

# NEEDHAM RESEARCH INSTITUTE NEWSLETTER

Newsletter No. 20

EAST ASIAN HISTORY OF SCIENCE TRUST

October 2000

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## VISIT OF PROFESSOR LU YONGXIANG, PRESIDENT OF THE CHINESE ACADEMY OF SCIENCES



*Professor Lu Yongxiang presents Christopher Cullen with a book for the Institute.  
(Background: congratulatory scroll written for Joseph Needham by Jiang Zemin in 1992.)*

*Photo: Mark Scudder*

On the afternoon of Friday, July 7th, Professor Lu Yongxiang, President of the Chinese Academy of Sciences visited the Institute. The visit took place as part of a trip to Britain by a substantial delegation representing the centres of innovation within CAS. The general aim was to familiarise the President with UK science and technology structure and policy, and to help him gather an understanding of government policy and priorities, the role of industry and industry/academic links, with particular reference to basic research and high technology. He was accompanied by several other senior scientists, including:

- Professor Liang Xinmao: Deputy Director, Dalian Institute of Chemical Physics.
- Professor Zhang Jie: Deputy Director, Beijing Institute of Physics.
- Professor Fu Bojie: Director, Beijing Eco-Environment Centre.
- Dr. Sun Fangzhen: Director, Beijing Institute of Developmental Biology.
- Mr. Zhao Yongren: Assistant Director-General, Bureau of International Cooperation, Chinese Academy of Sciences.



*Professor Lu Yongxiang being shown items of Needham memorabilia by John Moffett*

*Photo: Mark Scudder*

Professor Lu was welcomed to the Institute by our Deputy Director Christopher Cullen, and several of our Trustees, including Prof. Sir Brian Pippard, Lady Pamela Youde, Prof. Sir Sam Edwards, and Dr. Christopher Hughes. Since he had spent the morning at the Cavendish Laboratory, it was appropriate that the Trustees he met included two former directors of the Cavendish. He also met staff of the Institute and visiting researchers. The party were given a tour of the Institute, during which John Moffett explained the origins and scope of the Library collections, as well as showing some of our rarer volumes. They then moved to the KP Tin Hall, where Professor Lu saw some memorabilia of Dr. Needham's life and work, after which proceedings took the form of an informal tea-meeting "chahui", during which Professor Lu and his party mingled with researchers from the Institute and with other Cambridge academics connected with our work. Dr. Cullen took the opportunity to make a brief



*Professor Lu Yongxiang and his party taking tea with Christopher Cullen and some of the Trustees, including Lady Youde.*

*Photo: Mark Scudder*

address of welcome to Professor Lu, stressing how much we valued our close and cooperative relations with Professor Liu Dun and all our other colleagues at the C.A.S. Institute for the History of Natural Sciences in Beijing, and how delighted we have all been here by the way in which the two Institutes have worked together on the

*Dragon's Ascent* project. Dr. Cullen also presented him with a recent volume of *Science and Civilisation in China*. The visit by the President to the NRI went well beyond the levels of cordiality normally expected on such occasions. He left us with a clear impression of the high regard he has for studies in China and the UK which build

on the foundations laid by Dr. Needham. It is perhaps a measure of this regard that his trip to Cambridge also included visits to such world-famous institutions as the Cavendish Laboratory, the Sanger Centre, and the Microsoft Centre.

John Moffett  
Librarian

## SCIENCE AND CIVILISATION IN CHINA: PUBLICATIONS

The summer issue of this newsletter announced the imminent appearance of two more volumes of SCC, Vol. VI.6 on medicine and Vol V.5 on fermentations and food science. The first of these is now in the bookshops, and the second will be on sale by the end of the year. In this and the next issue of our Newsletter, we are fortunate to be able to publish two substantial essays relating to these new publications. Unfortunately constraints on the size of the newsletter prevent us bringing them out together. The first, published in this issue, is by H.T. Huang, author of Vol. VI.5, and the second is by Nathan Sivin, editor of the volume on medicine. We hope that readers will be interested to learn something more of the background to these two important scholarly projects. Each author has been long associated with the Science and Civilisation in China project. In the case of HT Huang, the association with Joseph Needham actually pre-dates the conception of the project itself, since Dr. Huang acted as Needham's first secretary and assistant during his period as Director of the Sino-British Science Cooperation Office in wartime Chongqing. In Needham's last years, he returned to Cambridge to act as a Deputy Director of the Needham Research Institute, and then in his second retirement completed the immense labour of his contribution to SCC.

Professor Sivin was first in contact with Joseph Needham rather later than Dr. Huang. But he soon became a regular visitor to Cambridge, and contributed a substantial section to Vol.V.4 on alchemy. He responded generously to Needham's request to help prepare the materials on medicine for publication, a task which was becoming too much even for such an energetic nonagenarian as Needham was. In addition to scrupulous and painstaking editing, Professor Sivin has contributed a substantial introduction that not only sets the book itself in context, but also points to new directions for the field as a

whole. On the topic of medicine, we may mention that plans are afoot to reprint *Celestial Lancets*, the valuable history and rationale of acupuncture and moxibustion jointly authored by Lu Gwei-djen and Joseph Needham. A detailed announcement will appear in the next issue of this newsletter, in which Professor Sivin's essay will be published.

## THE LIBRARY

**DONATIONS:** The Library would like to thank the following Institutions and individuals for their generous donations of books and offprints. In times of very scarce funds for purchasing books for the Library, such as now, these donations are especially valuable and very much appreciated: Hon. Vivienne Poy, Ivor Gratten-Guinness, Liu Dun, Susan Daruvala, Sabine Wilms, Hilary Smith, Evgeny Torchinov, Totem Productions, Choo Youn-sik, Catherine Jami, Christian Daniels, Elisabeth Hsu, Zhao Ping'an, F. Richard Stephenson, Michael Loewe, Steve Moore, Evelyn Micollier, Li Jen-der, Karl Wulff, Tsukahara Togo, Int. Research Centre for Japanese Studies (Nichibunken), Erling Høg, Taipei Chorn-shan Charity Foundation, Nakayama Shigeru, W.G. Bailey, Laurence Picken, Chuan Ling Chang Pan, D.G. Rogers, Li Jianmin, Korean History of Science Society, J.H. Chung.

**VISITORS:** Once again the Institute was busy with visitors over the summer months. These included: Catherine Jami, Charlotte Furth, Yili Wu, Vivien Lee, Bill Jenner, Donald Wagner, Joseph Dauben, Lee Ling-hon, Margaret Pearson, M.S. Tin, Christopher Tin, Paul Thompson, Lisa Raphals, Liu Lexian, Xie Guihua, Wang Shumin, Zhao Ping'an, Erling Høg, Harriet Wong, Gwyn Prins, Hilary Smith, Nha Il-seong, D.L.O. Mendis, Benjamin Penny, Rodo Pfister, Tsukahara Togo, Lu Dalong, Takada Kiyoshi, Nakayama Shigeru, Goto Kunio.

Professor Donald Sutton

(Carnegie-Mellon) is researching at the Institute for 3 months until Christmas, and Professor Nicola Di Cosmo (Auckland University) will also be visiting in November and December.

## SEMINARS

From July 19-21, Professor Sir Geoffrey Lloyd and Professor Nathan Sivin held a two-day workshop here entitled "The Way and the Word: Science and Medicine in Ancient Greece and China". The workshop took the form of a round-table discussion, and was part of their on-going joint investigation comparing the contexts of the practice of science and medicine in these two cultures. Also attending were:

Anne Cheng, Michael Nylan, Michael Loewe, Heinrich Von Staden, Shigeru Nakayama, Robert Wardy, Vivian Nutton, Christopher Cullen, Andrew Cunningham, Elisabeth Hsu, Goto Kunio, John Moffett, and Hilary Smith. Special thanks go to Stanley Bish for his help with the event.

During the summer we also had several presentations from visiting Chinese Scholars. Professor Wang Shumin (Academy of TCM, Beijing) outlined her latest project to reconstruct pre-Song lost Chinese medical texts, Dr. Liu Lexian (CASS, Beijing) spoke on "Charms and Related Topics in the Han Wooden Manuscripts Excavated at Shaqjiagou", and Dr. Zhao Ping'an (CASS, Beijing) explained his latest research on the structure of the Han dictionary *Shuowen Jiezi*.

Our thanks once again to Dr. Elisabeth Hsu for arranging our regular Friday text-reading seminars during the Easter Term. Another interesting assortment of topics were presented, ranging from the Kangxi Emperor practising science (Catherine Jami), to gender in Chinese medicine (Charlotte Furth), the art of the bedchamber (Sumiyo Umekawa), and words denoting time in the *Shiji* (Barbara Meisterernst). Our thanks to all who took part in and attended these seminars for continuing to make them such enjoyable and enlightening occasions.

## CONGRATULATIONS

Heartiest congratulations to Kim Taylor (a familiar face in our Institute for several years), who has successfully completed her PhD at the History and Philosophy of Science Department entitled "Medicine of Revolution: Chinese Medicine in Early Communist China". We hope she will return soon to pursue further research on the history of Chinese medicine. And also to Dr. Mei Jianjun, former Li Foundation Scholar, who has received a prestigious one-year research fellowship at the McDonald Institute for Archaeological Research, Cambridge University, to continue his work on the Bronze Age cultures and metallurgy of Chinese Central Asia.

## Obituary - Hsieh Hsi-te

Hsieh Hsi-te (Xie Xide), one of Joseph Needham's closest Chinese friends, passed away in March this year. She was the wife of Ts'ao Tien-ch'in (Cao Tianqin), who was Joseph's secretary at the SBSCO in Chongqing in 1945-46.

Xide and Tianqin were betrothed in China before each went abroad for advanced studies. After she received a PhD in Physics at MIT, she came to England. He came to Cambridge in 1947 to do biochemistry and was later elected a Junior Fellow of Caius. They were married at Thaxted Church. Both went on to have distinguished careers in China. Tianqin was President of the Shanghai branch of the Chinese Academy of Sciences. Xide was Professor of Physics and later President of Fudan University. Tianqin passed away in Shanghai a few years ago. Joseph would always visit the couple when he was in Shanghai.

## Science and Civilisation in China, Vol. VI, Part 5, Fermentations and Food Science.

HT Huang

*Dr Huang, formerly a Deputy Director of the NRI, describes the background of his recently published contribution to the Science and Civilisation in China Series.*

This book may be said to have had its genesis in two memorable events that I experienced in China almost sixty years ago. The first was the result of an enforced holiday I had for several months in the fall of 1942 in my ancestral village, Hothang and the second a delightful encounter in the spring of 1943 with the eminent Chinese scholar Shih Shêng-Han. Hothang is a tiny village about 70 kilometers north of Foochow, the capital of Fukien province. It seemed a world away from the bustling city of Hong Kong where I was a research student less than a year earlier. My comfortable life there was shattered when the Japanese suddenly attacked on the morning of December 8, 1941. After the fall of Hong Kong, I made my way across the Japanese lines into Free China, and worked as an instructor at Amoy University in Changting in the Spring semester of 1942, before traveling to Hothang where I had a joyous reunion with my grandmother and other relatives.

In the meantime I had received an invitation from the Chinese Industrial Cooperatives (CIC) to be a technician in their headquarters in Chengtu. My intention was to stay in Hothang for about two months and then move on westwards all the way to Szechuan. But the wheels of bureaucracy ground ever so slowly. I waited and waited for my official appointment as months rolled by. Having virtually nothing to do, I spent a great deal of time observing the numerous food processing and culinary activities involved in the preparation of the meals I ate everyday. For breakfast, rice was boiled gently in plenty of water and allowed to simmer into a congee in one of the two large woks that sat on the stove in the kitchen. For lunch and dinner, rice was boiled and the semi-cooked grains steamed in a bamboo steamer.

To accompany the congee and rice we had roasted peanuts, beancurd, fermented soybeans, salted fish, pickled vegetables, seaweeds, and on rare occasions, sausages, eggs, pork, and chicken or fish. We drank tea during the day, and occasionally rice wine in the evening.

For fresh produce we relied on what we could get daily in the market at the center of the village. Several of the stores that lined the sides of the square prepared food products. I must have spent hours watching the processing of soybeans to bean curds which were then pressed into blocks of *tofu*. I also enjoyed seeing how the noodle maker kneaded his dough with a long rolling pin and how the thin sheet of dough was folded and sliced with a big cleaver to give long filaments of sliced noodle (*chhih mien*). Even more fascinating was another shop closer to our house that made very thin noodles, called *kua-mien* (hung noodle). The dough was pulled into banks of fine threads and then hung on wooden racks in the open to dry. The same shop also made a bun called *kuang-ping* (bright bun), which is round and has a hole in the middle. It looks and tastes just like a small bagel.

The two most engrossing food processing operations could be seen taking place right next door. The family ran a small workshop making wine from steamed rice with the aid of the red ferment (*hung chhiü*), where large urns containing fermented mash were incubating at varying stages of maturity. They bestowed the place with an engaging if intoxicating bouquet. But not as pleasant was the workshop next to it which made fermented soybeans (*shih*) and soy sauce (*shih yu*) and the place reeked with an odour resembling spoilt, moldy cheese.

A little further away was a large building called the *chha hang* (tea centre). In it were a series of stoves with large woks for stir-frying tea leaves. It used to produce black tea (i.e. red tea or *hung chha*) for export. Now it just processed a small amount of green tea for local consumption. The most imposing piece of equipment there was a giant wedge press made out of a single large tree trunk used to press oil from tea seeds.

I was intrigued by the ingenuity displayed in these processes,

and full of questions about their origins and scientific basis. As it turned out, the answer to some of my questions came sooner than I would have thought possible. By mid-November I had received all the necessary documents and a travel advance from the CIC. I left Hothang in early December and traveled through Fukien, Kiangsi, Kuangtung, Kuangsi, Kweichow and Szechuan, eventually reaching Chengtu in early February 1943. But before I had a chance to settle down in my new job, I received a letter in April from Joseph Needham who had recently arrived from England and was setting up a Sino-British Science Cooperation Office in Chungking. He asked if I would be interested in joining his organisation as his secretary and interpreter. After suitable negotiations with the CIC I was hired as his secretary in May and we started on our first peregrination together. From Chengtu we drove to Loshan where our host was Wuhan University. There we met Shih Shêng-Han, Professor of Plant Physiology, who kindly served as our guide to visit the industrial chemical complex and Wu-thong-chhiaio and to travel with us on a little boat to Lichuang, our next stop.

Shih Shêng-Han had received his doctorate from Imperial College, London and spoke English fluently. Conversation flowed easily and continuously during the two days that we were cooped up together in a small space. We talked about all sorts of things but the topic that received the most attention was the history of science and technology in China. Shih seemed to be a fountain of information on the origin of the traditional agricultural and food processing technologies of China. I quickly seized the opportunity and plied him with questions on the science and the history of the food processes that I had seen and pondered on in Hothang half a year ago. I learned that, indeed, many of them had a long history. In fact, detailed descriptions about many of them can be found in a +6th century compendium called the *Chhi Min Yao Shu* (Important Arts for the People's Welfare).

Professor Shih stayed on with us in Lichuang for two days. He and I shared a bedroom in the guest house of Tungchi

University. Our conversations on traditional Chinese food processing continued deep into the night. He patiently answered all my questions. By then I had learned that he was not only a competent scientist, a noted scholar of Chinese classics but also a renowned calligrapher. Obliging he wrote down the two poems he had introduced us to during our memorable boat trip on two small scrolls, which I later mounted and framed. They have adorned my study for many years and remained a constant source of inspiration as I laboured in the myriad tasks involved in the writing of this book.

As I look back now across a span of more than half a century, I realise that my sojourn in Hothang and my encounter with Shih Shêng-Han have unsuspectingly steered my life in a direction that led eventually to my writing of this book. It was the memory of these events that kindled in me a lasting interest in food technology, particularly in the application of microbial enzymes to the production of traditional and modern processed foods. This interest found practical expression on two occasions during my career as a scientist in the chemical and pharmaceutical industries in the US. First, in the early 1950's I was a member of a research team dedicated to the discovery of new microbial enzymes suitable for use in the fermentation and food processing industry. Secondly, in the early 1970's I oversaw a series of pilot plant trials involved in the commercialisation of a *Mucor* protease as a replacement for animal rennet in the making of cheese, and an *Aspergillus* pectinase as an agent to increase the yield of juice from grapes in the making of wine. These assignments gave me a considerable degree of familiarity with the role of enzymes in fermentations and food processing in the West, and aroused in me a curiosity about how modern enzyme preparations might have been related to or inspired by the *ferments* of ancient China. It was natural that I would discuss my observations in Hothang and our encounter with Shih Sheng-Han as well as my practical experiences in food processing with Joseph Needham in the early 1980's when I visited him in Cambridge every summer to work on the segment on Plant Pesticides and Biological

Control in Vol. 6, Part 1 of the SCC series. Thus, it was not a complete surprise to me when, in late 1984, Needham asked if I would be willing to be the contributor responsible for SCC Section 40, Biochemical Technology. It was a challenge I felt I could not refuse.

Needham thought that Section 40 should concentrate on the scientific basis and historical background of the fermentations and processing technologies that are the mainstay of the Chinese dietary system, and include an account on the treatment of nutritional deficiency diseases. Although much has been written about Chinese cuisine and food culture, very little has appeared in European languages on the technology of Chinese processed foods. As a result, the translation of Chinese food terms into English is

often highly misleading. He hoped that along the way we would also be able to satisfy his personal curiosity about the origin and development of a number of unusual food products that he encountered during his travels in China in the early 1940's, such as the red *ferment* in Foochow, the fermented bean curd in Kuangtung, the delectable distilled wine in Kweichow, the soy milk popularly consumed at breakfast in the Northwest, and the cream in the delicious creamed cauliflower in the Kansu panhandle.

When this project began in 1985 I was a Program Director for Biochemistry at the National Science Foundation (NSF), Washington, D.C. I spent all the time I could spare on it, in the evenings, on weekends and on holidays, as well as 10% of my offi-

cial weekday time with the blessing of the Foundation. In 1988 NSF gave me a six-month sabbatical for the project. Progress should have been much faster after my retirement in 1990, but a new obligation intervened. From 1990 to 1994 I served as a part-time Deputy Director of the Needham Research Institute in Cambridge. While it allowed me to take advantage of the facilities of the Library there, it also meant that a great deal of my time was diverted away from the writing of this book, and progress, though steady, remained slow. Regretfully, I only had a draft of the Introduction and the chapter on Fermentation ready for Needham to read before he passed away. By the end of 1995 a preliminary draft of the whole work was completed. Unfortunately, in early 1996 I had to undergo open heart surgery which delayed the

work for several months. A complete manuscript was submitted to the NRI Publications Board in the fall of 1996. It was returned with many useful comments. After revisions and negotiations with Christopher Cullen an amended version was accepted for publication in late 1997. More years slipped by as the manuscript wound its way through the workings of the Cambridge University Press. The book is now finally in print. Its publication fills yet another gap in the original master plan that Needham laid down for his *Science and Civilisation in China* half a century ago. It marks one more step toward the completion of this remarkable enterprise. But for the author it means, above all, that the project, which has dominated his life for fifteen years, is at long last drawing happily to a close.

## JOSEPH NEEDHAM LECTURE

The Joseph Needham Lecture was delivered by Professor Charlotte Furth on Wednesday 7 June in the Bateman Auditorium, Gonville and Caius College. The title of Professor Furth's talk was "Gender and Science in China's Medical History". Professor Furth is currently professor of history at the University of Southern California, and is well-known to historians of Chinese medicine for her recent book "A Flourishing Yin: Gender in China's Medical History, 960-1665" (University of California Press, 1999). She was also instrumental in bringing to the attention of scholars new research on women and gender during her time as editor of the journal *Late Imperial China* between 1985-1993.

We were delighted that Professor Furth accepted our invitation to deliver the lecture. Parts of her discussion centred on the role of women as patients, and here most of the voices that were

heard were male. But in this broad ranging lecture there were some surprises for the conventionally minded. It was particularly appropriate that Professor Furth was able to illustrate parts of her talk by citations from the writing of Tan Yunxian (1461-1554). Tan achieved the status of a "famous doctor" (Ming Yi) and wrote an important book of case histories. The title of this book is however very revealing: *Nuyi Zayan* - "Sayings of a female doctor". She was in fact one of the rare examples of one of the large number of female healers in Chinese society achieving equal status and prominence with men.

The Needham Lectures are funded by a generous subvention from Gonville and Caius College, which was of course, for many years, the academic base of Joseph Needham and provided a working environment to which he acknowledged his debt on many occasions.



## Kiyosi Yabuuti: a personal appreciation

[Note: The Hepburn system is adopted here for Japanese romanisation, except in the case of Professor Yabuuti's name as a respect towards his personal preference.]

On June 2, 2000 the world lost a doyen of the history of Chinese science with the demise of Professor Kiyosi Yabuuti (1906-2000) at the age of 94 in Kyoto. Yabuuti received early training in astrophysics, and learned history of science under the distinguished historian of Chinese astronomy Shinzō Shinjō (1873-1938). He was also acquainted with the famous historian of Chinese mathematics, Yoshio Mikami. After graduating in 1929 from Kyoto University he was employed in his *alma mater* as an assistant, with Chūryō Nōda (1901-1989) as a senior colleague. During the second quarter of the twentieth century he had already published many books and articles on the history of Chinese calendrical science, Chinese astronomy and Chinese mathematics. Notable examples of each were his "Tō Sō rekihō-shi" (History of the Tang and Song Calendrical Systems), published in *Tōhō Gakuho* (Tokyo) (1943) 13:491, his *Chūgoku no temmongaku* (History of Chinese astronomy) (Tokyo, 1949) and his *Shina Sugakushi Gaisetsu* (Outline on History of Chinese Mathematics) (Kyoto, 1944).

Before World War II research into the history of East Asian science was carried out in the Tōhōbunka kenkyūsho (Research Institute of East Asian Culture), attached to Kyoto University. In 1948, as a result of amalgamation, the research group of this institute came within the Jinbun (Institute of Humanistic Science Studies, more formally known as the Jinbunkagaku kenkyūsho) in Kyoto University. There Yabuuti introduced a regular text-reading session, at which his research group would gather together to study a complete text thoroughly towards the goal of publishing the result of their study. The first text chosen was Song

Yingxing's *Tiangong kaiwu*, culminating in eleven critical essays in Yabuuti, K. ed. (1953), *Tenkō kaibutsu no kenkyū*, (Tokyo). Yabuuti headed the group until his retirement in 1969. The mandatory retirement age at Kyoto University is 63. Between 1966 and 1969 he was the director of Jinbun. After retiring from Kyoto University he joined the Ryugoku University, a private Buddhist University and worked until his second retirement at the age of 70.

For almost half a century the Mecca in Japan for the history of East Asian science and Chinese science in particular, had been at the Jinbun, the headquarter of the so-called "Yabuuti School" or "Kyoto School", headed originally by Yabuuti himself and succeeded first by Mitsukuni Yoshida and then by Keiji Yamada, both his former students. Among his early students are Shigeru Nakayama and Keizō Hashimoto, and his last two students are Michio Yano and Kazuhiko Miyajima, all of whom have distinguished themselves in the history of science. After the retirement of Keiji Yamada the Jinbun group is being led by Tan Tanaka from Tokyo.

Yabuuti and Joseph Needham first met in the summer of 1959 at Gonville and Caius College when he visited Cambridge. I was a witness of this meeting. Needham and Yabuuti had known of each other much earlier and they had mutual respect for each other. They soon became great friends. Thanks to Yabuuti and his "School" Needham was made known in Japan. Yabuuti initiated Needham's early visits to Japan and encouraged the translation of *Science and Civilisation in China* into Japanese. He also took a personal interest in the actual progress of the SCC project itself. He helped Needham to enlist collaborators among Japanese scholars. I remember that during one of my visits to Kyoto in the 1970s he invited me to have lunch together with an elderly gentleman who had been invited by Needham to write a section of SCC in Japanese, which was to be later translated into English.

Yabuuti's intention was for me to encourage the latter to start writing. This elderly gentleman expressed his great relief that he could converse with me directly in Japanese and said he expected to be able to start writing in the following year, but the next time I heard about this would-be collaborator was his demise. Needham had to look for another person.

Eminent scholars and friends though they were, there was a remarkable contrast between the working and private lives of Needham and Yabuuti. Needham, as a biochemist, attempted to study individual branches of science from ancient time down to the coming of western science to China. Yabuuti, as a mathematician and astronomer, focused his own attention on astronomical science and mathematics and led his team in the Jinbun to investigate all branches of science by periods. Needham was widely known internationally. Comparatively speaking, Yabuuti was much less known outside his own country than Needham. But within Japan itself, where he had brought up a whole generation of scholars, he commanded great respect. He was a fellow of the Gakushiin, which is the Japanese counterpart of the Royal Society and the British Academy. He was given the singular honour of reading a paper on ancient Chinese astronomy before the Japanese emperor Hirohito. Yabuuti was much more successful than Needham in bringing up research students to follow his footsteps. Needham enjoyed having attention throughout his life and particularly in his old age.

Yabuuti was 'a gentleman of the Meiji era', to quote from a conversation with Michio Yano. By this Yano meant a respected teacher who observed the best of the strict moral codes of the past and tried to maintain one's dignity at all times. At his old age he was hard of hearing. He normally refrained from seeing visitors other than his closest disciples in his home. He was hospitalised in February, 2000 and only members of his own family were allowed to see him. His funeral ceremony was

conducted in a small Buddhist temple in the neighbourhood of his house in Kyoto attended only by members of his family.

I once remarked to Shigeru Nakayama suggesting that Yabuuti deserved to be called 'Needham of East Asia'. Nakayama replied that that Needham's work and influence were more encompassing, but did not answer my question directly - perhaps out of modesty, as Yabuuti was his teacher. We all addressed Yabuuti as *sensei*.

One reason for his being relatively unheard of in the West was that Yabuuti wrote mainly in Japanese. I called to pay my respect to Yabuuti at his home in mid April 1999, thanks to Michio Yano. Yabuuti gave me two books, one of which was his *Chūgoku no Sugaku*. Just a week before his admission to hospital he received a copy of the French translation of this book by C. Jami. This translation must have given him some joy. The Western world should have much to gain from this translation. It is hoped that more translations of Yabuuti's publications will be available in the future to enrich the knowledge of East Asian science in the West.

Ho Peng Yoke

## The Gardens at the Needham Research Institute

Anyone visiting the Needham Research Institute will soon discover the peace and tranquillity that is to be found in the gardens surrounding the building. For here, just a half-mile walk from Cambridge city centre, is a small piece of heaven; a place where silence prevails and peace of mind is felt. Here you may walk and sit on the lawns and become at one with nature. You can walk the shingle paths and smell the sweet blossom of viburnum, orange blossom, and the haunting fragrance of the mysterious Indian bean tree.

From sparse beginnings a decade and a half ago, a rich mature garden has developed that is home to countless species of birds, butterflies and animals.



The brook that enters the garden from under Sylvester Road bridge meanders through the reed pond and disappears to who knows where. Sometimes a peaceful trickle and then a raging torrent when heavy rain raises the level by three or even four foot. On the far bank of the brook you will see the nest holes of our resident kingfishers; two pairs that have been here for a few years now. Reed warblers can be seen and heard frantically searching for pond flies in the reeds that grow thickly in the lower pond. There are also a few green woodpeckers here that dig endlessly in the lawn beyond the paved patio. I have seen greater and lesser spotted woodpeckers here too, also jays, jackdaws and even a cuckoo. The brook is joined by a shallow dyke that emerges from underground and flows at right angles to the brook through an area that I call the copse. Here, I have seen nut-hatch, tree creeper, firecrests and goldcrests, to mention only a few woodland varieties. Heavy rain regularly raises the brook to flood height and when the waters go down, a thick layer of silt covers the pavement underneath the new wing of the Institute. Within a few hours this layer of silt is rich in evidence of passing wildlife as it walks from the reed garden to the front lawns. You will see the tracks of fox, deer and even otter - a rare visitors indeed.

There used to be an old dog fox that lived for a short while under the veranda at the back of the building. I got to know him quite well. Over the months I saw him gradually grow older and thinner, then never saw him again. I

used to talk to him as I went about my work in the garden. Now there is just emptiness in the corner where he spent his last few weeks.

In the middle of the west lawn there is an ancient rock which stands on a modern plinth surrounded by an immature yew hedge. This rock was the favourite lookout point for a male tawny owl that lived in the trees beyond Herschel Road. In the winter months I would arrive for work just as daylight was breaking and the tawny owl could be seen regularly on this rock. It seemed as though he was making his last inspection of his territory before flying off to roost away the daylight hours, for tawny owls are rarely seen during the day, as they are truly nocturnal and such a sighting is extremely unusual.

I have been the sole gardener at the Needham Research Institute for about fifteen years. In the early days we planted for immediate effect - large barren areas were filled with specimen shrubs, balanced with a variety of short lived "in-fills" that would be removed as the main specimens matured. The plan was to produce a garden where lawns would match favourably those of the surrounding colleges yet the whole effect would compliment the countryside of nearby Coton and other villages. I feel that this goal has been achieved and we are now benefiting from the balance.

It is an ongoing project that involves much forward thinking. Whatever is done today has to look right in five or ten years time. Even a simple task like cutting off a broken limb from a tree requires careful consideration. There are

many shrubs in the garden at the Needham Research Institute and most of them demand specialised maintenance. It is not a simple matter of winter and summer pruning, many of the specimen shrubs are alien to this country and have special needs. I have learned much from some of the visitors to the Institute over the years and still have a few friends here who I can consult should I ever need to.

Dr Joseph Needham and myself had a wonderful relationship. He had a great love of the garden and we shared ideas and plans over hot cups of tea. He would tell me tales of folklore and mythology surrounding the Indian bean tree, and the reasons for burying the remains of people within the spread of its branches. There are three plaques on the low brick wall surrounding our own bean tree. These mark the places where I have, over the years, lain the ashes of Joseph Needham and his late wives. Most visitors to the Institute pause for a while and read the words thereon.

It is only over the past five years that the tree has begun to blossom and subsequently produce beans. I am told that unless the tree feels cared for and recognises its keeper it will remain barren. Once the tree and its carer form a relationship it will prosper and reproduce. Should its carer disappear then the tree will once again cease to blossom.

I have one or two personal favourites in the garden, the first being the lovely maple planted in the middle bed of the red bricked pavement. Commonly known as the "snake bark" maple. Here we have a beautifully shaped small slow growing tree which requires

practically no attention. The pale bark resembles the skin of a snake (hence its name) and the scent from its leaves after a warm summer shower is heavenly.

My favourite of all is the rambling bush *callicarpa bodinieri* that is growing under the magnolia tree beyond the veranda. The *callicarpa* has long arching branches bedecked with narrow downy green leaves. The tiny flowers that are produced in summer are quite insignificant and have no scent, however in late autumn it is covered in beautiful lilac coloured berries and carries those berries well into winter.

The bush is deciduous and once it has lost its leaves it is a splendid sight. Anyone visiting the Needham Research Institute at this time of year must take a look at this magnificent specimen that the Chinese have rightfully named the "Beauty Berry".

Whatever the season, and whatever the weather, the garden at the Needham Research Institute has much to offer. On a hot summer day with the sun beating down you can enjoy the cool refreshing breeze underneath the bridge, where the brook runs. You can savour the spring sunshine as you sit on the rear veranda overlooking the patio garden and the reed pond. The variety of deciduous trees produce many wonderful colours as the leaves turn in autumn and the days become shorter. But best of all, visit the garden in the midst of winter after a brief snowfall. The bare trees look ghostly then and there is no colour - just black and white and shades of grey.

Roy Senior



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