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ONLINE CJK DEVELOPMENT AT THE FAMILY HISTORY LIBRARY

Frederick Brady
Ellen Fung Ly

The Family History Library of the Church of Jesus Christ of Latter-day Saints automated its cataloging process in 1979 and began producing a COM fiche catalog for both in-house use and distribution to a growing number of branch libraries. Budget priorities and lack of expertise put development of online Chinese-Japanese-Korean (CJK) capability on a back burner at the time. The Asian collection was still small then, and patron demand was almost nil compared to that in the North American and European areas.

As of this writing, the Family History Library maintains over 1,600 branches, called "family history centers," throughout the world and circulates hundreds of thousands of reels of microfilmed material to them annually. Of these branches, about one hundred are in East Asia or in western cities with large East Asian communities. Demand for Asian materials is still comparatively small but growing. Because the cataloging system cannot support non-roman scripts, the library has supplied its branches with microfilmed copies of the Asian card catalog. (Copies of this catalog on film also may be purchased by other institutions.)

Updates of microfilmed catalogs are expensive and difficult to produce, and errors in the catalog are permanently recorded on the film. Changes in cataloging standards and procedures could not be applied retrospectively to older catalog records because of manpower shortages. This resulted in a catalog which could confuse patrons. Therefore we have looked forward to automated cataloging and retrospective conversion as solutions to the problems of correct sorting and printing of entries in native script, production of timely catalog updates, reduction of over-large work backlogs, and elimination of the six- to eight-year time lag between acquisitions and patron access.

When Frederick Brady was employed as the senior cataloger for East Asia in 1983, he made CJK automation his top priority. Microfilming in Japan and Korea had temporarily ceased, but a new influx of materials from the People's Republic of China created large backlogs in both cataloging and card production. Mr. Brady watched with interest as the Research Libraries Group, Inc. (RLG) Research Libraries Information Network (RLIN) and the Online Computer Library Center, Inc. (OCLC) Online Union Catalog implemented CJK cataloging and he considered alternatives such as Wang, TianMa, and the Xerox 6085 word processor. However, circumstances prevented joining either network, and it was obvious
that merely automating card production with a word processor would not solve our backlog problems. A fully automated in-house system seemed the only choice.

In 1987, Mr. Brady began experimenting with ChinaStar, a Chinese/Japanese character generator developed by JHL Research of Anaheim, California. The church's Information Systems Department (ISD), which was searching for a character generator to be used with the Oracle data base manager, became interested in Mr. Brady's work. Nolan Adams of ISD was assigned to work with Mr. Brady and they developed a Chinese cataloging system prototype using Oracle and ChinaStar.*

In spite of their success, several factors combined against full development of the Oracle/ChinaStar cataloging system and the project was dropped. First, Mr. Adams left ISD for a position in another department. Then a major reorganization of the Family History Department left CJK automation temporarily without a sponsor. The Cataloging division was moved out of Library Services and into Acquisitions. After a period of adjustment, the director of acquisitions came out in favor of CJK automation within certain constraints. Chief of these were: the department's Projects and Planning division was unable to give much — if any — attention to CJK automation because of other long-standing obligations, and joining a network was still not an option. Therefore, we had to find a developed system and buy it.

THE SULCMIS LIBRARY SYSTEM

Mel Thatcher, the Family History Department's regional manager for Asia and the Pacific Basin, located an automated system called Shenzhen University Library Computerized Management Information System (SULCMIS) in the summer of 1989. SULCMIS was developed by Mao Zhuoming, chief of the Computer Developing Department at Shenzhen University, and Chen Daqing, associate chief. This system, designed for a network of personal computers, was written on FoxBASE+ software and used the character generator supplied by Chinese DOS. It included acquisition, cataloging, circulation, serial control, and retrieval functions. Users could input data in both the Chinese and English modes. SULCMIS was being used by seventeen libraries in the People's Republic of China and Hong Kong and had won an award for excellence from the Chinese government.

Problems with incomplete software, improper installation, unfamiliarity with Chinese library computer jargon, and old and incomplete user's manuals, left the Chinese catalogers at the Family History Library at a loss when we received our first copy of SULCMIS. Little progress was made until January 1990 when the department hired Ellen Fung as an intern from Brigham Young University's library school. A Hong Kong native, Miss Fung (now

*See Nolan Adams and Fred Brady, "Evaluation of ChinaStar ideographic processor as applied with dBase III and Oracle database management systems," Oct. 5, 1987; copies are available from the authors.)
Mrs. Ly) had received valuable background education in computers, which made the Chinese manuals less cryptic to her. After receiving complete, updated software and installing it correctly, she made great strides in learning to use the acquisitions, cataloging, and retrieval systems.

The system had several attractive features but, compared to automated systems in the west, it was not adequate. However, when Professor Mao expressed his willingness to revise the system according to our instructions, our libraries entered a phase of cooperation which was to prove very fruitful. A delegation from Shenzhen University, including Messrs. Mao and Chen, visited the United States in June and July of 1991. They toured library and computer facilities at Harvard-Yenching, Computer Library Services, Inc., OCLC, RLG, and the Library of Congress. They then spent one week in Salt Lake City where they worked with us to make on-the-spot improvements and to test networking capability. Both sides were extremely gratified to work together in person, and Mr. Chen kindly said that our suggestions have been a great help in improving the system.

Rather than merely revise SULCMIS, Professor Mao and Mr. Chen had decided late in 1990 to rewrite the entire program on CLIPPER software. The constant exchange of suggestions and the need for time to test new releases has delayed the writing of this report but the project was largely complete by September 1991. Still, updates and revisions continue to be developed, even as conversion of our Chinese catalog has proceeded. The developers of SULCMIS hope to make it compatible with systems in the west and we have kept this in mind while suggesting improvements.

The latest version of SULCMIS is less tied to local (i.e., Shenzhen University) needs, easier to use, and more versatile. It works with several Chinese character generators including ChinaStar, TianMa and Eten, and can be modified for Japanese and Korean character generators as well, making it a true Chinese-Japanese-Korean system. Output can include book-form printouts, sorted first by type of entry, then by radical-stroke order for Chinese entries, and phonetically for Japanese and Korean. (The Family History Library produces all CJK entries in the language of the country — none in English unless that is the language of the work.) A special sorting function allows catalogers to determine other sorting orders for Chinese characters if they so desire. Cards can be printed for libraries which still want to use them. Work has also begun on a CD-ROM version which will allow the patron to search for an entry at a personal computer workstation. The user-friendly retrieval system makes sorting unnecessary for libraries which can supply computers for patron use. Menu screens have been simplified and onscreen prompts can appear in either English or Chinese. Because it works on a single personal computer or a network of PC's, storage capacity is unlimited. One more important feature, still in development, is the capability to receive CJK records downloaded from OCLC or RLIN.

CJK CHARACTER GENERATION
SULCMIS originally came with its own Chinese character generator, supplied by Chinese DOS and based on the People's Republic of China national standard "Code of Chinese Graphic Character Set for Information Interchange." It provides 6,763 Chinese characters, as well as zhuyin, kana, Roman, Greek, and Cyrillic letters, Arabic numerals, and other miscellaneous characters. The Chinese font is far too small for use in a research library and access to other scripts is inconvenient. We decided that, even if SULCMIS could be redesigned to suit our basic needs more effectively, it would be useless without a better character generator. Because of FoxBASE's compatibility with dBase III, which can work quite successfully with ChinaStar, Mel Thatcher suggested to Mao Zhuoming that he try ChinaStar to provide greater character capacity and full Chinese/Japanese capability. Professor Mao did this, as well as creating alternate versions of SULCMIS which will work with other character generators.

ChinaStar's primary font contains over 18,000 traditional characters and allows the user to create additional fonts, drawing on characters found in ChinaStar's "add character" font. The user can translate traditional characters to simplified form, or vice versa. The user can also create his own characters and add them to fonts, as Mr. Brady did with Korean. The version of ChinaStar used at the Family History Library provided English, Chinese, and Japanese capability, but not Korean, so Mr. Brady designed a font of 535 Korean syllables. They are sufficient for cataloging Korean genealogical materials, but are inadequate for more general, modern word processing needs. He also redesigned the Japanese input keyboard, enlarging the font and putting it more in line with present-day Japanese word processing standards.

With ChinaStar, a user can load several fonts at once and toggle between them. Input can be done phonetically or structurally through pinyin, zhuyin, cangjie, romaji, and even user-created input systems. Mr. Brady also created a "frequent use" Chinese font for quick input, with a capacity of about 5,000 highly-used characters. Versatility is a key requirement, and this was ChinaStar's main attraction for the Family History Library at first. Unfortunately, JHL no longer intends to update ChinaStar and it is falling seriously behind in several areas. For this reason, we are experimenting with Eten as a Chinese character generator as well as with Japanese DOS. As of this writing, we have yet to begin a search for another Korean character generator. Eten lacks some of ChinaStar's versatility, but one can at least hope for upgrades. The search for one all-inclusive CJK character generator or for three which can all be used on the same system continues. Reflecting on the remarkable progress in CJK automation in the past five years, we are very optimistic. We also welcome information about new products.

The spirit of friendship and cooperation existing between the Family History Library and Shenzhen University Library has produced more than an automated cataloging system. It has established a high watermark of goodwill and joint achievement of which we are all proud. The valuable resources of the Family History Library's East Asian collection will soon be available to patrons as they have never been before. We will also be happy to help interested parties contact the Shenzhen University Library for more information.