. F. R. Bharucha—Member (Botany, Ecology)
7. Dr. S. I. Hora—Member (Zoology, Fisheries Research)
8. Dr. N. K. Panikkar—Member (Marine Biology, Fisheries, Oceanography)

The Indian Delegation left on 13 August and reached Perth on the 17th, just in time to join the Congress, which began with a most cordial reception extended to the delegates of all the Pan Indian Ocean countries, by the Rt. Hon. the Lord Mayor of Perth, in the Perth City Council Chambers. The official delegates were all guests of the Australian Government.

The formal opening of the Congress took place with due ceremony, at the beautiful Winthrop Hall of the West Australian University at Perth, on the 17th night, the delegates from the various countries (*viz.* Australia, Burma, Ceylon, France, India, Indonesia,

Madagascar, Malaya, Netherlands, Pakistan and Portugal) being presented individually with appropriate introductions. After the welcome speech by the representative of the Commonwealth of Australia, the retiring President of the Congress, Dr. H. J. Bhabha of India, installed the new President Prof. A. P. Elkin of Australia. Prof. Elkin delivered an inspiring address on "The Natural History of Man".

H. E. General Cariappa, the High Commissioner for India in Australia, graced the Congress by his presence, as a distinguished guest, during the first three days of the Congress.

After the opening ceremony on the 17th, the Congress split itself into the following Sections for holding the discussions, symposia and presentation of papers on the various sciences:—

- Section A—Physical Sciences
- Section B—Biological Sciences
- Section C—Geological Sciences
- Section D—Agricultural Sciences
- Section E—Economics, Education and Social Sciences
- Section F—Geography and Oceanography
- Section G—Human Ecology

The Indian delegates too joined the different Sections for taking part in the discussions and Symposia on the subjects in which they were specialists and well-known workers. At the brief plenary meeting on the 18th, the programmes for the various days were decided and Dr. Ramdas was requested to give 1-hour talks on "Seasonal Forecasting in India" on the 23rd afternoon and on "Micro-

meteorology and Agricultural Meteorology" on the 24th morning. In Section A, the subjects of "Cosmic Rays", "Climatology and Meteorology", "Geophysics and the Earth Sciences" assumed prominence. On 18 August there were interesting talks and discussions on the "Climatic Survey of Australia" by Mr. Foley, on "Upper Atmosphere Winds" by Prof. L. G. H. Huxley and on "Current work of the Radio Research Board of Australia" by Dr. G. H. Munro, followed by a lecture on "Artificial Rainfall" by Dr. Whyte. During the discussions on climatology, the need for caution in accepting results on apparent trends in the climate was stressed. The work in progress in many countries on Radio Astronomy has opened up new vistas of research on what has been called "Radio Stars" located at enormous distances ranging up to tens of millions of light years! Dr. Whyte summarised the main points emerging out of the well known work of Dr. Bowen and his collaborators in Australia on "Cloud Physics" and "Rain-Making". During the discussion which followed the importance of proper design of such experiments with treated and un-treated clouds for comparison, to enable valid conclusions to be drawn from them, was stressed.

On the 18th evening the first public lecture of the Congress was delivered at the Winthrop Hall by the leader of the Indian Delegation, Dr. H. J. Bhabha, who spoke on "New Horizons in the Structure of the Physical World". The lecture which made a rapid and striking survey of the growth of science and its impacts on human civilization was listened to by a crowded and appreciative audience.

The Symposium on "Cosmic Rays" held on the 19th forenoon was a great success, with Dr. Bhabha the leader of the Cosmic Ray and Nuclear Research Group at the Fundamental Research Institute, Bombay, Dr. Herz and Dr. Swan of the Nuclear Research Group at Sydney and Dr. Appa Pillai of Ceylon, taking part. After the Symposium, the Indian Delegation was invited to lunch by H. E. General Cariappa, at which the Prime Minister, the Chief Justice and the Vice Chancellor of the University of Western

Australia and a number of other prominent guests were present.

The same evening there was a magnificent reception by the University of West Australia at the end of which Honorary Degrees of Doctor of Science were conferred on Prof. H. J. Bhabha, Prof. J. J. Lam and Prof. J. Millot.

On 20 August, in the forenoon, there was a discussion on Geophysics. Shri B. L. Gulatee of India introduced the subject describing the very outstanding and substantial work which the Survey of India and its Geodetic Branch have been carrying out in India for many decades. He was followed by Mr. R. F. Thyer, who outlined the work on "Geophysical Prospecting" in Australia carried out by the Commonwealth Bureau of Mineral Resources, which employs about 90 Geophysicists. About 70 of these are engaged in prospecting for metals using magnetic, electric, seismic and gravity methods. The Bureau is associated with the Australian National Antarctic Research Expeditions as well as the search for uranium minerals. Some of the Geophysicists are attached to Geophysical Observatories dealing with Terrestrial Magnetism, Seismology, Ionospheric etc. The Bureau has recently taken over the Watheroo Magnetic Observatory, formerly operated by the Carnegie Institution of Washington, as well as the Toolangi Magnetic Observatory. The surveys are conducted by the Bureau both from the air and from the ground.

After the above discussion, Dr. H. J. Bhabha gave a lecture on the growth of the net-work of National Laboratories in India and their programmes and activities. The account of these rapid developments in India was heard with keen interest by the audience representing different Asian countries.

In the afternoon there was a brief session when Mr. Foley read his paper on "Maximum possible rainfall intensity in Australia", after which there was a garden party. In the evening Dr. O. H. Frenkel delivered the second public lecture of the Congress. He spoke on "Invasion and Evolution of cultivated plants in Australia and New Zealand".

On 21 and 22 August (Saturday and Sunday) there were many excursions arranged by the Reception Committee to enable the visitors to see something of S. W. Australia. The visit to the Magnetic Observatory at Watheroo was particularly interesting.

Age determination of rocks and paleotemperatures using the modern technique of determining isotope abundance with the mass-spectrometer, was discussed on the 23rd forenoon. The West Australian University at Perth has commenced work on these problems with the aid of the Carnegie Institute, Washington. This type of work would provide excellent opportunities for co-operative research in Pan Indian Ocean countries.

The Symposium on Long Range Forecasting was held in the afternoon. Dr. L. A. Ramdas of India talked on the objective statistical Seasonal Forecasting techniques developed in India. Great importance is attached by the Government and the people of India to the forecasting of the probable precipitation of the southwest monsoon on which the country's prosperity of the year so largely depends. These techniques are continuously under critical examination and further development. Recently, the problem of predicting the date of onset of the monsoon by statistical methods has also been investigated and further work is in progress on "breaks" during the monsoon as well as its final withdrawal from the country. The lecture was illustrated with many slides. Dr. Radok of the University of Melbourne next gave an account of the methods they are trying to develop in Australia to deal with Long Range Forecasting.

As a result of this discussion the Congress passed a resolution emphasising the great importance of Research on Seasonal or Long Range Forecasting and the need for cooperation amongst the Pan Indian Ocean countries in conducting these investigations.

The evening public lecture on 23 August was delivered by Mr. P. Law. He spoke on "Science in Antarctica" and described the results of the recent annual expeditions to the Antarctica sponsored by the Australian Government. The lecture which was illus-

trated by beautiful colour films portraying the climate, geology and types of animal, bird and plant life in these regions, was greatly appreciated.

The morning session on the 24th was devoted to Meteorology; Dr. C. H. B. Priestley gave a lecture on the problems of general circulation, the stability of bubbles in the atmosphere and micro-meteorology which are under investigation at the CSIRO Meteorological Research Section at Melbourne. Dr. Ramdas next gave an hour's lecture on the investigations being conducted at Poona by the Agricultural Meteorology Division on micro-meteorology, crop-climates, and moisture and heat balances at the ground surface and on solar radiation and Infra-red Radiation from the atmosphere and the various delicate instruments designed by the workers at Poona. Both these lectures were illustrated by lantern slides and greatly appreciated by the audience.

Dr. F. R. Bharucha read a paper on Ecology in relation to evaporation. The need for careful mapping of the uncultivated wild plants and weeds over countries to enable Climatologists to determine the best functions of climatic factors which would explain their occurrence and distribution was stressed during the discussion which followed.

The Congress came to a close on the 24th evening with a plenary session which adopted the various Resolutions and passed votes of thanks to the Australian Government, to the organisers of the Congress and to the public of Perth. Special mention was made to the outstanding services rendered to the Congress by its Secretary, Prof. R. D. Ross.

Besides the Meteorological and Geophysical items which have been specially noticed in this brief report, the Congress discussed other problems relating to Agriculture, Soil Conservation, Education, Human Ecology and Oceanography and Marine Life in the Pan Indian Ocean region.

The meetings were very successful and enabled the Indian delegation to make many useful contacts with workers from the other countries. The next session of the Congress is to be held in Madagascar in 1957.