a hurricane which was the severest since 1922. The hurricane, itself, travelled almost west (or perhaps induced an equally severe secondary) into the South Indian Ocean and continued strong. The series of low pressure areas induced in the Bay of Bengal remained ill-defined for more than a week, until a depression that moved north-east formed. But the resulting weather during the week was responsible for dislocation of normal transport in Madras Presidency.

It is necessary to stress the fact that for tropical weather, *i.e.*, the cyclonic storms and the S.W. monsoon, the weather to the east of India has to be known. Though the main high pressure area which gives rise to the 'pulses' is the South American high pressure area, the travel is from east to west in the narrow corridor of pressure between the high pressure areas in the Pacific Ocean.

But for the weather in winter in India, one has to follow the extra-tropical depressions. The meteorological observations that one can get even during peace-time from Egypt to the frontiers of India are very limited due to deserts and uninhabited tracts or meteorologically unrepresented countries. The wide areas happen to be the regions where the secondaries of western disturbances or extra-tropical depressions form. Many of these secondaries have to be inferred after they have produced weather. Hence there is a need to know about them much earlier. The damage that occurs due to these western disturbances do not have much news value. It is only occasionally that the damage is great enough to be advertised. If such an event occurs either in Egypt or Palestine, it can be assumed that an active extra-tropical disturbance is passing over the countries. These active extra-tropical disturbances would develop secondaries.[7] One or the other of the secondaries would affect India. In the absence of a depression south of the equator moving westwards, the forecaster can anticipate the formation of an active secondary of the extra-tropical disturbance and be forewarned. During the last days of March 1944, a very active extra-tropical depression moved across Egypt and Palestine and caused considerable dislocation. The disturbance which had been detected by the interference in the reception from Ankara[8] could be better evaluated after the receipt of the above information and the forecasts on 1st April, and subsequently could be made more informative. The weather in upper India in the first few days of April 1944 resembled a good rainy day during the monsoons. A southern depression appeared (south of the equator) about the 4th April in the longitudes 90° to 100° moving westwards. The weather over upper India rapidly cleared up after 6th April.

If attempts are made to catch the weather summaries of various meteorological offices, and the weather information that form the "news items", a better appreciation of weather over a larger area can be got, and it would enhance the value of one's forecasts.

The above speculations also lead to the conclusion that a criterion *can be given* strictly separating tropical weather from non-tropical weather. The tropical weather has essentially an eastern origin and travels westwards, while the non-tropical weather has a western origin and moves eastwards. Due to interaction of the various weather situations, *e.g.*, the recurvature of a tropical cyclonic storm under the influence of an extra-tropical disturbance or the greater activity of a western disturbance due to an infeed of N.E. Trades, in any season, one has to watch for signs of weather from both the east and the west.

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1. Malurkar, *Forecasting Weather In and Near India*, 1945 (Private circulation). 2. —, *Ibid.*, p. 34 and p. 87, 3. —, *Ibid.*, p. 119. 4. —, *Ibid.*, p. 24 and p. 64. 5. —. *Ibid.*, p. 96, *et seq.* 6. —, *Curr. Sci.*, 1941, **16**, 14. 7. —, *Ibid.*, p. 139. 8. —, *Proc. Nat. Acad. Sc.*, (Allahabad), 1944, **A, 14, 131.**

OBITUARY

PROFESSOR GEORGE MATTHAI, M.A., Sc.D. (Cantab.), F.L.S., F.R.S.E., F.N.I.

THE sudden death at Cambridge of the distinguished zoologist, DR. GEORGE MATTHAI, Emeritus Professor of the Punjab University, has deprived the science of Zoology of one of its most ardent votaries and his friends and pupils of a lovable personality and inspiring teacher. At a time when this country needs all its ablest men to help in the great task of developing its scientific resources the loss of a scientist of his calibre leaves a gap that will be difficult to fill.

George Matthai belonged to a cultured and gifted family of Syrian Christians from Travancore, his father having later migrated to Calicut. Born at Palghat in Malabar about 59 years ago, he received his early education at the Zamorin's College, Calicut, and later at the Christian College, Madras. Here he graduated, and for about a year served as a lecturer in zoology before he left India for a career of research at Cambridge.

It was at Cambridge, where so many students from distant parts of India are thrown together, that the writer first met George Matthai. We joined Emmanuel College in the October term of 1911 and our association there of about seven years matured into an abiding friendship. Matthai, with already a Master's degree from Madras, and some experience as a College lecturer, was admitted at once as a research student (under Stanley Gardiner), and we juniors, who had yet to go through the mill of the Tripos, at first looked up to him with some degree of deference. Thirty-six years ago it was unusual, not to say rare, to find an Indian student at Cambridge pursuing scientific research, and Matthai was justly aware of a certain glamour that surrounded him. As the years went by we saw him build up an international reputation by his original work, and he inspired us with his example,

Within a couple of years he had made a name for his researches on the morphology and classification of the Madreporarian Corals. The special merit of this work was that it took into account the structure of the soft parts of the body, which were expected to provide a more rational index to affinities than the calcareous skeleton alone. Obviously, the most natural classification would be one erected on the combined basis of the soft parts and the calcareous skeleton. And it would be particularly interesting if a correlation could be established between the structure of the soft parts and the hard, for in that case the perplexing variety of skeletal forms which are grouped in an artificial taxonomy, including all the fossil types of which the soft parts can never be found, could be assigned to their natural places in the evolution of the group.

Matthai's comprehensive and painstaking work thus had very substantial value. Already in 1914 his first monograph on the Astræidæ appeared in the *Transactions of the Linnean Society of London*. The completion of the second was delayed until after the War of 1914-18; meanwhile he had to leave Cambridge to take up an appointment at Lahore. The second monograph was completed during a period of leave in England, and was published as a *British Museum Catalogue* in 1928. Meanwhile he had revised the Madreporarian Corals in the collections of the Indian Museum in Calcutta (*Rec. Ind. Mus.*, 1924); and in 1926 had appeared his important work on the histology and modes of budding in corals as determining the farms of the colonies. This was published in the *Philosophical Transactions of the Royal Society*. In 1940 he discussed the theoretical bearings of his work, summarising his conclusions regarding evolutionary tendencies in the Astræidæ. Latterly he was engaged in the study of the colonial Fungidæ.

Matthai travelled widely in search of his material, undertaking several cruises, *e.g.*, along the coast of Florida, in the West Indies, and in the Indian Ocean. For his taxonomic work he examined all existing type collections in Europe and America. His studies on corals thus formed the main theme of his work, and they are regarded by competent authorities as a monumental contribution to our knowledge of the Madreporaria.

While he was still a young student at Cambridge the importance of the researches in which he was engaged was recognised by the award to him of the Mackinnon Studentship of the Royal Society, and of generous research grants from Emmanuel College and other sources.

In 1918 he was appointed professor of zoology at the Government College, Lahore. There he soon made his mark as a teacher. As Dean of University Studies he did much to stimulate zoological research in the Punjab. At semi-popular lectures he impressed one by his mastery of style as much as by his discrimination in presenting facts. The result was a delightful clarity of exposition.

Two years later we were again brought together for a year at Lahore, where we saw a good deal of each other during the academic session of 1920-21. In January 1923 he came to Lucknow to preside over the section of Zoology at the Tenth Indian Science Congress.

While on leave in England in 1925, he married Mary Chandy, second daughter of the late Mr. C. Chandy of the Mysore Civil Service and later a Vice-Chancellor of the University of Mysore. They had one son, Ariel, an only child, who survives him.

In 1929 Matthai's published work, now voluminous and impressive, was rewarded by the University of Cambridge with the conferment of the degree of Sc.D., the highest degree which that University can bestow upon a man of Science. He was one of the Foundation Fellows of the National Institute of Sciences of India, a Fellow of the National Academy of Sciences, of the Linnean Society of London and of the Royal Society of Edinburgh. In January 1931 we met again at the Nagpur Session of the Indian Science Congress—an occasion marred by the news we there received of the death of Mrs. Matthai.

In 1938, when the Silver Jubilee of the Indian Science Congress was celebrated at Calcutta in a joint session with the British Association, Matthai again presided over the section of Zoology. In both his presidential addresses to the Congress the main theme was research in oceanography and the marine faunas, particularly those of the Indian Ocean, a subject in which he was always at home. He retired from the chair at Lahore in 1943, on reaching the age of 55, but continued his research activity. For some time in 1946 he acted as Director of the Zoological Research Laboratory at the University of Madras.

In his scientific work Matthai was essentially a man of facts, rather than theories: inquisitive by nature, orderly and correct to the limit of punctiliousness. His strict attitude to the observed facts of Science, and his deeply religious temperament were two aspects of the same personality. While always mindful of the rights of others he knew how to assert his own, and to hold his head high. He never grudged any help that he could render to others with his knowledge or advice.

Towards the end of June last year, when I happened to spend a week again at Cambridge, it was a pleasant surprise to know that he was also living at the College. Chatting away into the small hours of the morning we lived the old Cambridge days once again in the familiar scenes of our 'undergrad' years: several of our contemporaries are now dons at Emmanuel and other Colleges. We said Goodbye on the 29th of June 1946—it was to be for the last time. On the 25th June 1947, weighed down by prolonged anxieties, he suddenly took leave of this world, to the grief of all who knew him. He will be missed by his many friends for his frank and lively expression as he greeted them with his vigorous handshake.

(For some of the personal facts relating to the early life of Dr. George Matthai I am indebted to his nephew, Dr. K. Jacob, of the Geological Survey of India, and to Dr. N. K. Panikkar of Madras.)

B. SAHNI.