

Among the equator-ward moving tropical streams Tr is an important one. In the Pacific Ocean and in S.E. Asia it is moving over water or swampy land. Deppermann<sup>15</sup> has given the inversion in the "N.E. Trades" at 1.5 to 2.0 kms. The inversion that occurs over Bengal in the premonsoon months when the "N.E. Trades" have been displaced northwards to that latitude is given a simple explanation. Due to the frequency of monsoon depressions, the thermal structure over Bengal is disturbed, and the inversion is practically wiped out except during long 'breaks' in the monsoon. It is to be made clear that the wiping out is not solely due to the pole-ward moving Em or fresh monsoon air. The only thing this fresh air would do is to allow a parcel of it to pass through the inversion layer. But due to the cyclonic circulation, Tr, which is from the east and had an inversion, gets a slight northerly bend with a tendency to converge, and hence with a tendency for the wiping out of inversion. It is not possible to dynamically figure out the formation of inversions and their wiping out by advection of one or more air masses<sup>16,17</sup> in the tropics without bringing in the latitudinal changes and radiation.

The inversions at Karachi are due to Tc flowing slightly equator-ward over the Persian Gulf and the North Arabian Sea during the monsoon months. Over lower Sind, the paucity of depressions and less chance of latitudinal convergence make the inversions more persistent about the height of 1.0 km. The deepening of the inversion layer as one moves from Mekran to Kutch also becomes understandable.

A reference to the radio-sonde observations of Addu-AttoI, in the old Indian Daily Weather Reports, often shows isothermal layers, and, occasionally, temperature inversions during the northern summer. When the air is about to cross the equator, there is hardly any inversion.

The formation of a temperature inversion is very important as it allows sufficient moisture to accumulate without its being dissipated by

convection or immediate thunderstorms. It conserves the moisture and the energy for later release if needed.<sup>18</sup> The inversion in Tr south of the equator, explains the shallow depth of the S.W. monsoon in the neighbourhood of the equator. The diurnal variation of temperature at Nuwara Eliya is nearly 12° F. even on a good monsoon day, showing that the hill station is not well within the monsoon stream. At Mahabaleswar the diurnal variation of temperature is sometimes as low as 2° F. The Mannar and Trichinopoly upper winds also show such variations. The depth of the S.W. monsoon increases with gain in latitude, partly due to sea travel and partly due to latitudinal convergence. Similarly the shallow layer of moisture of the N.E. monsoon in northern winter is explained by the Tr north of the equator having an inversion at about 1.5 kms. This air crosses to the southern hemisphere at intervals to feed the monsoon there. The radio-sonde and aeroplane ascents and the extreme dryness at the high hill stations in South India all show the existence of temperature inversions in the "N.E. Trades" in northern winter.

The data are being further studied.

1. *Memo. India Met. Dept.*, **23**, 413-520.
2. *Ibid.*, **21**, 1-110.
3. *Ibid.*, **25**, 109-43.
4. Malurkar, *Forecasting Weather In and Near India*: Printed in Bangalore, limited number, May 1945 (released Nov. 1945).
5. *Ibid.*, p. 34, and p. 87.
6. Malurkar, *Curr. Sci.*, **1947**, **16**, 14.
7. —, reference **4**, p. 139.
8. Normand, *Gerl. Beitr. z. Geophys.* **1931**, **34**, 233.
9. Malurkar, reference **4**, p. 91.
10. *Ibid.*, p. 39.
11. Malurkar, *Curr. Sci.*, **1947**, **16**, 148.
12. —, reference **4**, p. 48.
13. *Ibid.*, p. 110.
14. —, *Gerl. Beitr. z. Geophys.*, **1932**, **37**, 415.
15. Deppermann, "Outlines of Philippine Frontology," Manila, 1936.
16. *Winter Rain in the United Provinces and North-western Bengal* (in press), and Chatterjee and Sur, *Memo. Ind. Met. Dept.*, **26**, 171.
17. References to Field in Chatterjee and Sur's paper in the above, and Hariharan, *Sc. Notes, Ind. Met. Dept.*, **5**, 41.
18. Malurkar, *Proc. Indian Ac. Sci., Sec. A*, **1943**, **18**, 26.

## THE CENTENARY CELEBRATION OF THE CHEMICAL SOCIETY, LONDON, AND THE ELEVENTH INTERNATIONAL CONGRESS OF PURE AND APPLIED CHEMISTRY\*

THE Centenary of the Chemical Society, London, at which nearly 1,500 chemists were present, was celebrated in the Central Hall, Westminster, on Tuesday, July 15th; Prof. C. N. Hinshelwood, President of the Chemical Society, presided. Eminent chemists representing the Science Institutions of twenty-eight countries, including France, U.S.S.R., America, Switzerland, Sweden and India, participated in the celebrations. Dr. S. Krishna of Dehra Dun represented India on the occasion. The opening was preceded by a reception at which the distinguished visitors and delegates were received by the President and the Council. Prof. Raymond Delaby, President of the Chemical Society of France, read on behalf of all the delegates from overseas, a

\* A summary report by Dr. S. Krishna who represented India on the two occasions,

message of congratulations to the Society on the achievement of its Hundredth Anniversary. Representatives of Societies from overseas then presented their written addresses of congratulations. This was followed by greetings by Sir Robert Robinson, President of the Royal Society, London, on behalf of the sister Societies in the United Kingdom.

To mark the event, an Exhibition was opened on July 14th at the Science Museum by Prof. Hinshelwood; Mr. George Tomlinson, Minister of Education, presided. Mr. Tomlinson described the gathering as an expression of international friendship and co-operation at its best. The Exhibition is in three sections—Historical—a display illustrating Chemistry in every-day life, and a section of Books on Chemistry. The Historical Section, arranged by the Chemical Society, is concerned with the achievements of British Chemistry during

the past century, and includes among its exhibits many historic pieces of apparatus. The range is from Faraday's experiments on liquefaction of gases to Sir Alexander Fleming's discovery of Penicillin. Between these extremes lie such things as Perkin's discovery in 1856 of the dye 'Mauve', and Bragg's work on crystal analysis. In the section on Chemistry in every-day life, which has been organized by the Department of Scientific and Industrial Research, an interesting sequence of exhibits shows how chemistry is to-day affecting all aspects of domestic life. It includes sections dealing with such themes as textiles, buildings, roads and transport, fuel, power, health, and food. The exhibition constitutes one of the most comprehensive displays in the history of science yet seen in the United Kingdom.

Before an audience described as the "most representative and distinguished gathering of chemists ever seen in London", Sir Robert Robinson delivered the Faraday Lecture on "the Development of Electro-Chemical Theories of the Course of Reactions of Carbon Compounds", and received the Faraday Medal—the highest honour that can be bestowed by the Chemical Society. The lecture was preceded by a dignified ceremony at which Prof. N. J. Bjerrum (Denmark), Prof. J. N. Bronsted (Copenhagen), Sir Henry Dale (Britain), Prof. George C. Hevesy (Stockholm), Prof. P. Karrer (Zurich), Prof. L. C. Pauling (U.S.A.) and Prof. Ruzika (Zurich) were formally admitted to the Society as Honorary Fellows. The most impressive of all the ceremonies was the Graduation ceremony at which the London University conferred Honorary degrees of Doctor of Science (*honoris causa*) on Professors Bronsted, Hinshelwood, Karrer and Pauling. This was followed by a dinner by the Duke of Athlone, the Chancellor of the University.

The Prime Minister attended the Centenary Dinner of the Chemical Society, at the Dorchester Hotel on 15th July. He said that "the party to which he belonged had for many years been anxious to make changes in the organization of the Society, but the changes it was carrying out were insignificant compared with those brought about by the Chemist". As a politician, the moral he drew was that the Government must keep close touch with the Chemist. Mr. Attlee concluded his speech by saying that "Science, like music and art, was international. It should be one of the things which bound the peoples of the world together, not something which separated them". Responding to the toast, Prof. Hinshelwood said that "Chemistry, like all sciences, was a tree of good and evil. The powers that it conferred were mighty, and they could be terrible. The control of them was a matter for the general conscience of mankind". Further on he described "as a welcome sign in the past few years the increasing number of scientific papers published from the chemical industry: clear evidence that leaders of that industry were showing understanding of the intellectual needs of the men who served it". "One can only hope, he added, "that the whips of commercial secrecy will not be succeeded by the scorpions of military security." At a luncheon given by His Majesty's Government, Mr. Herbert Morri-

son, Lord President of the Council, said that "Young chemists should pursue fundamental research, but the modern world required that the time-lag between scientific discovery and application must be short."

During the celebrations which lasted three days (15th to 17th July) visits were arranged to the British Drug Houses; the Distillers Company Ltd., Epsom; Kodak Ltd., Harrow; the Research Institute, Beckenham; Chemical Research Laboratory, Teddington; and the Fuel Research Station, East Greenwich.

Receptions were held by the Imperial Chemical Industries, the Royal Society, and the Royal Institution.

The Centenary Celebrations were followed by the Eleventh International Congress of Pure and Applied Chemistry which opened at the Central Hall, Westminster, on 17th July. Lord Leverhulme, addressing 2,000 delegates from all over the world, said that the Congress was a "significant act of international co-operation. A better understanding of the world might well be promoted by a gathering like that which had brought together men and women from nearly thirty countries, all united in one common purpose—the progress of the science of Chemistry". Nearly 400 papers were presented, but a significant omission was that of any direct reference to nuclear energy. This was explained by Sir Wallace Akers, who was Director of Research in Atomic Energy during the war, to the press, saying that "the Government that had knowledge of these particular developments had decided to impose an embargo on that knowledge until some other arrangement was made. It is well known to chemists engaged in atomic energy research that their information was only a fraction of what was known, and it was impossible for an honest person to present to the Conference anything that purported to make a serious contribution to the chemical aspect of the development."

Conferences of fourteen sections of the Congress were held simultaneously in separate rooms at the Imperial College of Science and Technology, South Kensington. The sections were the following with the names of their Presidents in brackets:—(1) Inorganic and Geo-Chemistry (Prof. H. V. A. Briscoe), (2) Physical Chemistry (Prof. S. Sugden), (3) Organic Chemistry (Prof. A. R. Todd), (4) Bio-chemistry (Prof. A. C. Chibnal), (5) Chemistry in relation to Agriculture and Applied Botany (Prof. T. Wallace), (6) Chemistry in relation to Applied Zoology and Veterinary Sciences (Dr. W. R. Wooldridge), (7) Chemistry in relation to Food and Nutrition (Sir Jack Drummond), (8) Chemistry in relation to Medicine and Therapeutics (Dr. C. H. Harington), (9) Chemistry in relation to Fuel, Power and Transport (Sir Alfred Egerton), (10) Chemistry in relation to Natural and Artificial Textiles (Sir Robert Pickard), (11) Chemistry in relation to Elastomers, Plastics, Glass, and Ceramics (Prof. H. Moore), (12) Chemistry in relation to Metals (Mr. S. Robson), (13) Chemical Engineering (Dr. A. J. V. Underwood), (14) Chemistry in relation to Essential Oils, Flavouring Materials and Cosmetics (Mr. R. K. Allen).

The discussion covered a wide field. For example, in the Nutrition Section addresses