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MONGOLIAN ANCIENT MONUMENTS CD

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Abstract (EN)

The “Mongolian Ancient Monuments” CD-ROM contains a brief guide to 130 stationary historical and cultural monuments with explanations and music accompaniment. The monuments include rock paintings, deer monuments, stone statues and inscriptions. The CD-ROM is an interactive multimedia product containing more than 400 photos and videos. It was created using Macromedia Director 8.0, Flash 5.0, Adobe Premiere 6.0, Photo shop 7.0.applications.

Keywords: Ancient monuments, digitization of the cultural heritage information, text, audio and video developing, interactive CD-ROM, electronic reference,

Zusammenfassung (DE)

Die „Antike Mongolische Monumente” CD-ROM ist ein 464 Megabyte großer interaktiver und multimedialer Führer für über 130 stationäre, historische und kulturelle Denkmäler in der Mongolei mit Texten, Bildern, Erklärungen und Musikuntermalung. Zu den Denkmälern zählen Felsmalereien, Steinfiguren, Hirschmonumente und Inschriften. Die CD-ROM wurde mit den Programmen Macromedia Director 8.0, Flash 5.0, Adobe Premiere 6.0 und Photoshop 7.0. hergestellt.

Schlüsselwörter: antike historische Denkmäler, elektronische Dokumentation des Kulturerbes, Audio- und Videobearbeitung, interaktive CD-ROM, elektronisches Nachschlagewerk.

Resumé (FR)

Le cédérom “Monuments historiques de Mongolie” comporte des photos, des textes explicatifs, des sons concernant 130 monuments historiques comme les peintures sur les roches, pierres aux cerfs, des stèles etc. Ce programme multimédia interactif comprend plus de 400 photographies et vidéos. Les logiciel *Macromedia Director 8.0, Flash 5.0, Adobe Premiere 6.0 et Photo shop 7.0* ont été utilisés pour réaliser ce cédérom.

Mots clés. Numerisation du patrimoine culturel de Mongolie, Développement de cédérom, Programme interactif, Edition électronique.

I. BACKGROUND

The people who lived during the Upper Paleolithic Period of the Old Stone Age (20000 –15000 years ago) left monuments of cave paintings. Images dating from this period made from mineral-based paints are found in Khoit Tsenher cave, located in Mankhan sum of Khovd aimag in a branch of the Altai Mountain range. Camels, trees, and different shaped symbols were painted on the broad ceilings and walls of the cave. In addition, figures of animals such as ostriches, lions, zebu that lived in Mongolia during Stone Age and later disappeared appear in the paintings. These are considered as the only Palaeolithic paintings of this type, not only in Mongolia but also in the whole of Asia.

Monuments of a different kind were created by the clans and tribes during the Bronze and Earlier Iron Age moving and living in the territories of present Mongolia, Tuva and the Lake Baikal region. On the top of these deer monuments, as they are classified by archaeologists, are the sun and the moon, while around the main stone are figures of deer and other animals. These stones are the oldest form of the monumental art. These monuments are spread throughout the steppe of Eurasia, a vast area from the Eastern Mongolia to Elba river. At present, archeologists have registered over 750 deer monuments in the world, about 600 of which are found in Mongolia.



Fig.1: 'Bugat' monument located in Arkhangai aimag

“ The central zone of the Mongolian territory including the Hangai mountain range, basins of the Orkhon, Selenge, and Tuul rivers are the sites of a great many historical and cultural monuments. These are a place where the climate and environment were favorable and where the ancient nomadic states were concentrated. There are many monuments, from rock paintings and seals as well as thousands of inscriptions written in the Runi, Uighur, Mongolian, Tibet and Chinese languages, found in the ruins of ancient towns, grave sites and other monuments. More than 280 years ago, archaeologists named the Turkic inscriptions found in the Orkhon Valley the Orkhon-Enisei inscriptions. This valley is full of monuments belonging to many different periods of Mongolian history. These monuments containing inscriptions written with blue Turkic letters are the most ancient evidences of Turkic culture, customs and history known today.

For all these reasons, scientists have been attracted to this land, with its thousands of monuments related to the histories and the cultures of peoples living on the Mongolian land over the ages. It is estimated that there are about 1,200 stone figures counting only deer monuments and stone statues. These monuments have been registered as stationary historical and cultural monuments and are under protection of corresponding local authorities. At present, about 400 stationary monuments have been registered and documented at the State Uniform Registration and Information Fund for Items of Historical and Cultural Value. An electronic edition of information on “Mongolian Ancient Monuments” has now been issued on CD-ROM as a first publication of the work carried out by the Cultural Heritage Centre under the Ministry of Education, Culture and Sciences to convert this cultural heritage information into digital form.

II. STRUCTURE , CONTENT AND TECHNICAL DECISION OF THE CD-ROM .

The following points were a basis for technical and artistic decisions that led to the current form of the CD-ROM:

- To take the form of a reference book.
- To be easily adapted to common hardware and software.
- To be easy to use.
- To be comprehensible and operate quickly.
- To include as many monuments as possible.
- To be as artistic as possible in order to be interesting to the public.

- To meet interactivity of users.
- To include all the monuments under State protection.
- To produce as much as possible at the least expense.

The “Mongolian Ancient Monuments” CD-ROM contains a five-minute movie introduction to the stationary historical and cultural monuments in Mongolia, reference and location information on 130 monuments – rock paintings, deer monuments, stone statues, inscriptions – accompanied by explanations and musical accompaniment. The CD-ROM contains 462 MB of multimedia information in five chapters. They are:

- Rock paintings,
- Deer monuments,
- Stone statues, Inscriptions,
- Other monuments: Monuments of Stone age Blacksmith’s workshops, settlement areas of the ancient people, Khirgisuur graves, Ruins of ancient towns, Monasteries and stupas.

When playing the CD-ROM, it is possible to go from a general page, view any of the chapters, and access the reference section.

III. CD-ROM CREATION PROCESS

When preparing explanations and photos for the CD-ROM, we worked from materials and information in the State Registration and Information Fund Database. In addition, the results of the many years research work at the Institute of Archeology of the Mongolian Academy of Sciences, research materials prepared by the field expeditions organized by the Ministry of Education, Culture and Science and Technology in 1997-1998 and research materials from several generations of scholars of Russia, as well as scholarly materials from the East and West served as valuable sources of information for this CD-ROM.

1. Text development

Brief explanations of the historical and cultural monuments included in the CD were prepared: their name, location, peculiarity and historical period to which the monument belongs. Microsoft Office 2000 was used for developing.

2. Audio development

In this work two types of audio were used :

Digitization of the commentator's speech.

Digitization of background music.

These were developed by using the Sonic Foundry Sound Forge 6.0 and Adobe Premiere 6.0 applications.

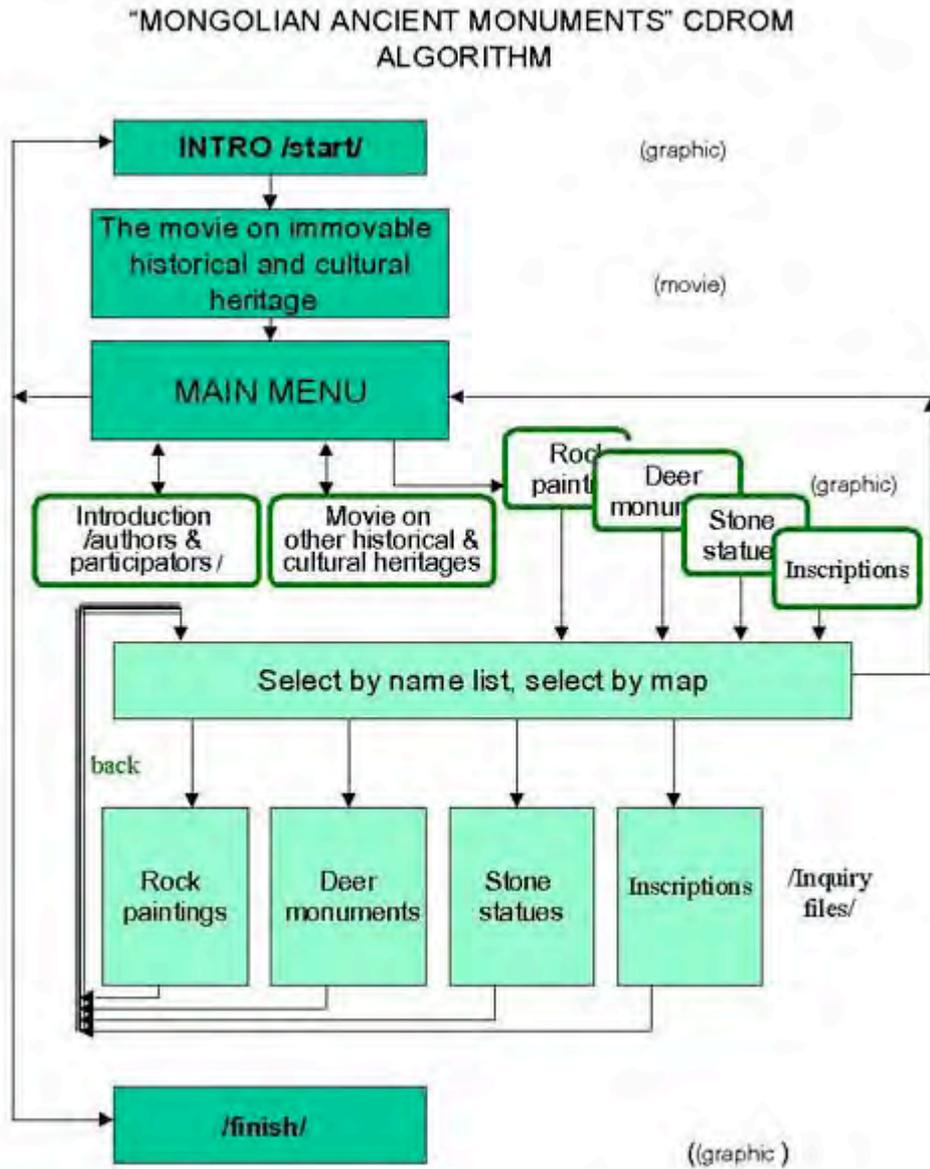


Fig.2: The organization of the CD-ROM

3. Video development

The video records used for the CD-ROM were prepared by our specialists during field expedition in 1996-2002. The records made before 2000 were not used due to the insufficient quality of the recording equipment used at that time. All video recordings were made by DVCAM cameras and digitized by Adobe Premiere 6.0 application.

4. Photograph developing

Most of the images were photographed by the photographer of the CHC, then scanned and entered directly from negatives to the computer, finally developed using the Adobe Photoshop 7.0.

5. Programming

The main part of the CD-ROM was programmed by using of Macromedia Director 8.5. We chose this software as the most appropriate and suitable application for interactive programming and multimedia introduction. The operations such as entering any part of the presentation program by pressing on a button, transition between parts of the program and calling the image or video files were programmed by Behavior script of Macromedia Director.8.0. The Director's Movie scripts were used for programming the operations such as movie starting, stopping and exiting from the program.

The other parts of the program such as buttons and map of Mongolia were made by using of the Macromedia Flash 5.0. This program is most suitable application for making animations and screen design and that is why we used it for making the buttons. In addition, Flash 5.0 was used for making the identifying marks on the map and calling the monuments on the screen.

The program passes the command value from the Flash action script and defines which monuments will be shown. In this way, pressing on the monument's mark will go to the information about that monument.

6. Interactive multimedia programming steps

1. All the data in digital form is assembled in the Director movie.
2. The Director files have “.dir” extensions. One file can contain as much data as needed, but a large size can cause complications when loaded by the computer. Therefore each “.dir” file holds information on three monuments.
3. These files are integrated by using lingo scripts.
4. The search is an important part of program. Two types of searching are available.

- Search by name. When a letter in the alphabetic sequence is pressed, the list of monuments beginning from the letter will appear. Pressing on the name of the monument will call the information on screen.
- Search by Geographical location on the map. Each location of the monument is marked with a button. Pressing on the button pass the value to the program and will show the related information.

7. System requirements

	Windows requirements	Macintosh requirements
CPU	Pentium II 300 (without modern 3D-accelerated graphics hardware)	PPC G3 300 (without modern 3D-accelerated graphics hardware)
System	Win 95/Win NT 4 and SP3 or later	OS 8.1(OS X Classic mode only)
RAM	32 MB installed for playback 64 MB installed for authoring	32 MB installed for playback 64 MB installed for authoring
Disk Space	100 MB	100 MB
Renderer	DirectX 5.2 or OpenGL 1.0	OpenGL 1.1.2
Video Card	64-bit 3D accelerator with 4MB VRAM	64-bit 3D accelerator with 4 MB VRAM
Monitor	256-color with 800 x 600 resolution	256-color with 800 x 600 resolution

7. Disadvantages of the CD-ROM edition

The data can be searched only in two forms described above,. Free text search of all content is not supported.

The locations of the monuments are limited to the map. Their location can not be identified by their longitude and latitude or other means.

IV. Conclusion

Some difficulties peculiar to these works were encountered during the process of carrying out the work of registering historical and cultural stationary monuments, including stone monuments or rock paintings, stone monuments with inscriptions, deer monuments and stone statues and converting the information into digital form.

First, these monuments are widely distributed on broad unoccupied places. Their registration does not guarantee that they can be kept safe and undamaged or guarded from being carried off illegally. Their protection is one of the most difficult issues and at present there have been no comprehensive measures taken for their protection. Nevertheless, digitalization of the information about these monuments became one measure for addressing this importance issue in Mongolia today. We feel that the formation of the electronic archive can be used to improve public education on arts by way of making the information on historical and cultural monuments open to public. It can also improve protection of these monuments by providing the necessary information to organizations interested in the registration information, including officers of the police and the customs, and also employees of the local authorities. The CD-ROM provides an introduction to Mongolian historical and cultural monuments for foreigners. We also hope that it can be used to provide educational and training courses that can be used easily with access to network of computers and Internet.

Next steps

The Erdene zuu Monastery, the first Buddhist monastery in Mongolia, was established in 1586. It was built near the site of Kharkhorum City, enlarged about the year of 1235 during the reign of Ogodei Khaan's, the son of the Great Genghis Khan. Erdene zuu was one of a few monasteries of the many hundred monasteries existed in Mongolia that survived the time of victimization of 1930's. A second CD-ROM about this site as well as Stone age blacksmith's workshops, settlement areas of ancient people, monastery and stupa monuments, ruins of ancient towns and khirgisuur graves is now in process of creation.

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