

# NEEDHAM RESEARCH INSTITUTE NEWSLETTER

Newsletter No. 19

EAST ASIAN HISTORY OF SCIENCE TRUST

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8 Sylvester Road, Cambridge, England CB3 9AF

Telephone 01223-311545 Fax 01223-362703

email enquires should be  
addressed to [sjb58@cam.ac.uk](mailto:sjb58@cam.ac.uk)



## STATE VISIT OF PRESIDENT JIANG ZEMIN TO CAMBRIDGE UNIVERSITY



*President Jiang Zemin accepting a volume from the full set of Science and Civilisation in China, watched by Professor Lloyd and Professor Ho.*

*Photo: Findlay Kember*

On Friday 22nd October, 1999, President Jiang Zemin of the People's Republic of China, accompanied by Foreign Minister Qian Qichen and other senior ministers, paid a visit to Cambridge University. We are delighted to say that the work of Dr. Needham and EAHoST had a prominent profile throughout the visit.

On arrival in Cambridge, the President was welcomed by the Vice-Chancellor, Sir Alec Broers, at the Aoi Pavillion, which houses the new East Asian reading room at the University Library. An exhibition of rare and interesting books

and manuscripts held by the Library had been laid out for him, most ably introduced in his impeccable Mandarin by the curator of the Chinese collection, Mr. Charles Aylmer. There was also a display of a selection of items relating to the work of Dr. Needham, introduced to him by our librarian, John Moffett. The President had been well briefed on Dr. Needham's work and the activities of the Institute by the Chinese Embassy in London and by our friends at the Institute for the History of Natural Sciences of the Chinese Academy of Sciences, and he showed considerable interest in

the items. He also remembered writing the calligraphy which accompanied the award to Dr. Needham of the International Science and Technology Cooperation Prize from the State Science and Technology Commission of the People's Republic of China in 1994, which was on display.

Professor Sir Geoffrey Lloyd, EAHoST Chairman, and Professor Ho Peng Yoke, our Director, were then presented to the President as he moved on to the highlight of the proceedings. A full set of *Science and Civilisation in China* had been arrayed on a special

table, backed by a large photograph of Dr. Needham meeting Chairman Mao Zedong in 1952. Dr. Christopher Cullen, editor of the series, then made a brief speech in Chinese, and presented the President with the complete set of the volumes of *SCC* so far published. The President, clearly delighted, was personally handed a copy of Vol. IV, Pt. 2 on mechanical engineering - a most appropriate gift for one trained as a professional engineer.

The President then moved on to give a speech at the West Road Concert Hall, in which he specifically mentioned Dr. Needham,

saying, "The late Dr. Joseph Needham of Cambridge University enjoyed a high prestige in Chinese academic circles. He devoted his life to the writing of *Science and Civilisation in China*, a monumental work on ancient Chinese science and technology and cultural achievements." He ended the visit with a lunch at Madingley Hall, at which Professor Lloyd and Professor Ho were also present.

During his visit the President was also introduced to key members of the Cambridge University East Asia Institute's External Advisory Board, such as Lord Hurd and Mr. Victor Chu, and the Professor of Chinese, David McMullen. The East Asia Institute has been recently established to further East Asian Studies at Cambridge, and has close ties with our own Institute.

John Moffett  
Librarian

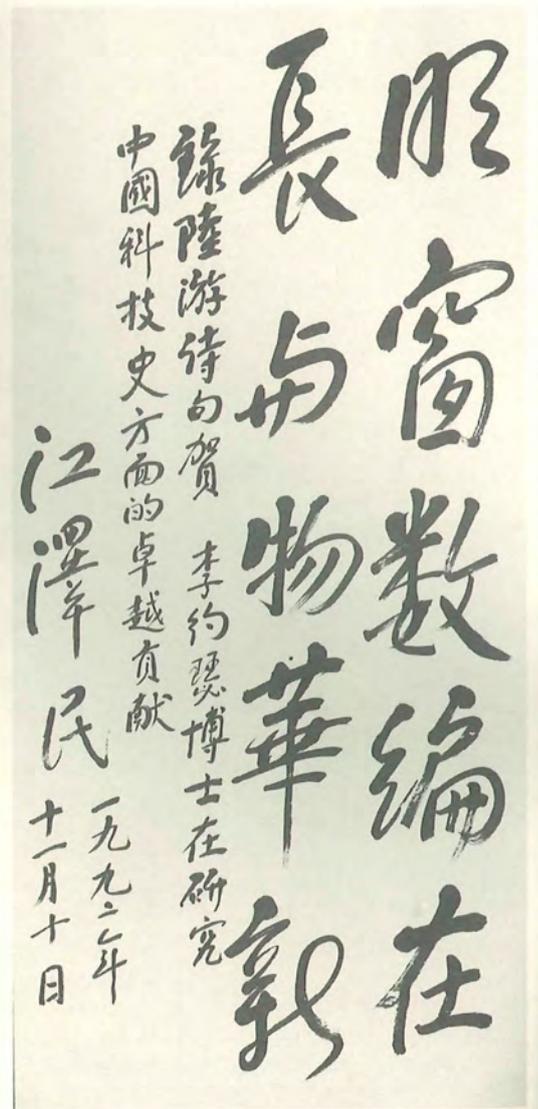


*Dr Christopher Cullen presenting President Jiang Zemin with Volume IV, Pt. 2 of Science and Civilisation in China*  
Photo: Pang Weilang



*President Jiang Zemin being shown items of Needham memorabilia by John Moffett.*

Photo: Findlay Kember



*A scroll of calligraphy by Jiang Zemin, commemorating the election of Dr. Needham to the Chinese Academy of Sciences in 1992*

## HONORARY FELLOWS OF THE NEEDHAM RESEARCH INSTITUTE

Before 1993 Mr S.T. Lee  
1996 Dr Jack King  
1996 Dr Louis Cha  
1997 Dr Philip Mao  
1999 Dr H-T Huang  
1999 Dr Frederico Mayor  
1999 Dr Jung Chang  
1999 Prof. F. Peter Lisowski  
1999 Mr Lam Ping Leung  
1999 Mr George Hicks

## SCIENCE AND CIVILISATION IN CHINA: PUBLICATIONS

The latest volume in the *Science and Civilisation in China* series was published on 13 April. It is Volume VI.6 *Medicine*, by Joseph Needham and Lu Gwei-djen, edited by Nathan Sivin. Needham and Lu spent much of their long collaboration researching into and reflecting on Chinese medicine and we have no doubt that the appearance of this volume is a major landmark in the field. In addition to his acute and scrupulous editing, Professor Nathan Sivin has contributed a wide ranging introduction surveying the present state of scholarship in Chinese medicine. I hope that the next issue of the newsletter will have a contribution by Professor Sivin on his work for this volume.

Volume VI.5 *Fermentations and Food Science* by H.T. Huang is due for publication on 17 August this year. Dr Huang was a close associate of Dr Needham from his first days in China, and went on to a distinguished career as a biochemist and later with the National Science Foundation in Washington. Since he was there at the beginning of Joseph Needham's interest in Chinese science and civilisation, it is fitting that his career should culminate in the publication of a volume in the Science and Civilisation in China series. Again, we hope that the next issue of this newsletter will carry an article on this volume.

*Aristotle in China*, by Dr Robert Wardy, the second book in the Needham Research Institute Studies series was also published

on 13 April. This book is an outstanding cross-cultural investigation into the question of how far the nature of the Chinese language might have affected Chinese thinking. A full length article appears on page 6 of this newsletter.

We are also happy to announce that the third volume of the NRI Studies series has just begun its journey through the Press. This is *Chinese Medicine: Innovation, Convention and Controversy*, edited by Dr Elisabeth Hsü.

Christopher Cullen  
Chairman, NRI  
Publications Board

All volumes of *Science and Civilisation in China* as well as the Needham Research Institute Studies series can be ordered through any book shop or through the websites of Cambridge University Press at <http://www.cup.cam.ac.uk> or <http://www.cup.org> in the U.S.A.

## THE LIBRARY

As readers of this Newsletter will be aware, last Autumn saw a change in personnel at the Library. My assistant, Gao Chuan, left to move to St. Andrews in Scotland, where she still has not taken up golf, despite my exhortations. Our new assistant, Ms. Yan Xuefeng, has settled in very well, and brings some much appreciated Web-page expertise with her, the fruits of which we hope to see up and available soon.

With funds for book buying very tight of late, acquisitions have been restricted, though we still maintain our book-buying agreement with the Institute for the History of the Natural Sciences in Beijing. As a result we are still keeping up well with Chinese language publications and journals on the history of Chinese science, with acquisitions on history of Chinese medicine, and archaeology still particularly strong. I should once again like to thank Professor Liu Dun, Director of the IHNS, for his continued support of this agreement, and Mr. Hu Zesheng, who daily scours the bookshops of Beijing buying for us. Elsewhere in the Library we have been re-organising the offprint collection, catching up with the back-log that had accumu-

lated, and I should like to take this opportunity to encourage readers who have articles relevant to our collection to send us their offprints to add to Dr. Needham's exceptional collection of over 20,000 items. They are much appreciated.

During last summer I attended the 9th International Conference on the History of Science in East Asia in Singapore. Once again it was an excellent opportunity to meet with scholars in the field, and to catch up with sinological studies in Singapore. The conference was extremely well organised, and we were very well looked after. Prior to that I spent 2 weeks in Taiwan, my first visit there. I spent a week in Taipei, mostly visiting the Institute for History and Philology at the Academia Sinica, where I gave a talk introducing the current situation here, and spent time with the group working on the history of Chinese science and medicine. It was a great pleasure to meet everyone both there, and in the Institute for Modern History (too numerous to list here), and I am very grateful for all their hospitality and help. Special thanks go to John and Regina Kieschnick, however, for letting me stay in their flat. I then visited the National Science and Technology Museum in Kaohsiung, to continue on-going discussions towards an exhibition and small symposium to be held there in December 2000 in honour of Dr. Needham's 100th anniversary. I should like to thank the British Council in Taiwan for the generous financial support they provided for this visit.

**DONATIONS:** Once again, on behalf of the Library, I should like to thank all those who donated books and offprints to the Library over the last 9 months. It is these donations which help maintain the exceptional quality of the holdings here, and which give the Library its unique character. These include:

Christian Daniels, Elisabeth Hsü, Li Chien-min, Joseph Dauben, Rose Kerr, Wolfgang Michel, Hsiung Ping-chen, Li Jente, Chang Che-chia, Chu P'ing-i, Fung Kam-wing, Kin Yung-sik, Mei Jianjun, Jose Cervera, Raimund Kolb, Li Di, Michael Combridge, Gregory Blue, F.

Dagenais, Peter Lisowski, Zhou Shiyi, Instituto Cultural de Macao, Michael von Remortel, June Seo, Victor Mair, Catherine Jami, Geoffrey Lloyd, Liu Chun-i, Huang K'uan-chung, Zhang Baichun, Peter Lorge, Robert Beer, Valerie Hylton.

**VISITORS:** Li Foundation Scholar Dr. Jing Bing returned to Beijing in November, and we now welcome Dr. Zhou Zhongfu. Dr. Zhou is an historian of bronze metallurgy from the Institute for the History of Metallurgy at Beijing Science and Technology University. Professor Joe Dauben, City University of New York, working on the history of Chinese mathematics, joined us for 3 months last Autumn. An independent scholar, Valerie Hylton, will also be spending periods of study here over the next 3 years, working on Mongolian medicine. We have also had a steady stream of shorter term visitors, some familiar, some new, many of whom gave talks while here, including: Terry Kleeman (Univ. of Colorado), Nancy Steinhardt (Univ. of Pennsylvania), Lu Dalong (IHNS, Beijing), Kim Yung-sik (Seoul Nat. Univ.), Lisa Raphals (Univ. of California at Riverside), Matsumoto Miwao (Univ. of Tokyo), Nakayama Shigeru, Bridie Andrews (Harvard Univ.), Gregory Blue (Univ. of Victoria), Jose Cervera.

John Moffett  
Librarian

## TEXT-READING SEMINARS

The weekly text-reading seminars continued as usual, organised this year jointly between Kim Taylor and John Moffett. Besides the valued participation of our group of hard-core regulars from the NRI, the Faculty of Oriental Studies and other institutions in Cambridge, we were also very privileged to host a number of visiting speakers, including Chloe Starr from Oxford, Sarah Dauncey from Sheffield, Cha Jongchun from Seoul, and Iwo Amelung from Berlin. Next term's programme will once again be organised by Elisabeth Hsü and John Moffett.

Kim Taylor

# MINING

Peter J. Golas

One of the defining characteristics of mining is that it is frequently carried on in out-of-the-way places. Thus one of the most rewarding aspects of the long years of research that went into writing the mining volume of *Science and Civilisation in China* (SCC 5:13) was the opportunity it gave me to see parts of China that I would never have otherwise encountered. On one trip, for example, I discovered that Gejiu, the old Yunnan tin mining center some sixty-five kilometers from the border with Vietnam, was not a drab mining town such as one finds so often in China as elsewhere; it turned out to be one of the prettiest and most pleasant cities in China, built around a beautiful lake that its inhabitants half-jokingly refer to as their Lake Geneva.

By far my most exciting experience, however, was a ten-day trip in 1994 to investigate mining in the gold belt south of Guilin in Guangxi. Less than a day's travel from one of China's most visited tourist areas, it was nevertheless decidedly off the beaten path. Here were villages where no photographic film was to be found in the stores! As for foreign visitors, the miners and other people I met were in disagreement: either I was the only Westerner that had been seen there in recent decades, or I had been preceded by one other, a Russian geologist who made a quick pass through in the 1950's.

The trip came about because of the good fortune I had in 1993 to meet Wang Chuzeng, an associate professor at what was then the Guilin College of Geology (now the Guilin Institute of Technology) who was in the United States as a visiting scholar at the University of Colorado in Denver. Besides helping me to decipher some difficult texts, it was he who encouraged me to visit these gold mines, assuring me that I would see there many examples of small-scale mining still relying on traditional techniques. Unfortunately, he was unable himself to return to China at that time to serve as my guide but he put me in contact with his professor, Hu Chuyan, who graciously agreed to take me on an extended field trip to the mines. The



extremely close relations Professor Hu had formed over the years as a kind of informal geological consultant to the miners (who also did not hesitate to call on the advice of geomancers) proved invaluable in making possible not only our visits to a number of mines but also up-close examination and discussion of the technology being used.

Professor Hu also had a good sense for what would be necessary in the way of logistical preparations. They included arranging for a sturdy jeep and a young but very capable driver; these were absolutely essential given the nature of many of the "roads" in the mining areas. (Easily the most physically wearing aspect of the trip was the long hours of bouncing over mountain roads where we averaged at best perhaps 10 or 15 miles per hour. I came to appreciate those occasions when we had to walk from one mining camp to another because there was no road at all.) Professor Hu was also able to arrange for us to stay overnight several times in mining camp dorms where accommodations typically cost about \$1.00 per person per night, and were worth every penny of it.

Apart from logistics, the trip also posed a number of linguistic challenges. Professor Hu, who was born and raised in Yunnan, provided me with my first extended opportunity to cope with a Mandarin pronounced with a strong Yunnanese accent. Moreover, because so many of the

people we would be meeting spoke only Cantonese, which was not in the linguistic repertoire of either Professor Hu or myself, he enlisted the participation of Ye Naiqing, a native Cantonese. Overall, this worked out very well except that I not infrequently had to rely on Professor Hu to help me comprehend Ye's strongly Cantonese-influenced Mandarin.

Even the best logistical preparations cannot anticipate all problems. A trip down the Li River from Gupao to Wuzhou (past over 100 gold dredges) proved a disappointment when we found that it would be impossible to get to some silver mines in the Wuzhou area because heavy rains had washed out the roads. Even before we got to the underground mining areas at the beginning of our trip, we had our first disappointment: passing through an area where placer mining was carried on quite actively during much of the year, we found no one engaged in it at that time (end of August), almost certainly because they were preparing for or were carrying out the harvesting. It was a present-day example of what one sees in so much of Chinese mining through the centuries: a large part of it was carried on by peasants as a subsidiary occupation (SCC 5:13, 17-8, 392-3). In this area, the connection between farming and mining was particularly close since the farmers spread the mud that had been washed for gold on their fields as a natural fertilizer. In the

gold mines we visited, many of the miners actually referred to themselves as "gold farmers".

Any disappointments, however, were more than outweighed by an abundance of discoveries. Most of these have made their way into the mining volume, and I shall limit myself here to mention of only a few of the more interesting ones. On our very first day, only a few hours after the disappointment of not being able to see the placer miners at work, I was astounded by something that I could hardly have anticipated. Coming over the crest of a hill as we approached our first mining camp in the area of Taohua, I found myself looking at a waterwheel in full operation crushing ore. We spent several hours in the camp and I was able to examine the wheel closely. (For details of its construction, see SCC 5:13, p. 369.) Moreover, walking through the area, we discovered that there were actually about a dozen similar waterwheels, typically ten feet or a little less in diameter, all in operation or in operating condition. Even in the 1990's, given the lack of electricity and the remoteness of the location, the traditional harnessing of water power was still the only feasible and economically viable access to an inanimate source of energy.

Another discovery that led to some important insights was finding that the characteristically Chinese triangular wooden boxes for separating metals from sand or

mud or water by washing were still in wide use in this area. Until then, I had seen only illustrations of this utensil in the 17th century *Tian gong kai wu* and by Erik Nyström early in the 20th century (*SCC* 5:13, pp. 165, 244, 253). Now, having the opportunity to experiment with one of these boxes (see photo), I came to realize that it might not have been only cost that accounted for the Chinese use of these wooden implements in place of the metal washing pan standard in the Americas and Europe. I found that the buoyancy and shape of the box allowed the Chinese to employ a slightly different, reciprocal washing motion that may well have been easier on the arms and the back than the swirling motion used in western "panning". It was also while one of the miners demonstrated how he used the box that I realized that the the illustration in the *Tian gong kai wu* was probably partially in error in portraying the box manipulated by a miner in a standing position; this would have been much harder on the back than working in a squatting position which would probably in any case have been dictated by the shallow waters in which the miners usually worked.

Two other discoveries also had to do with separating the gold from its matrix. Besides washing with a pan, miners have from early times used sluices (inclined troughs, boards etc.) over which was run gold-bearing water or a mixture of gold-bearing sand and water. The heavy gold would sink to the bottom and be caught in some kind of cloth or be trapped by "riffles", pieces of wood placed crosswise on the sluice or gashes made in the sluice itself (*SCC* 5:13, 247 and 248). I now found that the Chinese had also invented another kind of sluice (though I was unable to determine when it first made its appearance). In place of riffles, a concrete trough was lined very carefully with rocks, which served as a kind of riffles. Every eight to twelve hours, the waterflow was stopped, the rocks were taken out and the trough would be carefully examined for gold nuggets (*SCC* 5:13, 250). After that, the gold-bearing sand would be collected for further washing and the rocks would be carefully replaced. It was one more of many examples of the highly labor-intensive char-

acter of mining in traditional China.

Here as elsewhere, in addition to washing, Chinese miners used amalgamation to separate gold from its sands. The simplest process was demonstrated for me by a miner who poured a bit of mercury into a pan of gold-bearing sand, waited a short time for the gold to be attracted to the mercury, washed off the sand, reached in with a small piece of cloth to collect the mercury, then squeezed most of the mercury back through the cloth into the water in the pan. Remaining in the cloth was a small amalgam button of gold and mercury (*SCC* 5:13, 147). That button could then be heated, driving off the mercury and leaving the gold. I could not help speculating with considerable sadness how long it would be before that miner and his fellow workers came down with serious mercury poisoning.

Not all of my discoveries on this trip were related to mining. I found that there were some specifically Chinese reasons why the miners, like so many other people in China, voluntarily subjected themselves to another kind of "poisoning": nicotine. The popularity of cigarette smoking among the Chinese is of course well known. But I also found that there were some powerful and specifically Chinese reasons for the ubiquity of cigarettes. Professor Hu was an expert at distributing cigarettes

as a way of establishing and maintaining relationships. Indeed, every time we met someone, one of his first actions was to offer cigarettes. And they were seldom refused. A rough calculation I made at the time suggested that, in the course of his lifetime, Professor Hu might well distribute 10,000 cigarettes in this manner.

Nearly all the miners we met did smoke. Apart from whatever pleasure they derived from cigarettes, they had also been encouraged by extraneous factors to take up the habit. It seems that, during those periods in the PRC when people were being pushed to work as hard as possible, simply taking a break tended to be seen as loafing while taking a cigarette break was regarded as legitimate.

As the trip came to an end, I had mixed feelings. On the one hand, it had been physically very tiring and I was looking forward to a few days of relaxation with friends and of visiting bookstores in Beijing before leaving China. At the same time, I knew that I had had a once-in-a-lifetime experience: never again would I experience so completely this side of Chinese life, so far removed from the rarified atmosphere of academia. There had been many discomforts during the trip, but also the pleasures of new experiences and new acquaintances. I felt enormous gratitude for my many hosts who, though often quite poor, were always generous with

what they had. Some of the best food I ate, and it was very good, was prepared in makeshift cooking facilities in dirt-poor mining camps (photo). Wishing only the best for these people, I was happy to hear that, in this area in just the previous 10 to 15 years, the common greeting on meeting someone had changed from *chi de bao?* (have you eaten your fill?) to *chi de hao?* (have you eaten well?). I hope the improvement implied in that change is continuing and that their lives are becoming at least a little easier.

**Note to purchasers of  
SCC Volume V.13  
Golas: Mining**

Some copies of this book were released to the United Kingdom market without the special supplementary indexes which are inserted in a slip pocket inside the back cover. Any purchasers of the book who find they do not have these indices should contact Jayne Aldhouse, Senior Controller (Production and Design), CUP, The Edinburgh Building, Cambridge CB2 2RU. The Press will be happy to supply these indices free of charge.



# ARISTOTLE IN CHINA

Language, Categories and Translation

Robert Wardy

China's ancient and richly documented civilisation has only in comparatively recent times had extensive dealings with any civilisation deriving from ancient Greece. In consequence, it provides many opportunities for comparison and contrast with the Western classical world, and its descendants. Europeans, for example, have held up Chinese bureaucracy as both a model of enlightened stability, and as an awful warning of what can happen when a society turns its back on progress. Above all, the Chinese language, so different from anything spoken or written in the West, has been made the subject of such claims: if only Plato had thought in Chinese, claim some, he would not have got himself and his successors so muddled about Being; or again, claim others, the Chinese language is simply not, like Greek, a fit instrument for logical thought.

Such claims are versions of the hypothesis that our thoughts are, for better or for worse, guided and constrained by the language that we speak. Some Western Classicists betray a special liking for this hypothesis; they succumb to the occupational hazard of thinking that the intellectual benefit of studying Greek and Latin is in part due to virtues inherent in the very structure of those languages. There is much company for Classicists who feel this way; for the guidance and constraint hypothesis has been ardently embraced by philosophers, anthropologists and, not least, Sinologists. At the extreme, some maintain that our common humanity matters little, and that speakers of (sufficiently different) languages simply live in different worlds.

Robert Wardy attacks the guidance and constraint hypothesis by examining its application to Chinese. At the heart of his book is a case study of one of the most influential texts in Western philosophy: Aristotle's *Categories*. Aristotle distinguished different categories, singling out as fundamental the existence of things in the category

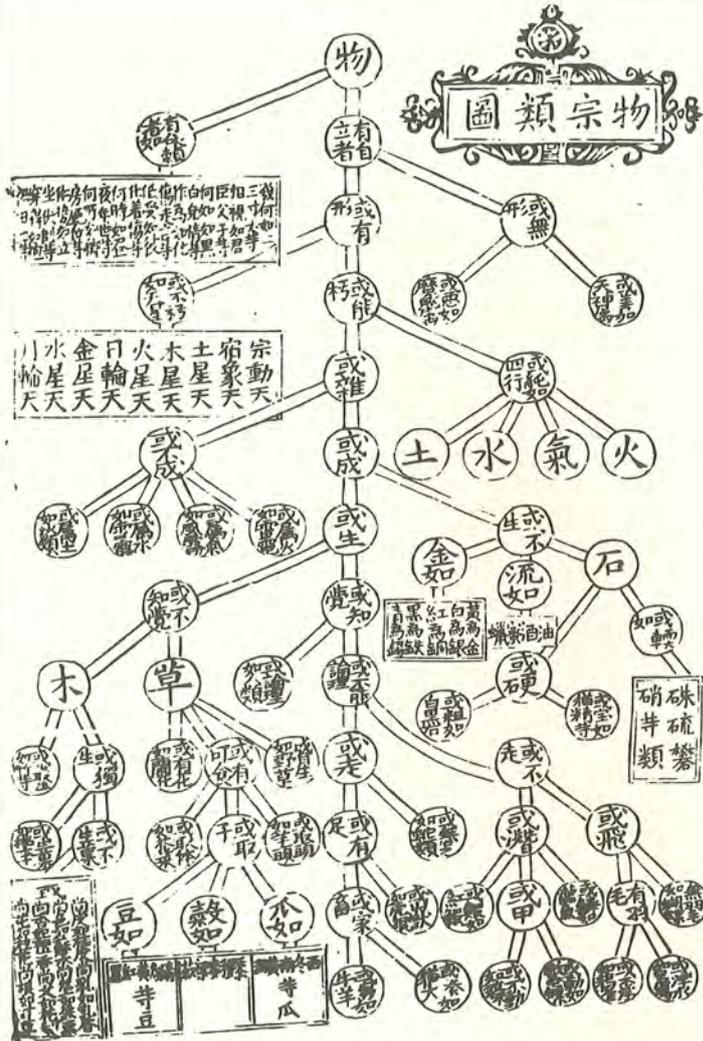


Figure 3. Diagram of the Kinds of Being, as it appears in *The True Meaning of the Lord of Heaven*, first Peking edition, 1603. With permission of Biblioteca Casanatense, Rome.

of substance like cats, dogs and us. He allowed, however, that there exist also (in somewhat etiolated senses of "exist") things in other categories: for example, things in the category of quality like the colours red and brown, or things in the category of action like smiles and walks. To many of us, the fundamental place of substance seems absolutely obvious. That is why, when Lewis Carroll tells us of the cat that vanished, leaving only its smile behind, we suspect we are hearing a story that is more than merely improbable. But does "us" include, say, the Chinese? Is "our" sense of absurdity guided and constrained by our language, ancient Greek, modern English, or some other Indo-European tongue? Is the Aristotelian metaphysics that gives a fundamental place to substance simply the projection of a parochial, Indo-European, linguistic distinction between nouns and other parts of speech? Would the Cheshire Cat still seem delightfully absurd in a

language largely or entirely bereft of morphology, such as Chinese? What would a mind guided and constrained by Chinese make of Aristotle?

We need not speculate. A Chinese version of Aristotle's *Categories* was published in Hangzhou in 1631, the (*ming li t'an*). It was prepared by the Chinese *litteratus* Li Chih-tso in collaboration with the Jesuit Francisco Furtado (Fu Fan-chi). They worked, not direct from Aristotle's Greek, but from a Latin translation by Argyropoulos, embedded in a mass of commentary, and published in 1607 in Coimbra, at the other end of the Eurasian landmass. One might have thought that this only multiplied their chances of garbling the message, in their elaborate game of Greek, Latin and Chinese whispers. And indeed their job was not easy: Li remarks that "because the language was so rarefied, thorns have come into my throat, and several times on account of diffi-

culties I have set aside my pen". And the difficulties were not just those of rarefied language: in the course of his lengthy collaboration with Furtado, Li went blind in one eye. The heartening and impressive thing (to judge from Wardy's 20th century A. D. English account of the 17th century Chinese account of the largely 16th century and earlier Latin account of the 4th century B. C. Greek original) is how little got garbled in transmission. Even in passages where Aristotle invoked the full resources of his highly inflected language to make a subtle philosophical point, Li managed to grasp it and convey the message in his utterly uninflected Chinese. Whether that linguistically impeccable Chinese would have been comprehensible to a contemporary native reader is, of course, a different matter; Wardy also attempts to assess the multiplicity of sociolinguistic factors and further cultural expectations which might have enhanced or impeded understanding.

But nevertheless heartening and impressive. And also extremely moving. Let the last words belong to Li's son-in-law, who, in his own preface to the Chinese *Categories* of Li and Furtado, adapted Lu Chiu-yuan's celebrated tag to declare: "different seas, matching heart. If the tallies match, how could there be duplicity giving rise to obstructions?"

Nicholas Denyer  
Trinity College

## CONGRATULATIONS Dr Mei Jianjun

Our heartiest congratulations to Mei Jianjun, who received his doctorate from the Department of Archaeology, Cambridge University, recently for his dissertation entitled *Copper and Bronze Metallurgy in Late Prehistoric Xinjiang: the Cultural Context and Relationship with Neighbouring Regions*. Dr. Mei began his time in Cambridge as our first Li Foundation Scholar, back in 1993-94, and has been an integral part of the Institute's academic life ever since, also giving the Librarian a great deal of assistance in building up the Chinese archaeology section of the library. We wish him every success in his future career.

## New Secretary of the Institute

We are delighted to welcome Susan Bennett, the new Secretary of the Institute who joined us in October 1999. Sue was previously in the Information Engineering Division of Cambridge University Engineering Department. One of the many roles that Sue will fulfil is that of Secretary to the Trustees of the East Asian History of Science Trust, thereby taking on the responsibilities filled for several years by Dr Jenny Sheppard to whom we are most grateful for her care and support. Sue will also be responsible for editing the Newsletter, and can be contacted via email on [sjb58@cam.ac.uk](mailto:sjb58@cam.ac.uk).



## New Project for Dr Sally Church

Since her arrival in Cambridge in 1996 Dr Church has been closely involved with the Institute. She edited and transcribed parts of Joseph Needham's diaries from wartime China and helped with editorial work on *Science and Civilisation in China*. Most recently she has been involved with the Dragon's Ascent project as well as a forthcoming exhibition of Needham memorabilia to be held in Taiwan. We are pleased to announce that Dr Church, who is a Junior Research Fellow of Wolfson College, is now beginning work with the *Golden Web* project, which centres on the exchange of intercultural communications in pre-modern Eurasia. We are sure she will make a unique contribution to this and wish her every success.



## Mrs Angela King

In September we bade farewell to Mrs Angela King who had been Secretary of the Institute for ten years. Before that time she had other connections with the Institute through her work for Trevor Gardner who was one of the principal figures in the early period of the EAHoST.

Although Angela was officially only working for us part-time she gave much more to the Institute than her official job description would have suggested. As well as doing all the things that a secretary would be expected to do she

performed a vital role as a warmly welcoming figure for many of those who arrived at our doors in a jet-lagged and culture-shocked condition. She also exerted a calming influence at moments of stress for the Institute's permanent staff, and helped to shepherd the Institute through a decade of many changes and rapid development, during which her calm and dependable support was invaluable. Her many friends all over the world will wish her well in her retirement.

*Christopher Cullen*

## OBITUARY

### John Combridge (1911-1999)

It is with regret that we announce the recent passing of John Combridge, one of Dr. Needham's primary collaborators on matters horological.

John had an extensive interest in horology both during his long career in Electrical Engineering and during his retirement. His researches covered water powered and clockwork mechanisms, unusual escapements, and early electromechanical time indicators, such as the Greenwich and Deal time balls used to signal Noon to mariners. The major contributions to his collaboration with Dr. Needham were in detailed engineering investigations of Su

Sung's water powered astronomical timepiece, built in the late 11th Century, and of a Korean water powered clock. These resulted in contributions to two publications with Dr. Needham - the second edition of *Heavenly Clockwork: The Great Astronomical Clocks of Medieval China* (Cambridge: Cambridge University Press, 1986), and *The Hall of Heavenly Records: Korean Astronomical Instruments and Clocks, 1380-1780* (Cambridge: Cambridge University Press, 1986). John not only studied Chinese so he could work on original Chinese books, but made a number of working models to illustrate his ideas on the missing

## NEW LIBRARY ASSISTANT

The Institute is delighted to welcome a new library assistant, YAN Xuefeng. Xuefeng is a native of Beibei in Chongqing (Chungking) in China, where Dr. Needham worked during the war. She trained in chemistry in Chungking, and after a few years lecturing spell, she went on to do a M.Sc. in Beijing. She spent a year or so in Melbourne, Australia, before coming to Britain in 1991. She received a Ph.D from the Department of Chemistry, Oxford University in Organo-metallics, and worked in "the other place" for some years, until the family moved to Cambridge in early 1998.

She decided however to switch from chemistry to a more restful life at the NRI. In the other half of her time, she entertains herself surfing cyberspace.



details of its exact operation. His research notes and these models are now lodged here at the Institute, and our thanks go to his son, Michael, for arranging this.

John also prepared working drawings of the mechanism from which many half and full scale models clocks have been made around the world (including Liverpool, Toronto and China), now deposited with the London Science Museum, and he published many papers in *Antiquarian Horology*, the *Horological Journal*, and *Nature*.

## Science and Civilisation in China

'For this immense and astonishing work of erudition no praise can be too high.'

W. M. Smart, *Nature*

Founded by the late Joseph Needham (1900–1995), Sometime Master of Gonville and Caius College, Director Emeritus of the Needham Research Institute, Cambridge, Foreign Member of the Chinese Academy of Sciences.

General Editor: Dr C. Cullen.

### Volume 6: *Biology and Biological Technology*

#### Part 5: *Fermentations and Food Science*

H. T. Huang

2000 0 521 65270 7 HB c. £95.00

**Forthcoming**

#### Part 6: *Medicine*

Joseph Needham and Lu Gwei-Djen

Edited by Nathan Sivin

2000 0 521 63262 5 HB £45.00

**Recently published**

### Volume V: *Chemistry and Chemical Technology*

#### Part 13: *Mining*

Peter Golas

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