

발표요지**1995. 3. 1-1995. 8. 31.****조셉 니덤(1990-1995)
추모강연회****1995. 5. 27****Joseph Needham****Thomas G. HARRIS**

HM Ambassador

British Embassy

Chairman, ladies and gentlemen, it is a great honour to have been invited to speak to this Society today about Joseph Needham. I do so with considerable trepidation for, although I attended the same Cambridge college, Gonville and Caius, I cannot claim to have known him at all well or to have your knowledge of his work and significance. When I was studying at Cambridge University in the early 1960's, Joseph Needham was already regarded with great awe by mere under-graduates, and his research work meant that he saw relatively little of the younger students. Moreover, he did not become Master (or, as you would say, President) of my college until the year before I graduated—1965. I, therefore, saw much more of his predecessor, the Nobel prize winner Sir Neville Mott, during my own years at Cambridge. I can only claim, therefore, to have seen him occasionally walking to and from his rooms in the college—normally accompanied by his colleague for 30 years, Gwei-Djen Lu whom he married in 1989 after the death 2 years earlier, of his first wife, the eminent biochemist Dorothy Moyle.

Even in the early 1960's, however, we students were conscious that we were privileged to be attending an institute of learning which had nurtured one of the great minds of the 20th century. Needham was, quite literally, a legend in his own lifetime.

Joseph Needham was born in 1900, the son of an eminent medical doctor in London. He was, therefore, too young to be called on to fight in the First World War (though

he did put in a brief appearance in 1918 as a Surgeon-Lieutenant) and too old to serve in the Second World War. He was educated at Oundle School, where he mastered French, German, Greek and Latin, but he entered Cambridge University intending to follow in his father's footsteps. According to his own account, he was persuaded by a school friend to apply for Gonville and Caius college because of its reputation for medicine. Founded in 1349 as Gonville Hall, the college has always been known as being particularly strong in the medical sciences — perhaps because one of its most illustrious Fellows had been William Harvey, the scientist who discovered the circulation of blood.

But Needham was persuaded by his tutor, on his arrival in college, to avoid concentrating solely on biological studies. He was told "you'll never do anything in biology if you don't have that chemical and physical basis", so he switched to a natural sciences course which included chemistry, anatomy and physiology. He later remarked that this was a turning point in his life.

He graduated in 1922 and, having specialised in biochemistry, he then carried out post-graduate work under Gowland Hopkins and was elected to a Fellowship of his college in 1924 — the year he married Dorothy Moyle. He worked mainly on research into the process underlying the development of the fertilised egg into a differentiated and complex organism and at the age of only 31 he published *Chemical Embryology*, a comprehensive 3-volume survey of the whole field which, as a pointer to his future interests, included a long account of the history of embryology which was subsequently re-published in 1934 as a separate work. Increasingly he became interested in the philosophy and history of science and, although he continued to carry out original research with his wife, by the mid-1930's he had begun to lecture in Cambridge University on the history of science. At this time there were a number of Chinese research students in the University's Department of Biochemistry. Their insights prompted Needham to take on the daunting task of learning Chinese. It was the second major turning point in his life.

In 1942 he was invited to head a British scientific mission to China where he became the Science Counsellor at the British Embassy in Chungking and Adviser to the Chinese National Resources Mission and the Chinese Army Medical Administration. Despite the war against Japan, which was then ravaging China, Needham immediately began to travel throughout the country collecting original documents and visiting as many scientific institutions as he could reach. In 1943 he became a foreign member of the Chinese National Academy. He collected an immense volume of Chinese books and manuscripts which he took back to England when he became, in 1946, the first Director of the Natural Sciences Department of UNESCO.

During this formative period, Needham became fascinated by a question which is as applicable to Korea as it is to China. Why did a civilisation which 600 years ago was

so far ahead of Europe in science and technology fall so far behind the West by the end of the 19th century? Needham was unable to visit Korea during this period but his later publication in 1986 of *The Hall of Heavenly Records: Korean Astronomical Instruments and Clocks, 1380-1780* showed that his extraordinary breadth of knowledge embraced the history of scientific developments in this peninsula as well as in the Middle Kingdom itself.

Having returned to his college in Cambridge in 1948, Needham then embarked on the work which was to transform our understanding of the world we live in. In 1954 he published the first volume of *Science and Civilisation in China*. It was immediately acclaimed as a masterpiece.

For the next 40 years, Needham produced 15 further volumes (of which he himself wrote 12). They represented the most complete account of Chinese scientific achievements ever to have been produced. It is a work of scholarship unsurpassed in this century. It was not just the sheer scale of these publications which was so significant, it was the utterly extraordinary way in which he was able to encompass the totality of Chinese science and technology over 25 centuries. A reviewer in *Nature* magazine of one volume published in 1987 wrote :

No work of scholarship in the 20th century has done so much to alter perceived ideas about the past as Joseph Needham's *Science and Civilisation in China* ... Needham's talents are extraordinary, a combination of linguistic ability, he is completely fluent in 8 languages, 3 of them ancient, chemical, technical and mechanical competence, and a cast of mind that has put endless details together into a clear and convincing picture of a world-wide development that ran across 1500 years.

Science and Civilisation in China was to turn into an unprecedented survey of the whole history of Chinese technical accomplishments which, in turn, revolutionised the way the Western world thought of the civilisation from which Korea itself derived so much of its own culture and technology until the arrival on this peninsula of the European powers a little over a century ago. For almost all his readers in the West, Needham's work was a revelation of a depth of scientific accomplishment of which they had had, until then, no inkling. By providing a bridge between the two most important cultures of our time, Needham not only helped to rectify a dangerous ignorance on the part of the West, he also created, virtually single-handedly, an area of scholarship which was previously unknown in Western universities. Apart from his books, of which there will never be an equal, Needham also left as a testimony to his achievements, the Needham Research Institute at Cambridge University which was founded in 1987 to continue the tradition he had established of study into the East Asian history of

science. The work of that Institute has been supported by generous donations and assistance from such countries as Taiwan, Hong Kong, Singapore and China and I have been told that the Daewoo Foundation has donated Korean books worth 2,000,000 Won to the Needham Institute every year since 1992. This donation will last until 1996. I am delighted that Korea is also supporting the Institute's work.

Yet I must confess that if there is one blemish in Needham's record it also concerns this country of Korea. Needham, like so many of his generation of British intellectuals, managed to combine a devout belief in Anglican Christianity with a set of agnostic left-wing sympathies that left him nearly incapable of rational criticism of the Marxist authorities who took power in China in 1949. Whether it was his utter devotion to Chinese culture, his dependence on Chinese cooperation, or the sort of naivety which afflicted so many British intellectuals visiting the Soviet Union in the 1930's, I do not know. But Needham felt a loyalty to China which at times overrode any qualms he may have felt as communism took its full toll in the China of Mao Tse-tung.

The most notorious episode arose during a visit he paid to the Academia Sinica of China in 1952. Whilst there he was invited to inspect the "evidence" the Chinese had collected to support their allegations that UN forces in Korea were engaged in biological warfare. Together with a number of other foreign scientists, he signed a report supporting these utterly bogus Chinese claims. It took many years before the full significance of his scholarship was accepted as outweighing the foolishness of this propaganda coup for the Chinese in the middle of the Korean War. That he was forgiven was shown by his subsequent appointment in 1972 as President of the International Union of the History and Philosophy of Science and the many honorary awards he received from so many universities. That the incident was never entirely forgotten is shown by the fact that it was only very late in his life that his own country bestowed on him honours which lesser scholars would have earned at a much earlier stage in their careers.

I do not know if Joseph Needham ever visited North Korea. Professor Song Sang-yong tells me that Needham told him in 1974 that he had crossed the Yalu river. Possibly this happened during the infamous visit in 1952. Certainly I have seen no record that Needham ever went to Pyongyang. I do know that he never visited the Republic of Korea. He was frequently invited to come but, perhaps a sense of guilt led him to decline all invitations, which is of course an enormous pity because no-one would better have appreciated the triumphs of Korean science 600 years ago than Joseph Needham. Here was a Western scholar who would have revelled in the achievements of Koreans at the time of King Sejong in astronomy, medicine, horology, meteorology and printing. Needham's work on Korean astronomical instruments and clocks, published in 1986, showed an amazing grasp of the intricacies of the various ingenious mechanisms developed by Korean scientists in the fifteenth century.

It is a great shame that a scholar of Needham's stature never came to see for himself the land which produced both moveable print type and the *Hyang'yak Chipsongbang*. I am sure that he would have loved Korea if he had plucked up the courage to come.

Sir Isaac Newton, another great Cambridge scientist, once said, modestly, that "if I have been able to see further than others, it was because I stood on the shoulders of giants". Yet it is difficult to see what shoulders, if any, Needham stood upon. True he was helped in his work by many Chinese and other scientists and researchers, but no historian, Western or Oriental, had ever before begun to match his sheer breadth of knowledge; his understanding not only of the Western and Chinese scientific traditions but also those of other civilisations; his extraordinary vision and his polymathic range of reference and information. No historian of science is ever again likely to embark upon a work of scholarship of such originality, such scale or such dedication. Needham was truly an intellectual giant in his own right whose output has been described since his death earlier this year as the greatest work of scholarship by one person since Aristotle.

By an accident of birth I shared the same nationality as Joseph Needham. By a stroke of good fortune I attended the same college at Cambridge University to which he devoted the best years of his life. I am proud to have been associated by such tenuous links to one of the greatest intellectuals of this century. But the truth is that Needham was a creative genius who rose above institution or country. He was one of those scholars whose gifts were so great and his work of such profound and universal importance that he crossed national and cultural divides. I am, therefore, touched, but not entirely surprised, that so many eminent Korean scholars have gathered here today to pay tribute to Joseph Needham's memory. We shall all never see his like again.

Thank you for listening to me.