Joseph Needham (1900–1995)

There is a saying in Arabic:

> *Maut-ul-Aalim Maut-ul-Aalam*, the death of a scientist is the end of an epoch. This is indeed true for Joseph Needham, whose depth of knowledge and wide-ranging interests are matched by a few, if any.

Joseph Needham was born on 9 December 1900. His father was a physician, and, according to Joseph, a pioneer in pathological histology who later specialized in anaesthesia. His mother was a musician and composer. He had a comfortable childhood, but showed from the beginning a sympathy for working class and when only 13 years old argued for socialism with his father. He earned a degree in natural science and taught biochemistry at Gonville and Callis College, with which he remained associated all his life. He married Dorothy, also a biochemist. Both became Fellows of the Royal Society. However, by 1930 he got interested in history of science, particularly in history of Chinese science. It was probably his contact with Gwen-Djen Lee, who later became his collaborator in the project on Chinese science and whom he married after the death of his wife Dorothy. Two events shaped the direction of his life's work.

The first one was his participation in the Second International Conference on the History of Science and Technology held in London in 1931. Some of the papers presented by the Russian delegation, headed by N. I. Bukharin, which left a deep impression on English participants were those of Boris Hessen on socioeconomic roots of principia, N. I. Vavilov's paper on the origins of the world's agriculture, E. Colman on crisis in mathematical sciences and B. Zavadovsky's paper on physical and biological factors in the process of evolution.

The English side was represented amongst others by J. D. Bernal, J. B. S. Haldane, Hyman Levy, L. Hogben, Benjamin Farrington, Joseph Needham and others. Each one of them was afterwards to work out social, political and cultural and economic dimension of science in their fields of specialization.

The second important event was his appointment as a counsellor, appointed by the British Council in 1942 to extend Anglo-Chinese relations. As a counsellor he travelled extensively in China, and brought out photographs and a sort of commentary on the contemporary developments in the science and technology in China. This was published in 1945 as Chinese Science. Thus began his appreciation of communist China.

There is a photograph, no. 48, in this book with Joseph on a donkey, along with three Chinese on an edge of the desert city of Yuchyachuan. I am told that here his party was attacked by bandits. While the Chinese despaired of their and Joseph's life. Joseph got down from his donkey and did a Scottish dance, seeing that, the leader of the bandit got down from his donkey and did a dance, after which both the parties went their way.

The book gives a bird's eye view of the organisation and development of scientific research of free China, providing historical insights. In discussing these developments his horizon was not limited. For instance, talking of cave temples of Chienfutung he compares them with the caves of Ellora and Ajanta in India.

Joseph had wide-ranging interests on nearly every aspect of human intellectual, social, cultural and political activities, and he comments on these with his erudition. In his own words he was, a 'prowler and explorer among ideas'. He had his views on science, philosophy, religion, arts, history, but what was significant about these views was that he was always modifying them and evolving his ideas about them in the light of new knowledge. For instance, talking of science and religion he says that his earlier description of science was rather too narrow and the description of religion certainly much too neoplatonic, idealistic, pietistic and otherworldly[1].

Joseph was deeply concerned with the rise of Hitler and its consequences on science. He delivered a lecture at Cornell University in 1940 in which he described its consequences on international science. In doing so he drew upon the historical development of science, to show that Nazi's attempt ran counter to the scientific tradition[2]. An interesting feature of the lecture he showed through statistical data the decline of science in Germany as was evident from publication of papers. He also produced data on scientists of established reputation, who were exiled from Germany, Austria, Czechoslovakia and Italy. In most of his articles, lectures and talks, he touched upon historical, social, cultural, political and philosophical features, and also compared the developments with non-European culture areas. His systematic approach to the study of problem is brought out in his essay: 'Limiting Factors in the History of Science'. It covers nearly every possible dimension starting from the relation of the investigator to his environment, co-operation of investigators, techniques and balance between observation, experiment and speculation.

Apart from being a great scholar, he was, what is now being termed, an activist. He was involved in controversies of the period, as those with A. V. Hill and Michael Polyani on the nature of science and role of scientists. He was also involved in a Committee which examined the germ warfare in Korea, and other causes involving injustice, or hegemonistic politics.

He was greatly concerned with one question, one of 'the deepest historical questions that can be raised'. Why did the body of systematized knowledge and theory about nature which we call science not develop also in India or China?[3]

Later, writing a new foreword to the papers presented at the Second International Congress on the History of Science and Technology (1931) to the second edition published in 1971 he wrote: 'With the appearance on the scene of intensive studies of mathematics, science, technology and medicine in the great non-European civilizations, debate is likely to sharpen, for the failure of China and India to give rise to distinctively modern science while being ahead of Europe for 14 previous centuries is going to take some explaining.'

While he concentrated on writing the history of science in China, he encouraged scholars in India, as well as those in Islamic Culture area, to write histories of science in these countries. Writing to the then secretary of the National

Institute of Science of India (now Indian National Science Academy) in 1954 March he wrote, 'I am profoundly convinced (with Dr. Hora) that urgent steps must be taken to put the whole subject of the history of science and technology in India on a proper basis, furthermore that the later history is perhaps the more promising to start with, pending for the historical researches into the datings of texts of antiquity.'

Six years before his death he had organized a conference, which represented his perspective on non-European societies and scientific developments. Explaining the purpose of this Conference on The Historical Dynamics of Oriental Societies, he wrote to the Secretary of Commonwealth Science Council on 15 May 1984. 'The conference is meant to involve a multisided discussion aimed at bringing about greater and more realistic understanding of the specificity of the histories of societies such as China, India, Japan and the Islamic world'.

While Needham worked and published his books on 'Science and Civilization in China', covering nearly all the different branches of science and technology, along with their social and philosophical dimensions, he gave references to the contemporary developments in Asia, as well as in Europe. For instance, in the second volume on the association between nature-mysticism and science he dealt with European linkages, as well as China, the Islamic world and India (pp 94–99) In his discussions on Sufism and science in the Islamic world he brought out the social features as well. In mentioning the role of Qaramatians he mentions: 'That an alliance of this kind should have existed between the mystical scientists and the organized workers is not the least surprising. Since, as cannot be too often repeated, the great cleavage lay between those who were prepared to engage in manual operations and those who considered them unworthy of a gentleman. Between techniques and magical recipes there was no wide gap' (Vol. II, pp. 96).

He was the first person to recognize the division between natural Sufism and esoteric Sufism. The reason for the latter lay in the power of the governing elite in the suppression of unorthodox beliefs, turning the mystical system into purely religious and unworldly forms. This happened to Sufism in India.

There are many aspects of his personality which are revealed in various incidents of his life. Two or three are worth recalling.

Joseph was the Chairman of a Committee for the development of a university in Sri Lanka, one of the members of this Committee was Mr. Chatterjee, the then Vice Chancellor of the Rajasthan University, Jaipur. Joseph had asked me to meet him in Jaipur. I called on him and he started discussing with me a few points regarding the history of science in India, while we were discussing, the Vice Chancellor came reminding him about the meeting with the Governor. Joseph got up, went to his room and brought a few books for me to go through. The Vice Chancellor, seeing him carrying the load of books remarked, 'There are always servants to carry things for you'. Joseph retorted, 'I never do that sort of thing'.

While Joseph was master of Gonville & Caius College, he invited me to tea. When I went there, there was no light. Thinking that he was not there, I switched on the light and found Joseph deep in thought. I apologized for disturbing him, in his thinking. His reponse was, 'I was not thinking, but was only rearranging my prejudices.'

Another lesson I got from him was when he gave me a book to read on crusades. I had read in my childhood a book on crusades in Urdu, where Muslims were believers and Christians were infidels. Muslims were brave, generous and great fighters while Christians were just the opposite. The book in English painted the picture in the opposite – Muslims were infidels, weak, and not brave!!

As I remember him I am reminded of an Urdu couplet:

'You who are now going away, you would be long remembered.'

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