

Special Report

Data base development project explores China's past

Promotes videodisk as medium for information storage, retrieval

XIAN, China — Two thousand years after the end of his reign, China's first emperor is still at the center of potentially great change both for the nation he helped create and for students, researchers and data base administrators worldwide.

Information about Emperor Qin Shi Huang Di, including video and still pictures of

artifacts unearthed near his tomb outside this ancient capital city, is being compiled and entered into an integrated visual, audio and textual data base. Researchers will use the data base both to develop courseware for use in the U.S., China and other countries and to promote the videodisk as a medium for intensive data storage

and retrieval.

When it is completed next year, "Project Emperor-I: China's Treasure Revealed Via Videodisk Technology," will allow researchers and students to tap into a data base containing about 4,000 still images, 200 segments of motion video and more than 4,200 related records of text.

Users will be able to call up Ascii files and Chinese calligraphic text, as well as still and motion pictures from the archaeological excavation and a number of museums. In addition, they will be

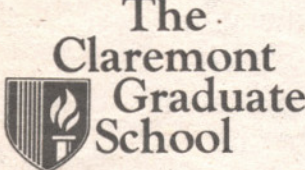
able to see and hear a series of oral histories — taped interviews with a number of experts from different Chinese cities.

"Information science is moving into a multimedia age right now. We are no longer satisfied with [3- by 5-in.] cards, books and periodicals alone," according to Ching-chih Chen, principal investigator and project director of Emperor-I. "We want to have the printed format, but we also want to see with our own eyes, hear the sound, see the motion."

The project's multimedia data base, which is about to go into production, will allow researchers to do just that, according to Rus Gant, a research fellow at MIT's Center for Advanced Visual Studies. Gant is in charge of the data base construction.

He plans to use an applications generator — most likely the Microcomputer Picture Archive and Communications System (Mpacs) from Artam Ltd., an Israeli firm — to design a data base management system that is part rela-

See CHINA SR/23



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Project tracks emperor's ruthless, farsighted reign



ILLUSTRATION COURTESY OF PROJECT EMPEROR-I

Qin Shi Huang Di (circa 225 B.C.) created a unified empire after he ruthlessly defeated China's feudal warlords, who had held the country hostage to economic, political and cultural stagnation.

He waged an equally savage war against his empire's Confucian scholars because he thought their conservatism was a major force in the opposition to change. They had stood in the way of widespread acceptance of reforms such as standard weights and measures, a uniform calligraphic script, an improved system of roads and canals and the codification of laws.

The emperor was written about as a tyrant, but he was also a progressive ruler, determined to modernize his empire. An archaeological pit near his tomb outside of Xian in the People's Republic of China is currently serving as a laboratory setting for a project that focuses on advanced computer and optical memory systems.

Project studies China's treasure

"Project Emperor-I: China's Treasure Revealed Via Videodisk Technology," is a two-year program sponsored by a \$219,245 grant from the National Endowment for the Humanities and a \$58,659 matching grant from Simmons College in Boston.

Emperor-I's project director, Ching-chih Chen, is professor and associate dean at Simmons' Graduate School of Library and Information Science. The project's research director, Robert D. Stueart, is dean of the graduate school.

The government of China, notably the Ministry of Culture and the Shaanxi Provincial Bureau of Culture and Cultural Relics, is assisting in the project.



Ivis systems like this will be used for multimedia data base access.

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Special Report



COURTESY OF SHANXI PROVINCIAL BUREAU OF CULTURE AND CULTURAL RELICS

More than 6,000 life-size statues have been unearthed near Xian, China.

CHINA from SR/22

tional and part hierarchical.

The project team has not yet made a commitment to the Mpacs system, but it has set up data relationships that will depend on flexible data base development and data retrieval capabilities. Data collected at the archaeological site and at other locations has been coded to fit within hierarchical data structures that are relationally cross-referenced.

Researchers have recorded detailed information, for example, about more than 6,000 life-size terracotta statues of soldiers and horses that archaeologists have unearthed here, according to Robert D. Stueart, research director of the project. For each statue, they have identified facts such as whether or not the stat-

ue is painted, what parts of it are painted and what the positions are of its arms.

These discrete facts will reside within specific fields (paint on arms, for example), the fields within screens (paint, for example) and the screens within sub-data bases (warriors, for example). The sub-data bases, in turn, will reside within a comprehensive data base for statues. Inverted keyword searches will allow users to branch through this information hierarchically.

The statue data base — like other data bases the project team creates — will also have sub-data bases for text, photos and video. Information in these sub-data bases will have a variety of cross-references to other information, and users will rely on relational capabilities to bring all the data together.

Emperor-I project team members will store still and motion pictures as well as text and sound on videodisks. They will store additional text on magnetic microcomputer disks. To retrieve data, they will use Digital Equipment Corp. Interactive Video Information System (Ivis) hardware.

The Ivis configuration for the project consists of a DEC 350 personal computer, a 10M-byte mass storage subsystem, a 13-in. color monitor, a videodisk player and a central Ivis unit, which provides an interface between the micro and the videodisk player.

With the hardware and DEC's Producer courseware authoring software, project workers will develop as many as seven interactive courses for different levels of users. Course developers will design branching routines that help general users, such as undergraduate students, navigate through data bases. They will also design programs that enable advanced users, such as research archaeologists, to pull information from different data bases into notebooks, or personal data bases.

Portability central to success

Project members also hope to develop courses with a system similar to Ivis that uses IBM hardware and software. Portability across different kinds of equipment, different subject areas and even different nationalities is central to Emperor-I's success, according to Gant.

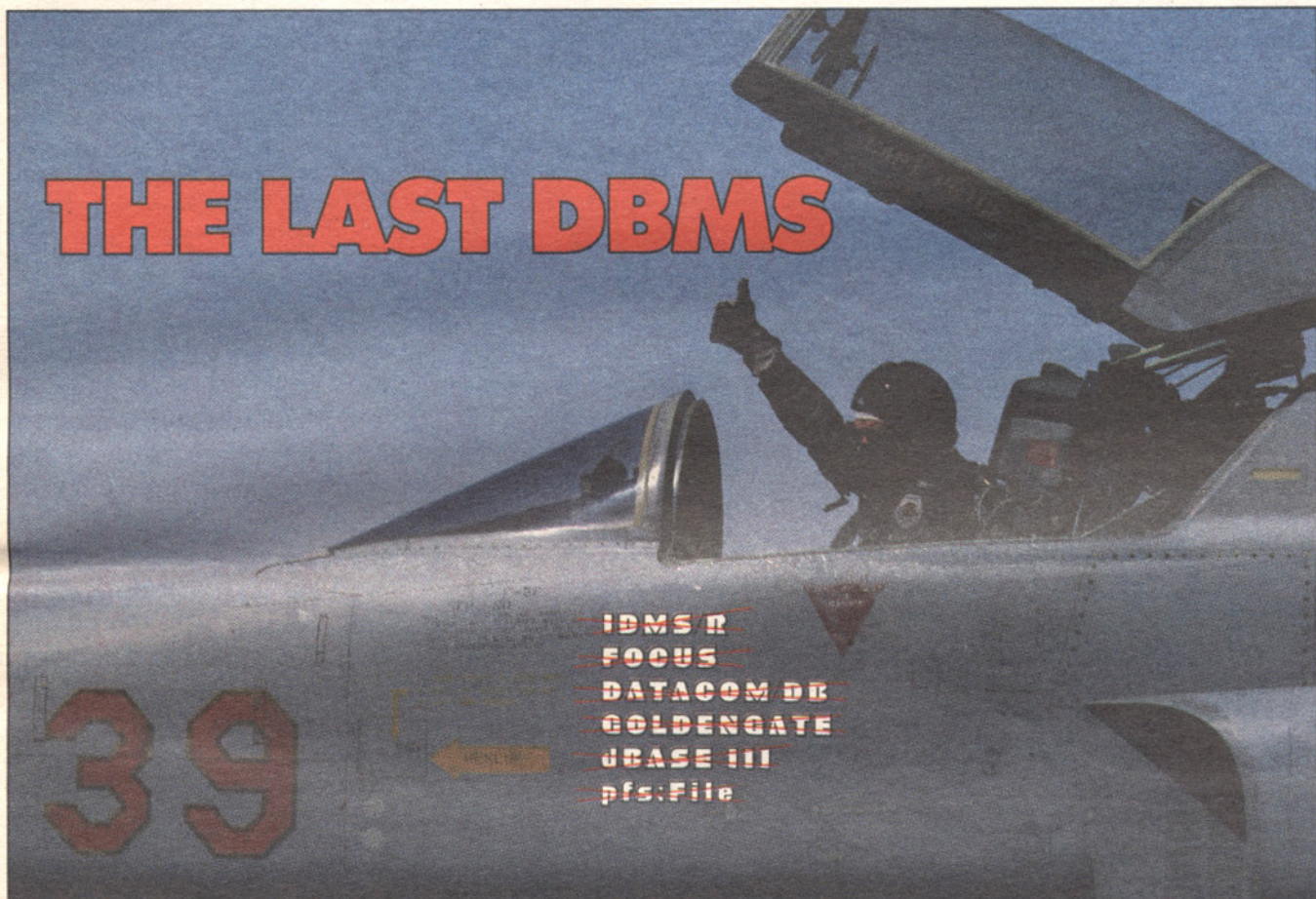
"It is very important that the project not result in a one-of-a-kind system." Rather, he said, the project should serve as a general prototype "for how you gather information, store it and write instructional materials from it."

Chen said she hopes, in addition, that the project will raise the videodisk above its current status as a recreational tool and position it as a serious medium for information storage, processing and retrieval — for educators and information scientists alike.

"If all the project does is to help reveal something of China's history and culture to the western world, that would be enough," she said. "But we also have an opportunity to demonstrate how to use technologies that are practical and available today in bringing information to people throughout the world."

By September, the project team hopes to have some courses ready for user testing, and the courseware is scheduled to be completed by the end of next May, Gant said.

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