

激光中文排字示範

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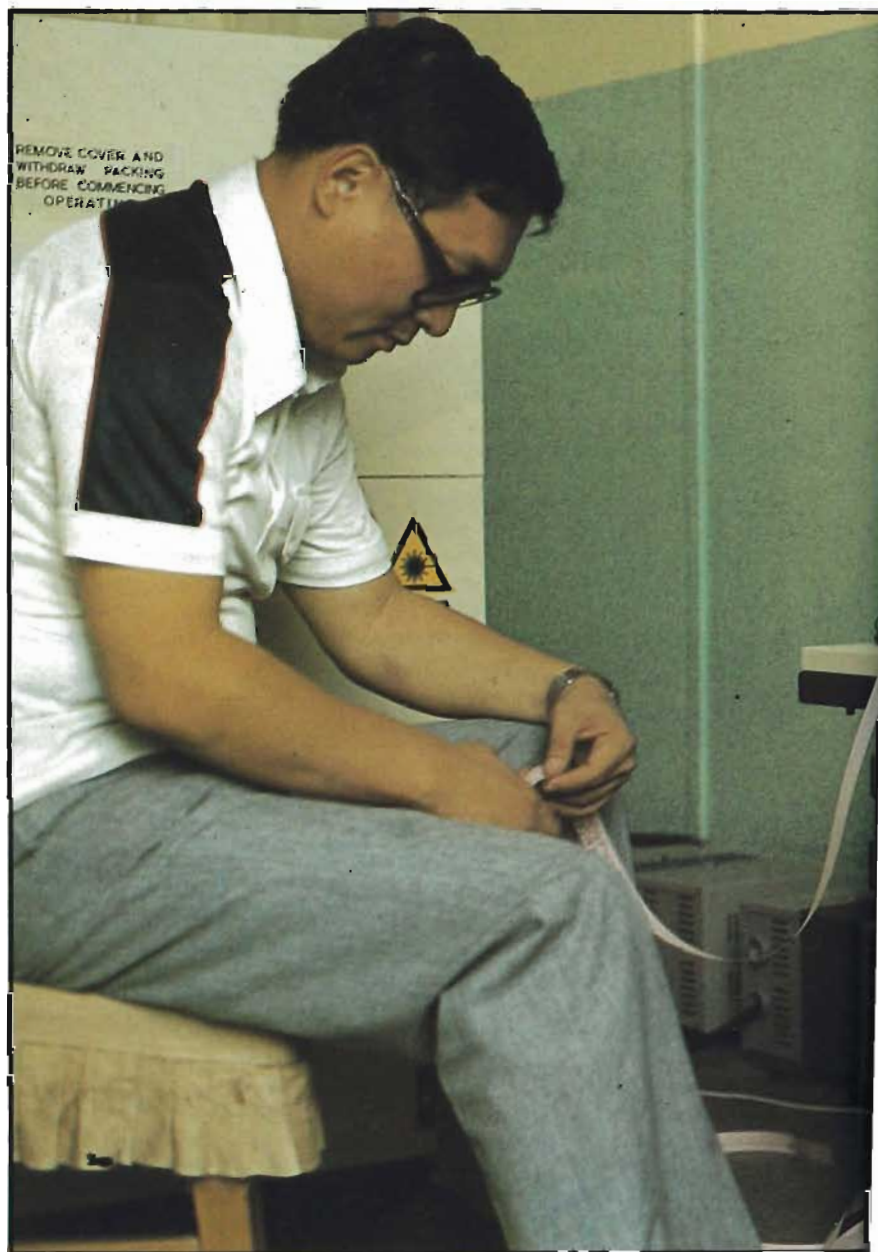
How Monotype cracked the Chinese puzzle

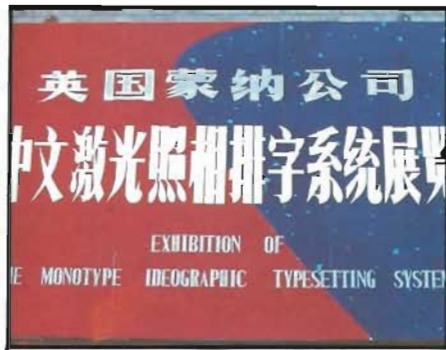
MONOTYPE CRACKS THE CHINESE



IT HAS taken Monotype only one year, following its rescue by the NEB, to deliver a production system that for almost a decade has beaten the resources of major companies throughout the world. In doing so it has swept away in one stroke all the Heath Robinson attempts at offering the Chinese an integrated photo-setting system for coping with the mind-boggling complexity of their ideographic language. Which says a lot for a company that has been written off on numerous occasions as an anachronism left over from the letterpress era.

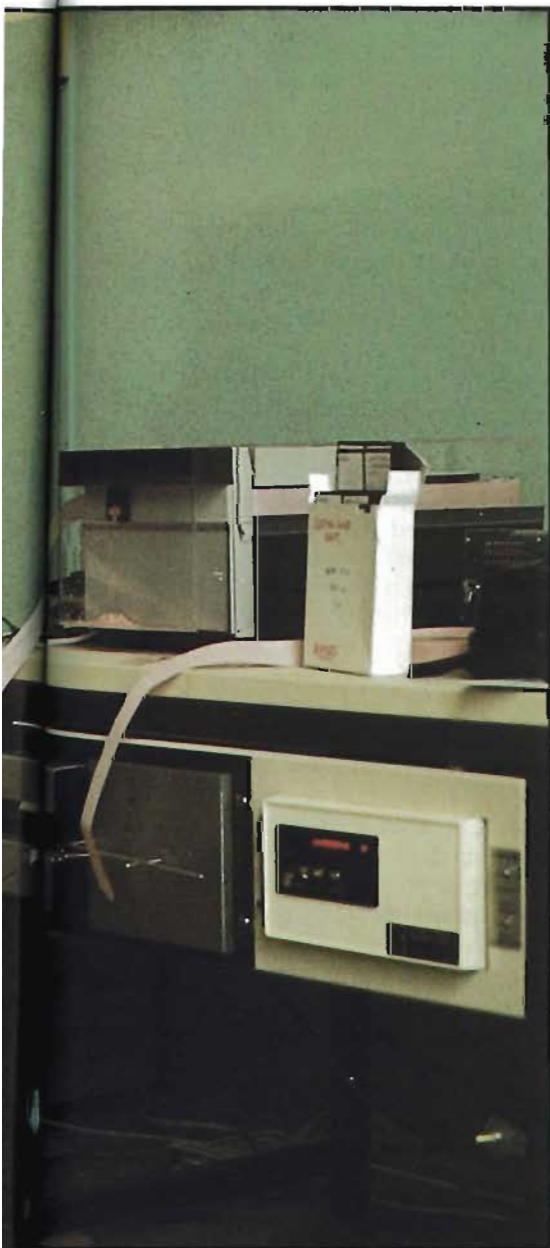
At the same time as having to sort out the mess left over after the Grendon Trust asset stripping operation, Monotype has completed a production installation in Shanghai and Peking. This comprises 10 keyboards working on paper tape, 10 on floppy disc, four Lasercomp photosetters, two typographical digitisers and six editing terminals each equipped with a Chinese character line printer. Additionally there are two modem communication units enabling any of the sub-systems to work over a telephone link.





Main picture shows Professor S C Loh inventor of the new Chinese Keyboard alongside a modern communication unit. ◁ Demonstration of 'The Monotype Ideographic Typesetting System'. Peter White is shown centre with Wang Yi, director of the China Printing Corporation. (Photos: Brian Gaines.) ◁▽ Monotype Lasercomp.

PUZZLE



The installation is not a patch up from any point of view. An impressive list of innovations includes a completely new keyboard layout equipped with what is believed to be the first lineprinter to operate in Chinese plus a new editing terminal again displaying Chinese characters.

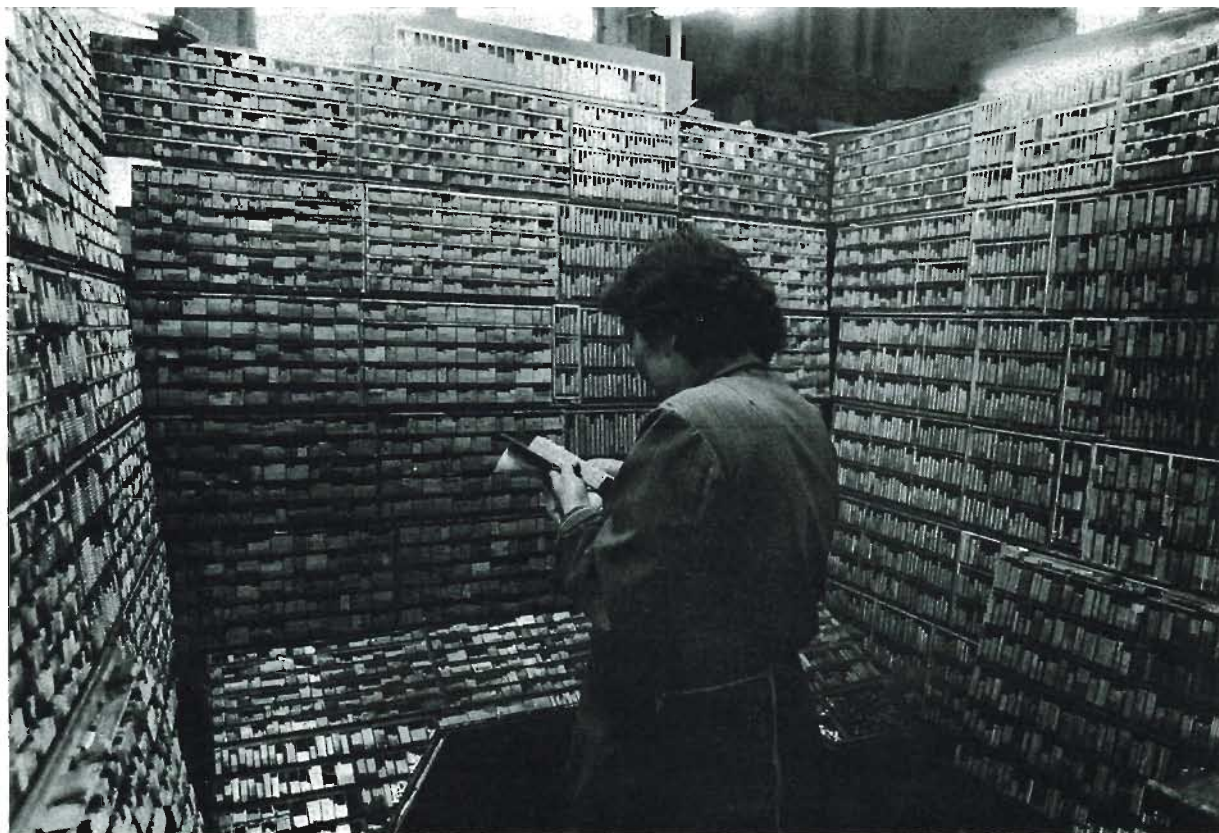
Behind the development programme has been very much a make-or-break effort as Professor Brian Gaines told *Printing Today* in an interview shortly before he left for China in October. The story begins last September when he and Dr Peter White as founder directors of City Computer Systems were consulted by the NEB on the possibilities of Monotype's rescue. Peter White had been chief executive of Linotype-Paul while Brian Gaines first knew him from their collaboration at ITT some years previously. Since then Brian Gaines went on to set up a number of companies including Questel and Micro Computer Systems while most recently has been chairman of the Department of Electronic Engineering at Essex University. The opportunity of running Monotype seemed too good a chance to miss

for both of them and City Computer Systems took a 25 per cent share in the company, resulting in Brian Gaines becoming full time deputy chief executive to Peter White.

Refunding took place on 8 November, but by then the decision had already been made to try and solve the Chinese setting problem during a showing of the standard model Lasercomp at Graph Expo in New York a few weeks before. The only proviso for the project to proceed to manufacture was that some sort of system had to be ready for display at an exhibition for the beginning of December in Hong Kong. At such short notice no stand space could be had and after some strenuous efforts by Monotype's Hong Kong company a hotel suite was booked near the show. Meanwhile the race continued at Salfords. A prototype keyboard was built based on the existing LD400 using a layout invented by S C Loh, Professor of Computing at the Chinese University of Hong Kong.

This new Chinese keyboard is really the heart of the system enabling on its 255 keys the maximum 12,500 characters required for all types of work to be set. Monotype is unwilling to release details of the layout at the present time. For the Hong Kong showing Monotype's group typographical manager, John Latham, digitised 500 characters onto disc while the Lasercomp had extra software added to its European repertoire enabling it to decode the signals from the Chinese keyboard and set in sizes from 5-72 points.

Problem after problem was blizzed through and after many late night sessions Monotype made the Hong Kong show equipped with just one keyboard plus the Lasercomp. 'There



△ Hand comping the 6.3m daily run 'People's Daily' from 3,500 character set. (Photo: Bruno Barbier.)

◁ Section of newspaper page, including heading, set on the Lasercomp.

激光

热爱农场 安心

市农场管理局召

本月十四、十五日，市农场管理局召开“一定要把国营农场办好”的大型座谈会，市农办和团市委、市总工会、市妇联有关领导出席了会议。

参加座谈会的市属各国营农场干部职工的代表共二百六十余人，他们当中有当年参加创建上海国营农场的老围垦战士，有十几年来坚持走上山下乡道路的老知青，有坚持扎根或放弃顶替在农场定职定薪的青年干部，还有顶住“回城风”坚决在农场扎根的团员青年。会上有十一位同志发言。

前卫农场场长金伟豪和东风农

新华社北京九月十六日电 新华社记者综述：第四届全运会开幕式后的

officials visited the Hong Kong demonstration led by Wang Yi, director of the China Printing Corporation, who were so impressed that they invited Monotype to show the system in Peking. At first it seemed logical to go straight there rather than return to England. But instead the decision was made by Brian Gaines to work at top speed on developing a production system, deferring any showing in Peking to June this year. Included in the system would be a video editing terminal and proofing printer.

With no prior warning the company heard in March from its German md that a Chinese delegation lead by Wang Yi was in Europe only wanting to see Monotype in England and Hell in Germany. Deputy leader was Zhou Shou Peng who was director of the printing research institute in Shanghai. Luckily for Monotype the first production prototypes were ready and after the 12 strong delegation had expressed its approval entered detailed negotiations on the commitments for both sides.

The Chinese agreed to build an air conditioned plant in Shanghai and provide space at the Xin Hua (pro-

nounced Shin Wah) printing works at Peking. Brian Gaines particularly wanted to demonstrate that the system could communicate between two centres by keyboarding at one and setting at the other. 'China's newspaper industry in particular has an enormous problem in the dissemination of information. The same news takes weeks to appear in different parts of the country'.

CURIOSLY, during his visits to China, Brian Gaines has seen unused facsimile transmission equipment gathering dust simply because they were never told how to use it. This goes for a great deal of other equipment, so Monotype during its negotiations had to convince the delegation that they meant what they said and were not just out to make a quick sale.

Xin Hua was chosen because it produced a wide range of work allowing the Lasercomp system to be tested at almost all levels. Additionally the Chinese agreed to send suitable staff to England for engineering and support training while user training would be in Shanghai. It was important to Monotype that the operators would be Chinese and not a crack demonstration team from Redhill.

By May the system had almost taken shape and they began to ship equipment out to China concen



◁ The new keyboard/editing terminal.
 ◁ Keyboard line-printer output.
 ◁ Typeface digitiser.

Samples: Top line shows line printer characters while below are three of the four faces developed for: bold headings, bookwork (centre portion), and creative applications like poetry (last two lines).

检亥厅刁，由检亥厅而拘由所刁

小母鸡科珀的葬礼

狮王说：“向特格雷，我命令用隆重的仪式埋葬科珀，对殉难者必须举行应有的丧礼。”

因此，在一棵美丽的树下挖掘了一个墓穴，用鲜嫩的绿树叶把科珀浑身包裹着，送进墓穴。送殡的亲友们站在墓前唱经，表示出最沉痛的哀悼。

向特格雷、品特、史勃罗特和四只抬过科珀尸体的年轻雄鸡，站在送殡行列的前排。他们哭得很伤心。

墓坑里重新被堆上了泥土，在它面前竖立了一块壮丽的石碑，松鼠卢索在上面写了墓志铭：

“这儿长眠着美丽的科珀，
 是我们大家钟爱的好人。”

was no insurance, everything rested on the one system’ Brian Gaines recalls. An important aspect of the demonstration was the quality of setting achieved through the Laser-comp’s inherent sharpness plus the result of studies into spacing and legibility at different enlargements. Almost every Chinese character involves enclosed elements – or counters as they are called in typographical terms – and to simply electronically reduce or enlarge the character is not sufficient. Enlargement can make it too spindly while compression makes it too bold.

Calligraphy plays a large part in Chinese typography with each subtlety and nuance adding meaning to the overall ideogram, unlike in the West where only the outline shape is important and any internal deviation is more a matter of design than interpretation. Monotype avoided the pitfall of copying or referring only to previous alphabets designed for earlier typesetting systems and instead commissioned completely new drawings on film. These were four times in size for compression to a 96 points master on digitisation.

A key delegation of top Chinese

trating on Shanghai at first then later moving it to Peking. The Chinese while not being obstructive had not pressed Monotype to get staff and equipment over before then. When they arrived the reason became apparent – contrary to their usual efficient image things had fallen behind and the building still had no windows or air-conditioning providing a working environment of 95°F and 90 per cent humidity. Urgent calls to Redhill eventually led to air-conditioning plant being shipped over from England and during June and July the installation took shape.

WHILE ALL THIS was going on six Chinese engineers were being taken through a crash course at Salfords. These people provided some real surprises in their level of intelligence and breadth of knowledge covering a whole range of electronics and laser technologies. 'Frankly the Salfords people were shocked by their phenomenal assimilation of information and depth of understanding', states Brian Gaines.

Chairman Mao in his widely quoted speech to the music workers called on the Chinese people to pick out the best of Western technology and make it Chinese. The results of this philosophy were demonstrated in China at the beginning of August when the Lasercomp system came into operation. The Chinese kept their promise to Monotype in providing a wide variety of work and a continuous stream passed through both installations. 'We set everything we could get our hands on – telephone directories, books, newspaper pages even Chinese music' recalls Brian Gaines. Chinese music is in fact simpler than the system used in the West using individual ideograms on the same basis as text. One demonstration job was a Chinese translation of a book from the famous 'Ladybird' series known by every child in Britain. Amusingly a literal machine translation from English to Chinese added a new author to our literature – The Honourable Mrs Bird! – but problems like this were overcome and the book, appropriately on computing, proved to be a great success.

Currently four typefaces are being used on the Lasercomp each having a different application, these are: (1) standard book work (2) a bolder face for headings (3) a more creative face used in China mainly for poetry and (4) brush characters, used mainly for newspaper headings. Different types of publishing need different numbers

of characters and so far Monotype has digitised 3,260 drawings which is the recommended quantity for newspapers and 4,810 for bookwork. But a continuing expansion is taking place with the eventual aim of reaching the optimum 12,500 required to set all kinds of work.

The computer line-printer does not have the same calligraphic requirements as for text. States Brian Gaines 'I believe we were the first people ever to have a 5000 computer character set in Chinese'. Visits made by him to computer establishments in China have consistently shown operators using line-printers working in English.

Despite the massive character requirements only one third of the Lasercomp's 80 Mb disc store is occupied and when required the Chinese installations can run European setting as well.

I asked Brian Gaines what were the overall advantages to the Chinese. Speed of setting is obviously a major factor although surprisingly it is only twice as fast as the top Chinese hot metal compositors who reach 1,000 cph. In comparable terms this is phenomenal representing something like 5-6,000 words per hour.

DESPITE THE LIMITATIONS of their ideographic language the Chinese still set their standards by the West. It takes something like 30 hours to put a newspaper together by hot metal severely limiting topicality when compared with their counterparts here. Like anywhere else in the world, photosetting offers them an improvement in working conditions over hot metal. Where photosetting is already in use it mainly relies on a Japanese system employing huge film fount masters and a manual selection operation which although slightly faster than hot metal is a very tedious job for the operator.

China, as part of its celebration of the 30th anniversary of the Revolution, is currently undergoing the 'Four Modernisations' covering almost every aspect of Chinese life with education as a high priority. Not surprisingly if China is to achieve this then greater dissemination of information is vital and therefore printing must move into the computer age. According to Brian Gaines the Ministry of Information for Science and Technology sets more than 3,000 million characters a year in order to spread information of every type throughout the country. The Lasercomp could have big applications here in going on-line producing abstracts for example. As already mentioned newspapers are

another key application and Monotype having had discussions and demonstrations with the New China News Agency is ready to go ahead as soon as an order is placed.

To many people, embarking on the China project at a time when the company was in such a shaky condition might seem an irresponsible step. However Brian Gaines has no reservations about the project's strategic value. 'It was important psychologically to show our people and the outside world what we could do. Not only have we pushed ourselves to the limit, but the equipment and resources as well'.

QUITE OBVIOUSLY there were elements of risk throughout the project, but on the equipment side by deliberately setting up the largest system possible plenty of back-up existed – by running both paper tape and floppy disc for example. The whole company has been involved at one time or another providing a valuable target to aim at, diverting attention away from the problems of the past few years and boosting morale. Instead of only ticking over, employees could see a project taking shape with exciting future prospects.

Despite having lost some good people Brian Gaines was surprised at the skills still surviving: 'Each time we wanted something we could always count on finding someone who could do it. Lots of people in Monotype have really put themselves out to make the project a success.' The Chinese also have contributed an equal share to this success and he pays tribute to their total involvement and co-operation throughout, meeting all the commitments originally agreed in March.

Further confidence and belief in the future of Monotype is the establishment of a research and development laboratory in Science Park at Cambridge during the last few months. One member of staff there, David Hedgeland, must be justifiably proud of the China project as it was he who developed the Lasercomp while taking his PhD at Cambridge University.

Equipment, software and typeface expertise has been added to the company's 80 years experience which will inevitably find its way into new systems for the West. Perhaps even more important is the advantage of currently being the only major photosetting supplier serving a population of 942 million, or to a country that will provide one in four of the world's people by the year 2,000. □