

NEEDHAM RESEARCH INSTITUTE NEWSLETTER

Newsletter No. 8

EAST ASIAN HISTORY OF SCIENCE TRUST

June 1990

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APPOINTMENTS

Professor Ho Peng Yoke took up his appointment as Director of the Institute on 26 February 1990. Following the resignation of Mrs Carter, Mrs Angela King was appointed Secretary in November 1989.

Ms Marta E. Hanson has been elected as the first holder of a Fellowship for Research founded by the National Science Foundation, U.S.A., for tenure at the Institute; she will be arriving during the course of 1990. Ms Hanson's field of research lies within the history of medicine.

AWARD

Dr Needham has been named as the first recipient of a prize and medal that have been established by the city of Fukuoka, Kyushu, for the greatest contribution to a western understanding of East Asia. He plans to visit Japan to receive the award early in September, accompanied by Dr Lu Gwei-Djen and Dr Yüan Chün, of the Cavendish laboratory.

GIFTS

The Institute is deeply grateful to Dr L. E. R. Picken, F.B.A., who has kindly agreed to deposit his collection of rubbings of inscriptions and stone reliefs in the library. Dr Picken made his collection during his visit to China in the 1940s, when he was able to acquire a number of valuable and significant items. Other gifts include books which have been presented by Sir Clifford Darby and Professor W. Rosenberg; the Peterborough Museum and Art Gallery have kindly lent the Institute a model of a Chinese junk.

BENEFACTION

The Institute thanks the Daiwa Anglo-Japanese Foundation warmly for the promise of a grant to support research over the next few years.

NEWSLETTER

Publication of Newsletter No. 9 will be deferred until February



J.N. and H.P.Y., 26 February 1990.

Photo by Kenneth Robinson.

1991, owing to the absence of the editor in America.

VISITORS

The Institute has been glad to welcome the following visitors recently: Mr Marco Ceresa (Venice); Professor Chen Yingshi (Shanghai); Dr El-Bettagui (Cairo); Mrs H. Y. Fang (Taipei); Professor Kim In-hwan (Seoul); Mr Douglas King (Hong Kong); Professor Liu Jinghe (Institute of Psychology, Academia Sinica); Dr and Mrs Darrell Liu (Maryland); Professor Ma Kanwen (Peking); Mrs Shimbo Atsuko (Kyoto); Miss Denise Sinclair (New York); Professor E. Leong Way (San Francisco); Professor Yeung Yue-man (Hong Kong); and twenty-one members of the Cambridge University Library Group.

LOSS

We regret to announce the death of Dr J. K. Lee, formerly of Hong Kong, and for many years Honorary Secretary and Director of the Hong Kong Trust. It is hoped to publish an obituary notice in the next number of this Newsletter.

THE NEEDHAM RESEARCH INSTITUTE – PHASE III – SOUTH WING

The good news that funding had been promised took effect on 25 April 1989 and we were asked to prepare drawings and specifications for tenders as soon as possible. The documents went out to competitive tender to be received on the 31 July. The result was satisfactory and the firm of Sindall (Cambridge) Ltd, who had submitted the best tender, was appointed. However the start on site had to be deferred till September when all the donations were received. Completion is now expected in March 1991.

This contract which is now under way will complete the project on the lines laid down by Joseph Needham many years ago. It consists of a third wing, known as the South Wing, which runs parallel with Sylvester Road and bridges over Bin Brook, a small stream which occasionally floods in stormy weather. It proceeded to do this three times at the start of the work on foundations, but the contractors recovered their momentum and the main floor has now been cast well above flood levels.

On this floor there will be two studies for scholars identical to

those already built and a room for additional periodicals, all opening on to the veranda facing east towards the garden. On the other side of a short corridor will be a larger study, a workshop for the repair of books, models, artifacts etc. and a room for the off-print collection which can be turned into a mobile book stack when needed in the future.

In the corridor is a stair up to the loft space which can be used for storage of every kind and perhaps eventually for more study space or group meetings.

At the south end is a large space for the display of objects of scientific, mechanical or historical interest. It will have flexible lighting and opportunities for display cases. The large window will have an automatic mechanical blind to exclude direct sunshine as it faces due south.

The exterior will match the existing buildings in all respects, excepting, of course, that it bridges over the stream.

In the link connecting with the Library block, which at present contains only the boiler room, an alternative entrance will be formed for those occasions when the display room is opened to visitors who are not free to use the other parts of the Institute. It will also have a small tea preparation room and a lavatory.

The heating system in the south wing will be from the existing boilers but the heating will be by ducted warm air – not under-floor pipes as there are elsewhere.

New landscaping, paths, railings and outdoor lighting will continue the layout already begun.

The existing buildings have received five awards: for craftsmanship, for engineering and for architectural merit, which has pleased us very much.

We, the architects, are doubly proud to have been able to work for Joseph Needham's Institute and to have been given the recognition of other institutions. We hope and expect that the completed building will add to this appreciation and give credit to the Institute's benefactors.

Christophe Grillet

THE NEW DIRECTOR TALKS ABOUT HIS OWN RESEARCH

My work on the history of science began in 1953 when I embarked on the translation and annotations of the Astronomical Chapters of the *Chin Shu* (Official History of the Chin Dynasty) for my Ph.D. thesis. Dr Joseph Needham acted first as my external adviser and later as one of my two external examiners; he also used some of the findings in my thesis in Volume III of *Science and Civilization in China*. In January 1958 I came to Cambridge to join a very small team of collaborators to work on the alchemy section of SCC. During the two-year period of my stay in Cambridge more than half a dozen articles dealing with Chinese alchemy, meteorology and meridian line measurement were published jointly with Dr Needham, while a substantial study on comets and novae in East Asia, entitled "Ancient and Mediaeval Observations of Comets and Novae in Chinese Sources" appeared (under my own name) in *Vistas in Astronomy*, Vol. V (1962), 117-215. This last publication gave me considerable satisfaction because of its usefulness to modern scientific research. At the beginning of the 1970's I was requested by the editor of the *Physics Bulletin* to write an article on the applications of ancient Chinese astronomical research in modern science.

Between 1960 and 1978 I continued with the preparation of the alchemy and gunpowder sections in Parts 3, 4 and 7 of SCC Volume V, returning to Cambridge for about six months in the year 1968; this was after resigning from the Deanship of the Faculty of Arts at the University of Malaya to make it possible to do so. Meanwhile I have also published books and articles on the history of Chinese alchemy, astronomy, mathematics, and pharmacopoeias, including the partial restoration of lost ancient texts on these subjects. My direct involvement in the SCC Project concluded temporarily in 1978 when I completed the first draft of the gunpowder epic section.

Hitherto my publications were mainly in the English language. When I took up the Chair of Chinese at the University of Hong Kong I began to write more in Chinese and to publish my works more frequently in Hong Kong, Peking, Shanghai,

Sian, and Taipei. At the same time my research interest was broadened to embrace the humanities. I tried to show that there are many areas in the history of Chinese science where the humanist can play a useful role. I took a leaf from C. P. Snow and attempted to bridge the gap between science and the humanities by suggesting to scholars in East Asia that much information on Chinese traditional science is contained in the writings of great scholars in the past, such as Li Po (701-762), Tu Fu (712-770), Po Chü-i (772-846), Han Yü (768-824), and Lu Yu (1125-1210). With the collaboration of some of my colleagues in Hong Kong, several books, one on the restoration of a Tun-huang manuscript on astrology, another in two volumes on astronomical records extracted from the Ming Veritable History, and one of the restoration of a lost alchemical work by a Ming prince, were published. A dictionary of alchemical synonyms in the *Tao tsang* canon was compiled by another colleague at my suggestion. I also publish several other books on my own.

Actually as far back as the year 1964 when I became the first occupant of the Chair of Chinese Studies at the University of Malaya, Kuala Lumpur, I was already exploring areas in the history of Chinese science where the humanist could play a part, and in the humanities where the scientist had something to contribute. I have already touched on the possible role of the humanist. To show that some classical Chinese poetry can be better understood with a little knowledge of science I and my colleagues had published a monograph on Lu Yu at the National Australian University and a paper on Po Chü-i's poems of immortality in the *Harvard Journal of Asiatic Studies*. I have also shown how such knowledge could sometimes be used to help to determine the

dates of some Taoist texts. A monograph on this subject was later published by Griffith University in Australia.

Dr Needham looks at traditional Chinese science as a Western modern scientist with a good understanding of Chinese culture. Indeed the modern trend of studying the subject is to interpret it in terms of modern knowledge. Thinking that it might be perhaps useful to complement the currently accepted approach by providing a glimpse from another angle, I tried more recently to look at the subject from the eyes of a traditional Chinese scholar assisted with some knowledge of modern science. I have already found some rather interesting results. For example, the modern Chinese equivalent of "mathematics" is "shu-hsüeh", a term used by Li Shan-lan (1811-1882) when he translated Western mathematical works into Chinese. However, when scholars study traditional Chinese mathematics today they seldom realize that "shu-hsüeh" in traditional China did not refer to "mathematics" exclusively; as Joseph Needham has pointed out it also included numerology. Even before the time of Li Shan-lan the great Ch'ing biographer Juan Yüan (1764-1849) had mistakenly criticised a problem in the *Sun-tzu suan ching* mathematical manual (written between 280 and 473) as a later extrapolation because it was not "mathematical" in nature by his own standard and must have been influenced by his acquaintance of mathematics as imported from the West by the Jesuits. To the traditional Chinese scholar "shu-hsüeh" simply meant "a branch of learning concerning shu", and "shu" embodied what we now call mathematics, numerology, and the art of foretelling the future, both of natural events and of human destiny. During the Sung Dynasty there flourished the "hsiang shu" (Symbols and Shu)

school of philosophers who based their study of natural phenomena and human behaviour on the Ho t'u Diagram, the Lo Shu Diagram and the Hexagrams of the *I Ching* (Book of Changes).

Magic squares and other diagrams were developed with the purpose of attempting to elucidate the relations of numbers to lend support to the profound numerology of the *I Ching*, otherwise known as the art of "I shu" (the shu of the *I Ching*) at that time. Modern historians of mathematics have studied the diagrams in Yang Hui's (fl. c. 1261-1275) *Hsü ku ch'ai ch'i Suan fa* thinking only in terms of magic squares, and have not been able to explain some of the diagrams in this book. An answer can be found if it is noted that Yang Hui lived in a period strongly influenced by the "hsiang shu" school. C. F. Gauss (1777-1855) spoke of mathematics as the "queen of the sciences", but in a plenary lecture opening the Second Symposium on the History of Science in China held at Academia Sinica, Taipei last March, I referred to "shu" as the "queen of traditional Chinese culture". I have also read two other papers on the "shu" of the *Book of Changes* and another on the "shu" of human destiny (*ming shu*) on other occasions while I was in Taiwan last year. All these form part of a book which is now in the hands of a publisher arranged through the National Tsinghua University.

I mentioned earlier that my collaboration with Dr Needham in the SCC Project came to a halt temporarily in 1978, but this was also the beginning of a new era. I became a director of the Hong Kong Trust while I was serving the University of Hong Kong as Professor of Chinese and Master of Robert Black College. In December 1986 I rushed back to Hong Kong from Sian during a lecture tour during which the title of Honorary Professor at the North-Western University was conferred on me; my purpose was to host a special dinner at my College to help Dr Needham to raise funds for the South Wing. It was also then that Dr Needham approached me with a view to becoming his successor as Director; he succeeded on both counts.

To be Dr Needham's successor does not mean that I shall have to pretend to be another Joseph Needham, a fact that I have clearly stated to the British Trust after its meeting in September 1988 to appoint me Director-Designate. As long as Dr Needham is able to continue with his writing I think that I would look



The South Wing, 7 May 1990.

after the other affairs of the Institute founded by him thus enabling him to concentrate exclusively on the SCC Project. Working on the SCC Project demands sustained and often uninterrupted effort, as I have experienced while writing the draft of Volume V part 7 while also being one of the Foundation Chairmen, and occasionally acting Vice-Chancellor, of a new Australian university. According to my observations SCC does not mix well with mundane matters. Thus I hope that Dr Needham will be able to attend to the SCC Project personally and without interruption for many more years to come. I shall be able to look at the general situation of the Institute attending to what is necessary, continuing some of the lines of research as indicated in this report.

Before coming to Cambridge I took the opportunity to keep certain people in East Asia better informed about Dr Needham's work as well as the NRI in order to gain support. I have published a book and given several lectures on this subject. What I consider to be of special significance was a lecture I gave at the magnificent and modern building of the National Central Library in Taipei. Actually, in terms of its size and the rare items in its collection our East Asian History of Science Library does not compare with the National Central Library. However, I drew so much interest from an audience of more than a hundred people that the editor of the *Bulletin of the National Central Library* approached me for a copy of my lecture immediately afterwards for publication in his journal. I spoke about the uniqueness of our collection and Dr Needham's brain-child—the system invented by him to help him to write the SCC volumes, with its box-files, separate cards for personal, geographical and technical names, not to mention the green-coloured “ghost cards”—besides the seemingly rather unconventional system of classifying the books in the Library. I became more convinced that our library must preserve its uniqueness at all costs, not least because of its historical value, especially in its Cambridge setting. Without its unique lectures, our library would become an ordinary library, and a rather small one at that; at most we can only refer to its specialisation and speak about the very few rare items that it holds.

Having said that the SCC Project is at present progressing steadily, I must mention that the research activities of the Institute

are being extended to other frontiers. Preliminary discussions on the research in the history of science in Japan and North Korea have been taking place, while letters are being exchanged with Bangkok with a view to encouraging research on the history of agriculture and ceramics in Thailand. The success of these ventures is largely dependent on the funding we are able to attract, as there is no lack of scholars interested in the above type of research. There is also a need to train future scholars in order to maintain continuity in our research. Thus plans are afoot to hold seminars in Cambridge and London, and to encourage research students from overseas, such as North America and East Asia, to spend some time in the Institute. Not being directly part of my own research, all these topics will be given the attention they deserve in a later report.

H.P.Y.

CHINESE SCIENCE

Chinese science Volume 9, which was published in December 1989, includes the following articles: Francesca Bray, 'The Classification of Crop Plants in China'; Xu Zhenao, 'The Basic Forms of Ancient Chinese Sunspot Records'; Nathan Sivin, 'A Cornucopia of Reference Works for the History of Chinese Medicine'; and Philip C. Brown, 'Never the Twain Shall Meet: European Land Survey Techniques in Tokugawa Japan'. The number also includes two reviews: Hans Lothar Scheuring, *Die Drachenfluss-Werft von Nanking-Das "Lung-chiang ch'uan-ch'ang chih," eine Ming-zeitliche Quelle zur Geschichte des chinesischen Schiffbaus* (Frankfurt: Haag und Herchen, 1987), by Herman Reichenbach; and Cheng-Yih Chen (ed.), *Science and Technology in Chinese Civilization* (Singapore: World Scientific Publishing Co Pte Ltd, 1987), by Nathan Sivin. Copies may be obtained from the Editorial Office, 1 Smith Hall, University of Pennsylvania, Philadelphia, PA 19104-6310, U.S.A.

A. C. MOULE AND MARCO POLO: ADDENDUM

In the sixth issue of this Newsletter, we gave notice of some of the archival materials of the late Pro-

fessor A. C. Moule that are housed in the Cambridge University Library and the East Asian History of Science Library. These materials relate to the critical edition of Marco Polo's *Description of the World* undertaken by Moule and Paul Pelliot in the 1930s, at the behest of the Sir Percival David. Soon after the sixth issue of the newsletter appeared, I learned that there is still another part of Moule's archives in the Manuscripts Room collection of the University Library. This includes an important part of his correspondence. As something has already been said of related materials, it seems appropriate to mention those that have now come to light.

These materials have been under embargo until now at the request of the Moule family, and on the instruction of a former University Librarian. It is with the permission of Professor C. F. D. Moule that notice is given of them now, when access is permitted for purposes of scholarship and subject to the discretion of the University Librarian. Copyright in the correspondence rests with the estate of A. C. Moule, and reproduction or quotation are prohibited without explicit permission.

This newly available set of materials is catalogued as ADD 7648. It includes forty-eight of Paul Pelliot's letters to Moule. These were written in the period 1912–1929 and bear on their research into Marco Polo and his book. Included as well are three of Moule's letters to Pelliot, written in 1935–40, and several letters to Moule by Percival David. There are also letters to Moule from J. J. L. Duyvendak and Paul Demiéville, both writing in 1947 in regard to the puzzle of what had become of Pelliot's notes on Marco Polo. Demiéville raises several points of interest including Moule's visit to Paris to search for them in vain, and Mme Pelliot's mention of the idea that they might be published separately from the Moule–Pelliot project.

Moule's materials include letters from leading Marco Polo scholars of the early decades of the century. These include four letters by L. F. Benedetto, whose critical reconstruction of Marco Polo's original text appeared in 1928. There are four letters dating to 1928–29 from A. J. H. Charignon, the French engineer born in China who had just published a three volume French version of Marco Polo (Peking, 1924–28); and there are two of 1912–13 by Henri Cordier in Paris, whose collaboration on the

Yule edition was mentioned in Newsletter No. 6.

In addition, one finds amongst Moule's correspondence communications both to him and to Pelliot, regarding the history of Sino-Western contacts. These were from some of the leading scholars in Asian Studies of his day, including Sir Aurel Stein; Edouard Chavannes; Arnold Vis-sière; J. J. M. de Groot; Lionel Giles; G. F. Hudson, the specialist in Sino-Western relations at Oxford; Gustav Haloun, Moule's successor to the Chair of Chinese in Cambridge; and Basile Nikitine, a Russian orientalist based in Paris, who wrote movingly to Moule in December 1939 about the recent mass arrest by the Nazis of Polish professors of the University of Cracow. There are also six letters dating to the period 1932–55 from Moule's collaborator W. P. Yetts.

There are moreover a collection of letters from lesser known correspondents specialising in particular aspects of mediaeval relations between China and Europe, e.g. H. Stanley Jenkins on the history of Islam in China; and F. C. Burkitt, P. M. Scott and C. Wordworth all concerned with Christians in China during the T'ang and Yüan dynasties. Another correspondent concerned with mediaeval religious communities in China was William C. White, the Anglican Bishop of Ho-nan; White was a specialist on the history of the Jews in China, who was responsible for collecting and dispatching to Toronto a striking collection of Chinese cultural artefacts, which I had the pleasure of visiting two months ago at the Royal Ontario Museum.

A finding list of this correspondence which was drawn up c. 1980 by Dr Michael Salt on behalf of the University Library is placed in the case in which the papers are held.

This case also contains Moule's notebook for his *Rulers of China*; a notebook with his draft articles for vol. 3 of the Marco Polo project; and miscellaneous items including some scholarly reprints, several stone rubbings and the printer's plate of the map of Quinsay that appeared in Moule's 1957 book on Hang-chou. For the sake of completeness, I can mention finally that several minor items of A. C. Moule's correspondence, of no special interest for the Marco Polo project, are catalogued as separate entries in the Manuscripts Room of the University Library.

G. Blue

SCIENCE AND CIVILISATION IN CHINA PROJECT

THE NEEDHAM RESEARCH INSTITUTE

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Director Emeritus: Joseph Needham, FRS, FBA

Director: Professor Ho Peng-Yoke, FInstP, FAHA, Memb. Acad. Sinica

Associate Director: Lu Gwei-Djen, PhD(Cantab.)

Deputy Director: Michael Loewe, PhD

Project Coordinator: Colin Ronan, FRAS

Librarian: Liang Lien-Chu, BSc(Lond.)

During the 1930s Joseph Needham embarked on his life's work of research in the history of science in East Asia. To meet the growing needs of the subject and to provide for collaborators to participate, there subsequently came into being the Needham Research Institute, supported by three bodies of Trustees, who are based in London, Hong Kong and New York. It is thanks to the steady encouragement of the three Trusts and the munificence of a few benefactors that it has been possible to erect the fine set of buildings in which the Institute is now housed; but there is still a need for help.

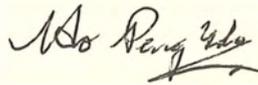
Fifteen volumes have been published so far in the *Science and Civilisation in China* project; three are at an advanced stage of production; and the work of editing other volumes in the series continues. Monographs which incorporate the results of detailed research are planned to accompany and to follow that basic work. At the same time, the Institute is extending its interests to subjects of research in other parts of East Asia, such as Japan, Korea and Thailand.

However, the Institute has never been able to command sufficient funds to support full-time salaries of all the specialists whose work is needed. Funds available for running costs are too small, and secretarial assistance has been minimal. The Library holds a number of highly valuable and rare items that derive mainly from Joseph Needham's personal collection, but it has never been possible to establish a systematic policy for acquisitions. The Director has never been paid a salary. If it is to continue and extend its work, the Institute must be provided with endowment.

To meet all essential needs, as at present estimated, a sum of between £3 and £4 million is required. We are therefore planning to launch an appeal, and it is here that we would like your help. As we well know, there are only too many calls on generosity at present, particularly for the type of interests that the Institute shares, and for that reason fund-raising may not be easy. We are therefore seeking help in solving the initial problem of identifying potential sources of benefaction. We are hoping that these will be forthcoming in two forms; either as annual covenanted gifts from individuals or as once only grants of larger sums from corporate bodies.

To achieve our objective, we believe that it is essential to work by way of personal contacts and it is for this reason that we ask you to let us know of possible sources of funds of which you are aware; e.g., individuals who are likely to be sympathetic to the Institute's aims; or bodies who have a professional interest in the Institute's work

or depend on a knowledge of East Asian cultures for their success. If you can introduce us, perhaps to an individual philanthropist, or to one of the directors or managers of a grant-giving company or foundation; or if you sit on such a board, please let us know to whom we should write, and whether we may quote you as suggesting that we should do so. If, on your own initiative, you have succeeded in attracting a benefaction, please ask the donor to send a cheque made out in favour of the *East Asian History of Science Trust*. In other cases, we will initiate correspondence and send out full information ourselves.

A handwritten signature in cursive script, reading "Ho Peng Yoke". The signature is written in dark ink and is positioned centrally above the printed name.

Ho Peng Yoke

1 June 1990

THE CAMBRIDGE HISTORY OF CHINA

General Editors:

JOHN K. FAIRBANK

Francis Lee Higginson Professor of History, Emeritus, Harvard University

DENIS TWITCHETT

Gordon Wu Professor of Chinese Studies, Princeton University

Planned in 16 volumes, *The Cambridge History of China* aims to provide a substantial account of the history of China as a benchmark for an international readership. The out-pouring of current research, the application of new

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Volume 7: The Ming Dynasty 1368-1644, Part I
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Volume 5: Five Dynasties and Sung
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Further planned volumes

Volume 9a: The Ch'ing Empire
Editor to be appointed

Volume 9b: Ch'ing Economy, Society and Civilisation
Editor to be appointed

SCIENCE AND CIVILISATION IN CHINA

Titles published to date (1954-1989):

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For further details of these please write to Humanities Publicity, Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU.

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Part 10: *Textile Technology:* Weaving and Looms

Part 11: *Non-ferrous metallurgy*

Part 12: *Ferrous metallurgy and mining*

Part 13: *Ceramic Technology*

Part 14: *The Salt Industry, Ink, Lacquer Pigments, Dyes and Adhesives*

Volume VI: BIOLOGY AND BIOLOGICAL TECHNOLOGY

Part 3: *Agro-Industries:* Animal Husbandry, Fisheries, Agricultural

Industries and Forestry

Part 4: *Horticulture and Botanical Technology*

(A continuation of the volume on botany already

published.)

Part 5: *Zoology*

Part 6: *Nutritional Science and Fermentation Technology*

Parts

7 to 10: *Institutes of Medicine (Anatomy and Physiology),*

Medicine, Pharmaceutics

Volume VII: THE SOCIAL BACKGROUND

Part 1: *Introductory Considerations*

Part 2: *Economic Contexts*

Part 3: *Language, Logic and Science*

Part 4: *Political and Ideological Dimensions, General Conclusions*

It must be emphasised that the subject-matter of some of the parts given above is subject to alteration as research proceeds. Further information about these titles will be included in future editions of the *Needham Research Institute Newsletter*.

Edited by Michael Loewe and printed by University Printing Service of Cambridge University Press; please address all enquiries to the Editor c/o Needham Research Institute, 8 Sylvester Road, Cambridge CB3 9AF.