

**PREAH KHAN CONSERVATION PROJECT  
HISTORIC CITY OF ANGKOR**  
Siem Reap, Cambodia

**REPORT IV  
FIELD CAMPAIGN I - PROJECT MOBILIZATION**



**WORLD MONUMENTS FUND**

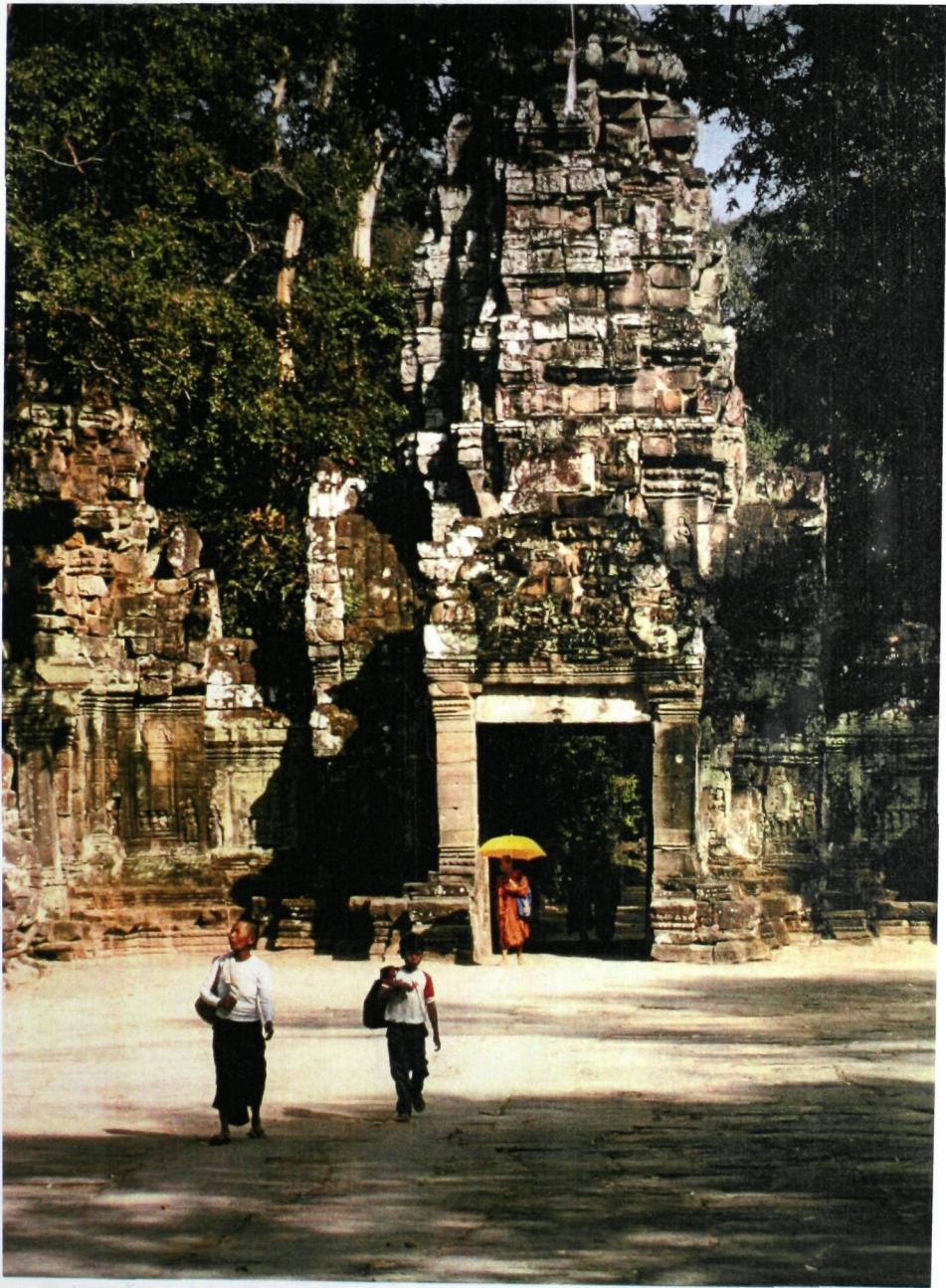
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October 1992 - March 1993

**WORLD MONUMENTS FUND**

New York  
September 1993



West Entrance Gopura at Enclosure Wall IV, Preah Khan.

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## INTRODUCTION

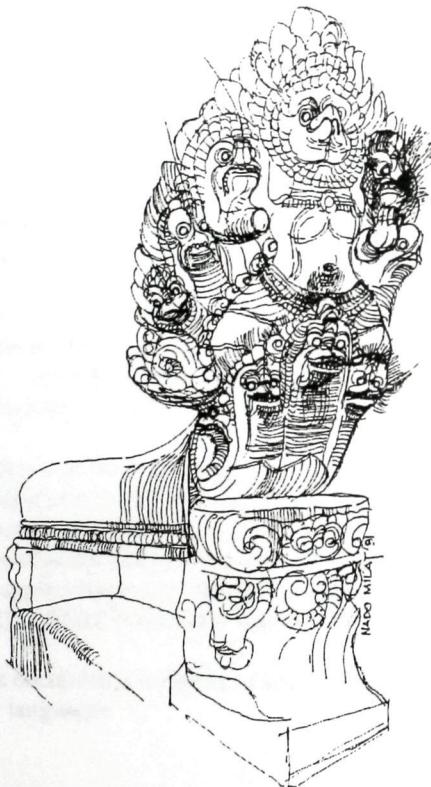
### 1. INTRODUCTION

- Preface
- Historical Sketch
- Preah Khan Project Goals
- Field Campaign I
- Acknowledgments
- Sponsors

The present report is the first in a series of reports on the Preah Khan Project. It is the result of the first field campaign, which took place in September 1991. The project is a joint effort between the National Museum of Cambodia and the University of California at Berkeley.

Based on the results of the first field campaign, the second field campaign will be conducted in December 1991. The program is to be organized by the National Museum of Cambodia (NMC) and the University of California at Berkeley.

On approval of the NMC, the report will be published in French and Khmer languages.



## **1. INTRODUCTION**

### **PREFACE**

This report documents the work of the World Monuments Fund (WMF) at the Historic City of Angkor and related activities in Phnom Penh between the dates of October 1992 and April 1993, a program otherwise known as WMF Field Campaign I at Preah Khan. Field Campaign I was preceded by three missions to Angkor in December 1989, March 1991 and March 1992, which on each occasion focused in greater detail on the conservation challenge at the site of Preah Khan. The results of the prior missions to Angkor are described in volumes entitled *Report I: Considerations for the Conservation and Presentation of the Historic City of Angkor*, *Report II: Preah Khan - Project Identification* and *Report III: Preah Khan Conservation Plan*.

The present report forms a sequel to *Report III* in that this initial extended field campaign was designed to test the feasibility of various conservation hypotheses and project management systems, and allowed for the initial set-up of the conservation project at the site with support facilities in nearby Siem Reap and in Phnom Penh. A considerable amount of work in relation to site preparation, job staffing and logistical organization also occurred during this five month period. This phase of the overall proposed project has been generally labeled “project mobilization”.

Based on the experience gained during this campaign a detailed proposal has been formulated for Preah Khan Field Campaign II, which is planned to occur between the months of mid-October 1993 and mid-April 1994. A summary description of this program is to be found at the end of this report with a more expanded form being used as an official application to the National Heritage Protection Authority of Cambodia (NHPAC), UNESCO and other agencies having purview over this project.

On approval of this document a summary of its contents will be provided in the French and Khmer languages.

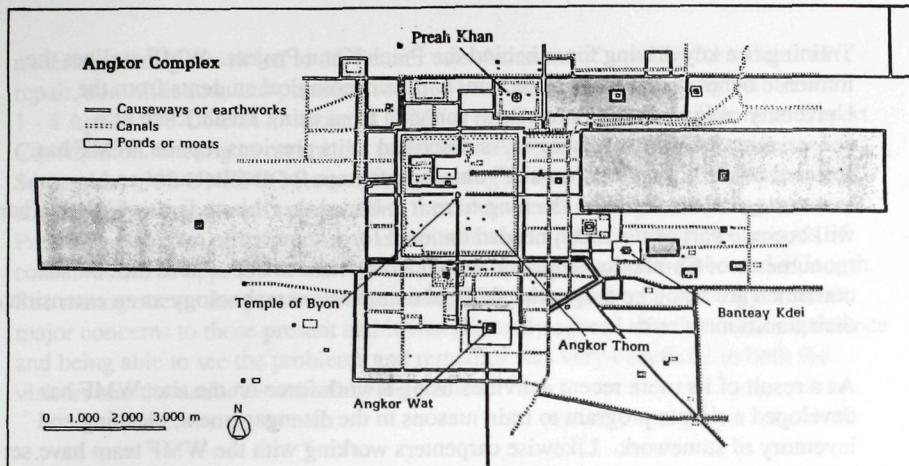
## HISTORICAL SKETCH

Preah Khan is an extensive building complex covering about 56 hectares built by the Khmer King Jayavarman VII as a monastery and teaching complex. It is located in the northern part of Angkor, a short distance beyond the North Gate of the Angkor Thom precinct. Preah Khan is the most prominent of several temple complexes associated with the Northern Baray (often referred to as the Preah Khan Baray), which stretches eastward for several kilometers linking Preah Khan with Neak Pean and Ta Som at the eastern end. This group constitutes one of Angkor's major axial arrangements and hydrological complexes.

The central sanctuary of Preah Khan was dedicated in 1191 and was modified in various ways over the next three centuries. Preah Khan is sub-divided by four concentric enclosure walls. The outer wall, which is encircled by a wide moat, today encloses a large tract of jungle. The living quarters of the monks, students and attendants of Preah Khan were located in this area. The second enclosure wall markedly delineates the principal religious compound within which there is a dense concentration of temples and shrines consecrated to the Hindu sects of Vishnu (North) and Shiva (West); the central shrines are Buddhist and the southern quadrants are dedicated to the worship of the late kings.

Like most of the monuments of Angkor, Preah Khan is in a state of ruin resulting from a slow decline following its loss of royal patronage in the middle of the 15th Century. There is evidence to suggest that some of the temples and shrines remained in use, probably until the end of the 17th Century, but it was not until the end of the 19th Century that Preah Khan, like many of the other sites, was rediscovered. Between 1930 and 1955 the Ecole Francaise d'Extreme Orient (EFEO), had established the Conservation d'Angkor in Siem Reap as a center for research and restoration of the monuments of Angkor, which concentrated on archaeological analysis and preservation at Preah Khan. The work undertaken by the EFEO is well documented and preserved in a comprehensive archive which has recently been computerized.

In its present state Preah Khan can best be described as a partial ruin set deep in the jungle which, over the years, has taken its toll on the structures. (It is one of the few temple complexes which is totally surrounded by jungle.) The co-existence of these manmade remains in an untouched natural setting has given Preah Khan a special character as compared with the original splendor it must have possessed.



## **PREAH KHAN PROJECT GOALS**

The World Monuments Fund fielded its first mission at Angkor in December 1989 and has since then sent several missions to assist the national authorities in Cambodia with developing a conservation project at Preah Khan. On the 3rd November 1992 the World Monuments Fund mobilized a team of craftsmen and laborers in Preah Khan. This was the culmination of its previous missions and with the commencement of this conservation program on site WMF is demonstrating its commitment to contribute to the much larger UNESCO campaign to safeguard Angkor.

In previous reports the World Monuments Fund has expressed the course of action it proposes to take at Preah Khan. The development of basic conservation principles and procedures will guide the WMF team and its workforce towards a long term program to repair and conserve the site as a partial ruin. Major reconstruction in this instance is out of the question due to the lack of historical data and the magnitude of the task. WMF sees its responsibility as passing Preah Khan on to future generations in a similar state to that in which it was found but with the added assurance that, by using modern conservation technology, the site will be rendered structurally sound. In addition Preah Khan will be presented physically and made more intelligible to visitors using improved interpretive techniques.

In the long term WMF sees its intervention at Preah Khan as assisting the present international campaign in establishing the broader principles and procedures to be adopted in the efforts to safeguard Angkor; providing opportunities for training nationals at both the professional and crafts level; and, on a more practical level, establishing conservation technologies which are appropriate for use on Khmer monuments.

Training is a key driving force behind the Preah Khan Project. WMF realizes the immense benefits that the architectural and archaeological students from the University of Fine Arts, Phnom Penh can gain from using Preah Khan as a conservation training laboratory. As described in its previous reports, WMF has fostered over the years an "on-site" training program for architectural and archaeological students. In the long term it is hoped that the students of Preah Khan will become part of the much needed national force required to take care of the monuments of Cambodia. Equally, with the commencement of activities on site, craftsmen are being taught the skills of conservation technology as an extension of their traditional crafts.

As a result of its more recent activities using a work force on the site, WMF has developed a simple program to train masons in the disengagement, cleaning and inventory of stonework. Likewise carpenters working with the WMF team have set up a major program for shoring up damaged sections of the structures.

## FIELD CAMPAIGN I

Preah Khan Field Campaign I, spanning the months between October 1992 and April 1993, was composed of three separate field visits by international experts, in between which there was continuous work activity at the site. John Sanday, WMF Project Manager, undertook a preliminary visit to Angkor from 11-17 October 1992, during which time he finalized the campaign program with the Cambodian authorities, set up the project in Siem Reap and employed the workforce.

The second visit ran for the whole month of November 1992. During this phrase of work, guided by a group of three international team members, WMF established a longer term presence at Preah Khan in order to initiate the project's mobilization and work plan. This stage of work coincided with WMF's two special tours to Angkor for patrons and donors. The purpose of the tours was to promote the Preah Khan Conservation Project in the USA and to seek financial and material assistance. The tours were an enormous success and have resulted in considerable support to the Preah Khan Project from those who participated.

Between the 10th and 26th January 1993 John Sanday returned to Preah Khan to assess the work undertaken since the last mission and prepare directions for work to occur through March.

The final mission within Field Campaign I ran between 4th March and 6th April 1993. This major mission involved five members of the WMF international team working on site, whose task it was to draw the five month field operation to a conclusion. Work efforts during this period concentrated on documentation and

materials testing which led to the further establishment of a policy for structural repair, consolidation, and planning for the Preah Khan Field Campaign II. From 1 - 4 April 1993 UNESCO invited a WMF representative to participate in an Expert Consultation meeting to review the projects and programs initiated since the September 1992 UNESCO Roundtable meeting in Paris, and to discuss future activities concerned with safeguarding the monuments of Angkor. During a tour of Preah Khan on 2 April, several key issues relating to principles and procedures of conservation, as opposed to restoration and reconstruction, were discussed at length. Site management, site presentation, training and conservation technology were all major concerns to those present and it was generally agreed that first hand experience and being able to see the problems and remedies was very beneficial to both the visitors and the nationals attending the session.

The American Society for the  
Conservation of Monuments  
and Sites  
welcomes the  
conservation  
of the  
cultural  
heritage  
of  
the  
world

The International Society for  
Monument Conservation  
welcomes the  
conservation  
of the  
cultural  
heritage  
of  
the  
world



Ministry of Culture Officials at Ground Breaking Ceremony Leading Prayers for the Success of the WMF Preah Khan Conservation Project. Central Shrine, Preah Khan 18 March 1993.

## **ACKNOWLEDGMENTS**

WMF is grateful to the individuals who have served as members of its various Angkor research missions since 1989, and to the experts who have produced and reviewed this report.

The WMF Team of Consultants for Preah Khan Field Campaign I consisted of four members from the previous year's team, comprising Conservation Architect and Project Director, John Sanday; Conservation Architect and WMF Program Director, John H. Stubbs; Archaeologist and Surveyor, Fred Aldsworth; Historian and Epigrapher, Professor Claude Jacques; and two new members of the team, Consultant Engineer, Dr. Predrag Gavrilovic and Assistant Project Manager, Nicola Smith.

Specialists who have also contributed in various ways to this report include: Bonnie Burnham, Dr. Corneille Jest, Isabelle de Broglie, Monika Riely, The Conservation Practice, Nils Tremmel, Dr. Frank Preusser, Rebecca Anderson, Norma and Maurice Joseph and Felicia Mayro. Students from the Departments of Archaeology and Architecture of the University of Beaux Arts at Phnom Penh who have helped on site at Preah Khan include Lek Sareth, Var Maurin, Ms. Cheam Phally and Ms. San Soma from the Department of Architecture; Chan Chamroen and Nay Sophea from the Department of Archaeology.

Special gratitude is expressed to WMF's hosts in Cambodia, in particular: Prime Minister Hun Sen; members of the Ministry of Culture including Minister Hang Chuon; Ouk Chea, Director of the Monuments Division of the Ministry of Culture; and Pich Keo, Director, National Gallery, Phnom Penh; Leng Vy, Vice President of the People's Committee for Siem Reap Province; Uong Von, Director of Conservation d'Angkor; and members of the University of Beaux Arts in Phnom Penh including Deans Hor Lat, Chuch Poeurn and Hem Bun Tong.

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The WMF team is grateful to the houseowner and staff who cared for the consultants during their missions to Siem Reap and for all the local help they have provided. WMF is equally grateful to the local administrative staff and the workforce who have worked hard in helping to address the physical challenge that Preah Khan poses.

WMF's efforts have also been aided by important contributions from considerate individuals acting on their own initiative, both in Cambodia and throughout the world. Some of these contributions were material gifts such as surveying equipment, drafting instruments and books for use by the Cambodian students who have worked

at Preah Khan. WMF thanks these individuals, who are too numerous to specify, for their interest in its efforts to conserve and present the Historic City of Angkor.

WMF also expresses profound gratitude to its sponsors, without whose financial support Field Campaign I and its three prior missions would not have been possible.

## SPONSORS

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## **2. CAMPAIGN I OVERVIEW**

### **Project Approval and Status Tasks Addressed**

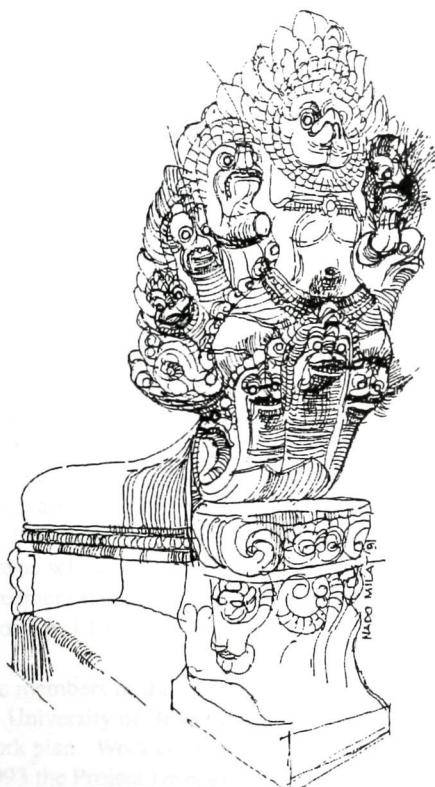
After the  
initial  
negotiations  
with the  
Khmer  
government  
and the  
UNESCO  
representatives,  
the  
Project  
was  
formally  
approved  
in  
July  
1992.

Formal opening  
meeting of the  
Project has been  
postponed.

Following a short pre-project  
WMP Preah Khan Campaign  
beginning of November 1991  
UNESCO. The program  
and in the Letter of Award  
run until the beginning  
of December 1992.

In November 1992 three members  
of the team and seven students from the  
University of Angkor  
weeks setting up the work place. Work  
1992-93. In January 1993 the Project  
began its work on the progress of the work.

In March 1993 five members of the Angkor team  
work completed to date and planned the next work to do.



The World Monuments Fund has submitted three reports to the National Committee for the Rehabilitation of the Monuments and Museums of Cambodia (superseded by The National Heritage Protection Authority of Cambodia - NHPAC) its three reports entitled: *Report I: Considerations for the Conservation and Presentation of the Historic City of Angkor*, *Report II: Preah Khan Conservation Project - Project Identification* and *Report III: Preah Khan Conservation Plan*. These reports describe a program to establish a conservation and repair project for Preah Khan.

## 2. CAMPAIGN I OVERVIEW

### PROJECT APPROVAL AND STATUS

The World Monuments Fund has submitted to The National Committee for the Rehabilitation of the Monuments and Museums of Cambodia, (superseded by The National Heritage Protection Authority of Cambodia - NHPAC) its three reports entitled: *Report I: Considerations for the Conservation and Presentation of the Historic City of Angkor*, *Report II: Preah Khan Conservation Project - Project Identification* and *Report III: Preah Khan Conservation Plan*. These reports describe a program to establish a conservation and repair project for Preah Khan.

The same documents have also been presented to the Ministry of Culture, Government of the State of Cambodia (SOC). A letter of Agreement was drawn up for formal signature between WMF and SOC to undertake the 1992/93 mobilization program at Preah Khan. The document was translated into Khmer and, in principle, has been accepted.

Formal approval was requested at the Supreme National Council of Cambodia (SNC) meeting held in Beijing at the end of January 1992. The Preah Khan Conservation Project has been given clearance by its Technical Committee.

Following a short preliminary mission by the Project Director in October 1992, the WMF Preah Khan Conservation Project became operational, as planned, at the beginning of November 1993 with the full support of the Ministry of Culture and of UNESCO. The program as set out in the Project Proposal submitted to UNESCO and in the Letter of Agreement forwarded to the Ministry of Culture was planned to run until the beginning of April 1993.

In November 1992 three members of the international Angkor team, accompanied by seven students from the University of Beaux-Arts worked at Preah Khan for four weeks setting up the work plan. Work continued at the site through the winter of 1992-93. In January 1993 the Project Director spent two weeks monitoring the progress of the work.

In March 1993 five members of the Angkor team and eight students monitored the work completed to date and planned the next stage of work according to WMF's

Budget. The core WMF team was joined by a civil engineer who advised on consolidation techniques for various types of structural repair. The team also conducted a more formal training program for the students on site.

At the end of the mission, after discussion with the Cambodian Government, the team developed a table of contents for the Field Campaign I report and informally presented it and a framework of the 1993/94 WMF Preah Khan program to UNESCO representatives and officials of the Ministry of Culture in Phnom Penh.

## APPROVED PRELIMINARY WORKPLAN

The work plan submitted to the Supreme National Council in October 1992 proposed some ten activities which were identified in Report III to be undertaken during WMF's Field Campaign I.\* After discussions it was agreed that WMF's work plan for Field Campaign I would consist of the following:

*Project 10 - Site Clearance* Use the Preah Khan labor force to clear undergrowth and remove vines.

*Project 9 - Processional Way - West Entrance* Identify, record and carefully reset the fallen lantern stones (bornes).

*Project 8 - West Causeway* Clear Causeway up to outer edge of North and South Garuda of all vegetation and soil and reset stone slabs to prevent rainwater pooling.

*Project 5 - Vishnu Temple Complex (West)* Generally clear area of all vegetal growth; assess fallen stone piles; undertake emergency propping of vaults about to collapse; set up system of monitoring movement in associated structures; prepare work plan for future activities for this section.

*On-Site Training for Students* Augment and continue on-site training at Angkor of selected students of architecture and archaeology from the respective departments of the University of Beaux Arts, Phnom Penh.

*General Emergency Repairs* Continue detailed survey of Preah Khan structures, identify areas in danger of collapse and undertake emergency support or repairs.

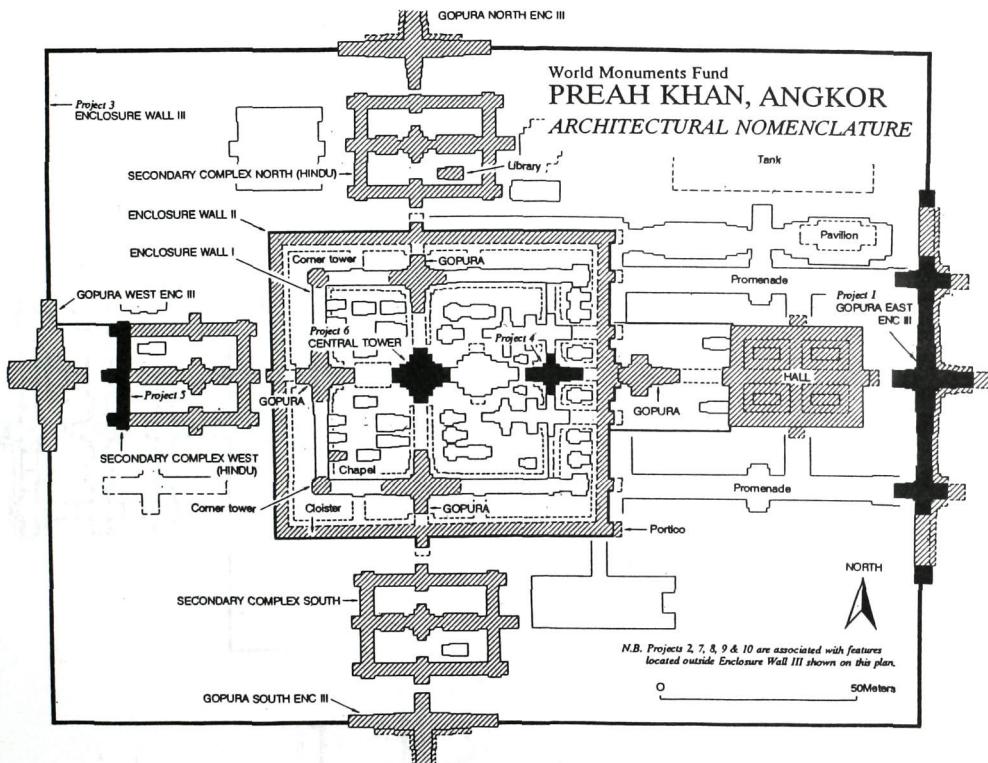
*Conservation Research* Undertake experimental research for dowelling and fixing stone; stone consolidation; cleaning of mosses and lichen growths from stone etc.

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\* For a complete list of "Proposed Projects" see Report: *Preah Khan III - Conservation Plan*.

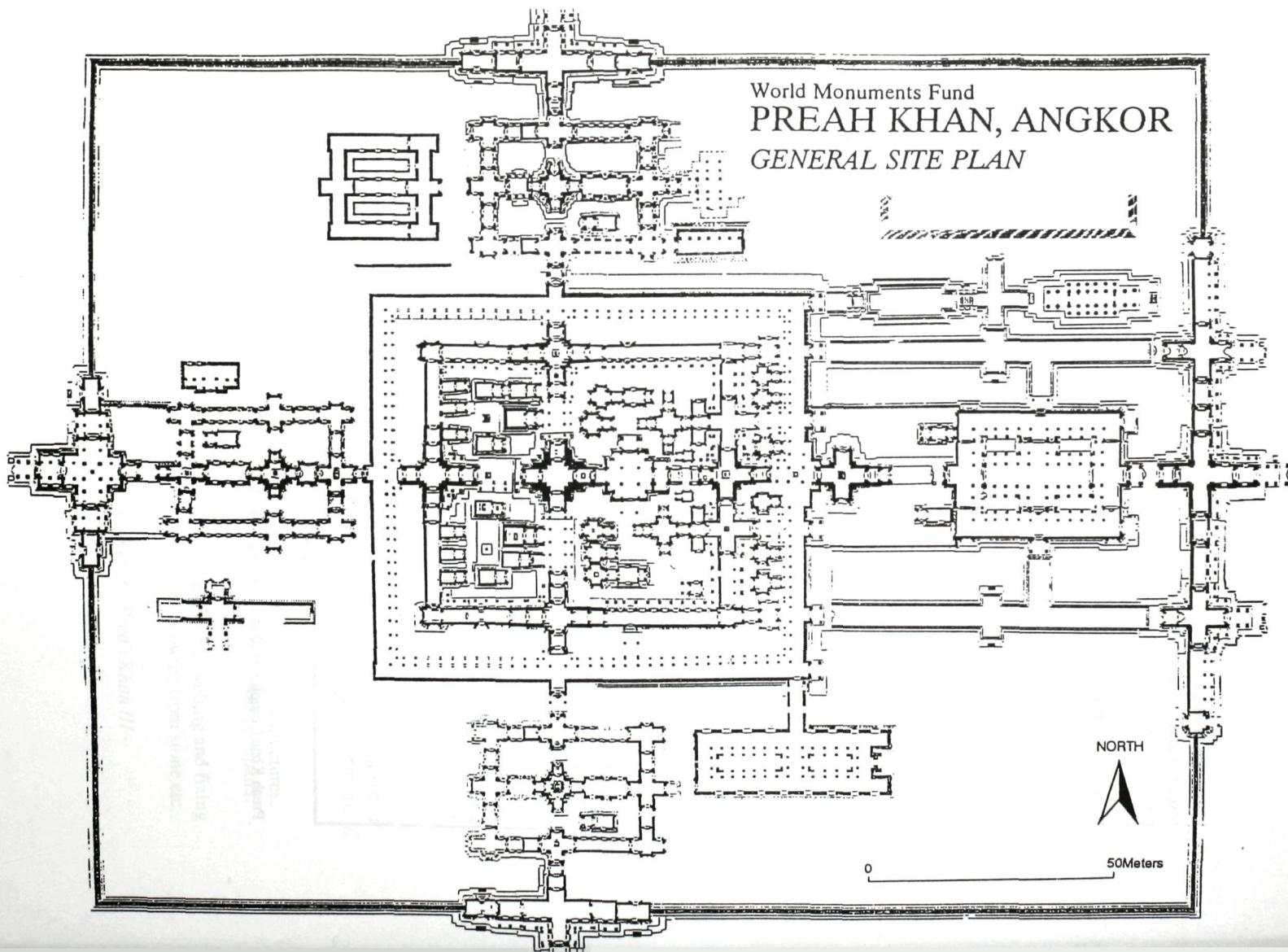
Using the above activities as a basic workplan, WMF was able to undertake practical research and investigation into conservation technology. This enabled WMF to present an advanced program for the conservation and presentation of Preah Khan to the National and International Committees in September 1993. This proposed plan of action for Preah Khan is to a large extent explained in the present Volume IV: *Preah Khan - Project Mobilization* and its companion document *Project Proposal - WMF Preah Khan Field Campaign II*.

The World Monuments Fund agreed to abide by the Conservation d'Angkor's regulations for conservation principles and the work force wage scale as laid down by the Cambodian authorities.



Preah Khan Complex Within Enclosure Wall III Indicating 1993/94 Pilot Projects.

World Monuments Fund  
**PREAH KHAN, ANGKOR**  
GENERAL SITE PLAN



### 3. SPECIFIC ACCOMPLISHMENTS

#### Site Preparation

Emergency Structural Shoring

Administrative Developments

Work Force Development

Local Financial Arrangements

Field Facilities

Security Arrangements

Inter-Government/NGO Developments

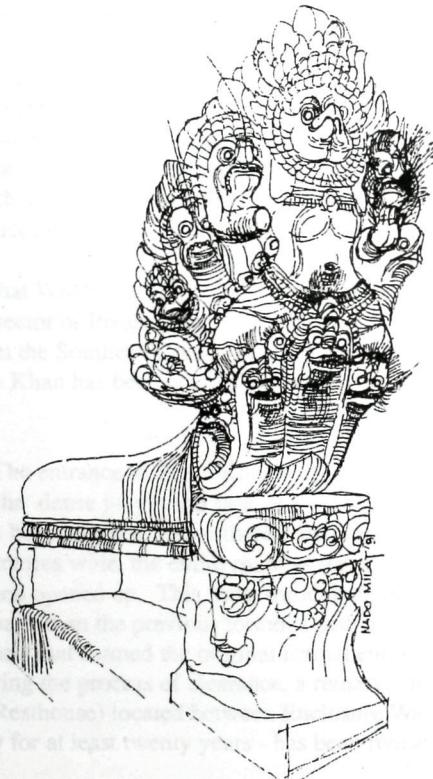
Project Promotion

Inventory of Movable Objects

*Project 10:* The decision to limit the work done on the structures themselves was a difficult one. In view of the structures that have been damaged, it was decided to limit the work to the structures on the site of Preah Khan. In this way, the structures have been protected. A proportion of the damage is due to the principle that no trees will be cut down as they are threatening a structure.

Another major decision that had to be made was how much of the southern causeway should be removed. In view of the recent spate of thefts from the Siem Reap area, particularly in the southern portion of Preah Khan, it was decided to increase surveillance.

East West has also had to make some difficult decisions. However, due to the nature of the damage, particularly from the western side, it was decided to remove approximately 10% of the causeway on the western side and 10% on the eastern side. This will give a more direct approach to the structures without causing further architectural damage to the structures of Preah Khan. During the construction of the causeway, the Khmer Pilgrims' Rest was discovered. It had been hidden from view for at least twenty years.



### **3. SPECIFIC ACCOMPLISHMENTS**

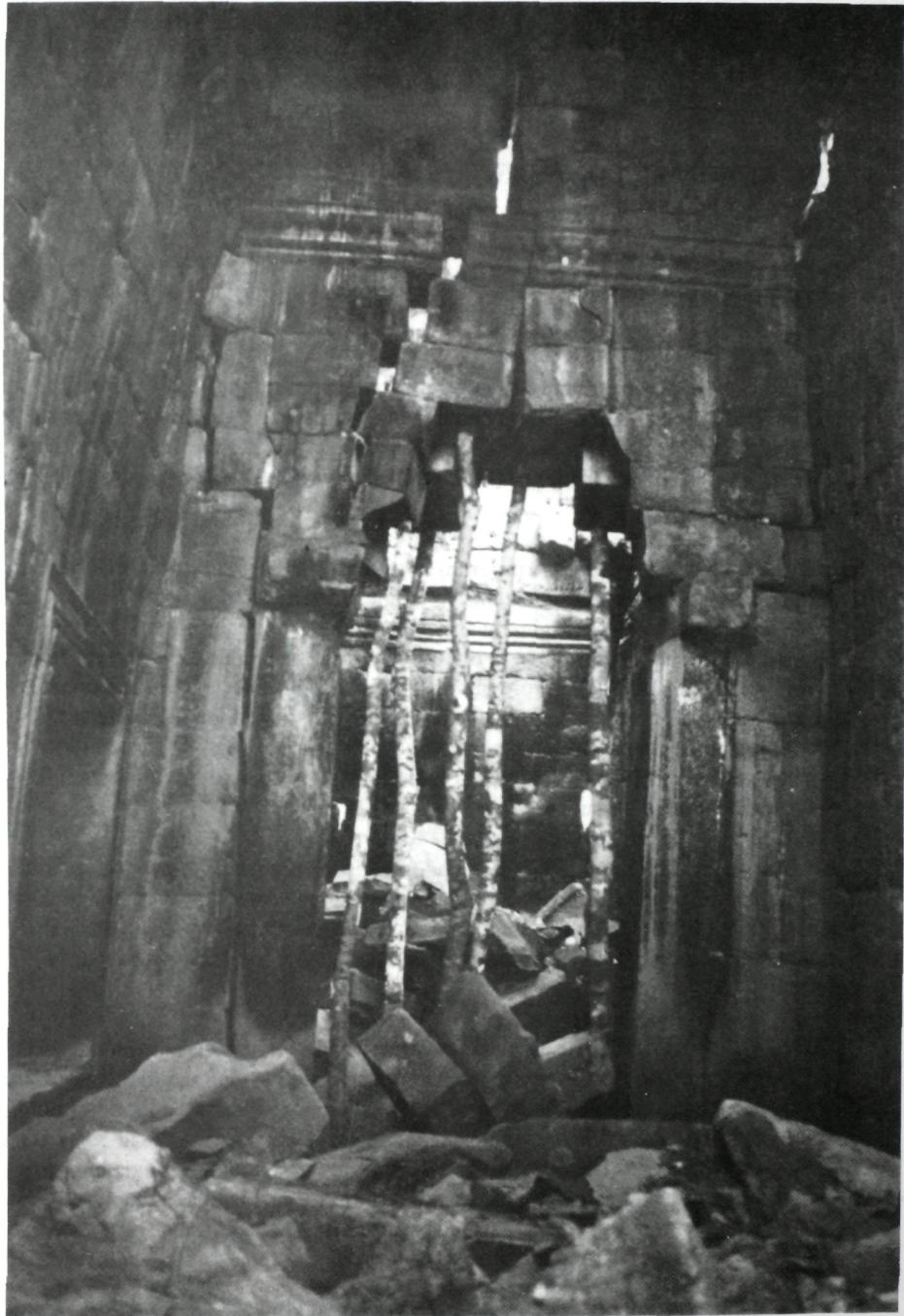
#### **SITE PREPARATION**

Below is a brief description of the work undertaken during the 1992/93 Field Campaign I at Preah Khan. These components are listed as specific activities related to the projects identified previously. The Preah Khan workforce was divided into separate groups under a *Caporal* (Foreman) to undertake specific tasks within the six month Field Campaign.

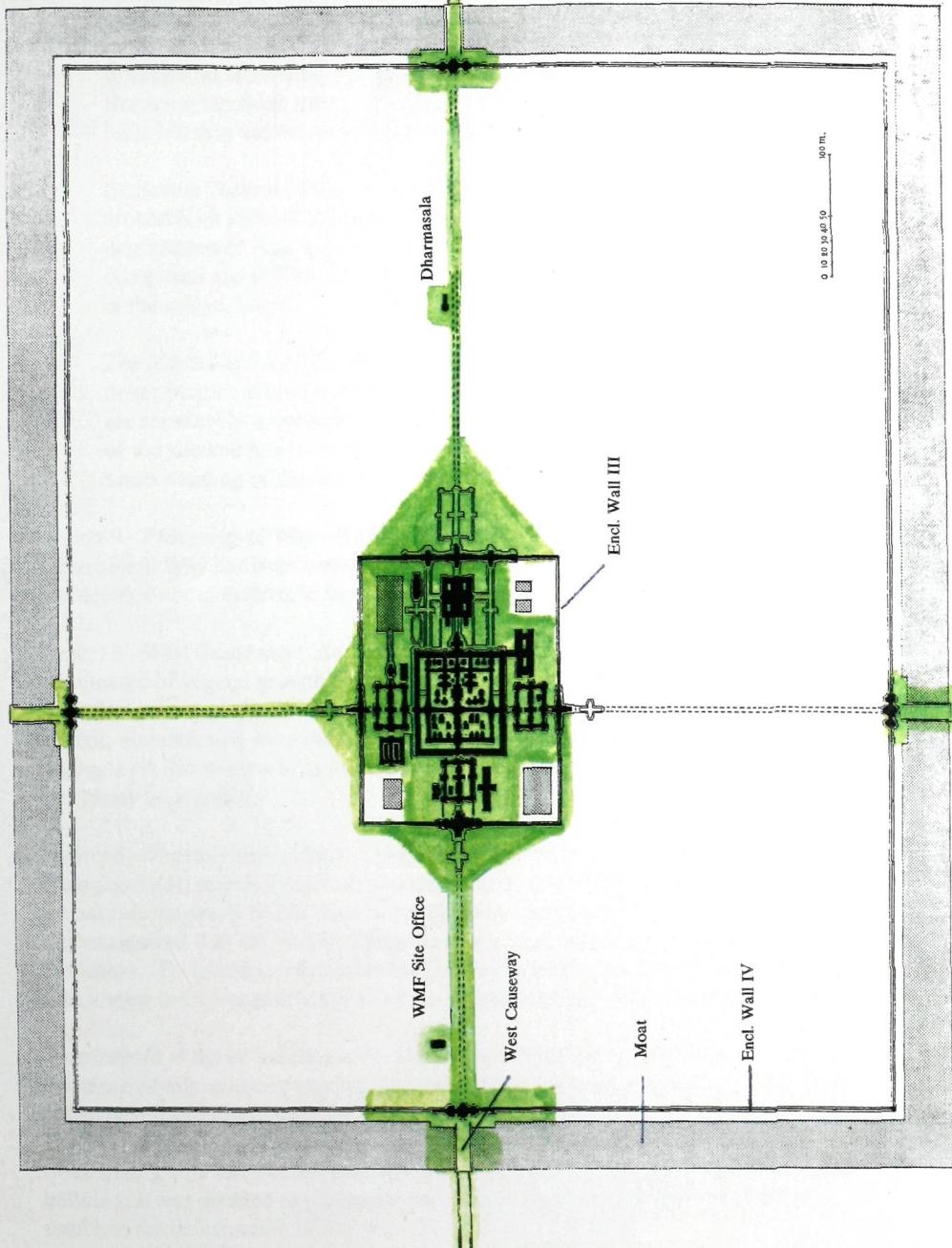
*Project 10 - Site Clearance:* A program of general site clearance was undertaken and the workforce completed more extensive jungle clearance and general disengagement of the structures than was originally anticipated. As a general principle WMF has decided to limit jungle clearance to merely providing a suitable environment to set off the site of Preah Khan. Therefore minimal clearance in order to reduce damage to the structures has been planned to enable visitors to envision the full scale and proportion of the temple structures that they come to see. WMF has established a principle that no trees with a caliper of more than 20cm should be cut down unless they are threatening a structure.

Another major decision that WMF has adopted is to leave in its "as found" condition as much of the southern sector of Preah Khan as is feasible. However, due to the recent spate of thefts from the Southern Causeway, the Causeway area within the southern portion of Preah Khan has been opened up to allow for better security surveillance.

*East West Axis:* The entrance to Preah Khan was originally from the east. However, due to the dense jungle and lack of a usable road the easier route from the west has been adopted. Nevertheless by clearing a swath of jungle approximately 5 metres wide, the entire route as far as the Preah Khan Baray on the east has been opened up. This route through dense jungle creates a more direct approach than the previous tortuous path and enhances the architectural aspects that formed the original formal entrance sequence of Preah Khan. During the process of clearance, a remarkable Dharmasala (a.k.a. Pilgrim's Resthouse) located between Enclosure Walls III & IV - hidden from view for at least twenty years - has been rediscovered.



Emergency Timber Propping at South Half of East Gopura, Preah Khan, March 1993.



**PREAH KHAN**  
AREAS OF VEGETATION CLEARANCE  
1992 - 1994

*North South Axis:* As it is a popular route for visitors to enter from the west and exit through the North Gopura, the workforce has cleared the entrance to the north in a similar way to that described above. The South Causeway has of necessity also been cleared as this has been a serious target for looting. However, the route through the jungle between Gopura III & IV South has been left as a narrow winding path used by local inhabitants.

*Enclosure Walls III & IV:* It was decided to clear the heavy undergrowth around both sides of the principal Enclosure Walls to prevent unnecessary degradation of the structures. The clearance of the inner wall has been completed and the work along the outer side of the wall was still in progress at the end of March.

*The North East & North West Sectors:* The structures formerly covered in dense jungle within Enclosure Walls III & IV have been mostly cleared and are reasonably accessible. Their clearance has greatly enhanced the grandeur of the site and has enabled visitors to obtain a more comprehensive understanding of the size and complexity of the entire monastic complex.

*Project 9 - Processional Way - West Entrance:* A more extensive clearance of the East Processional Way has been undertaken and a detailed study prepared. However, it was decided not to undertake any structural repairs as proposed in Report III.

*Project 8 - West Causeway:* As part of the general clearance program, the causeway was cleared of vegetal growth and a section of the moat on the northern side was cleared of trees and shrubs. During this clearance some remarkable bas reliefs hitherto unmentioned were discovered on the outer face of the causeway beneath the paving level. No work was undertaken to reset the paving stones of the causeway as previously anticipated.

*Project 5 - Vishnu Temple (West) Complex:* Extensive stone and debris disengagement, research and documentation were undertaken at this complex with remarkable results. (For full details, see Separate Appendix IV/B). In Report III it was recognized that the Vishnu Complex was in a precarious state and was a hazard to visitors. Therefore it was decided at the time to undertake a more detailed study with a view to its immediate stabilization and possible partial reconstruction.

*Dharmasala (Pilgrim's Resthouse):* At the end of the March 1992 mission, the existence of this structure was known only through archival references. After it was rediscovered and disengaged, WMF decided that it should be included as part of the study program for the 1992/93 Field Campaign, because it is one of few complete freestanding structures of its kind. In view of the unstable structural condition of the building, it was decided to produce an accurate set of measurements in order to establish the deformation of the structure over the centuries.

## **EMERGENCY STRUCTURAL SHORING**

Due to its ruined state, Preah Khan has many structures that appear to be on the point of collapse. Therefore there has been a concerted effort to temporarily prop, or shore brace many of the structures, such as door openings and windows where lintels have fractured or have otherwise lost their original bearing capacity.

Prior to the March Mission the carpentry team, the *Chef de Chantier* (Work Force Director) and Project Director mapped out a plan for emergency shoring throughout the site. All structures considered a safety hazard to visitors were given immediate attention. Soon after, emergency structural shoring was begun in the more inaccessible parts of the site.

During the March Mission the Consultant Engineer identified eighteen further structural problems requiring emergency shoring. Diagrams detailing structural failures and designs for propping systems were discussed with the teams on location. The diagrams identified failures in fractured lintels and beams, arches, vaults, unbonded stonework, and areas of collapsed masonry that are unstable and therefore considered dangerous.

In most cases wrought timbers cut from the jungle and wedge shaped wooden shims were all that was required for emergency propping. It is very important to check all props, braces and struts on a regular basis to tighten the wedges as may be required.

## **ADMINISTRATIVE DEVELOPMENTS**

Following the acceptance of the Preah Khan Conservation Project by the Cambodian Authorities, the project was well received and supported by the local administration.

The controlling unit during the time of the missions in the Government of the State of Cambodia (SOC) was the Ministry of Culture which delegated supervision powers to the Department of Archaeology. WMF has maintained a close association with the Director General Mr. Ouk Chea who has been very supportive of the Preah Khan Project and has visited the site to discuss WMF's progress on several occasions. In Siem Reap the Project was monitored for the Department of Archaeology by Mr. Uong Vong, Director of the Conservation d'Angkor. A strong collaboration has developed between the Preah Khan team and Mr. Uong Vong who makes regular visits to Preah Khan to offer advice, assist with the collection of artifacts for safe storage away from the site, and serve as liaison between the project development team and the site guards.

The Preah Khan Project is also fortunate to have two members of staff from the Conservation d'Angkor who are working full time at Preah Khan. This has been an extremely useful link as the Director of Conservation d'Angkor holds regular weekly meetings where Preah Khan's Chef de Chantier reports on the project's progress.

A British volunteer (VSO), who is an architect, has been assisting the Conservation d'Angkor in administration and project development for just over one year. His presence has also been very beneficial in serving as yet another conduit for communication. Preah Khan has in return served for him as a testing ground for many different building and environmental conservation issues.

More recently, at the suggestion of other Angkor field project personnel, it was decided to hold informal monthly meetings at the Conservation d'Angkor where practical issues could be discussed with the Director and subsequently implemented. These meetings have been formalized by UNESCO and its participants are referred to as the Field Work Steering Committee.

The most important administrative development, as far as cultural heritage management is concerned, has been the establishment of the National Heritage Protection Authority of Cambodia (NHPAC) which is to be aided by an international advisory group of conservation specialists under UNESCO's co-ordination. NHPAC has been delegated the responsibility for the protection, preservation and presentation of the national physical cultural heritage of all Cambodia and will eventually supersede the powers of the present Department of Archaeology. The Authority was not operational during the period of Field Campaign I. (See also the section entitled "Relevant Inter-Government/NGO Developments")

At the provincial level, WMF has maintained contact with the Vice President of the People's Committee of Siem Reap Province. He has been very supportive of WMF's work at Preah Khan and has offered his help with problems relating to labor and administration should it be necessary.

## WORK FORCE DEVELOPMENT

In April 1992 WMF had the good fortune of meeting Im Mar, a former Chef de Chantier for the EFEO, who assisted WMF with the development of the budget estimates and with the work plan detailed in Report III. WMF realized the qualities of Im Mar and in October 1992 asked him to become the Chef de Chantier for the Preah Khan Project. His first responsibility was to put together a team of approximately seventy-five skilled *Caporals* (Foremen), Masons, Carpenters, Blacksmiths, *Ouvriers* (Skilled Laborers), and *Flottants* (Casual Laborers) to get the project under way. On 3 November 1992 a workforce of 62 men with assorted skills

were at Preah Khan, ready for work and the project was launched as planned. By the following March 1993 the work force had increased to 89 workers consisting of 7 Caporals, 43 skilled laborers and 39 Flottants. This number was considered ideal for the site and they were divided into four teams handling specific activities: the disengagement of stone piles, emergency propping of structures threatening imminent collapse, jungle clearance and the search for missing carved stones, and general jungle maintenance.

The team worked six days a week and Sunday was a free day. National Holidays were observed unless the workforce voted to work on those days. Work started each day at 7 a.m. and finished at 4 p.m with a lunch break between 11 a.m. and 1 p.m.

The skills of each category grew with time. By March it was possible to determine the capabilities of the various groups. The intuitive competence of the elder skilled laborers in the moving and identifying stones was very reassuring and made it easier for the consultant team to put together a viable work plan for the inventory of stone pieces and a plan for their eventual reconstruction.

Similarly, the extent of site clearance required became more apparent as small tree and undergrowth removal revealed more and more surviving architectural and site features.

The workforce is always under the direct control of the Chef de Chantier, Im Mar, and all orders are passed through him. Im Mar then consults his Foreman through whom orders are transferred to the separate working groups. Under Im Mar also there is a small administrative staff consisting of site manager, storemen and watchmen. Very soon it became obvious who were the natural leaders of the groups and they were put in charge of teams of up to 15 people.

By March 1993 a small blacksmith's forge was established to undertake the repair and maintenance of the site equipment as well as preparation of tools and special implements for work on site.

## LOCAL FINANCIAL ARRANGEMENTS

### Banking

There are no banking facilities in Siem Reap. Therefore banking arrangements had to be made in Phnom Penh. Funds collected by WMF specifically for site work were disbursed by telex transfer from New York to the Foreign Trade Bank in Phnom Penh. Cashing arrangements were made with this bank for the Project Director and two other WMF signators. Once a budget was fixed it was necessary to arrange for

funds to be hand-carried to Siem Reap and deposited in a safe (courtesy of UNESCO). As a matter of principle WMF paid the work force in Riels (local currency). However, the exchange rate fluctuated considerably and ranged from 2000 Riels to 4,500 Riels for a dollar US in the space of three months.

### **Payroll**

The work force is paid weekly on Mondays. A weekly attendance card is given to each worker and this is signed and recorded on a master roll. A weekly payroll is prepared and each worker signs it with a thumb print for his or her wage. Copies of the payrolls are submitted to the Conservation d'Angkor. During the monthly meetings set up by UNESCO, a minimum daily wage equivalent to \$US 1.60 was agreed upon among the various project directors working at Angkor and the Cambodian authorities.

### **Bonus**

As an encouragement to the work force, a bonus was paid to compensate for overtime, good work and fluctuations in inflation. This payroll was kept separately. As of March 1993 when there was a raise in payscale the bonus system was no longer necessary.

### **Running Account**

A detailed set of account books is kept for all expenses incurred during the field campaign. These accounts are kept in Siem Reap for inspection and were summarized and forwarded to WMF in New York in July 1993.

## **FIELD FACILITIES**

The World Monuments Fund has established a WMF Staff House, a small office in the Conservation d'Angkor compound and a site office at Preah Khan.

### **WMF Staff House**

WMF was fortunate in being able to rent a house in Siem Reap which contains five bedrooms, a work room and a dining room, with kitchen and washing facilities attached. The house of traditional style is owned by a very sympathetic landlady who has agreed to allow WMF a further option to rent it for next season plus space for storing equipment during the summer months. The field representative of WMF also has access to one room throughout the summer. This house has served as the WMF Headquarters and has become well known to all.

## **WMF Office at Conservation d'Angkor**

At the invitation of the Director of the Conservation d'Angkor, WMF has acquired a small office/drafting studio in the Conservation d'Angkor compound. The office is shared with the British Volunteer Architect who helps monitor the Preah Khan Project.

## **WMF Preah Khan Site Office**

One of the first jobs undertaken at Preah Khan was the establishment of a site office and storage depot for the project. Its design and construction was one of the first tasks given to the architecture students. They were asked to construct a suitable building to serve as a site store, guards' quarters and a reception area for visitors. The structure has been built in the local traditional style using materials taken from the jungle. The resulting building quite possibly represents the type of structure originally built within the Preah Khan precinct. For the purposes of WMF it provides adequate storage space for equipment and the less important sculpted stones that are considered targets for looting. It also houses two site guards who are on the site 24 hours a day. The depot is the assembly area for all the workforce as it is here that they hand in and retrieve their attendance cards each day, receive their wages every Monday and are called for briefings.



Preah Khan Site Office Under Construction, November 1992.

## SECURITY ARRANGEMENTS

Two aspects of security have been given major consideration throughout the first Field Campaign: the safety of the workforce and the consultants; and the security of the site itself, which contains an enormous quantity of threatened artifacts.

### Security of Workers

Although there was never a major issue made of the security of the team at Preah Khan, WMF kept abreast of all the security concerns, consulting with UNTAC, UNESCO and the local provincial offices. At no time during Field Campaign I was it considered that there was any threat to personal safety. However, as the mid-May National Election days approached, WMF was concerned about the potential threats of disruption or attack seeing that Preah Khan was one of the few sites at Angkor surrounded by jungle. Therefore, on instructions from WMF in New York, the Field Representative officially closed the project on a temporary basis at the beginning of May. However, a stalwart group of 12 members of the work force requested to stay at Preah Khan to protect it from the ravishes of the jungle and looters. WMF is indebted to these people who have continued working at Preah Khan and patrolling the site.

### Site Security

The recent clandestine pillaging of artifacts from Preah Khan represents perhaps the worst cases of site theft to be found in the Historic City of Angkor. Almost a year after an attempt in February 1992 to steal a stone head and torso of an *asura* at the southern entrance to Preah Khan, the local guards responsible for the protection of Preah Khan were alerted to a similar case. On 12th January 1993, looters made a further raid to steal another *asura* but they were thwarted by the guards. The Conservation d'Angkor removed the sculpture to the safety of the Conservation d'Angkor depot.



Rescue of an Asura Upper Torso and Head Abandoned by Looters.  
South Causeway, Preah Khan.

The Preah Khan team is, therefore, aware of the threat of continuing looting, especially as a large number of the fallen stones are easily accessible to anyone walking through the complex.

There is an official police force responsible for the guardianship of the temples at Angkor. Preah Khan has a guard post at its west, the north and the east entrances. These posts are manned around the clock. The men are armed and work in shifts. (It is significant that the south entrance has been the recent target for looting.) In March 1993 UNESCO carried out a training program for temple guards at the Conservation d'Angkor compound in order to improve the effectiveness of the site guardian network.

The presence of the work force at Preah Khan has ensured a greater guardianship of the site and it was for this reason that it was decided to try to keep a permanent staff on site to patrol the structures on a regular basis. The Foremen are efficient and responsible monitors of the site and frequently inform the site office of any irregularities.

## **INTER-GOVERNMENT/NGO DEVELOPMENTS**

On 20th October 1992 the Supreme National Council of Cambodia established the National Heritage Protection Authority (NHPAC), which has purview over all conservation activities in the State of Cambodia. The Council consists of a Board of Governors, a Management Committee and a Secretariat. Applications by organizations wishing to work at Angkor are reviewed by a board of expert advisors for their appropriateness. These advisors make recommendations to the Council.

In December 1992 the Historic City of Angkor was listed as a World Heritage Site subject to completion of a master plan for its conservation. In partial compliance of this requirement UNESCO has commissioned a Zoning and Management Plan for Angkor which was substantially completed in June, 1993. This plan provides additional guidelines for conservation activities at Angkor and addresses future improvements for the administration of the site, control of developments within Parc d'Angkor, and addresses work systems resulting in a greater harmonization of the efforts of the various organizations working at Angkor.

Since January 1993 UNESCO has coordinated regular meetings of representatives of organizations carrying out field work and related research at Angkor. These meetings have occurred on 1 February 1993, 8 March 1993 and 9 April 1993. All were held at the UNESCO office at Conservation d'Angkor in Siem Reap.

The UNTAC-supervised National Election for the State of Cambodia in May 1993 resulted in the formation of a coalition government under the leadership of Prince Norodom Sihanouk. At the time of writing a new constitution is being prepared for adoption in October 1993. The installation of most cabinet positions, including the Minister of Culture, should be completed by that time.

As all of the above listed administrative developments progress over the next few months, WMF will try to continue to work with other organizations in the country, both government and non-government organizations (NGO's), and be of assistance in any way that it can.

## PROJECT PROMOTION

In the past 12 months WMF has organized several activities to promote awareness of the need to conserve Angkor. In June 1992 WMF co-sponsored and helped organize a three day symposium dealing with the past, present and future of Cambodia which was held at The Asia Society in New York. At this meeting WMF sponsored the participation of Mr. Pich Keo of the National Museum in Phnom Penh and Mr. Ouk Chea, Director of the Monuments Division of the Ministry of Culture. John Sanday was asked to join one of the panels to discuss the conservation efforts at Angkor and he presented an overview of the conservation work planned by the WMF. This three day event did much to elucidate the situation of Cambodia today among the mostly American participants of the event which has had some traceable effects.

Over the summer of 1992 John Stubbs, Program Director of WMF and John Sanday, Preah Khan Project Director, produced three reports on WMF's work to date at Angkor. This work included a proposal to conserve and present Preah Khan, which was submitted for approval to NHPAC and the Ministry of Culture.

In November 1992 WMF conducted tours of Angkor for two groups of donors which did much to create a greater understanding of the efforts of all who are working to try to save Angkor. The tours coincided with the commencement of WMF's Field Campaign I and allowed the visitors to witness the beginning of the actual conservation effort of Preah Khan.

Members of the WMF tours went on to give various parties and presentations in New York and Washington, D.C. which benefited WMF's work at Preah Khan.

Other outreach activities have included discussion by WMF representatives of the Angkor conservation challenge on local television and radio in New York and descriptions of WMF's work on Voice of America and BBC radio programs. WMF has also provided interviews and illustrations for several newspaper and magazine



Project Manager John Sanday Receiving WMF Tour Group, November 1993.

articles on Angkor and assistance to scores of travelers and other interested parties requesting information on travel in Cambodia and the situation in Angkor.

In November 1992 John Sanday advised and was interviewed by the BBC World Service presenter Malcolm Billings for a heritage program on Angkor which included a large section on the WMF Preah Khan Project. It was broadcast as part of a successful series in April 1993.

In February 1993 John Sanday lectured on the Preah Khan Project in Kathmandu and also to the community at Frank Lloyd Wright's Taliesin Studios. In April 1993 WMF Trustee J. Carter Brown gave a talk on the November 1992 visit at a private reception in New York. During the same month WMF Angkor team member Fred Aldsworth gave several lectures on the Preah Khan Project and Angkor in Rhode Island, USA as a visiting scholar.

In August 1993 John Stubbs presented a paper entitled "Angkor and The World Monuments Fund" at the 10th Congress of the International Council on Monuments and Sites held in Sri Lanka.

During the three missions comprising Field Campaign I, John Sanday and the Preah Khan team were hosts to several VIPs who visited Preah Khan. In January 1993, in tandem with Pich Keo, the Director of the National Museum in Phnom Penh, John Sanday had the honor of showing Princess Chakri Chulanghorn of Thailand the Preah Khan Project and describing the work WMF was planning to undertake.

At the beginning of January Mr. Y. Akashi, chief of the United Nations Transitional Authority in Cambodia visited Preah Khan. On that day over 230 people visited the site.

Since November 1992 the Site Office has kept a record of visitors to Preah Khan and about 70 people on average visited the site each day during the tourist season (November to April), indicating that Preah Khan has now become one of the major tourist destinations in Angkor.

WMF prepared a simple brochure explaining Preah Khan to the visitors which also outlines WMF's program. The brochures are free to those who visit the site. There is in addition a visitors' book for those who wish to be kept informed of WMF's progress. This list of motivated visitors will also provide a valuable mailing list for potential donors.

As an experimental promotion, WMF has had some T- shirts made which are on sale at the WMF site office. The shirts are sold at \$15 each and all proceeds go to the project. The sale of six T- shirts will pay a 90-strong workforce for one day. Close to 100 shirts were sold at the site during Field Campaign I.

In March 1993 WMF tendered a proposal to various Cambodian authorities and to UNESCO to renovate a small building at the West (public) entrance to Angkor Wat as a temporary interpretative center for the benefit of all visitors to Angkor and the various organizations working there.

## **INVENTORY OF MOVABLE OBJECTS**

Realizing the importance of recording all images on site and providing them with some protection, the Preah Khan team has adopted the following policy to secure the threatened sculptural elements.

***Intact or Partially Intact Sculptures*** Once a threatened sculpture such as a large asura or a small head is discovered, it is photographed and inventoried using standard procedures and collected by the Conservation d'Angkor for safekeeping in their compound. The Conservation d'Angkor catalogues it, inscribes an inventory number on it and stores it for safekeeping.

*Significant Decorative Sculptures or Carved Pieces* Any small piece that is discovered, such as a limb of a sculpture or a highly decorated single stone is labeled, photographed, catalogued, and kept in the Site Store.

*Decorative Elements* All the pieces that are discovered during the process of disengagement from the jungle are identified, where possible, and catalogued by the Preah Khan team. (See Section: "Site Records.") As it is not feasible to move and store all pieces in the storage depot the work force has been instructed to keep the carved pieces hidden from the public eye.

*Inventory of Movable Objects* The urgency of establishing a procedure for recording artifacts and decorative stone carvings became apparent after a major break-in and theft of twelve priceless objects from the storage depots of the Conservation d'Angkor in March 1993. None of these pieces

was properly catalogued. Faced with the urgency of the situation, the Preah Khan team has decided to make an emergency inventory expanding on the computerized inventory program already developed for architectural recording. All objects are recorded using a simple video camcorder, and as each piece is filmed a commentary is also recorded identifying the object. Using recently developed computer software that has been customized for the Preah Khan Architectural Inventory, it is possible to "freeze frame" an image of the sculpture, digitalize it and include it as part of the inventory record. This system, which is applicable for general use in Angkor, is not intended as a substitute for more thorough scholarly documentation. The software is presently being customized using video recordings made at Preah Khan during the latter part of the latest mission. It is hoped that the computerized inventory program will be fully developed for use during Preah Khan Field Campaign II.



Apsara Fragment (ht: 16 cm) Found in North Courtyard, West Vishnu Complex. March 1993.

# moveable art inventory

preah khan conservation project

page      of

item:

RESEARCH NUMBER  
SEARCHED  
INDEXED  
FILED  
SERIALIZED  
FILED

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---

date of inventory

---

preah khan ref no.

---

other ref no.

---

date of loss

---

location:

as found \_\_\_\_\_ plan coords: \_\_\_\_\_  
original \_\_\_\_\_ plan levels: \_\_\_\_\_

description: colour \_\_\_\_\_

medium

- |   |  |                          |
|---|--|--------------------------|
| <input type="checkbox"/> stone sculpture    | <input type="checkbox"/> stucco        | <input type="checkbox"/> |
| <input type="checkbox"/> stone inscriptions | <input type="checkbox"/> colour traces | <input type="checkbox"/> |

size

- |                                 |                                |
|---------------------------------|--------------------------------|
| <input type="checkbox"/> large  | (> 1m in original dimension)   |
| <input type="checkbox"/> medium | (= 30cm - 1m in any dimension) |
| <input type="checkbox"/> small  | (< 30cm in any dimension)      |

actual dimensions: \_\_\_\_\_

theme/function:

- |                                 | % complete | % complete                                |       |
|---------------------------------|------------|---|-------|
| <input type="checkbox"/> buddha | _____      | <input type="checkbox"/> fronton          | _____ |
| <input type="checkbox"/> apsara | _____      | <input type="checkbox"/> decorated lintel | _____ |
| <input type="checkbox"/> devata | _____      | <input type="checkbox"/> other (specify)  | _____ |
| <input type="checkbox"/> asura  | _____      |   |       |
| <input type="checkbox"/> naga   | _____      |   |       |
| <input type="checkbox"/> garuda | _____      |   |       |

themes/figures depicted: eg man, woman, warrior  
gods (specify) type(s) of animal, tools, clothes, weapons etc.

# moveable art inventory

preah khan conservation project

page \_\_\_\_\_ of \_\_\_\_\_

## description (cont):

text description and/or supplementary information: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## miscellaneous:

- comparable item *in situ* (location) \_\_\_\_\_  
 comparable item *ex situ* (location) \_\_\_\_\_

other relevant data: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## photographs:

In order to facilitate the analysis of the situation, the Preah Khan Conservation Project has developed a methodology depending on the complicated nature of the objects. This methodology is an archaeological recording. All objects are photographed from all angles, from the front, back, top, bottom, and at each piece is taken a photograph of object. Using recently developed computer software, it is possible to record the photographs and store them in a database. This database can be used to analyze the objects, to compare the various dimensions and increase its value of the objects. This software is available for general use in Archaeology, not specifically for the Preah Khan Conservation Project. This software is called "Photograph Database" and it is a very good tool for the Preah Khan Conservation Project. It is noted that the computerized inventory program will be fully developed for use during Preah Khan Field Campaign 2000.

surveyor: \_\_\_\_\_

date: \_\_\_\_\_

## 4. RESEARCH AND FIELD TESTING

### ARCHAEOLOGICAL RESEARCH

Preliminary research was conducted to assist in developing the Master Plan. Michel Terrien, with the assistance of a team of experts from a program funded by UNESCO, Professor Jacques Gauthier, Technical Committee of the Institut royal du patrimoine, and Preah Khan Field Office.

During the course of field work, and procedures for archaeological work, in a large extent by UNESCO, the Master Plan will have done much regulation pertinent to archeological

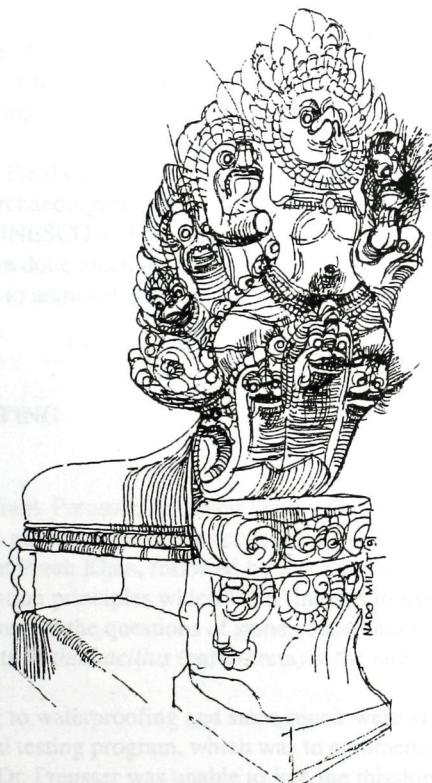
### Archaeological Research

- Materials Testing
- Stone Conservation
- Biological Growths
- Stone Cleaning
- Stone Consolidation
- Waterproofing

### MATERIALS TESTING

In March 1993, Dr. Peter Preusser, Institute, conducted a materials conservation study of the stone blocks of the Preah Khan Temple. Dr. Preusser mainly addressed the causes of stone control and the effects of weathering.

Questions pertaining to the feasibility for an organized field testing program, were raised during a visit to the site in March 1993. Dr. Preusser was unable to conduct this due to the extreme



## **4. RESEARCH AND FIELD TESTING**

### **ARCHAEOLOGICAL RESEARCH**

Preliminary researches into the archaeological potential of Preah Khan were planned to occur in January 1993 under the direction of Professors Claude Jacques and Michel Terrace of the Ecole Practique des Hautes Etudes in Paris. With the assistance of WMF the Institute applied for funding in support of the research program from an American institution but the proposal was returned for revision. Professor Jacques' proposed archaeological program had been given approval by the Technical Committee of the SNC in January 1993. It is the intention of WMF and the Institute to re-apply for funding and to conduct the research during the later part of Preah Khan Field Campaign II.

During the course of Field Campaign I there was much discussion of the necessity and procedures for archaeological researches at Preah Khan. This discussion was led to a large extent by UNESCO and organizers of the Zoning and Environmental Master Plan who have done much in recent months to establish standards and regulations pertinent to archaeological and similar other researches at Angkor.

### **MATERIALS TESTING**

In March 1992 Dr. Frank Preusser, Assistant Director of the Getty Conservation Institute, made some general observations concerning a number of materials conservation issues at Preah Khan, followed by recommendations that helped shape some of the conservation principles which WMF intends to exercise at the site. Dr. Preusser mainly addressed the questions of stone conservation, biological growth control and the effects of *thiobacillus* (bat excreta) at the site.

Questions pertaining to waterproofing and stone repair were also addressed as a basis for an organized field testing program, which was to commence on his return to the site in March 1993. Dr. Preusser was unable to join the mission at that time.

Based on initial material conservation researches made in March 1992, the WMF team made further tests in the field in November 1992 and in March 1993, at which time several *in-situ* materials conservation tests were conducted by Project Managers John Stubbs and John Sanday.

## STONE CONSERVATION

Dr. Preusser, a specialist in stone conservation, advised that in general the stonework at Preah Khan was in surprisingly good condition and for the most part it was best left as found.

Having carefully studied conditions throughout the Preah Khan complex, Preusser's initial recommendation was to leave the stonework in its present condition and to clean and consolidate in very limited areas only. Further field tests are recommended before any applications are undertaken.

## BIOLOGICAL GROWTHS

Besides the common vines and ficus trees presently growing on the structures and other vegetation present on the site, there are several micro-organisms such as algae and lichens growing on the stonework. From initial studies most of these are apparently harmless and give no cause for immediate concern. However, it is recommended that a more thorough study of the micro-organisms be undertaken to assess their danger to the stonework and to identify ways of removing and controlling further growth.

## STONE CLEANING

Dr. Preusser strongly recommended against indiscriminate cleaning of stone surfaces as the abrasion required to remove biological growths was often more harmful than the presence of the growths themselves. Furthermore, once cleaned, the treatment required to prevent further growth on the stone is costly and, in addition, does not have a lasting effect.

The areas recommended for cleaning are:

- Where growths or chemical reactions are proven to cause damage to stonework.
- Decorative stonework that can be protected; e.g. where a protective roof either exists or is planned.
- Carved bas-relief where discolouration and build-up masks the detail and where a protective roof either exists or is planned.

The following field tests were carried out on site as recorded below:

At midday on 19 March in dry conditions at approximately 31 degrees C, a series of stone cleaning tests was conducted on corridor walls and columns of Gopura II East and the circumambulatory between Enclosure Walls I and II East of Preah Khan. Kulen sandstone used in the construction of this area had a relatively grainy surface and was almost uniformly covered by a build-up of black biological growth and air borne dirt. Test Series A involved experimentation with locally available water and commercial washing products in attempts to effectively clean the Kulen sandstone wall of a vault using the simplest and most cost-effective means possible.

### Sandstone Test Series A

Test A-1 consisted of a simple water wash of an approximately 40cm area of Kulen sandstone with tap water from nearby Siem Reap. The procedure involved no presoaking and gentle scrubbing with a small hand-held brush with plastic bristles of medium stiffness for 3 minutes. This procedure resulted in a thorough cleaning of the stone, with no noticeable removal of stone surface, no staining and no bloom caused from reactions of stone constituent elements, despite an estimated 50mm of liquid penetration.

Test A-2 in an adjacent area of the same size involved a 1:10 solution of a commercial laundry soap powder called 'Fab.' A four minute gentle scrub with the same brush starting on a dry surface resulted in the same level of cleaning as Test A-1. The procedure required generous rinsing, and after five days no bloom or staining was noticed.

Test A-3 used the same procedure with a 1:10 mix of water and a dish-washing liquid called 'Sunlight.' The scrubbing time and cleaning results were similar to Test 2 but more time was required for rinsing.

Test A-4 involved the same procedure as the above mentioned tests, but used a 1:20 mix of water and a pot scrubbing detergent called 'Vim' which contained a fine powder abrasive. Cleaning time was reduced somewhat and less soap appeared

requiring less rinsing, but the level of cleaning appeared to be not as thorough and the solution caused immediate staining to adjacent uncleared areas.

*Conclusions* Test Series A on tooled Kulen sandstone revealed that simple scrubbing with fresh water is the best approach for cleaning stone which is soiled with simple dirt and superficial black biological growth. Water is easily available as it is a natural element and is easy to apply. As a result it is the cheapest and safest material for use by unskilled workmen and for the material being conserved. No experiments were conducted involving presoaking which can only speed the process. In this connection one might conclude that stone cleaning at Preah Khan, if ever done on a wide scale, could probably be conducted more easily in the rainy season (April thru October) than in the dry season.

These test areas should be further monitored regularly over a period of at least one year.

### Sandstone Test Series B

A second series of tests were conducted on Kulen sandstone carved in low relief on a column in the north and south galleries of the circumambulatory between Enclosure Walls I and II East. This stone had an accumulation of dirt, green and black biological growth and reddish/yellow staining originating from the laterite vaulting above. The carved stone surface of this test area is relatively smooth and nonporous.

Test B-1 on a low relief architectural carving involved gentle scrubbing of an approximately 50 cm square area for 10 minutes with water only. The results were that surface dirt and some staining was removed but that a certain amount of black biological staining and most of the iron staining from the laterite remained. The staining was so complete in this area that the cleaned gray sandstone column now has a reddish/ocher tint, that has evidently penetrated to such a depth that it may be impossible to remove it by any process, including poultices and bleaching.

Test B-2 was conducted on a similar column relief within the same vaulted gallery, using a 30 second water prewash followed by a gentle scrub wash using a mild powder detergent ('Fab') in a 1:20 mix. After five minutes of this treatment surface dirt and superficial biological growth was removed but stubborn black biological staining and nearly all iron oxide staining from laterite remained.

*Conclusions* Test Series B involving attempts to clean Kulen sandstone having a fine surface finish which is carved in low relief, proved that thorough cleaning of this material is practically impossible. Stronger chemical cleaners are likely to remove all traces of stubborn black biological growth but it is doubtful that any amount of cleaning using normal procedures can completely remove iron oxide staining from the adjacent laterite construction.



Test B-2 Cleaning of Low Profile Bas Relief.

### Test Series C

Two cleaning tests were performed in order to clean a laterite wall construction on the east wall of the circumambulatory between Enclosure Walls I and II, which was soiled only with air-borne dirt. Test C-1 involved gentle brushing with locally available water with no additive. After two minutes of scrubbing the laterite was cleaned to its natural red/orange/yellowish color. Elements within this vermiculated sedimentary stone appear to be unstable despite centuries of exposure and hardening. This unstable quality of laterite is evidenced by the immediate coloring of the water used to a rusty tint during the washing process.

Cleaning Test C-2 on laterite used the same procedure in an adjacent test area but involved a solution of 1:20 'Fab' detergent mix and water. The results of this test were that the test area appeared somewhat whiter than the neighboring pure water cleaning test and that this process involved additional time, effort and water.

*Conclusions* Laterite which is soiled only by air-borne dirt and superficial biological growth can be cleaned by a simple water wash aided by light scrubbing. The harder elements within this relatively soft sedimentary stone are composed of a variety of materials, and appear to be 'stainfast,' while its softer clay-like constituent parts tend to easily dissolve when exposed to water. This degradation process is in evidence in

all laterite construction at Preah Khan and at scores of other monuments throughout Angkor. The stone cleaning experiments conducted in a vaulted corridor constructed of both Kulen sandstone and laterite indicate that the use of these dissimilar materials in juxtaposition to one another can be problematic, in that staining, which at the least is aesthetically disfiguring, is caused by the less durable (and probably in its day less costly) laterite. Given that most laterite used in the construction of Preah Khan appears to be in a relatively active state of decay, efforts should be made to prevent the staining of adjacent Kulen sandstone. (See also Reports II and III, on laterite and sandstone construction defects.)

## STONE CONSOLIDATION

It is fortunate that Preah Khan was constructed with some of the better quality Kulen sandstone and therefore, in general, there is not the major problem of stone decay and surface lamination that is evident at the other temples of Angkor.

The areas of stonework recommended for consolidation are very limited. Materials required for consolidation are very costly and their effectiveness is by no means proven for conditions such as those found at Angkor. The areas to be considered for consolidation are:

- Where active exfoliation is taking place and is likely to cause structural instability.
- Where there is active deterioration to significant decorative stonework.

As described in Report III - *Preah Khan Conservation Plan*, the Kulen sandstone is subject to lamination largely due to the presence of feldspar in the stone beds. When moisture is present the feldspar expands causing the stone to laminate and to shed its surface layers.

Stone samples have been taken and tests for consolidants and adhesives are being undertaken by the Institute of Engineering in Skopje. An innovative approach using sodium silicate is undergoing laboratory experiments at the Getty Conservation Institute and it is hoped that such a consolidant, if proven effective, could be tested at Preah Khan.

## **WATERPROOFING**

Water is the chief culprit among the threats to the ruins of Preah Khan. While the main source of moisture is from rainfall, other sources include ground water rising by capillary action and condensation. A more complete understanding of these latter two elements, especially the role that ground water plays at Preah Khan, is needed. Two soil boring probes have been made to date at the site which provide only a portion of the information needed to properly address this question. (See Report III, Appendix D, "Soil Composition Analyses at Preah Khan.")

An estimated 3000 mm of rainfall affects Preah Khan annually, culminating during the peak months of the monsoon season between April and October. No systematic observations have been made to date of the water flow and flooding that occurs at Preah Khan during the wet season, but such observations are planned for the summer of 1994. It is already known that open roofs on various shrines, gopuras and towers admit rain to such an extent that standing water reaches a depth of up to 30 cm in some areas, a situation that is governed only by threshold heights in buildings and pool border dimensions in other areas.

In addition to there being no systematic study made on the effects of precipitation at the site, evidently no significant measures have been taken to improve site and building drainage in conservation efforts over the past sixty years. Aside from the above mentioned survey of water at the site, there are some promising directions for some solutions which can be implemented.

### **Water Handling Systems of Building Superstructures**

A number of original water shedding elements of the above grade remains of the architecture of Preah Khan still function adequately. Some are only partly functional. An estimated 50% of the originally vaulted spaces of Preah Khan are no longer covered at all. The vast majority of structures and/or their remaining components are in need of repair, partial reconstruction or at least could stand some improvements to their water shedding capacities. Practically all roofing stones have widened joints which admit rainwater, though usually this does not pose as serious a threat as it might seem since most of the long corbelled roofing stones overlap extensively (up to 1.5 meters in instances), and contain lap joints which not only tend to lock them together structurally but also form shapes which prevent or discourage water migration at the joints.

Roofing stones were detailed and finished on their surfaces to effectively carry water away from structures at a pitch so that water was thrown outward at the edges of eaves. No gutters or vertical drains in stone have been found to date at Preah Khan. Roof eaves details are ornamented using a variety of antefix motifs at the undulating roof ridges. The original water shedding surfaces at roof eaves contained remarkably

modest drip edges, most being no longer functional due to erosion. Consequently, rainwater today tends to wash down over cornices and wall elements below, causing erosion. (See also Report I - Appendix B, "Khmer Architectural Development" and various building description references in Reports I, II & III.)

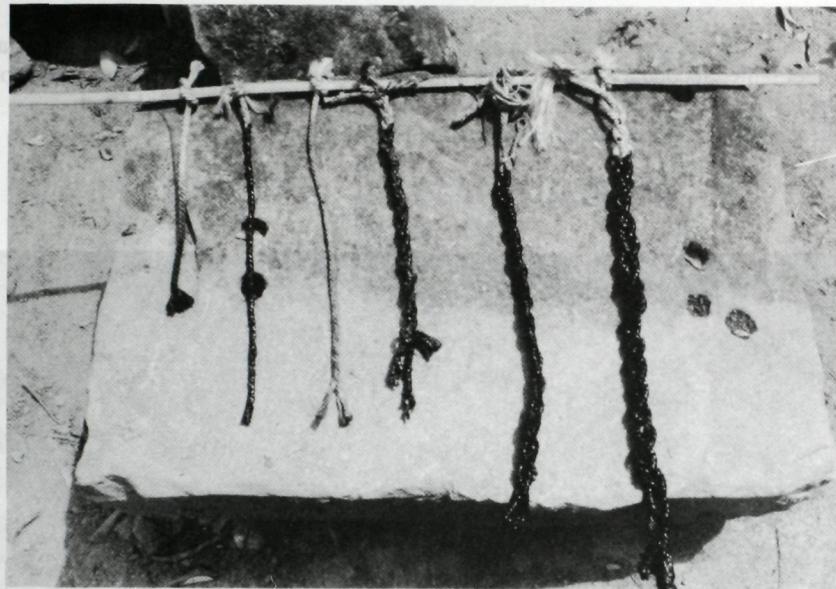
Ideas for possible improvement of the water shedding capacity of architectural superstructures (roofs and towers) include:

1. Resetting original roof stones to their original positions where this solution is practical.
2. Reconstructing roof vaults in selected areas with respect to the overall conservation and presentation plan for Preah Khan.
3. Erecting carefully designed protective shelters over collapsed roof areas that are made of new materials which respect the character of the site.
4. Improving drip edge conditions at roof eaves and other water shedding points using a variety of means.
5. Filling open joints with materials such as rubberized rope above other joint packing materials (all organic) and avoiding the use of cement filling and parging except where absolutely necessary. Experiments were conducted during March 1993 in the production of woven hemp and coconut frond roping which was dipped in various hot liquid materials, such as molten pure rubber, melted vulcanized rubber, tar, and locally produced ficus tree resin. (See illustration)
6. Using various 'high-technology' waterproofing measures such as elastomeric caulk, waterproof membranes, coatings and chemical hydrophobization treatments.

### **Handling of Collected and Subsurface Ground Water**

Ideas for possible solutions relative to rainwater drainage once on the ground and related subsurface drainage include:

1. Removal of debris from within and adjacent to the complex so that rainwater is diverted away from the various building foundations.
2. Digging provisional drain channels in areas to prevent ponding.

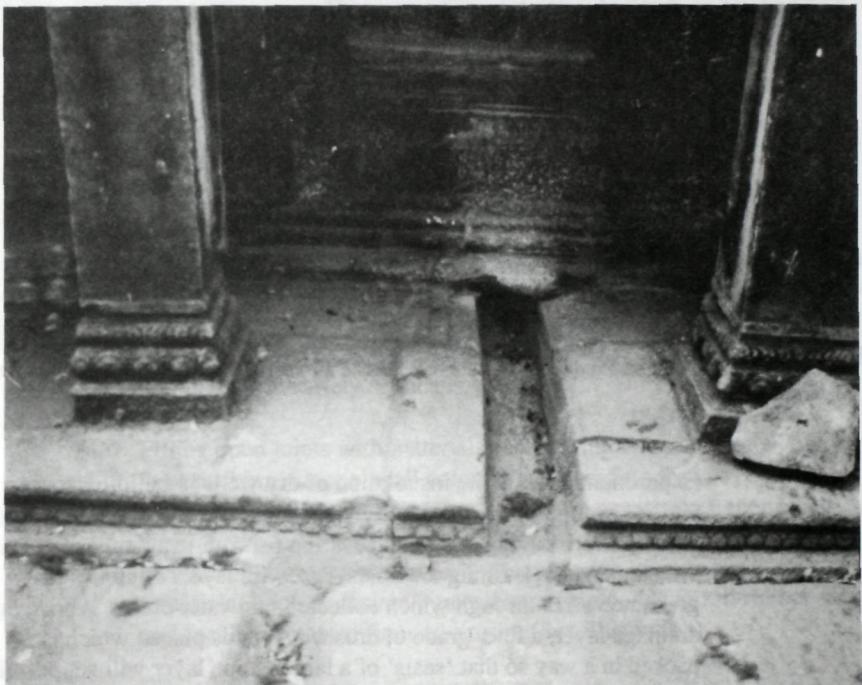


Experiments in the On-Site Production of Rubberized Rope for Possible Use as a Stone Joint Filling Material.

3. Experimenting with the installation of dry wells in building spaces which have open roofs. Such dry wells could involve the removal of selected floor paving stones, excavating beneath to a depth of at least 1 meter, and back-filling the holes, first with layers of stones in graduated sizes through which collected rainwater drains. Above this drainage layer, a finer grade of crushed stone is placed which is packed in a way so that 'seats' of a larger stone layer will support the original paving stone(s) above, which are re-laid having slightly wider unfilled joints for drainage.
4. Reactivating elements of the original surface and subsurface drainage systems, and diverting water to remote dry wells or cisterns.
5. Lowering the water table at the site in areas using relief wells. (This is a potentially dangerous approach since such activity might affect soil bearing capacity, building foundations and result in settlement problems.)

In any case the perimeter moat around Enclosure Wall IV and all the other water retention systems at the site such as basins, tanks and reflecting pools are not functioning in their original capacity, or for their intended purposes. Serious consideration should be given to possibly reactivating some of these water features in

the roles they played in site drainage, water collection and maintenance of a constant water table. Secondary benefits of such actions would include the return of some of the lost aesthetic features of the site, and the possibility of a more coherent presentation of Preah Khan's sophisticated hydrological system.



Parts of Original Open Drainage Channel System in Courtyard Paving, South East of Central Tower, Preah Khan.

Rescavation of the original surface has revealed a series of drainage channels running through the site. These channels were originally constructed for drainage purposes, but now serve as a means of removing debris from within and adjacent buildings so that rainwater is diverted away from the various building foundations. In this case the drainage system is part of the larger Elongmea Wall built after 1113 AD. Rainwater falling on the surrounding slopes, or from the various buildings, flows into the drainage system and is eventually directed into the moat or into the river. This system of drainage is particularly important for the protection of the temple complex from flooding during the monsoon season.



Khemara and Adolphe de Gouzeaux A. Jemilius have "been working very hard to develop appropriate documents and guidelines for a more systematic approach."

## 5. TRAINING PROGRAMS AND WORKSHOPS

'On site' training of both students and the Preah Khan Workforce was a major focus of WMF's Field Campaign I. The program of activities continued throughout the full period of work at the site and by all accounts were very beneficial.

Preah Khan was also selected as a venue for the informal UNESCO workshop for specialists that took place at the beginning of April 1993.

### LECTURES AT UNIVERSITY OF FINE ARTS, PHNOM PENH

During successive World Monuments Fund missions consultants have spent time with the Departments of Architecture and Archaeology at the University of Fine Arts, Phnom Penh and have given illustrated lectures on a number of specific subjects.

In March 1992 the following lectures were given:

J. Sanday      "Introduction to Preah Khan."  
                  "The Philosophy of Building Conservation."

J. Stubbs      "Archaeological Site Conservation."  
                  "American Standards & Guidelines for Architectural  
                  Conservation."

J. Jokiletho    "Modern History of Conservation in Europe."

During the March 1993 Mission, WMF committed its consultants to a series of lectures at the Departments of Architecture and Archaeology on subjects more closely related to the work at Preah Khan. The following lectures were given to approximately 200 students.

J. Sanday      "The Principles and Procedures of Conservation at  
                  Preah Khan."  
                  "Preah Khan Conservation Program."

J. Stubbs "Spatial and Structural Aspects of Classical Architecture."  
"Mediterranean Archaeology - Origins and Procedures."

F. Aldsworth "The Architecture and Archaeology of Buildings."

P. Gavrilovic "Structural Principles of Historic Buildings."

These presentations were well received and both the Faculties of Architecture and Archaeology have asked WMF to continue providing lectures to the students whenever consultants should visit Cambodia.

WMF was pleased to present the Department of Architecture with a Kodak Carousel slide projector as requested by Dean Hor Lat. In November 1992 and March 1993 WMF presented gifts of drafting supplies from the Rhode Island School of Design and the New York architectural firm of Beyer Blinder Belle. The Conservation Practice in West Sussex, England arranged for a donation to the project of a survey level, a theodolite and a tripod.

### 'ON SITE' TRAINING OF STUDENTS

The principal purpose of the students spending extended periods of time on site was to provide them with field experience at Preah Khan including exposure to the trials and tribulations of working on a building conservation project. WMF is providing training experience in return for assistance from the students in the monitoring and recording of the work at Preah Khan. This training is supplemental to their architectural course at the university and is planned as a prelude to more formalized training opportunities in architectural conservation abroad.

The proposed program for the students was discussed with the Dean Hor Lat of the architectural faculty and Dean Chuch Poeurn of the archaeological faculty. Both were very enthusiastic about WMF's efforts to assist the University and they urged WMF to find them more permanent Faculty.

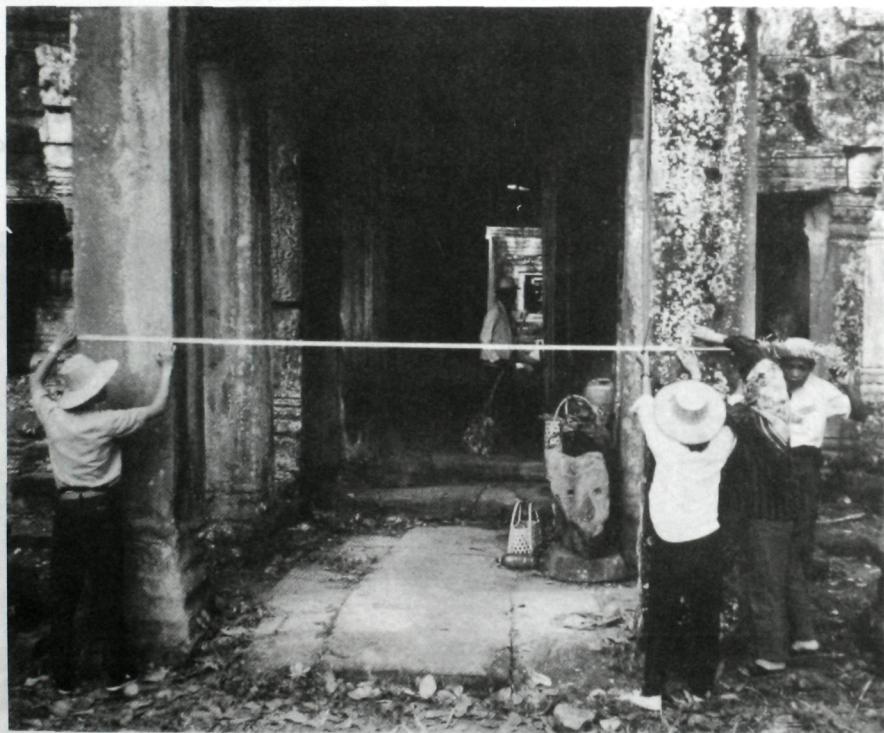
Hor Lat accompanied the Preah Khan students to the site and was very helpful in arranging their timetables to allow the students to continue working in Preah Khan for extended periods.

World Monuments Fund invited the same team of students to join its team of consultants for the 1992/93 Field Campaign I. Six members of the original team, architects Lek Sareth, Var Maurin and Ms. Cheam Phally were joined by Ms. San Soma. Archaeologists Chan Chamroeun and Nay Sophea also returned to Preah

Khan. As before, the student team was led by Lek Sareth and Var Maurin was appointed leader in his absence.

Plans were developed during the November 1992 Mission and permission was granted for the Preah Khan Student Group to spend as much time as possible at Preah Khan. WMF was able to arrange, therefore, for some students to be at the site for most of Field Campaign I. During the three missions comprising Field Campaign I the full team of students was at Preah Khan. They were provided with lodging space in the Conservation d'Angkor compound, and the WMF house in Siem Reap provided them with meals and transport.

During the periods between the missions (December and February) the students took turns to help monitor the progress of the work at the site and continued to record the Preah Khan structures assigned to them. When the WMF house was empty the students were able to lodge there.



University of Fine Arts Students Measuring East Gopura Entrance Portal.

## STUDENT WORKSHOPS AT PREAH KHAN

During the last mission in March 1993 WMF organized a series of workshops for the students in Preah Khan. The students spent the mornings assisting with research, recording, inventories and site monitoring. In the afternoons each of the consultants took turns to spend at least two hours on specific topics relating to the Preah Khan Conservation projects. Following are some of the subjects discussed:

J. Sanday "An Introduction to the Preah Khan Conservation Program."

J. Stubbs "Planning Procedures for Conservation Projects."  
"Appropriate Dissertation Topics for Preah Khan."  
"How to Produce a Dissertation."

F. Aldsworth "Methods of Recording Historic Buildings."

P. Gavrilovic "Repair and Conservation of Historic Structural Systems."

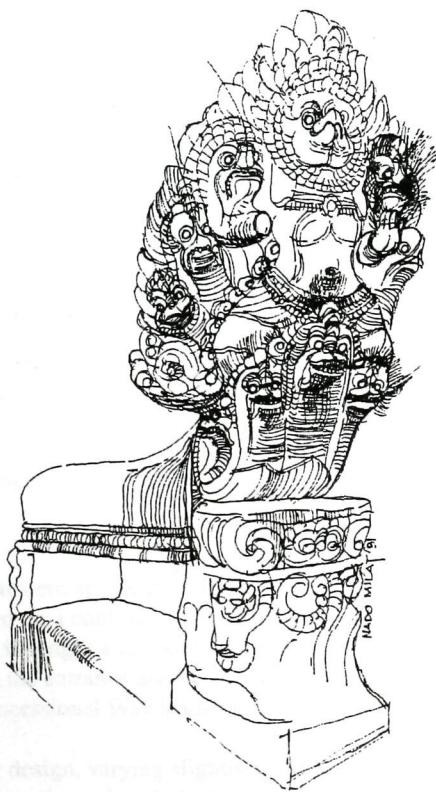
During these sessions the students actively participated in the discussions and afterwards described how valuable the workshops were to their understanding of both the Preah Khan Conservation Project and the principles and procedures of architectural conservation and project planning.



UBA Students of Architecture and Archaeology, West Vishnu Complex, November 1992.

## 6. SPECIAL ANALYSES

West Processional Way  
Vishnu Complex - West Wing  
Dharmasala (Pilgrim's Resthouse)  
Structural Analysis  
Site Records



West Processional Way - Dharmasala

### General Description

The main feature of the complex is the West Processional Way which contains approximately 96 rock-cut lanterns. The way is 100 m long and 10 m wide. It is not a covered structure but has a roof supported by pillars. At its eastern end, the Processional Way opens into a large open space.

Each lantern is of similar design, varying slightly in size. The main components which are the pedestal, the lantern body and the canopy, are three storeys. The pedestal carries the first two storeys which support the lantern on each face of which a niche is provided.

and the main entrance. A double-headed cobra with its hood spread is mounted on a stone pedestal above the entrance. Between the two pillars which support the canopy is a small stone plaque which reads "Preah Khan".

## 6. SPECIAL ANALYSES

### WEST PROCESSIONAL WAY



West Processional Way Looking East November 1993.

#### General Description

The main feature of the western approach to Preah Khan is an avenue of forty-one pairs of lanterns supported on a continuous molded plinth which measures approximately 96 meters in length and about 8.40 meters in width. Even though this is not a covered structure the entrance and exit are delineated by a raised threshold. At its eastern end, the Processional Way leads onto the moat's Causeway.

Each lantern is of similar design, varying slightly in form and detail, but having three main components which are the pedestal, the lantern and a finial cut from either two or three stones. The pedestal carries the figure of a *singha* (lion) on each face and this supports the lantern on each face of which a flame-surrounded niche is carved.

Formerly these niches housed an image of the seated Buddha; however most of these were defaced in the 13th century. EFEO's archival material made reference to there being images of the seated Buddha and during surface debris removal around the plinths, the upper section of a lantern was discovered on which the Buddha survived. It is apparently part of Lantern No. 29, and one of three subsequently found. The other two are *in-situ* on the East Processional Way.

### Precis of Work Completed

One of the first activities at the commencement of the Preah Khan Project in November 1992 was to disengage the lanterns flanking the West Processional Way. Vegetation and a large amount of earth was removed from the central path to expose the laterite paving and previous excavation spoil was cut back to create space around the lantern plinths.

In an attempt to ensure authentic reconstruction, certain characteristics of each lantern have been examined to determine criteria which might help to indicate the former position of the broken or collapsed components. These characteristics are described in detail in the report, *Preah Khan, Angkor, The West Lantern Approach - An Archaeological Appraisal and Condition Report*. (Separate Appendix)

For example, the lanterns appear to have been finished either *in-situ* or the plinths on which they stand have been cut to accommodate them. Hence most of the lantern bases sit on a shadow cut on the plinth making relocation of fallen or misplaced lanterns possible. Similarly, the bedding plane of the sandstone is generally along the greater dimension which in this instance is on the east-west axis. On this basis, broken fragments can be examined to determine their original position.

Another interesting feature is that the feet of the singha on every surviving *in situ* pedestal are turned to the east on their internal face, and then continue round the pedestal on the north side of the approach in an anti-clockwise direction and in a clockwise direction on the south side of the approach.

### Recording and Measurement

A very thorough research program has been undertaken by the students, drawings have been prepared, and a full description of each lantern has been made, with photographs and drawings. See Separate Appendix entitled: *The West Lantern Approach - An Archaeological Appraisal and Condition Report*.

### Present Condition

The Processional Way was partially overgrown and covered with accumulated earth. In the 1950's, under the EFEO program, the area was excavated and the spoil dumped just outside the lines of lanterns. Some of the lanterns had been reconstructed, on

occasion incorrectly, but the majority had either later collapsed or were left lying hidden in the accumulated debris. Many of the stones are fractured, damaged or defaced and are lying randomly along the pathway. During the clean up of the area and surface excavation in November none of the stones were moved.

### **Repair Recommendations**

Recommendations are summarized in the above mentioned report describing the appropriate action required to repair and re-assemble each lantern. Using a set of simple criteria, the misplaced sections are identified and their correct locations indicated. Recommendations vary from those where no action is required to those where immediate remedial work is required to avoid imminent collapse.

Tests were undertaken during the Field Campaign I on different adhesives for joining broken stone pieces, and laboratory tests were subsequently conducted to determine an adhesive suitable for the repair of Kulen sandstone.

As re-erecting the various fallen lantern stones on the West Processional Way is a simple procedure and is not dependent on special equipment or sophisticated technology, it is planned that this will be one of the first conservation activities to take place in the forthcoming Field Campaign II.

## **VISHNU COMPLEX - WEST WING**

### **General Description**

The Vishnu Complex is located at the western end of the monastic complex of Preah Khan, immediately within Enclosure Wall III. It consists of a square of shrines joined by low galleries grouped around a central shrine. The group is smaller in scale and proportion to most of the other structures in Preah Khan. It was difficult initially to appraise either the design or the condition of these structures as they were dilapidated and the courtyards were choked with debris and undergrowth which completely buried their bases. One of the two forecourts was blocked by the large limb of a ficus tree that had fallen, damaging much of the northern part of the Vishnu Temple structure. As this group is one of the first to be encountered within the monastic complex and because of its size, location and condition, it was decided to commence a modest documentation and restoration feasibility analysis of this portion of the complex.



South Half of West Elevation, Vishnu Complex, November 1992.

### Precis of Work Completed

A program of survey and research on the western section of the Vishnu Temple complex was one of the principal undertakings of Field Campaign I between November 1992 and April 1993. Once the team had embarked upon the disengagement of vegetation and debris in this area, it soon became apparent that a partially attached decorative facade had collapsed and had been buried under debris.

The skills of a 15 man team under the direction of a competent Caporal assisted the survey team in uncovering, selecting and piecing together the enormous jigsaw of decorative stones which were laid out in an organized manner in the two courtyards. In addition sections of the central tower came to light enabling the team to assess the pattern of collapsed masonry.

### Recording and Measurement

Following debris removal the structure was surveyed and an attempt was made to determine where individual stones belonged prior to collapse. The Appendix indicates progress made during Field Campaign I in developing a methodology for sorting piles of collapsed masonry, their documentation, and a method for establishing their original positions.

Following these studies, decisions will be made on the extent of repair and conservation necessary and also on the magnitude of reconstruction that can be feasibly undertaken.

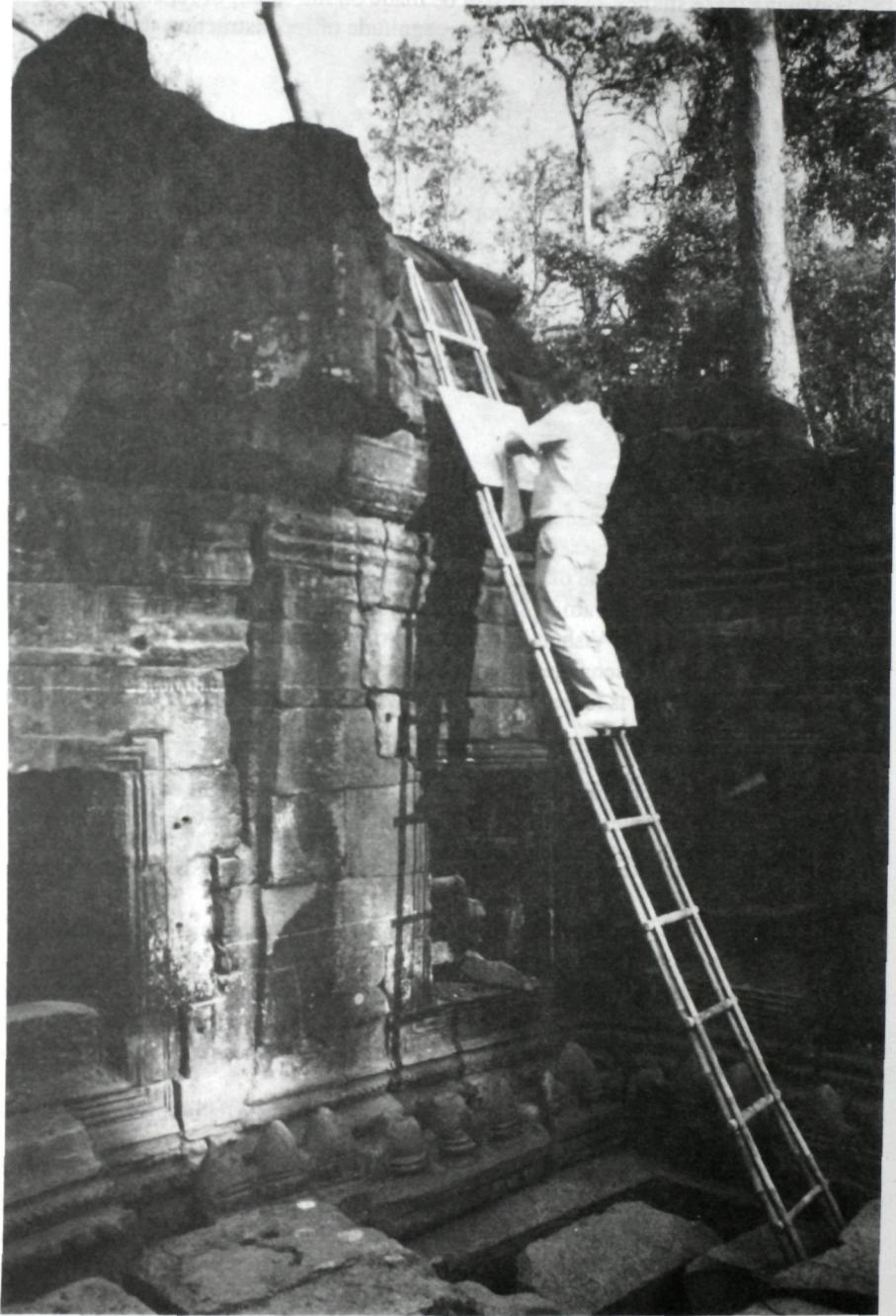
### **Present Condition**

The structural condition of the Vishnu complex has been assessed and carefully studied. The appendix and the section "Emergency Structural Shoring" describe these conditions in greater detail. Following the assessment, timber supports (props and struts) and folding wedges were introduced in the door and window openings where fractures in stonework exist, to guard against potential danger of collapse. A system described below to monitor the fractures in the stonework resulting from the collapse of the tower and damage caused by the falling branch was also installed.

### **Recommendations**

Further studies will be made at the West Wing of the Vishnu Complex to ascertain the methods of roof vault construction and tower construction. Based on this information consultants will assess the feasibility of reconstructing the vaults and the central tower over the main shrine of the Vishnu complex. Subject to its findings, WMF proposes initially a program of structural consolidation of the roof vaults and walls of the northern half of the Vishnu Complex and the reconstruction of the decorated doors and windows disengaged from the debris in Field Campaign I. Once this section is complete it is hoped to follow on with a similar program for the southern section.

WMF hopes to concentrate its efforts on the western shrines and corridors of the Vishnu Temple complex and to set up a masonry chantier to develop appropriate construction repair methodologies for this type of work.



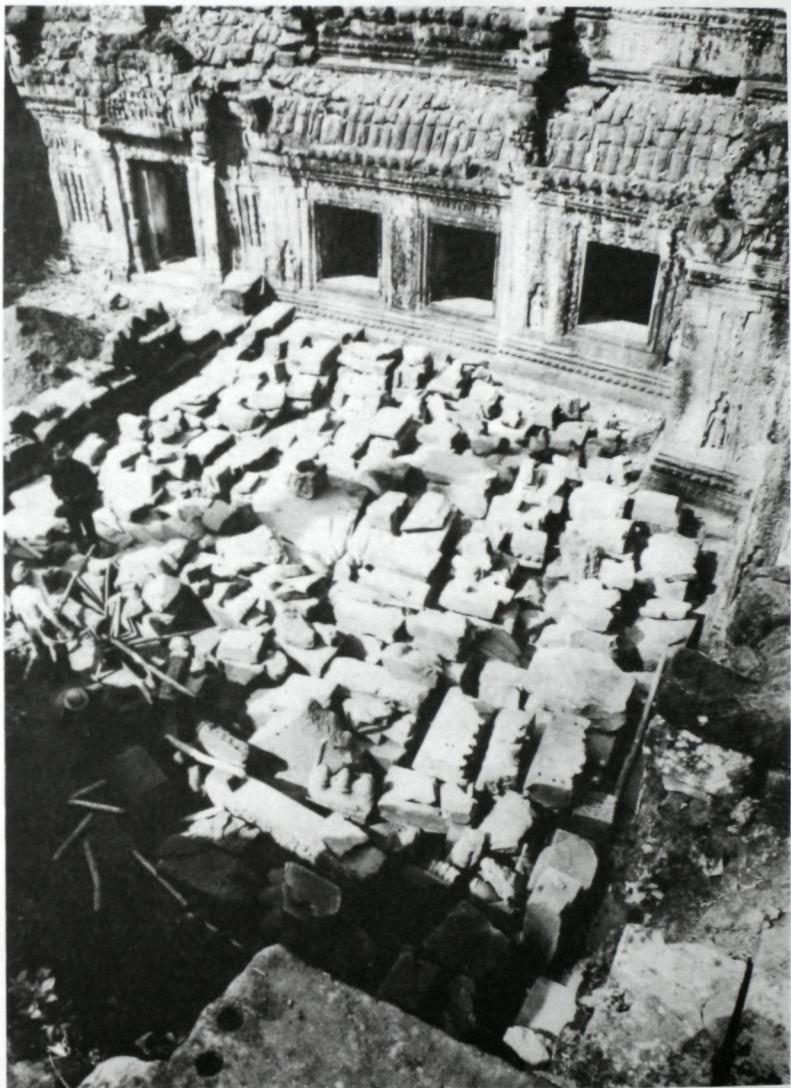
Archaeologist F. Aldsworth Documenting Roof Remains at West Vishnu Complex, March 1993.



Sorting of Fallen Stones North West Courtyard, Vishnu Complex, November 1992.



Partial Anastylosis of South Fronton, Vishnu Complex. March 1993.



Sorted Fallen Stones in South Yard of Vishnu Complex, From Tower Base Looking South, March 1992.

## DHARMASALA (Pilgrim's Resthouse)



Dharmasala South Elevation, March 1993.

### General Description

The Dharmasala or "Pilgrim's Resthouse" is located on the eastern side of Preah Khan. It lies along the principal entrance route, midway between the eastern Gopuras of Enclosure Walls III and IV. This freestanding structure was identified by J. Boisselier as the "dharmasala", or resthouse for pilgrims visiting the temple complex. More recently Professor Claude Jacques has suggested that it might be a shrine referred to in documentary sources wherein the sacred flame of the temple was kept.

### Precis of Work Completed

During the vegetation clearance program of the processional eastern way of Preah Khan, the workforce rediscovered the Dharmasala which had been covered in jungle growth for over 20 years. The thick jungle undergrowth around the structure was

removed midway during WMF's Field Campaign I (from November 1992 to April 1993). Following its rediscovery WMF realized the Dharmasala's great potential as a remarkable prototype for structural repair and conservation. Its great advantages are that it is a freestanding, almost intact structure; it demonstrates nearly all the typical problems of structural and materials failure and eventually it could serve as a perfect interpretation center for the Preah Khan Project.

### Recording and Measurement

The structure, although in a seriously unstable condition, is almost complete, apart from a small number of fallen or broken stones. The structure was carefully surveyed and photographed during the March 1993 Mission. These documents provide the basis for specifying repairs. Under the supervision of the Consultant Engineer a structural analysis was undertaken to establish the present condition of the structure. (For a more detailed description of the structure see Appendix IV/C.)

### Present Condition

The structure remains remarkably intact. It appears that over the centuries it has been subjected to only minimal repairs. Although there has been major structural movement in the building, it appears that the lateral movement in the side walls has halted. However, this is probably not the case with the end walls where the structural stability of the masonry should be regarded as precarious.

A lack of substantial foundations and inadequacies in the original structural bonding of the stonework have led to outward movement of the side walls and roof. There is also substantial dislocation of the east and west walls.

The substantial weight of the walls and roof on what appear to be inadequate foundations are contributory causes to the problems. In addition, the absence of adequate bonding in the coursed stonework has resulted in considerable displacement of the stonework along the walls.



Scale Rectified Photography of the Dharmasala..

## **Repair Recommendations**

A set of detailed recommendations has been prepared by the Consultant Engineer and are attached in the appendix.

Substantial emergency propping of all the openings has been undertaken. Raking shores have also been placed against both end walls to provide lateral support.

The basis of any work on this structure is to be dictated by the Engineer's assessment of the foundations, end walls and roof vaults. If structural movement is still active in the building there will be a need to consolidate the foundations and tie back the end walls before other work can be undertaken. Following these activities, it will be necessary to assess the stability of the roof and possibly either consolidate the vaults *in-situ* or dismantle and reset them as required.

This building is being considered as an interpretative center located at Preah Khan as it demonstrates clearly an example of an intact, free-standing Khmer structure from the 12th Century.

## **STRUCTURAL ANALYSIS**

### **Structural Survey Work**

During Field Campaign I considerable progress was made in better understanding the various structural types and problems represented at Preah Khan. From December 1992 through March 1993 an estimated 120 props, struts and braces were erected as emergency stabilization measures in locations throughout the site. These interventions were intended to temporarily arrest structural movement until more comprehensive and effective structural stabilization measures can be implemented as part of short, medium and long range conservation program for Preah Khan.

In March 1993 Dr. Predrag Gravilovich, Structural Engineer, conducted a comprehensive survey of the building structural types at Preah Khan, noting the conditions of each structure and in many instances proposing generic solutions for stabilization and repair. See Attached Appendix IV/D *Structural Consolidation, Repair and/or Strengthening of Monuments*.

### **A Method for Monitoring of Movement in Structures**

With the use of a micrometer and three pins set across movement fractures in a structure it is possible to determine whether movement is 'dead' or 'alive' at a crack

or joint. This also allows for the diagnosis of the direction and rate of movement that is taking place.

### Fixing Measurement Points

Bronze pins, whose heads are pitted to enable the micrometer points to fit snugly, are placed in a triangle across a fracture at about 10cm apart. The pins are fixed to the stone by gluing and, in certain instances, by drilling a small hole in the stone for each pin.

### Measurement of Movement

At each station two measurements are taken across the fracture. Measurements are made using a micrometer. The dimension is read in millimeters and recorded on a field sheet. The pins are referenced A:B:C. The uppermost pin is always A; the one to the left B; the one to the right C. Only measurements taken across the fracture are necessary.

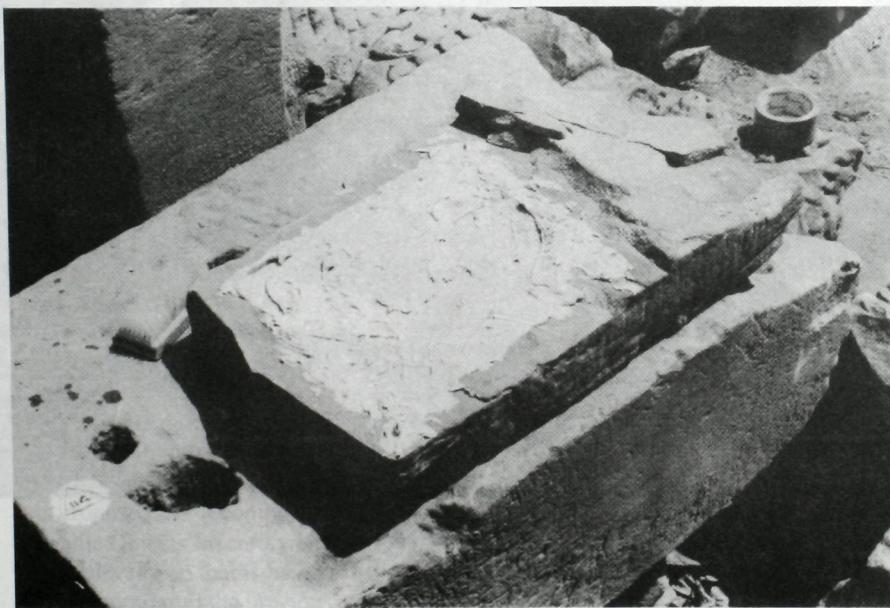
Measurements should be taken monthly on the same day both in the early morning and at the end of the day so that the effects of expansion and contraction due to the heat might be noticed.

### Stone Repair

Preliminary experiments were conducted in March 1993 by project managers John Sanday and John Stubbs in the repair of broken Kulen sandstone. Using two strengths of *Sika™* 2-part stone adhesive products experiments were conducted in the repair of fractured stone pieces. The results of these experiments prove very promising as being both efficient and effective while also allowing for aesthetically acceptable intervention. Further to this, Dr. Gravilovich has inquired about alternative stone adhesive systems for possible use in Field Campaign II.



Preparation of Two Part Stone Adhesive.



Applied Stone Adhesive Before Mending, March 1993.



Emergency Propping at East and South Walls of Dharmasala, March 1993.

## SITE RECORDS

### Photographic Record

A regular monthly program of record photography has been maintained by the site office of the Preah Khan project. All of these photographs are identified and dated. They are presently located in Siem Reap and are being organized into albums as part of the WMF Preah Khan archive.

### Site Diary

A daily record of events that takes place at Preah Khan is compiled by the site staff. This information includes details of the number of workers at site, areas of operation, any specific events, special visitors and weather conditions. This information will be transcribed into a more formal diary of events and will form part of WMF's Preah Khan archive.

### Movable Objects Inventory

During the process of clearing the undergrowth and disengaging the stones, particularly around the Vishnu Temple complex several discoveries of movable art were made and have been recorded by the archaeological students. An Objects Inventory Book is kept at the site and all finds of any significance are entered in the book, together with a photograph and measurements. For the more important pieces, the students have practiced their skills at drawing the pieces to scale. This information, which is at present stored in Siem Reap, is in the process of being formalized into a WMF Preah Khan archive.

It is proposed that a computerized Movable Objects Inventory be further developed that is based on a format similar to the previously developed Computerized



Female Torso (ht: 38cm) Found at West Vishnu Complex, April 1993.

Architectural Inventory. A sample inventory form developed for field use, in conjunction with video photo-documentation is included in Section Three of this Report.

During Field Campaign I a concerted effort was made to record movable artifacts on videotape and to provide a commentary on their material, size, location and condition. This information will be filed on the WMF Preah Khan computerized database once it has been customized.



Nandi (Vishnu in the Form of a Bull) Found at South Side of Water Tank, North East Quadrant  
Preah Khan, January 1993.



Sandstone Torso (Est. ht: 110cm) at Central Cell of East Gopura Prior to Theft in February 1993.

## 7. FUTURE DIRECTIONS

### 7. FUTURE DIRECTIONS

#### WMF'S GENERAL APPROACH

##### WMF's General Approach The Immediate Future

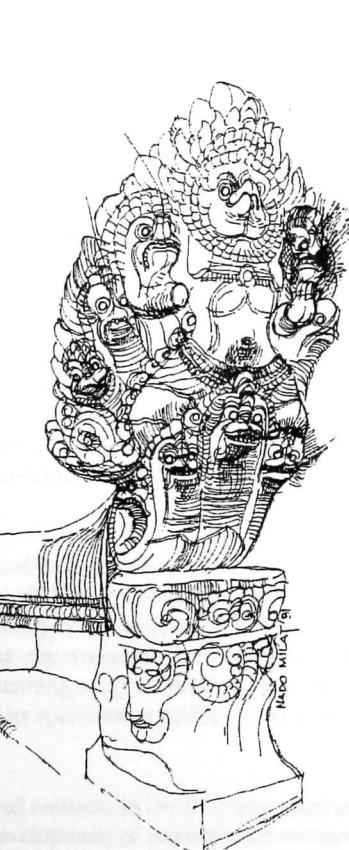
WMF underlines its commitment to the established methods of traditional stone repair. Fresh from a successful intervention at the architectural level, this method is well understood. As a result, the project is estimated to be 90% complete and a comprehensive set of training activities are operating.

An estimated 8,500 persons have received them a large number of training sessions learning about WMF's approach to the Khmer. During this period, we will continue and with other builders from the region, the project. WMF intends to ensure that field experience grows.

As each season passes, WMF will measure in their approach to the project. Those involved in the day to day work of the project is playing in providing training to the local workers of Angkor. WMF is there to support them and to make maximum use of their training.

Using its extensive international network, WMF will seek to continue its research and dissemination of information on the project.

The future of the WMF project depends on the availability of which are unfortunately limited. WMF has been able to continued financial support from the international community recent unfortunate political events.



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## **7. FUTURE DIRECTIONS**

### **WMF'S GENERAL APPROACH**

WMF underlines its basic starting point for its involvement as follows: According to established architectural conservation principles the team intends to conserve and repair Preah Khan as a partial ruin. It intends to continue its policy of minimal intervention, repairing and reconstructing only as necessary to extend the life of the architectural remains as much as is feasible, and for the safety of visitors. This effort is well underway. After four years of involvement at Angkor, and three at Preah Khan the project is established on site, with a site office, support facilities in Siem Reap, and a competent work force. The various Field Campaigns and sub-project planning activities are operating under clearly defined principles and procedures.

An estimated 8,500 people visited Preah Khan during the 1992/93 season, amongst them a large number of specialists in conservation. Most visitors were interested in learning about WMF's approach to the enormous challenge it is faced with at Preah Khan. During this period the consultants discussed at length, amongst themselves and with other colleagues in the field, both the philosophies and technical aspects of the project. WMF intends to continue to refine these principles and procedures as its field experience grows.

As each season passes, the Cambodian students working at Preah Khan become more mature in their approach to the philosophy of architectural conservation and more involved in the day to day running of the project. WMF realizes the significant role it is playing in providing training opportunities for these likely future conservators of Angkor. WMF is therefore planning ways to increase the level of 'On Site' training and to make maximum use of its specialist consultants' time in assisting with training.

Using its extensive international contacts in the field of conservation, WMF intends to continue its research and development of conservation technologies for Angkor.

The future of the WMF team's presence in Angkor is dependent on two major issues which are unassailably linked - the need for continued peace in the country and for continued financial support from donors. Against the background of Cambodia's recent unfortunate past, a peaceful constructive atmosphere in rebuilding the country

will encourage the financial support needed to continue the work program in Preah Khan.

WMF has set up and established the necessary modalities for good and useful cultural heritage conservation work in Cambodia and is confident that its team can fulfill the challenge. The team is keen to continue and, like the rest of the world, is praying for long term peace.

## THE IMMEDIATE FUTURE (1993-94)

A program for Field Campaign II, to occur between mid-October 1993 and mid-April 1994, is described in detail in Appendix A of the present Report and the separate document entitled "Preah Khan Field Campaign II Program Proposal and Budget". Its method of operation closely follows the procedures of Field Campaign I.

### Project Budget

A budget for the proposed optimum program for Field Campaign II amounting to approximately \$225,000 has been identified to develop the conservation activities at Preah Khan. The Plan of Action requires funding for local support costs: housing and local salaries; site wages; additional equipment required for setting up the chantier; office equipment to enable the team to continue with its computerized inventory program; continued research and documentation; an expanded 'on site' training component; and fees and expenses for WMF's specialist consultant team.

### Outline Workplan

The program for Field Campaign II is planned to commence during the last week in October in order to have the project office set up and the site operational in anticipation of the first mission in November. WMF has also planned another tour for donors during the first half of November 1993.

The main concentration of activities during Field Campaign II will be as follows:

### CONTINUING PROJECTS

#### **PROJECT 5 - VISHNU TEMPLE COMPLEX**

This project will be the main focus for Field Campaign II with its principal activities being identified as follows:

**Research:** Supplementary research as required to complete the recording of the collapsed tower of the western facade.

**Conservation Program:**

- Complete emergency stabilization.
- Erect a sound working scaffolding.
- Dismantle roof vaults and correct their realignment.
- Consolidate all stone vaults.
- Partially reconstruct recently unearthed fallen door, window and fronton elements.

**Time Required:** 5 Months

**PROJECT 9 - WEST PROCESSIONAL WAY**

**Research:** Completed

**Conservation Program:**

- Clean, repair and re-erect lanterns as per recommendations in Separate Appendix IV/A: *Preah Khan, Angkor - The West Lantern Approach - An Archaeological Appraisal & Condition Report*.

**Time Required:** 2 Months

~~downloading~~

**PROJECT 10 - CONTINUED SITE CLEARANCE AND MAINTENANCE**

**Research:** Botanical research into methods of controlling vegetal growth. Also establish procedures for use of herbicides to remove tree roots etc.

**Maintenance Program:**

- Limited further clearance required around Enclosure Walls. Continue preserving open areas cleared during previous Field Campaign.

~~Time required for each~~

**Time Required:** Continuous

~~not a funding line item~~  
**TRAINING** ~~Facilities~~

~~not a funding line item~~

~~continued question regarding the relationship between the King and the Deity with his offerings of form, colour, and fragrance~~

~~While it is hoped to place a greater emphasis on the Deity in the future, there will take on the role of Vapor and Soma, as signified by the King's offerings to the Deity~~

## **NEW PROJECTS**

### ***PROJECT 11 - MISCELLANEOUS STABILIZATION***

*Research:* Further studies may be necessary to ensure correct implementation techniques for structurally stabilizing a number of endangered buildings and components as recommended by Consultant Engineer.

*Maintenance Program:*

- Complete emergency propping and stabilization program recommended by Consultant Engineer.
- Continue to monitor on a regular basis all props and supports installed - especially those placed during Field Campaign I.

*Time Required:* Continuous

### ***PROJECT 12 - HALL OF APSARAS***

*Research:* Continue research on suitable conservation materials and technology.

*Conservation Program*

- Select a representative example of partially collapsed wall or vaulting for structural consolidation and undertake as demonstration.
- Select an example of a fractured lintel and undertake its repair using dowels and adhesives as a demonstration.

*Time Required:* 2 Months

### ***PROJECT 13 - DHARMASALA***

Subject to funds being available this could become the central focus for the Field Campaign II. However it is likely that this work will be postponed until Field Campaign III.

*Research:* Continue a careful assessment of structural failures and prepare a short and long term workplan.

*Conservation Program:*

- Complete emergency stabilization and propping as necessary to commence consolidation work.
- Consolidate foundations as necessary.
- Erect a sound working scaffolding.

- Under careful scrutiny, dismantle roof vaults and correct their re-alignment.
- Partially dismantle end walls and consolidate as necessary.

*Time Required:* 5 Months

#### ***PROJECT 14 - TREE REMOVAL - VISHNU COMPLEX***

A hurricane in 1989 broke this large ficus tree in half so that today a 15 meter denuded tree trunk remains. Its roots have entangled and damaged a shrine and a wall in the northwestern part of the complex.

*Conservation Program:*

- Carefully cut down tree in sections to avoid any damage to structures below.
- Disengage roots from small temple structure and consolidate the damaged building as necessary.

*Time Required:* 1 Month

#### ***PROJECT 15 - NORTH SOUTH VAULTED CORRIDOR***

*Research:* Carry out further research on vault collapses and prepare plans for reconstruction.

*Conservation Program:*

- Carefully document and systematically re-stack fallen stones ready for reconstruction.
- Carefully document and dismantle unstable sections of vault and stack for reconstruction.
- Reconstruct vaults and consolidate as required, following Consultant Engineer's proposals.

*Time Required:* 3 Months

### **TRAINING PROGRAM**

WMF remains committed to continue with both 'on site' training at Preah Khan and with its offerings of formal lectures at the University of Fine Arts in Phnom Penh. WMF is hoping to place a graduate student of architecture from the USA who will take on the role of tutor and administrator for the training program. If time permits

this person will also be able to assist the Department of Architecture with its teaching program.

With the help of this person WMF hopes to expand its scope at Preah Khan and to have a more integrated training program. As before, the consultants will serve as lecturers, advisors and co-workers but will not be responsible for the day to day organization of the students or their curricula.

## **RESEARCH & DOCUMENTATION**

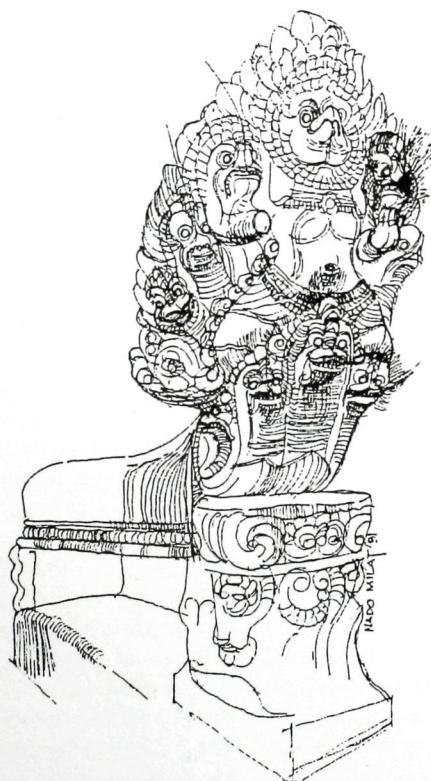
WMF is promoting the concept of locating foreign students who would pair up with the Khmer students to undertake specific research projects. Such fields of study could include an analysis of the morphological growth of Preah Khan, forestry and botanical studies, and analyses of both decorative and constructional elements. In addition the computerized inventory programs for architecture and movable artistic elements should be completed.

## **PUBLICATIONS**

Besides the annual reports that WMF regularly prepares it hopes to produce a small illustrated guidebook on Preah Khan, as well as a new brochure to replace the present informally presented but highly successful leaflet.

## **8. ATTACHED APPENDICES**

- A. WMF Project Development Team
- B. Preah Khan Project - 1992/93 Workplan
- C. Preah Khan Stele Inscription Translation
- D. Proposal for a Temporary Interpretative Center  
at Angkor



## APPENDIX A

## WMF PROJECT DEVELOPMENT TEAM

## **APPENDIX A**

### **WMF PROJECT DEVELOPMENT TEAM**

The following is a list of the World Monuments Fund's consultants, Cambodian counterparts and others who participated in Field Campaign I.

#### **WORLD MONUMENTS FUND CONSULTANTS**

##### **John Sanday - Conservation Architect (Project Director)**

Since the inception of the WMF program in Cambodia in 1989, John Sanday has been involved in promoting and organizing the project for WMF and has led all the missions. His main skills are in the planning and development of the special sub-projects and in the mobilization of the site activities and workforce.

##### **John Stubbs - Project Planning (WMF Program Director)**

At the headquarters of the WMF in New York, John Stubbs is the program coordinator working closely with the Project Director. John Stubbs has also participated in the field work since March 1992 where he has contributed to the development of project planning and conservation policies on site. He is also mainly responsible for coordinating the publication of the reports.

##### **Dr. Corneille Jest - Environmental Scientist**

Corneille Jest is Maitre de Recherche Centre National de Recherche Scientifique and oversees CNRS's general research program for the Himalaya and Karakoram. Dr. Jest was a member of the first WMF team to Cambodia in 1989. He has contributed widely to WMF's understanding of the environmental aspects of the Preah Khan Project as well as being a useful liaison person between Cambodian officials and the French contingent with common interest in Angkor.

**Fred Aldsworth - Archaeological Recording & Survey**

During his third field mission to Preah Khan Fred Aldsworth was responsible for the preparation of survey drawings and notes on the principal East Gopura complex leading through Enclosure Wall III. He developed a special photographic technique for the recording to scale of the main elevations. Following the success of this technique he adapted it for use on the other two projects of the Vishnu Temple Complex and the Dharmasala.

**Dr. Predrag Gavrilovic - Consultant Engineer**

Predrag Gavrilovic joined the WMF team in March 1993 during Field Campaign I to prepare recommendations for emergency temporary support to structures threatened with collapse. He also studied the structures with a view to developing appropriate and simple technology for their consolidation and repair, concentrating particularly on the Vishnu Temple Complex and the Dharmasala.

**Dr. Claude Jacques - Historian**

Professor Jacques is one of the most prominent historians and epigraphers to have studied the Khmer Kingdom and Angkor. His contributions to the Preah Khan Project have ranged from advising on the chronological development of the site to translation of the famous Preah Khan Stele.

**Dr. Frank Preussser - Conservator**

Frank Preusser, former director of the Getty Conservation Institute, is a widely recognized expert on the conservation of historic building materials. In November of 1992 Dr. Preusser conducted some preliminary tests on stone at Preah Khan in order to determine the parameters of the stone conservation challenge at the site.

**Nicola Smith - Administrative Assistant**

Nicola Smith joined the Preah Khan project in Spring 1992 having worked as a volunteer at the National Museum in Phnom Penh. She has contributed greatly to the monitoring of the field work.

**Norma Joseph - Photographer**

The project has benefitted on two missions from the voluntary services of Norma Joseph who has provided WMF with record photographs of the work in progress at Preah Khan. Many of her photographs have been used to illustrate the reports.

**VSO Rep:****Nils Tremmel - Monitor**

The Preah Khan Project has been fortunate to have Nils Tremmel's assistance in the day to day liaison between the project and the Conservation d'Angkor where he is working. He has also aided the project by monitoring its progress when there was no representative of the WMF in the field.

**CAMBODIAN COUNTERPARTS****UBA Team:**

**Professor Hor Lat** - Architecture (Training)  
**Lekh Sareth** - Architecture (Student Team Leader)  
**Nay Sophea** - Archaeology  
**Cheam Phally** (Ms) - Architecture  
**Var Morin** - Architecture  
**Chann Chamroen** - Archaeology  
**Chhun Soma** (Ms) - Architecture

The team members from the University of Phnom Penh have made a considerable contribution to the success of the Preah Khan Project by assisting in the documentation process on the site. During the months between WMF missions they were responsible for monitoring the progress of the project and assisting with the supervision of the workforce.

**Con. d'Angkor:****Im Mar - Chef de Chantier**

The responsibility for mobilizing and running the Preah Khan Project rests on the shoulders of Im Mar, a veteran of several campaigns with the EFEAO. He has proved to be an excellent leader and has great experience in working with the stones of Angkor.

**Im Soeun - Inventory**

Im Soeun was a useful addition to the team due to his experience and knowledge of Khmer art and iconography. He was seconded from the Conservation d'Angkor and has been a useful liaison officer.

**Vong Sareth - Kong Sam Sera - Surveyors**

Both members of the Conservation d'Angkor, these men have assisted the Preah Khan team during some of the major survey work. They also join the project for workshops and on occasions when they have free time from their office responsibilities.

## APPENDIX B

## APPENDIX B

### THE PREAH KHAN (SEASON 1992/93)

NB. Below is the revised  
1992/93 Plan.

### THE PREAH KHAN PROJECT PROPOSED WORKPLAN (SEASON 1992/93) FIELD CAMPAIGN I

#### Project Approval:

The World Monuments Fund, Cambodian Archaeological Project, discourses as follows: We have received the National Committee for Cultural Affairs of Cambodia and in accordance with WMP's program to undertake a proposed work plan for the forthcoming 1992/93 season, dated 13th October 1992, WMP has prepared a revised program which is set out below to establish a detailed work plan for the 1992/93 season at Preah Khan. Following completion of the present mission, WMP will present its detailed work plan to the National Committee for Cultural Affairs which are in place at the conclusion of the present mission.

#### Budget Limitations:

The World Monuments Fund has prepared an overall program and budget for the 1992/93 season, which is set out in Report II. The original proposal outlined activities for eight months between November 1992 and July 1993 with a budget guideline of \$235,200.00. The revised program will reduce the budget requirements to \$179,160.00 for the period up to 30th June 1993. To date funds are in hand to support the present mission until the end of December 1992 in accordance with the monthly budget, and a decision for the continuation of the 1992/93 season's program beyond 1992 will be made by the end of the November mission.

## **APPENDIX B**

### **THE PREAH KHAN PROJECT - PROPOSED WORK PLAN (SEASON 1992/93) - FIELD CAMPAIGN I**

**NB:** Below is an abstract from one of the proposed Work Plans prepared for the 1992/93 Field Campaign. It is a useful comparison for what was actually achieved.

#### **Project Approval**

The World Monuments Fund is aware that the administration proposed by the Cambodian Authorities and delegates attending both the UNESCO Roundtable discussions is not yet fully operational. WMF has therefore submitted its reports to the National Committee for the Rehabilitation of the Monuments and Museums of Cambodia and is seeking a provisional letter of agreement to mobilize its field program to undertake a practical feasibility study in Preah Khan during the forthcoming 1992/93 season. Following discussions with Cambodian authorities on 13th October 1992, WMF has reduced its activities during the mobilization phase. WMF's revised program will undertake research oriented conservation work, as set out below, to establish a clearer understanding of its future scope of activities in Preah Khan. Following completion of this mobilization phase, WMF will formally present its detailed work plan to the relevant national and international executive committees which are in place at the time for their approval.

#### **Budget Limitations**

The World Monuments Fund has prepared an overall program and budget guidelines for the 1992/93 season, which is set out in Report III. The original workplan outlined activities for eight months between November 1992 and July 1993 with a budget guideline of \$US 286,000. The revised program will reduce the budget requirements to \$US 160,000 for the period up to 30th June 1993. To date funds are in hand to support the present mission until the end of December 1992 in accordance with the monthly budget, and a decision for the continuation of the 1992/93 season's program beyond 1992 will be made by the end of the November mission.

Following discussions with members of the National Committee in early October, WMF revised its work plan for 1992/93 as follows:

### **The Preah Khan Conservation Project**

<u>PROJECT ACTIVITY</u>	<u>LABOR</u>	<u>BUDGET(\$)</u>
Project 10 <i>Site Clearance</i> Using the local labor force to clear undergrowth and remove vines at Preah Khan as instructed.	40	16,000
Project 9 <i>Processional Way and Lanterns-West Entrance</i> Identify, record and carefully reset the fallen lantern stones, repairing as necessary with resin bonding agents and stainless steel dowels.	20	2,500
Project 8 <i>West Causeway</i> Clear causeway of all vegetation and soil and reset stone slabs to prevent rainwater pooling. Undertake experimental cleaning of mosses and lichen growths.	20	2,000
Project 5 <i>Tower and Galleries of West Vishnu Complex</i> Generally clear site of all vegetation; assess stone piles, sort, clean and number stones; undertake emergency repairs to vaults about to collapse; set up system of monitoring movement in associated structures; prepare work plan for future activities for this section.	50	34,000
<i>General Emergency Repairs</i> Continue detailed survey of Preah Khan structures, identify structures in danger of collapse and undertake emergency support or repairs.	20	6,000

<u>PROJECT ACTIVITY</u>	<u>LABOR</u>	<u>BUDGET(\$)</u>
<i>On Site Training for Students</i> The WMF team will be augmented by selected students of architecture and archaeology from the respective Departments of the University of Beaux Arts, Phnom Penh, who will continue their "on site" training program.	8	9,500
<i>WMF Consultants</i> WMF consultants will visit Preah Khan at different times throughout the season to carry out research and to supervise the conservation work in progress. WMF is glad to have part time assistance from the British Volunteer architect who is working at the Conservation d'Angkor offices.		75,000
<i>Publications &amp; Promotion</i> WMF Consultants will prepare the annual report which will document all activities undertaken during Field Campaign I and map out a proposed work plan and budget or a Field Campaign II planned for 1993/94.		15,000
<b>TOTAL BUDGET</b>		<b>160,000</b>

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### **Work Force**

In consultation with the Conservation d'Angkor, WMF proposes to establish a work force of about 40 craftsmen (ouvriers) under an experienced Chef de Chantier at Preah Khan. The work force will be trained 'on site' in using appropriate conservation technologies. A separate group of 30 laborers (flottants) from the environs of Preah Khan will be employed to clear vegetation under careful supervision and to maintain the site as part of an annual maintenance program. Simple site clearance can also be expected to provide some added security to the site.

## **WORK PROGRAM**

Following the National Committee's agreement for The World Monuments Fund to commence with its provisional program for the Preah Khan Conservation Project, WMF proposes commencing mobilization at the beginning of November 1992 to coincide with a visit from a group of WMF supporters who are potential donors to the Preah Khan Conservation Project. It is anticipated that the work plan described above will run continuously with periodic visits from WMF consultants. Under the British Volunteer's guidance, it is proposed that members of the student team will take turns in monitoring site preparation in the absence of WMF consultants.

### **NOVEMBER 1992 MISSION**

**Duration: 1st - 30th November 1992**

The Preah Khan Project is scheduled to start during the month of November, during which time WMF will collaborate with the Cambodian Government towards the development of appropriate conservation technologies and the specialist training of a group of archaeological and architectural students assigned to work with the WMF team. With assistance from the Getty Conservation Institute (GCI) in California, WMF also plans to undertake field research on appropriate methods for stone conservation and cleaning which will provide guidance on the needs and methods of such interventions.

Initially the work force under the leadership of the Chef de Chantier from the Conservation d'Angkor will undergo basic training and familiarization of present day conservation technologies. During the early part of the November mission the WMF team will concentrate on the development of appropriate methodologies and technologies for repairing and consolidating representative structures at Preah Khan. As part of the training program, the students will assist in the fieldwork required for the further development of the Computerized Inventory.

**WMF Team:** John Sanday - Conservation Architect (Project Director)

John Stubbs - Project Planning (WMF Program Director)

Fred Aldsworth - Archaeological Surveyor

Frank Preusser - Architectural Conservator

Nils Tremmel - Monitor

Professor Hor Lat - Architecture (Training)

Lekh Sareth - Architecture (Student Team Leader)

Nay Sophea - Archaeology

Thia Thian Theborras - Architecture

Cheam Phally (Ms) - Architecture

Var Morin - Architecture

Chann Chamroen - Archaeology

Chhun Soma (Ms) - Architecture

**VSO Rep:**

**UBA Team:**

Con. d'Angkor:                    Vong Sareth - Surveyor  
   Kong Sam Sera - Surveyor  
   Im Soeun - Inventory  
   Im Mar - Chef de Chantier

### JANUARY 1993 MISSION

Duration: 10th - 31st January 1993

The anticipated activities during this mission will be to monitor repairs previously undertaken; to plan the next stage of work according to WMF's budget and to provide detailed instructions to the field supervisors. The WMF team will be joined by a civil engineer who will advise on some of the more complex structural problems and who will instruct the craftsmen in suitable techniques for various types of structural repairs.

WMF Team:                         John Sanday - Conservation Architect (Project Director)  
   Predrag Gavrilovic - Structural Consolidation  
   Frank Preusser - Materials Conservation (Director, GCI)  
   Christine Hawixbrock - Archaeologist  
VSO Rep:                           Nils Tremmel - Monitor  
UBA Team:                           Lek Sareth - (Student Team Leader)  
   *Team to be confirmed*  
Con. d'Angkor:                      Im Som - Inventory  
   Im Mar - Chef de Chantier

### MARCH/APRIL 1993 MISSION

Duration: 7th March - 2nd April 1993

The WMF team will return to complete and finally record the work undertaken in Preah Khan during the 1992/93 season. The WMF team will continue their on site training program with the student team who, as part of their training, will prepare measured drawings of the work undertaken. The fieldwork for the computerized inventory will also be completed. During this mission, in discussion with the Cambodian Government, the team will jointly review the contents of the season's report and present a draft plan of action for the 1993/94 field campaign at Preah Khan.

WMF Team:                         John Sanday - Conservation Architect (Project Director)  
   John Stubbs - Project Planning (WMF Program Director)  
   Fred Aldsworth - Archaeological Recording & Survey  
   Corneille Jest - Environmental Scientist  
   Christine Hawixbrock - Archaeologist  
VSO Rep:                           Nils Tremmel - Monitor  
UBA Team:                           Professor Hor Lat - Architecture (Training)  
   Lekh Sareth - Architecture (Student Team Leader)

Nay Sophea - Archaeology  
Thia Thian Theborras - Architecture  
Cheam Phally (Ms) - Architecture  
Var Morin - Architecture  
Chann Chamroen - Archaeology  
Chhun Soma (Ms) - Architecture  
Mauv Channavy (Ms) - Architecture  
Con. d'Angkor:  
Song Sareth - Surveyor  
Kong Sam Sera - Surveyor  
Im Soeun - Inventory  
Im Mar - Chef de Chantier

## IN THE INTEREST OF COLLABORATION

World Monuments Fund is pleased to participate in the international program to safeguard the monuments of Angkor and is prepared at all times to share its research and findings with other similarly motivated organizations. WMF also welcomes input from others working to conserve Angkor's historic patrimony in an effort to assist the National Committee in drawing up principles and procedures for conserving Angkor and other sites in Cambodia.

The World Monuments Fund Team is ready at all times to collaborate with other organizations on projects that serve to safeguard the Historic City of Angkor and, as long as it fits within the scope of the WMF's missions, will be prepared to offer their technical assistance.

John Sanday  
Project Director  
World Monuments Fund  
1992

14th October

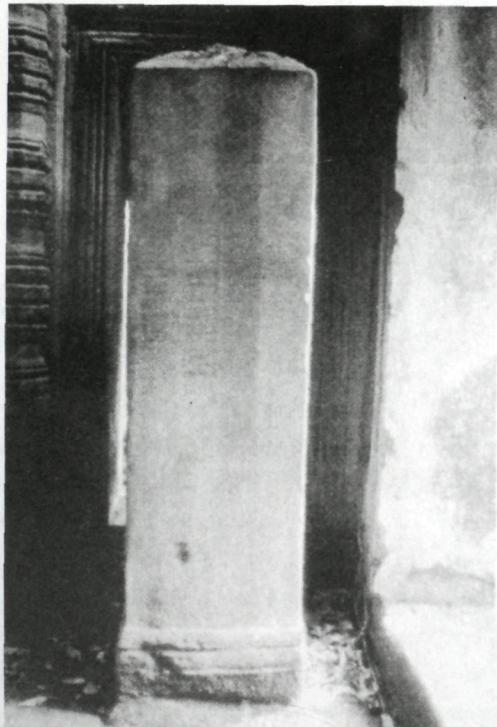
## **APPENDIX C**

### **PREAH KHAN STELE INSCRIPTION TRANSLATION**

by Professor Claude Jacques\*  
July 1993

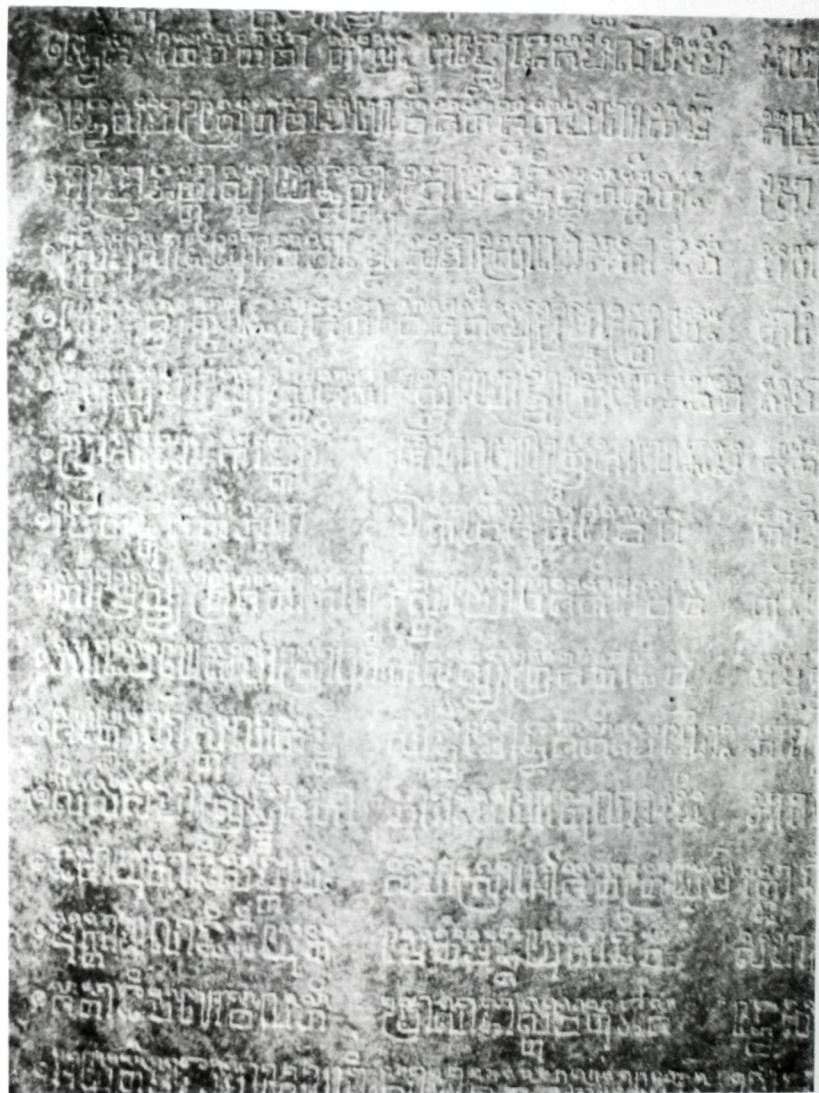
\* World Monuments Fund is indebted to Professor Claude Jacques, Directeur d'Études at Ecole Pratique des Hautes Études, Paris for the use of the following translation of the Preah Khan Stele.

## La stèle de Preah Khan



North Face of Preah Khan Stele, Central Shrine, March 1992.

\* World Monuments Fund is indebted to Professor Claude Jacques, Directeur d'Etudes a l'Ecole Pratique des Hautes Etudes, Paris for the use of the following translation of the Preah Khan Stele.



Inscription in Sanskrit, North Face of Preah Khan Stele, March 1992.

Worshipped by the people of the land of Cambodia,  
the King of the Khmer, who is the son of the  
Emperor of China, has ordered the following  
inscriptions to be engraved on the stele.

# La stèle de Praḥ Khan

K 908

## Introduction.

La grande stèle de Praḥ Khan a été découverte le 13 novembre 1939 par Maurice Glaize et a été publiée dans le *BEFEC* XLI, 1941, par George Coedès (p. 255-301), article accompagné, c'est à remarquer, de la reproduction des estampages. On remarquera aussi que G. Coedès n'a pas inclus cette édition dans ses "Etudes cambodgiennes". L'introduction, à revoir sérieusement aujourd'hui, est particulièrement copieuse, occupant les pages 255-270.

## TRADUCTION

### FACE A.

Note.- Les dix-huit premières stances sont identiques à celles de la stèle de Tà Prohm, à l'exception de la stance XV, qui est légèrement différente: cf les notes de la même stance de Tà Prohm à ce sujet.

I.- « Celui qui est le Bienheureux dont le corps de "jouissance" et de "transformation" ainsi que le corps de *dbarma* se manifestent par l'abondance des "provisions"<sup>1</sup> et qui est (ainsi) partagé, qui est sensible<sup>2</sup> pour ceux qui participent aux corps de Jina et des fils de Jina, à Celui-là, le Buddha, le refuge des êtres, hommage soit à Lui! »

<sup>1</sup> "provisions": *g.* note de Coedès (n. 2, p. 27). « Les provisions de bonnes œuvres (*punyasambhāra*) et de connaissances (*jñānasambhāra*). »

<sup>2</sup> "sensible": ici, *gc* = *indriya*, donc *gocara* est "perceptible par les sens et la connaissance" (note de Bhatt). G. Coedès avait compris: "qui est le domaine de ...", sens également possible, mais peut-être moins bon en l'occurrence.

II.- Je salue la Voie indubitable<sup>1</sup> vers la Bodhi "sans supérieure", "œil"<sup>2</sup> unique sans écran pour la vision de la Réalité, le Dharma, qui doit être salué par ceux qui doivent être salués par les Immortels<sup>3</sup> connus dans les trois mondes, l'épée qui lacère le groupe des six ennemis intérieurs<sup>4</sup>."

III.- « Bien qu'ayant relâché totalement son contact avec ce qui barre le chemin de la Délivrance, elle maintient continuellement son contact avec le bien des autres; enseignant aux autres les préceptes du Jina chantés ensemble<sup>5</sup>, la Communauté, qui a pour but la naissance du Bien, qu'Elle vous protège!»

IV.- « Source unique de la création des fruits désirés par les trois mondes, dont les branches-bras sont décorées de rameilles-bouts des doigts, dont le corps est entouré d'une jeune liane-le cordon d'or, Lokeśvara est vainqueur, Pārijāta vivant!»<sup>6</sup>

V.- « Celle qui marche en tête du Dharma du Roi des *muni*, riche de "qualités", celle qui doit être observée<sup>7</sup> par ceux qui sont avisés au moyen de l'œil de la Science, celle qui a rejeté totalement les filets de l'Illusion, avec "amour", la Mère des Jina, saluez-la!»

<sup>1</sup> "indubitable": *niruttara*, "unquestionable" (Bhatt). Littéralement "sans plus haute". Le "suprême" de G. C. est très acceptable.

<sup>2</sup> "œil": *dr̥ṣṭi*, qui signifie également "doctrine"; mais dans notre *pāda*, tout est mis sur le plan de la vue (cf. *darsana* et *nirāvaraṇa*).

<sup>3</sup> *vandyavandya*: on pourrait comprendre aussi comme un fréquentatif. Cependant, Bhatt m'a signalé que *amaravandya* signifie "Buddha" [ce n'est pas dans le Monier-Williams ou dans le *Śabdakalpadruma*] et qu'on peut donc traduire plus simplement "qui doit être salué par les Buddha connus dans les trois mondes".

<sup>4</sup> G. Coedès rappelle en note que les "six ennemis intérieurs" sont le désir (*kāma*), la colère (*krodha*), la cupidité (*lobha*), l'égarement (*moha*), l'orgueil (*mada*) et l'envie (*mātsarya*).

<sup>5</sup> L'insistance sur le mot *sarīga* vient de *sarīgha* probablement.

<sup>6</sup> G. Coedès propose un double sens auquel je ne crois guère (note 3, p. 27). Théoriquement, le jeu de mots est sans doute possible, mais je ne vois pas pourquoi on invoquerait dans le contexte le paradis des Virāśaiva, malgré les explications données.

L'allusion doit être ici à la figure de Lokeśvara à 8 bras qui pourrait figurer assez bien un arbre.

<sup>7</sup> G. Coedès traduit *nirikṣyām* par "ne peut être conçue", donnant le sens négatif habituel au préfixe *nir-*; en fait, celui-ci a d'abord le sens de "en dehors de" et *nirikṣ-* n'a jamais, selon, M.-W., un sens négatif. Ce sens négatif ne conviendrait d'ailleurs pas du tout ici et on le voit bien par le commentaire que G. C. a cru devoir ajouter en note sur *adbyātmadṛṣṭa*, qu'il traduit "méditation tournée vers leur personnalité", alors que M.-W. propose pour cette expression: "knowing the Supreme Spirit". Le pandit Bhatt m'a proposé "by the sight of Knowledge".

**VI.-** «Il fut un roi qui doit être honoré par les rois de la terre porteurs du bâton entier de Manu, le meilleur des sages, fils de Śrutavarman,<sup>1</sup> le roi Śrī Śresthavarman, le meilleur par ses faits de gloire éclatants, origine d'une lignée de rois immaculée.»

**VII.-** «Lui qui fut un soleil dans ce firmament qu'est la lignée de Śrī Kambu<sup>2</sup>, né dans cette montagne de l'Est qu'est Jayādityapura<sup>3</sup>, Il a éveillé les lotus des cœurs des vivants, trésor de splendeur, Roi suprême de Śresthapura.»

**VIII.-** «Née dans l'océan de Sa famille maternelle<sup>4</sup> où brillait la lune — Sa renommée jamais blâmée<sup>5</sup>, elle resplendissait comme Lakṣmi, Elle qui marchait en tête des femmes de bien, Kambujarājalakṣmī.»

**IX.-** «Epoux de la Terre à Bhavapura, Bhavavarman Deva<sup>6</sup>, Lui dont la beauté resplendissante a charmé son royaume [ou dont un éclat resplendissant illumine le disque], plein de talents [ou plein de *kalā*], fut l'auteur de la naissance d'une famille de rois, (et), comme Celui-aux-rayons-d'immortalité, apaise la souffrance de Ses sujets [ou la chaleur des créatures].<sup>7</sup>»

**X.-** «Celui qui eut une conduite, un éclat, une vaillance irréprochables en tout, qui est né dans la lignée de celui-ci, qui a créé un

<sup>1</sup> Śrutavarman apparaît ici, semble-t-il, pour la seule beauté du vers et pour faire pendant à śrutavatām. On sait que ce mot signifie aussi "savant".

<sup>2</sup> Dans K 958 (pièdroits de Präsāt Kôk Cak, st. II [IC VII, p. 141]), Śrutavarman est présenté comme le propre fils (*putra*) de Kambu, qualifié de Brahmasī.

<sup>3</sup> Jayādityapura: rien n'indique que cette cité (-Etat?) se soit trouvée à l'est de l'empire khmer.

<sup>4</sup> En toute logique, en rapprochant les données de l'inscription de Baksei Camkron K 286, où Kambu est l'époux de Merā, avec celles de K 958 [les deux inscriptions datent du règne de Rājendravarman], la famille maternelle de Śresthavarman devrait être celle de Merā.

<sup>5</sup> "jamais blâmée": il faut comprendre *an-avagatā*. La traduction de G.C., "louée sans relâche", se comprend mal.

<sup>6</sup> La question de savoir de quel Bhavavarman il s'agit ici peut se poser: on ne sait pas le nom du royaume de Bhavavarman III, mais les deux premiers régnent sur Bhavapura, on le sait maintenant. Etant donnée leur personnalité, on est fortement tenté de choisir le premier.

<sup>7</sup> Voilà une strophe à double sens, mais banale en épigraphie khmère. Mais les deux stances précédentes ont amené bien des erreurs historiques, à la suite d'une mauvaise interprétation de G. Coedès: ne sachant que faire de la reine précédente, il en a fait l'épouse de Bhavavarman. D'où une série de spéculations à partir du Fou-nan et du Tchen-la et des données chinoises. C'était simplement mal réfléchir au plan de ce passage, pourtant bien clair, comme on le verra, et qui ne pose aucune difficulté. Du reste, Kambujarājalakṣmī serait un anachronisme flagrant au VI<sup>e</sup> siècle, comme l'avait déjà souligné P. Dupont.

emploi pour toutes sortes de gens<sup>1</sup>, le roi Śrī Harṣavarman<sup>2</sup> fut le destructeur de la joie des ennemis<sup>3</sup> dans les batailles (et) eut la masse de Ses faits de gloire répandue par la bouche des points cardinaux.<sup>4</sup>

XI.- « Par ce roi en cette<sup>4</sup> reine<sup>5</sup> a été conçue Śrī Jayarājacūḍāmaṇī, de même que Gaurī (a été conçue) par le *guru* de Gaurī [Himālaya] en la Devī suprême, elle qui est blanche des rayons de la lune de sa gloire.»

XII.- « Celle-ci était comme Vāgiśvarī par l'excellence de ses paroles, comme Dhātri par sa fermeté, comme Kamalā par sa beauté, comme Arundhatī par sa conduite jamais blâmée [= irréprochable], comme Maitri incarnée par sa générosité, etc.<sup>6</sup> »

XIII.- « Ayant obtenu la royauté suprême à Śrīmant Yaśodharapura, le roi Jayavarman-deva (VI), après avoir vaincu le flot de ses ennemis, planta dans toutes les directions jusqu'à la mer des piliers de renommée, lui dont les ancêtres résidaient à Mahīdharpura.<sup>7</sup> »

<sup>1</sup> Traduction indiquée par Bhatt, mais je ne comprends toujours pas *janina*.

<sup>2</sup> Le grand problème est de savoir ici de quel Harṣavarman il s'agit, ou plus précisément s'il s'agit de Harṣavarman III, le seul connu à cette époque. G. Coedès l'a d'abord refusé, le nommant Harṣavarman IV dans la publication de la stèle de Tà Prohm; mais il s'est repris et l'a accepté formellement, jusque dans les *Etats hindouïsés*.

Pourtant, étant donné les dates de chacun, considérant que le roi loué ici était le grand-père de Jayavarman VII, il ne paraît pas possible d'accepter cette thèse: Harṣavarman III est mort au plus tard en 1080 et cette date est donc l'ultime possibilité pour la naissance de la mère de Jayavarman VII; cela lui aurait donné 40 ans au moins en 1120, ce qui paraîtrait une date limite pour la naissance de Jayavarman VII. On voit que cela ferait arriver ce dernier bien âgé sur le trône...

Il exulta donc vraisemblablement un Harṣavarman IV, qu'on s'efforce de considérer comme un roi mineur; mais l'éloge ici apporté m'en fait sérieusement douter. En repartant à l'envers, si Jayavarman VII était né en 1145 (dernière date possible, à cause de son action en 1166), sa mère aurait pu naître au plus tôt vers 1125 et son grand-père vers 1105. On pourrait songer alors à l'un des deux rois éliminés par Sūryavarman II, l'autre étant, on le sait, Dharaṇīndravarman I<sup>er</sup>.

<sup>3</sup> "joie des ennemis": opposition *vairi* <> *barso*

<sup>4</sup> *tasyām*: voilà le mot oublié par G. Coedès, qui a donné lieu au contre-sens sur Kambujājalakṣmi. *Mabisyām tasyām* ne peut que renvoyer à cette femme, qui était donc tout simplement la grand-mère maternelle de Jayavarman VII. Il n'y a plus d'anachronisme.

<sup>5</sup> "grande reine" chez Coedès traduit *mabiṣi*.

<sup>6</sup> Maitri est l'épouse de Dharma; Arundhatī est celle de Vaśistha, rsi de la légende védique; Kamalā est Lakṣmi; Dhātri signifie "terre", mais je n'ai rien trouvé au sujet d'une figure mythologique de ce nom.

Je rappelle qu'il s'agit ici de Jayarājacūḍāmaṇī, fille du roi Harṣavarman (IV?) [le point d'interrogation portant sur le fait qu'il puisse être considéré comme «roi suprême» ou non, puisque l'habitude (?) est de ne numérotter que ces rois-là].

La stase apparaît, à nous en tout cas, comme de pure *prāśasti* et il ne semble pas y avoir une allusion quelconque à un fait réel utilisable pour l'histoire.

<sup>7</sup> On change ici complètement de lignée [dans d'autres inscriptions, cela serait souligné par un mot comme *atīta*] et on voit que le poète néglige ici tout à fait les origines paternelles de Jayavarman VII, sauf pour nous dire de façon assez vague que les "ancêtres" de

XIV.- « Le fils de la sœur<sup>1</sup> de celui-ci [Jayavarman VI], splendide de modestie, fut connu sous le nom de Śrī Mahidharāditya<sup>2</sup>, lui qui, frère puiné de la mère du roi Śrī Sūryavarman (II)<sup>3</sup>, a vaincu la masse de ses ennemis. »

XV.- « Illuminée par ce flambeau d'une lignée estimable et pure, qui est connu par son excellente conduite, Rājapatindralakṣmī fut celle dont la lignée maternelle résidait à Śrī Suvīratī. »

XVI.- « Ce (prince) et cette (princesse) [Mahidharāditya et Rājapatindralakṣmī] eurent un fils qui honorait les rois des *dvija* [= brāhmaṇes], qui avait l'impétuosité du roi des *dvija* [= Garuda] et la beauté du roi des *dvija* [= Soma, le Lune]<sup>4</sup>, dont le parfum de la renommée extraordinaire (se répandait) dans le cercle des horizons, qui fut le roi suprême Dharaṇīndravarman (II). »

XVII.- « Il buvait lui-même jusqu'à satiété le nectar de la lune — les instructions<sup>5</sup> du Śākyā —, il donnait totalement l'essence de sa prospérité aux bhikṣu, aux brāhmaṇes et à ses sujets qui en avaient besoin, il

Jayavarman VI venaient de Mahidharapura. On a ici quelque chose qui est tout à fait comparable à ce qu'on trouve dans la généalogie de Yaśovarman I<sup>er</sup>, avec l'accent sur la valeur ancienne de l'ascendance maternelle et le flou sur les origines paternelles. Il ne faudrait pas en tirer une loi, mais ne pourrait-on pas voir là une indication du fait que les princes d'ascendance mal assurée cherchaient des épouses mieux «nées» qu'eux-mêmes? C'est toutefois un terrain sur lequel il convient d'être extrêmement prudent, car on a le plus souvent l'impression qu'on ne se fatiguait pas beaucoup dans les inscriptions à justifier par leur naissance la prise de pouvoir des princes khmers. Jayavarman VI est présenté ici comme le premier «roi suprême» de la lignée.

D'autre part, cette stase garantit que Jayavarman VI a effectivement régné à Ankor, malgré ce qu'on en peut dire. Mais où était situé Mahidharapura?

<sup>1</sup> Affirmation ici de l'importance de la matrilinéarité.

<sup>2</sup> *Mabidbarāditya* = «Soleil de Mahidhara».

<sup>3</sup> C'est tout ce que l'on dira de Sūryavarman II dans cette inscription: il n'est donc cité que par hasard en quelque sorte et n'est qualifié que d'*avaniपāla*, c'est-à-dire simple *rāja*, sans rien d'autre. C'est bien peu pour le fondateur d'Ankor Vat, qui a régné près de 40 ans! On remarque même un fort contraste avec Mahidharāditya, qui, lui, a droit à un petit éloge, lequel ressemble fort à vrai dire en l'occurrence à une cheville. Mais il n'est pas qualifié de *roi*.

<sup>4</sup> Pourquoi ce jeu de mots sur *dvijendra*? S'il n'y a pas d'allusion particulière qui intéresse l'histoire (on peut penser simplement à un fait d'intérêt purement anecdotique), alors on voit que le poète n'a pas grand-chose d'important à dire de ce roi, et la stase suivante qui lui est consacrée n'ajoute guère plus. Et par conséquent, on peut se demander s'il faut prendre *adbīvara* dans son sens strict?

<sup>5</sup> *sāsana-* est traduit par G. Coedès «religion», qui n'est pas mauvais, mais me paraît trop précis.

cherchait à extraire la quintessence<sup>1</sup> du corps sans quintessence, résidence impure, lui qui se courbait constamment aux pieds du Jina<sup>2</sup>.»

**XVIII.-** « Cette fille de Śrī Harṣavarman<sup>3</sup> donna naissance, de ce roi<sup>4</sup>, à un héros, le roi Śrī Jayavarman (VII) à l'énergie flamboyante, tout de même que la déesse Aditi fit, du *brabmarsi*<sup>5</sup>, le Roi des dieux qui, observant le bon Dharma pour protéger la terre [ou habitant le Sudharma<sup>6</sup> pour protéger la vache<sup>7</sup>], a tué dans un combat les chefs des ennemis<sup>8</sup> au moyen de millions de flèches [ou au moyen de l'arme "qui a cent tranchants"<sup>9</sup>].<sup>10</sup>»

*Le texte original commence donc à la ststance XIX.*

**XIX.-** « Ayant rassemblé la beauté de l'œuf de Brahman arrosé d'*amṛta* et l'ayant placé avec les bons signes dans le palais qui est son réceptacle, le Créateur le créa avec amour suivant son propre génie, certainement parce qu'il se proposait de faire un "empereur" aux qualités irréprochables.»

**XX.-** « Lakṣmī, que l'on dit instable, liée par les qualités infranchissables de son âme, il l'a immobilisée dans le gynécée de sa politique; ayant paré son amie la Renommée qui se meut dans les directions, celle-ci emmena au bout du monde la famille du roi des ennemis.»

<sup>1</sup> Insistance sur le mot ou les composés du mot *sāra-*, qui est un jeu du poète sans signification particulière.

<sup>2</sup> Dans le 2<sup>e</sup> *pāda*, noter la forme ° *sākṛta*; avec un ° *a* inutile pour le mètre et donnant une forme non attestée dans les dictionnaires. «Donnant totalement», sens proposé par Bhatt.

Le changement de metre s'explique probablement par l'exposé de la profession de foi bouddhiste du roi Dharaṇindravarman II.

<sup>3</sup> C'est-à-dire Jayarājacūḍāmani, nommée dans les stances XI et XII.

<sup>4</sup> Dharaṇindravarman [III], célébré dans les stances XVI et XVII.

<sup>5</sup> Le *brabmarsi* est ici Kaśyapa, fils de Marici, l'aîné des fils spirituels de Brahma. Il eut d'Aditi les 12 *Aditya* et 21 autres, *dixit* Vettam Mani [ces 21 devraient être les 11 *rudra*, les 8 *vāsu* et les 2 Aśvin, mais je ne suis pas sûr que les légendes correspondent]; Indra est l'aîné de ces 33 fils et il devint le chef des *deva*.

<sup>6</sup> Nom de la salle d'assemblée des dieux.

<sup>7</sup> Kāmadhenu-Surabhi; c'est parce qu'elle pleurait à cause de la sécheresse qu'Indra a fait et continue de faire pleuvoir.

<sup>8</sup> Vṛtra, dans la légende d'Indra.

<sup>9</sup> L'arme d'Indra, le *vajra* (?), est appelée *śatakoṭi*, selon Monier-Williams; mais on ne trouve pas ce nom dans Vettam Mani.

<sup>10</sup> La comparaison de Jayavarman VII avec Indra me paraît approximative; j'ai mis au pluriel le nombre des ennemis du roi, car je ne crois pas qu'on fasse allusion au combat contre Jaya-Indravarman IV du Champa, ou tout au moins pas uniquement: Jayavarman VII a dû aussi conquérir le trône suprême sur d'autres rois khmers.

XXI.- « Aimant ce qui est correct, bien connu comme expérimenté (vieux) par sa prospérité et ses bonnes qualités, faisant de bonnes choses, dont les usages et les castes sont cultivés, détruisant l'ennemi, devant être révéré par les souverains<sup>1</sup>, il était connu depuis son enfance comme un Pāṇini.»

XXII.- « Avec amour, il a donné lui-même au Dharmarāja<sup>2</sup> 13.500 *grāma*<sup>3</sup>, mais le fils de Dhṛitarāṣṭra<sup>4</sup>, même incité par Kṛṣṇa, n'en a pas même donné cinq.»

XXIII.- « Aurvānala dans l'océan de l'armée ennemie, feu de brousse dans la forêt des armes, lune pour les lotus bleus<sup>5</sup>, que sont les rois des ennemis inclinés, son ardeur avait certes la splendeur des armes de Nārāyaṇa<sup>6</sup>.»

XXIV.- « Les ennemis, qui avaient observé dans le combat l'aspect extraordinaire et invincible de lui lorsqu'il était muni de ses armes<sup>7</sup>, qui fermaient les yeux<sup>8</sup> et dont les bras-serpents avaient laissé tomber leurs armes, utilisaient maintenant, je pense, l'arme appelée "fuite", qu'ils avaient oubliée depuis longtemps<sup>9</sup>.»

<sup>1</sup> Double sens: «Aimant la langue pure, faisant de bons noms par le *guna*, la *vṛddbi* et le *vṛddba*, faisant des suffixes *kn*, qui a arrangé la prononciation des lettres sanscrites, considérant *durbra* comme irrégulier, pour qui Śiva doit être vénéré, .....»

<sup>2</sup> Malgré l'avis de George Cœdès, il me semble impossible que Dharmarāja ne soit pas ici le Buddha.

<sup>3</sup> On retrouvera ce chiffre dans la st. CLXXVII. A partir de la st. XXII, c'est la guerre qui est décrite et je me demande pourquoi on mentionne si tôt le "don de 13.500 *grāma*" au Buddha avant de parler de cette guerre: en effet, on reviendra bientôt sur les générosités du roi et c'est un fait qu'elles ne sont pas généralement décrites aussi tôt dans le poème. Cependant, on trouve le même nombre de *grāma* dans la stance CLXXVII, qui correspond au total des *grāma* des st. LXXXIII et CXLI. Mais il faut souligner qu'on est là dans la *prāśasti* et qu'elle ne dit pas la vérité, car les stances indiquées précisent que les villages ont été donnés "par le roi et les propriétaires de *grāma*". Je ne comprends pas la place de cette stance, mais on a plus loin, st. XXX, une stance à la place au moins aussi insolite.

<sup>4</sup> Il s'agit de Duryodhana et de son refus de suivre le conseil de Kṛṣṇa qui l'engageait à partager le pouvoir avec les cinq Pāṇḍava (MBH, V, 124-128). (note 6 de G. Cœdès, p. 286).

<sup>5</sup> Qui fleurissent au lever de la lune.

<sup>6</sup> Pour Bhatt, "no connection, only beauty!"; mais j'aimerais pourtant trouver un rapport entre les armes de Nārāyaṇa et ce qui est dit ici (cf. *Mababbārata*, *Dronaparvan*, *Nārāyaṇāstramoksaparvan*, SÖRENSEN, p. 511, P. C. ROY, vol. VI, p. 455-494).

<sup>7</sup> Cf. la stance précédente.

<sup>8</sup> Eblouis et peureux.

<sup>9</sup> Il y a là manifestement une allusion historique.

XXV.- « Les rois, ayant vu devant et de côté son épée noire qu'il rendait merveilleuse dans le combat, blanche d'or et rouge de sang, comme par peur du mal fait par l'arc d'Indra<sup>1</sup>, lachant leurs armes, se prosternèrent.»

XXVI.- « Comme l'étang - champ de bataille était corrompu, inabordable, dont l'emplacement redoutable était caché par des pluies d'armes serrées, Laksmi devenait comme une abeille, volant en rond autour du lotus épanoui de son palais<sup>2</sup>.»

XXVII.- « A la multitude de ses guerriers, il donna les résidences royales des rois des ennemis<sup>3</sup>, qui resplendissaient de palais très hauts; aux bêtes sauvages qui hantaient ses propres forêts, il donna, je pense, la forêt de l'ennemi; aux prisonniers de guerre, il donna sa propre forêt<sup>4</sup>, généreux et manifestant son équilibre moral<sup>5</sup>.»

XXVIII. - « Aux sages qu'il avait honoré par des richesses, ce "séjour de politique"<sup>6</sup> donna ses propres filles, séduisantes par leur beauté<sup>7</sup>; mais le roi des Cedi (le fit) à Hutavaha [Agnil] seulement après avoir reçu comme prix une portion de lui<sup>8</sup> (et) Gādhi (le fit) à

<sup>1</sup> L'arc en ciel. Pour la légende de l'arc d'Indra, cf. P. V. KANE et *Sabdakalpadruma*.

<sup>2</sup> Laksmi, ne pouvant se poser sur l'étang, vient dans son palais: par conséquent, la guerre est finie, comme on le voit d'ailleurs par les stances suivantes.

<sup>3</sup> On voit bien par là qu'il s'agit d'ennemis khmers, car il n'aurait pas donné loin à l'étranger les propriétés de ses ennemis.

<sup>4</sup> On a ici un détail réaliste: les prisons étaient installées dans les forêts.

<sup>5</sup> Cette stase marque clairement la fin de la guerre, puisque le roi en est à distribuer des récompenses à ses fidèles compagnons.

<sup>6</sup> On voit bien là pourquoi il donne ses filles: même si c'est chose bien connue chez les rois et pratiquée bien ailleurs que dans le Cambodge ancien, on observe ici que les épithètes ne sont pas distribuées au hasard.

<sup>7</sup> L'interprétation de Coedès, rapportant *dbimatsu* à *nitinilayo*, est aussi possible, mais rendrait moins bien compte de l'opposition que je souligne ci-après. Grammaticalement, les deux sont possibles. Pourtant, si on pousser l'opposition avec ce qui suit, on remarque que non seulement il ne demande pas de dot, mais que ses filles sont données en supplément de dons de sa part. Il faudrait donc même peut-être traduire: "bien qu'il les eût honoré par des richesses...", un peu comme le fait G. Coedès.

<sup>8</sup> L'histoire telle qu'elle est ici suggérée est difficile à repérer. Le *Mababbārata* raconte l'histoire de Sudarśanā, fille de Nila (*alias* Duryodhana, roi de Māhismatī), dont Agni tomba amoureux et qu'il épousa; son père avait toutefois exigé d'Agni qu'il se tint toujours auprès de lui. Cependant ce roi, comme le souligne G. Coedès, n'était pas roi des Cedi. Existait-il une autre version de cette histoire dont les Khmers disposaient?

Rcika (seulement après avoir reçu comme prix) de nombreux chevaux<sup>1.</sup>»

XXIX. - « Rāma et lui-même ont accompli tous deux des tâches pour les dieux et pour les hommes: tous deux avaient le cœur entièrement dévoué au bien de leur père, tous deux ont vaincu un Bhārgava<sup>2</sup>; le premier a fait une chaussée avec des pierres pour faire traverser l'océan par des singes, tandis que le second en a fait une avec de l'or<sup>3</sup> pour faire traverser l'océan des existences par des hommes<sup>4.</sup>»

XXX. - « Les deux "Seigneurs de la Danse" en or qu'il avait fait placer devant le Serpent d'or étaient comme les deux Rāghava<sup>5</sup> libérés immédiatement des liens des serpents à cause de la chute des flèches du Vainqueur d'Indra<sup>6.</sup>»

#### LE TEMPLE DE PRAH KHAN

<sup>1</sup> Gādhi était le fils qu'obtint Kuśanabha de son épouse, l'*apsaras* Ghṛtāci, après avoir eu 100 filles (VETTAM MANI, sous *Gādhi*; cf. *Mababbārata*, III, 125).

Gādhi eut une fille, Satyavati, que Rcika, un fameux sage, voulait épouser. Le père exigea de Rcika le don de 1000 chevaux avec des oreilles noires. Rcika fit un sacrifice à Varuṇa, qui laida et fit sortir les 1000 chevaux de la Gaṅgā. Il donna les chevaux, épousa Satyavati puis l'emmena dans la forêt (VETTAM MANI, sous *Rcika*).

G. Coedès dit que Rcika était fils de Bhrgu; dans VETTAM MANI, il n'en est que l'arrière-petit-fils. Mais il ne semble y avoir ici aucune allusion au fait qu'il était un Bhārgava (on l'aurait en effet sans doute souligné). Rcika était le père de Jamadagni et le grand-père de Paraśurāma.

<sup>2</sup> Allusion historique; cf. G. Coedès. Le *bhārgava* vaincu par Rāma est Paraśurāma, incarnation de Viṣṇu afin de détruire les *ksatriya*. L'histoire de la défaite infligée par Rāma est racontée sous diverses formes.

<sup>3</sup> C'est-à-dire avec ses générosités (ou avec le temple de Prah Khan? cf. multiples allusions).

<sup>4</sup> Remarquer ici l'opposition point par point: pierre/or, singes/hommes, océan/océan des existences.

<sup>5</sup> Rāma et Laksmaṇa.

<sup>6</sup> Références dans G. C. (*Rāmāyana*, VI, 44 sq.).

Il n'y a aucune indication sur le lieu où étaient érigées ces statues. En tout cas, elles ne devaient pas se trouver dans le Prah Khan, dont on ne parle que plus loin. Comme le texte dit que ces statues sont en or (ou en bronze doré...), elles n'étaient peut-être pas très grandes. Sur la place de cette strophe, cf. *supra*, st. XXII.

G. aussi BHATTACHARYA, *Religions*, p. 85-86: "Il est difficile de dire si les Nātyeśvara que cite la stèle de Jayavarman VII à Prah Khan d'Ankor se réfèrent à Śiva ou à Hevajra".

BEFEC LXX, p. 71-72: article de J. Filliozat, "Sur le Čivisme et le Bouddhisme au Cambodge, à propos de deux livres récents". Il répond à Bhattacharya et donne des détails intéressants, en proposant de reconnaître dans les deux "Seigneurs de la Danse" Śiva et la Déesse. Quant au "Serpent d'or", ce serait Patañjali. Je ne suis pas sûr, car J. Filliozat ne présente aucun *ensemble* de Nātyeśvara avec Patañjali; d'autre part, la danse évoquée, "terreur des serpents", correspond mal à ce qu'on nous présente (avec un serpent qui n'est pas "terrorisé", semble-t-il), mais il est certain que la question de la note 6 de G. Coedès est simplement amusante.

XXXI. - « Rāma et Bhīṣma, comme on sait, ont obtenu une louange glorieuse de leur père descendu du ciel en hâte<sup>1</sup>; mais lui, quelle (louange n'a-t-il pas reçu de son père), honoré sans relache comme Svayambhu, le "riche des quatre bras" et Lokanātha<sup>2</sup>.»

XXXII. - « Dans ce réceptacle du sang de l'ennemi où il avait enlevé Jayaśri<sup>3</sup> dans le combat, il fonda une ville portant ce nom, qui brille, changeant la couleur d'une partie du sol avec ses piergeries, ses lotus et son or, comme si aujourd'hui encore elle était enduite de sang.<sup>4</sup>

XXXIII. - « A Prayāga, on doit aller à cause de la présence de deux *tīrtha*<sup>5</sup> où l'on fait de bonnes actions pour la purification des hommes; que dire de la ville de Jayaśri, riche des *tīrtha* du Buddha, de Śiva et de Viṣṇu!<sup>6</sup>»

XXXIV.- « Ce roi Śri Jayavarman a ouvert les yeux du Seigneur du monde<sup>7</sup> appelé Śri Jayavarmēśvara, en "veda - lune - lune - forme"<sup>8</sup>, sous les traits de son père.»

<sup>1</sup> Je renvoie ici au *Gayāmābatmya*, parce que je le connais bien: pour Rāma, chap. VII, st. 74 à 78 (p. 246- 249); pour Bhīṣma, chap. VII, st. 71 à 73 (p. 244-245).

<sup>2</sup> Cf. explications de G. C. BEFEC XLI, p. 288 n. 2; mais on trouve ici les trois dieux Lokeśvara, Viṣṇu et Śiva (appelé ici Svayambhū) de la st. XXXIII.

<sup>3</sup> Sa victoire plus son trône, pas forcément repris sur les Chams... Cf. pourtant la stance CLXIX, où c'est le *bārāy* de Praḥ Khan qui est comparé à un lac de sang.

<sup>4</sup> J'interprète cette stance comme indiquant que le dernier combat avec les Chams (et peut-être quelques Khmers...) a eu lieu dans le domaine de Praḥ Khan, et plus précisément du temple. J'en ai déduit, et cela me tente encore beaucoup, que le palais de Tribhuvanādityavarman (et avant lui, avec d'autres arguments, de Yaśovarman II) était là.

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<sup>5</sup> Noter la surprenante ignorance religieuse de l'auteur: si en fait il y a bien deux *tīrtha* à Prayāga / Allahabad, celui du Gange et de la Yamunā qui y confluent, on ajoute toujours la Sarasvatī souterraine, d'où le nom de Trivenī "Triple courant" donné au lieu et cela se trouve dans tous les manuels indiens; cf. Monier-Williams. [Question: Est-ce que dans le *Mahābhārata* on connaît déjà la Trivenī?]

<sup>6</sup> On reprend là l'affirmation, déjà trouvée dans la stance XXXI ci-dessus, de l'aspect "panthéon" de Praḥ Khan; mais on ne parle pas du temple des rois (situé au Sud).

D'autre part, la liste des 3 *tīrtha* donnée par G. Coedès (explication p. 257) n'est pas soutenable: il ne s'agit pas du site d'Ankor, mais de Jayaśri.

<sup>7</sup> Noter que Lokeśa pourrait être l'équivalent du khmer *kanratenjagai*.

<sup>8</sup> 1113 śaka, soit 1191/92 A. D.

XXXV.- « Tout autour du noble Avalokiteśa qui est au centre, il a installé 283 divinités<sup>1</sup>. »

Ici commence une liste de divinités qui, ajoutée aux indications des "petites inscriptions", permet d'avoir une idée précise de l'organisation du temple.

XXXVI. - « Ce roi a installé du côté de l'est trois divinités, dont la première est Śrī Tribhuvanavarmeśvara. »

## FACE B

XXXVII. - « Dans la région du sud, il a installé 20 divinités plus douze<sup>2</sup>, qui commencent par Śrī Yaśovarmeśvara. »

XXXVIII. - « A l'ouest, il a installé 30 divinités, en commençant par l'image<sup>3</sup> de Śrī Cāmpeśvara; au nord, 40, à commencer par un Śivapāda. »

XXXIX. - « une divinité dans le magasin à riz et dix dans les "passages"<sup>4</sup>, quatre dans le "gîte d'étape"<sup>5</sup> et trois dans l'hôpital<sup>6</sup>; »

<sup>1</sup> Il faut obligatoirement compter dans ce chiffre Jayavarmeśvara de la st. XXXIV. q. st. XLIII qui donne le total des dieux.

<sup>2</sup> 20 + 12 : façon de compter khmère, avec la vingtaine.

<sup>3</sup> Cāmpeśvara est un nom de Viṣṇu. q. avec le nom de Cāmpeśvara, le mot *kānti* dans K 293 (18) et K 226 (BC 12). q. ma thèse, p.

<sup>4</sup> *Caṅkrama* est formé sur l'intensif de la racine KRAM- et signifie "promenade". G. Coedès traduit par "déambulatoire" et propose les galeries I et II (repris par C. Hawikbroek). La difficulté est qu'on ne "déambulait" sans doute pas dans les galeries, fermées de portes. D'autre part, cela supposerait que le "magasin à riz" se trouvait à l'intérieur de ces galeries (ce qui n'est peut-être pas impossible d'ailleurs). Dagens [Mayamata] ne donne que la forme *caṅkramana* en donnant le sens de "cour, préau".

<sup>5</sup> *Upakāryā* : litt. "(lieu) pour l'assistance", d'où, éventuellement, "tente royale" ou "caravansérail"; on voit que les "maisons avec du feu", considérées comme des *dbarmasālā* ou des "gîtes d'étape", sont d'autres sanctuaires.

<sup>6</sup> Le chiffre de 3 est attendu pour un hôpital (encore que le total des divinités donné par Ta Prohm st. CXVII, soit 798 dieux pour 102 hôpitaux, donne une moyenne de 7,82 dieux par établissement). D'autre part, on n'a pas retrouvé, à ma connaissance, la chapelle caractéristique de l'hôpital de Praḥ Khan, ni, bien entendu, la stèle qui devrait en marquer l'emplacement.

XL. - " aux portes des quatre points cardinaux<sup>1</sup>, il y a vingt-quatre divinités; et ces dieux tous ensemble forment un total de quatre cent trente. "

XLI. - " Dans l'île de Rājyaśri, avec un "mille *linga*"<sup>2</sup>, il y en a quatorze; dans les deux petits réservoirs et dans le Yogindravihāra, il y en a seize dans chacun; "

XLII. - " dans le *caitya* et les *valabbi* du Gaurīśrigajaratna, sur le bord du Jayatatāka<sup>3</sup>, il y a vingt-deux divinités; "

XLIII. - " et un dieu appelé Viśvakarman dans la maison des *āya*<sup>4</sup>. Tous ensemble forment un total de cinq cent quinze. "

XLIV. - " Parties essentielles<sup>5</sup> quotidiennes de la *pūjā* de tous ces dieux, à partir de Lokeśvara<sup>6</sup>: riz blanc bon à cuire<sup>7</sup>, 75 *kbāri* et 1/2 *drona*; "

XLV. - " sésame, 1 *kbāri*, 5 *prastba* et 2 *kuduva*; fèves, 2 *drona*, 4 *prastba* et 2 *kuduva*; "

XLVI. - " ghee, 1 *gbati* et 13 *prastba*; lait caillé, 1 *gbati*, 14 *prastba* et 2 *kuduva*; "

XLVII. - " lait, 30 moins 1 *prastba* [soit 29] et 2 *kuduva*<sup>8</sup>; miel, 21 *prastba*, mais de mélasse, 20 [*prastba*] moins 1 [soit 19]; "

<sup>1</sup> Il s'agit des portes de la ville et les "petites inscriptions" confirment ce chiffre.

<sup>2</sup> Il faut comprendre probablement que le "mille *linga*" est compris dans le chiffre de quatorze divinités.

<sup>3</sup> Il n'est pas sûr que ce soit le temple de Gaurīśrigajaratna qui était "sur le bord" du *bārāy* de Prāh Khan; si cela était, on peut penser à divers sanctuaires, en particulier à Ta Som.

<sup>4</sup> Cf. BEFEC LXX, p. 96-97.

<sup>5</sup> *Āngāni* s'oppose à *upakarāni* de la stonce XLIX.

<sup>6</sup> Soit 515 (cf. stonce précédente qui fait effectivement le total; totaux partiels dans les st. XXXV et XL).

<sup>7</sup> Comparer avec les rations données à Ta Prohm; st. XXXVIII: 73 *kbāri*, 2 *drona* et 2 *prastba* de riz décortiqué pour 263 divinités. On est surpris que la quantité indiquée pour Prāh Khan soit à peine supérieure à celle de Tā Prohm, malgré presque deux fois plus de divinités à Prāh Khan.

Noter que les quantités peuvent de toute façon paraître énormes: *grosso modo*, pour Tā Prohm, 7 tonnes divisées par 263 = 26,615 kg par divinité; en réalité, la quantité allouée aux dieux de Prāh Khan, 13 kilogs par jour, représente déjà beaucoup de riz blanc!

<sup>8</sup> En comptant 3 litres pour un *prastba* et 3/4 de litre pour un *kuduva*, il faut:  $(29 \times 3) + 1,5 = 88,5$  litres de lait pour 515 divinités, soit: 17 cl. de lait environ par divinité; on voit bien que, pour un Khmer, le lait est moins essentiel que le riz.

XLVIII. - « huile de sésame, 6 *prastba* et deux *kuduva*; mais graisse de fruit d'arbre, 2 *prastba* et 2 *kuduva*, en comptant ce que l'on ajoute (à l'eau) du bain (des divinités)<sup>1</sup>;»

XLIX. - « quant aux accessoires de la *pūjā*, spécialement les fruits et les légumes, on n'indiquera rien ici, parce que c'est très connu: qu'on en prenne en quantité convenable<sup>2</sup>;»

L. - « Tissus: couvertures de laine<sup>3</sup> rouges et blanches et vêtements bons pour les divinités, avec les sièges, les lits, etc.: 645<sup>4</sup>;»

LI. - « déployées à cause des moustiques et pour placer sur les pieds de Lokeśa et des autres divinités, 56 pièces de tissu de Chine<sup>5</sup>;»

LIII. - « En outre, les libéralités<sup>6</sup> pour ceux qui habitent ici, maîtres et étudiants: riz blanc, 22 *kbāri*, 2 *drona* et 14 *prastba* chaque jour;»

LIII.- « chaque jour, ces (quantités) jointes à celles de riz blanc pour la *pūjā* aux dieux<sup>7</sup> font 97 *kbāri*, 3 *drona* et 6 *prastba*.»

<sup>1</sup> G. la st. LX pour l'interprétation de *taruphalānām sneba*.

On voit par cette liste que les éléments "essentiels" (*angāni*) de la *pūjā* des dieux sont: riz blanc, sésame, fèves, ghee, lait caillé, lait, miel, mélasse, huile de sésame et graisse végétale.

<sup>2</sup> G. la stance de la stèle de Tā Prohm, exactement comparable.

<sup>3</sup> Bhatt n'a pas hésité devant le mot *kambala* = "woolen blanket" (G. Cœdès traduit par "flanelle"; je serais pourtant étonné qu'il y ait eu des moutons au Cambodge à époque ancienne (?). TANDART (*Dictionnaire français-khmer*) donne une périphrase pour "laine", soit "poil de mouton" (*mornib jyem* ou *roma jyem*). D'autre part, je me demande si *sātika* "a strip of cloth" suivant MW, ne doit pas être aussi considéré à part.

<sup>4</sup> Cette stance et la suivante ne parlent que de tissus, entre deux groupes de vers indiquant des quantités de nourriture quotidienne. Pour les tissus, rien n'indique la fréquence des dons et le total est mal explicable.

<sup>5</sup> De la soie. Il serait intéressant de savoir quels étaient les heureux bénéficiaires de ces tissus de luxe, au nombre de 28 peut-être... Sans doute étaient-elles placées seulement lors de certaines occasions.

<sup>6</sup> Noter le mot *satra*, et cf. la note de G. Cœdès, p. 291, n. 1.

<sup>7</sup> G. plus haut, st. XLIV: 75 *kbāri*, 1/2 *drona*. En refaisant l'addition, on constate qu'il faut 16 *prastba* pour faire 1 *drona*.

LIV. - « Le cinquième, huitième, douzième, quatorzième et quinzième jour des deux quinzaines, ainsi que pour les dix-huit *utsava* et le *sankrānta*,<sup>1</sup> »

LV. - « seront mis en plus chaque année: 5.388 *kbāri* et 10 *prastba* de riz blanc bon à cuire<sup>2</sup>; »

LVI. - « 74 *kbāri*, 3 *drona* et 2 *kuduva* de sésame; de fèves, ensuite, 3 *drona* 13 *prastba* en plus; »

LVII. - « de *gbee*, 75 *gbati* et 9 *prastba*; de lait caillé, 68 *ghai*, 1 *ādbaka* et 2 *kuduva*; »

LVIII. - « 79 *gbati*, 2 *kuduva* et 7 *prastba* de lait; de miel, 75 *gbati* et 1 *prastba*; »

LIX. - « de mélasse, 60 *gbati*, 2 *kuduva* et 4 *prastba*; mais 53 *gbati* et 10 *prastba* d'huile de sésame; »

LX. - « onguent (provenant) de fruits de plantes, convenant comme accessoire aux bains<sup>3</sup>: 13 *gbati* et 4 *prastba*. »

<sup>1</sup> Cf. la strophe XLVI, le parallèle de Tà Prohm. On remarque qu'elle comptait chaque mois seulement les 8<sup>e</sup>, 14<sup>e</sup> et 15<sup>e</sup> jours de chaque quinzaine, et par conséquent que les 5<sup>e</sup> et 12<sup>e</sup> jours ne s'y trouvent pas. Ici on a 5 jours de fête par quinzaine, ce qui fait beaucoup (il ne s'agit évidemment pas de fêtes chômées!).

Pour le *sankrānta* en suivant Bhatt, j'avais dit qu'il en fallait compter 12. *Sankrānta*, c'est le "pas", c'est-à-dire le "passage" et il est vrai qu'on peut le compter pour le passage d'un mois à l'autre ou seulement d'une année à l'autre. Après réflexion, il me semble que, dans une année luni-solaire comme elle était suivie au Cambodge, le 15e jour est réellement un *sankrānta* et donc qu'il n'y a pas lieu de le fêter à part. On peut me répondre que le passage d'une année à l'autre est dans le même cas, mais alors on peut quand même supposer une fête spéciale (surtout si elle durait 3 jours, comme actuellement le *chaul chnam* ou le *phimai*).

On arrive quand même de cette façon à  $(5 \times 12 \times 2) + 18 + 1 = 139$  jours de fête dans l'année (ceci est un maximum, car bien des "fêtes" devaient tomber le même jour).

<sup>2</sup> Contrairement à ce qu'il en est des prestations "ordinaires", on voit ici que ces prestations supplémentaires sont beaucoup plus importantes ici qu'à Tà Prohm (même avec les 4 jours en moins par mois), où elles sont de  $1.015 + 68 \text{ kbāri}$  et 1 *drona*.

Rapporté au nombre de "jours de fête" (en oubliant le *drona* mis pour la bonne mesure), cela donne à Tà Prohm:  $1.083 : [(3 \times 2 \times 12) + 18 + 1 \text{ soit } 81] = 13, 37037$  par jour.

Pour Prâh Khan,  $5.388 : 139 = 38, 762589$ . De 13... à 38..., on a beaucoup plus que la proportion de 263 à 515 dieux! Une fois de plus, les chiffres sont difficiles à interpréter.

<sup>3</sup> On a donc ici (st. LV à LX) la même liste d'*āngāni* que dans les st. XLIV à XLVIII. Mais on voit que l'expression pour ce dernier produit est différente (c'est pourquoi j'ai traduit par un mot à mot), dans la mesure où dans la st. XLVIII l'utilisation pour le bain semble venir en plus d'une utilisation sans doute culinaire qui n'apparaît pas ici; je suis tenté de

LXXI. - « Chaque année, la "partie essentielle" à la *pūjā* des dieux totalisée, doublée ensuite pour en faire davantage<sup>1</sup>, provient de la masse des dons des villages<sup>2</sup>; »

LXII. - « (soit) 146.891 *khāri* de paddy<sup>3</sup>. »

LXIII. - « 7.848 *khāri* de riz blanc lors de Māgha, du Śrāddha, (.....?), etc.<sup>4</sup> »

LXIV. - « de sésame, 433 *khāri*; de fèves, cela moins 10 *khāri* et 1 *drona* en tout; »

LXV. - « de *ghee*, 545 *ghati* et 7 1/2 *prastba*; mais de lait caillé, 700... »

LXVI. - « *ghati* et 78, ainsi que 10 *prastba*; de lait en outre, un compte de 639 [*ghati*] et 6 *prastba*; »

LXVII. - « 454 *ghati* et 5 *prastba* de miel; de mélasse, (la même quantité) moins 3 *ghati*; »

LXVIII. - « d'huile de sésame, 315 *ghati* et 3 *prastba*; de graisse végétale, 119 *ghati* et 8 *prastba*; »

supposer que l'expression de la st. XLVIII est maladroite et que le sens est le même là-bas qu'ici. J'ai d'ailleurs mis des mots entre parenthèses dans ma traduction, qui sont peut-être simplement à rayer.

<sup>1</sup> Cf. la stèle de Tā Prohm, st. LII.

<sup>2</sup> Ce sont donc les *grāma* qui fournissaient la totalité des *arīgāni*. Autre interprétation dans G. Coedès, p. 291, note 5.

<sup>3</sup> Soit, en suivant les calculs de Tā Prohm, 146.890 : 4 = 36.722,5 *khāri* de riz blanc.

Si on enlève de ce chiffre la quantité donnée dans la st. LV, 5.388, on arrive à: 31.334 pour les jours ordinaires, soit encore: 2.005.376 *prastba*.

La part quotidienne (st. LIII) étant de 97 *khāri*, 3 *drona* et 6 *prastba*, soit 6.262 *prastba*. On arrive ainsi à: 320.24528 jours. On peut négliger les décimales, mais si on ajoute les 139 "jours de fête", on arrive à un total de journées nettement trop important pour une année!

<sup>4</sup> Je ne vois pas à quoi cela se rapporte, à tel point que je me demande s'il ne manque pas quelque chose dans cette stance sans verbe. D'autre part, la leçon, très nette, °*āpanādisu* n'est guère acceptable (et pourtant, on la retrouve telle quelle dans la st. CXXX): *āpana* signifie «commerce, marché»; Bhatt propose °*ayana*°, qui désigne les points des équinoxes et des solstices, qui conviendrait mieux. On aurait alors l'indication de la périodicité de ces dons. Il n'y a pas de stance correspondante dans la stèle de Tā Prohm; mais cf. stèle des hôpitaux, [st. XII, p. 27]:

*prativarsan tv idam grābyam triskṛtwo bbūpater nidbhē  
pratyekān caitrapūrnāmyām śrāddbe cāpy uttarāyane*

«Voici les parts qu'on doit prendre dans les entrepôts du roi, tous les ans trois fois chacunes: pour la pleine lune de Caitra, pour le śrāddha et pour le solstice d'été.»

**LXIX.** - « 22.680 paires et 2 paires de pièces d'étoffe pour les vêtements de dieux, etc. »

**LXX.** - « 1 *tulā* et 92 *pana* de *taruska*; de *śrivāsa*, 1 *bbāra*, 2 *tulā* et 10 *katti* ; »

**LXXI.** - « de bois d'aigle, 1 *bbāra*, 3 *tulā* et 13 *katti* ; de cire, 10 *bbāra*, 2 *tulā* et 11 1/2 *katti* ; »

**LXXII.** - « 423 boucs; pigeons *kapota*, paons et pigeons *hāritala*, autant de chaque, 360<sup>1</sup> »

#### FACE C

**LXXIII.** - « 5.324 *grāma* ont été donnés par le roi et les propriétaires de *grāma*<sup>2</sup>, avec dévotion. »

**LXXIV.** - « Il s'y<sup>3</sup> trouve en tout, hommes et femmes, 97.840 personnes; »

**LXXV.** - « Il y avait: leurs chefs, 444 hommes; de cuisiniers, etc. »

**LXXVI.** - « ... 4.606 hommes; de servantes, 2.298; de danseuses, ... »

**LXXVII.** - « ... 1.000 parmi elles<sup>4</sup>; ensuite, 47.436 personnes donnant [ce qui est nécessaire] pour la *pūjā* aux dieux, etc.<sup>5</sup> »

**LXXVIII.** - « Chaque année, on doit prendre dans les greniers du roi 1.328 *khāri* et 2 *drona* de riz blanc; »

<sup>1</sup> Ce ne sont certainement pas des *pūjāngā*; cela servait peut-être à la nourriture des pèlerins, certainement pas pour les dieux (à moins qu'il n'y ait eu des sacrifices sanglants...). La note est inspirée de Bhatt; je pense maintenant que la dernière hypothèse n'est pas à écarter.

<sup>2</sup> On voit bien ici que le roi n'était pas le seul maître du sol, au moins dans les faits; plus loin, on se rend même compte qu'il a une part relativement modeste dans les dons au temple.

<sup>3</sup> *Tara*, «ici, dans ce temple» [ou, «dans ces *grāma*?】], comme j'ai traduit dans le passage parallel de Tā Prohm, st. LXIII, corrigé dans ce sens par Bhatt. En fait, je crois qu'il faudrait traduire *tara* par «dans cette ville».

<sup>4</sup> Parmi les 2.298 citées plus haut.

<sup>5</sup> On ne peut pas mieux préciser ce qu'ils faisaient.

LXXIX.- «57 *kbāri* et 3 *drona* de fèves; de sésame, 29 *kbāri*, 3 *drona* et 4 *prastba*;»

LXXX.- «de beurre liquide, 23 *gbati* et 6 *prastba*; de lait caillé, 30 *gbati*, 9 *prastba* et 2 *kuduva*;»

LXXXI.- «de lait, 31 *gbati*, 6 *prastba*; de miel, 386 *gbati*, 6 *prastba* et 2 *kuduva*;»

LXXXII.- «de mélasse, 10 *gbati*, 6 *prastba* et 2 *kuduva*; d'huile de sésame, 6 *gbati* et 4 *prastba*;»

LXXXIII.- «3.712 paires de vêtements pour les dieux et autres vêtements; 113 lits; »

LXXXIV.- «mais 323 moustiquaires faites de tissu de Chine et 22 coussins;»

LXXXV.- «puis 23 "lits de Chine faits avec de l'herbe"<sup>1</sup>. Ensuite, 1 *kbāri* et 12 *prastba* de poivre;»

LXXXVI.- «de cire, 2 *bbāra*, 2 *tulā* et 11 1/2 *katti*; de sel, 4 *kbāri* et (2) *drona*;»

LXXXVII.- « de santal, 1 *bbāra*, 5 (*tulā*), ...; et de *śrivāsa*, 1 *bbāra*, 3 *tulā*, ... »

LXXXVIII.- «de bois d'aigle, 1 *bbāra*, 6 *tulā*, 3 ...; de camphre, 3 *katti* 1/2, 2 *māsa*, ...;»

LXXXIX.- «6 *katti*, 10 *pana*, ... de ...; de fil de soie (?), .....»

XC.- « *gobbiksā* et bagues en or, ...; 2 *māsa*, 3 *pāda*, 12 ...;»

XCI.- « petites boîtes, coupes, pots, ..., faits de ..., 8 *pana*, 3 *pāda*, ... et 8 *bimba*;»

<sup>1</sup> Nattes.

**XCII.**- «vases, etc. en cuivre, 1 *tulā*, ... *katti*, ..., puis de ..., 5 *pana*, 2 *tulā*, 5 *katti*;»

**XCIII.**- «Puis<sup>1</sup>, 520 boîtes de Chine et une vache brune aux cornes et aux sabots d'or et pourvue d'une couverture;»

**XCIV.**- « 4 chevaux de race et 4 éléphants, deux esclaves-femmes et deux buffles: voilà ce que le roi doit faire donner chaque année.»

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**XCV.**- «Objets en or, *präsāda*<sup>2</sup>, etc., 253; mais, du type *karanka*<sup>3</sup>, 18.000 objets ... »

**XCVI.**- « ... plus 160; or nécessaire à leur fabrication<sup>1</sup>: 300 *bbāra*, 12 *tulā* et 3 *katti*, ...»

**XCVII.**- « ... 14 *pana*, 1 *pāda*, 2 *māsa* et 2 *bimba*; argent (nécessaire à leur fabrication): 137 *bbāra* et 2 *katti*; »

**XCVIII.**- « gemmes (nécessaires à leur fabrication): diamants, yeux-de-chat et rubis: 35.837;»

**XCIX.**- « 112.000 perles aussi; de cuivre (nécessaire à leur fabrication): 70 *bbāra*, 3 *tulā* et 3 *katti*;»

C.- « de bronze, ..... *bbāra*<sup>4</sup> et 2 *tulā*, 1 *katti* et 10 *pana*;»

**CI.**- « placage d'or: 200 *bbāra*, 3 *tulā* et 3 *katti* ; d'étain: 900 *bbāra*, 5 *katti* et 2 *tulā*;»

**CII.**- «de plomb: 924 *bbāra*; de fer, 460 *bbāra*, 4 *tulā* et 3 *katti*.»

<sup>1</sup> On a peut-être là, comme souvent avec *atba* en tête de *śloka*, l'indication d'une subdivision ou l'ouverture d'une nouvelle rubrique. Mais cette "vache brune" mélangée aux boîtes me cause quelque souci et ce serait donc plutôt le *tatbā* qui suit qui marquerait la nouvelle rubrique...

<sup>2</sup> Probablement de petits autels tels qu'on en a retrouvé avec des triades bouddhiques, par exemple.

<sup>3</sup> *Karanka*: "coupe à pied"; on s'en sert pour offrir le bétel, par exemple. C'est un objet que l'on connaît bien au Cambodge.

<sup>4</sup> On pourrait croire qu'il y a au moins 16.000 *bbāra* de bronze; ce ne peut être alors le bronze nécessaire à la fabrication des objets précédemment cités.

**CIII.**- «Cependant, il y a en tout 102 tours et *valabbi*; 485 "sections" de maisons en pierre;»

**CIV.**- «2.238 brasses de longueur de murailles en cinq endroits, faites de latérite;»

**CV.**- «..... 2.x75 brasses .....»

**CVI.**- «passages en latérite, de toutes parts, .....»

**CVII.**- «les *kutis* totalisent 439; .....»

**CVIII.**- «Il y a un professeur, 15 professeurs-adjoints, .....»

**CIX.**- «*Yogin*, supports de la Loi, ayant l'ascèse pour conduite, prêchant la Loi, (ayant les cheveux rasés ?), .....»

**CX.**- «tous ceux-là sont 338; puis, de *śaiva*, ... 39 .....»

**CXI.**- «tous ces gens qui reçoivent de l'assistance<sup>1</sup> forment un total de ... 1.000 .....»

## Fondations royales.

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<sup>1</sup> Cf. BEFEC LV, p. 147, n. 2. [article de K. BHATTACHARYA, *Supplément aux recherches sur le vocabulaire des inscriptions sanskrites du Cambodge.*]

**CXII.** - « Ce roi a fait ouvrir les yeux du Sugata Śrī Viraśakti<sup>1</sup> et a fait ériger ..... <sup>2</sup> »

**CXIII.** - « Il a fait ériger le Sugata Śrī Rājapatiśvara et Jayamaṅgalārtha-cūḍāmaṇi dans le [lieu] dit Sikata<sup>3</sup>; »

**CXIV.** - « A Śrī Jayantapura<sup>4</sup> et à Vindhyparvata<sup>5</sup>, ainsi qu'à Markhal-pura<sup>6</sup>, ce roi<sup>7</sup> a fait ériger le Triple Joyau dans chacun de ces lieux; »

<sup>1</sup> Il s'agit probablement du Buddha de Vat Nokor, près de Kompon Cām. Cf. inscription K 82, éditée par J. Filliozat dans les *C.R. de l'Académie des Inscriptions et Belles-Lettres* janvier-mars 1969. Dans ce texte portant la date de 1488 *saka*/1566 A.D., on lit le nom de *Jayaviraśakti-nagaram* (texte pāli, l. 9).

Ce nom de Viraśakti est d'ailleurs singulier pour un Buddha, comme l'a fait remarquer Sunsgeng. Faudrait-il penser que Viraśakti est le nom de la ville et qu'il s'agit ici du Sugata de Viraśakti ?

G. Coedès (p. 295, note 2) fait remarquer que le nom de Viraśakti se trouve cité dans la stèle de Tà Prohm, st. LXXXV; il y a là la description de la fête du "Bon printemps" (décrite st. LXXXIII-LXXXVIII) de ce temple qui paraît avoir été importante. Toutefois, Viraśakti est désigné comme le maître des *sura*, désignation qui ne convient peut-être pas pour un *sugata* ... D'autre part, G. C. cite aussi un *Jayaviraśakti-mahādeva* lu, selon Aymonier, sur une inscription du Prasat Tà An; il s'agit de K 240 [éd. IC III, p. 77; ma thèse, p. 519-522]; en fait, G. C. n'en avait pas encore vu l'écriture, semblable à celle de K 241 gravée sur la tour voisine, qui porte la date de 1189/1267; les noms ne correspondent d'ailleurs pas tout à fait.

<sup>2</sup> Il semble bien que la lacune ne cache pas un nouveau lieu, mais plutôt une, ou plus probablement deux autres (cf. *saba*) divinités de Vat Nokor.

<sup>3</sup> G. Coedès rappelle que l'inscription du Bâyon K 293-7 cite la seconde divinité dans le lieu nommé *ksac*, nom khmer qui signifie, comme *sikata*, "sable": il s'agit donc évidemment du même lieu.

Ce lieu pourrait être Bantây Chmâr. J'ai réuni un certain nombre d'arguments en faveur de cette identification dans ma "thèse". J'étais parti du fait qu'il était assez peu vraisemblable qu'un site aussi considérable que Bantây Chmâr fut ignoré de l'épigraphie de Jayavarman VII, si descriptive. Le même argument m'a fait penser que le "Buddha de l'Est" (*Pūrvatathāgata* [Stèle de Phimânâkâs, st. LXXXII] ou *Prācyamunindra*, Prâh Khan, *infra*, st. CLVIII) pouvait être Prâh Khan, plutôt que Bantây Kdei, comme l'avait supposé G. C. D'autres arguments s'étaient ajoutés, ce qui fait que je n'ai pas changé d'avis.

<sup>4</sup> Emplacement? C'est pourtant un lieu parfois rencontré dans les inscriptions: *Jayantadeśa* à Bat Cum, K 266, N, 7; 267, N, 25; *Jayantanagari* dans la stèle suivante; *Jayantrapura* (à corriger sans doute en *jayanta*<sup>8</sup>) dans K 1158 (Ban Sap Bak), cité en même temps que Chpar Ransi ou Vamsârâma [ce qui dans le contexte peut vouloir dire plutôt près ou très loin ...], souvent cité, mais pas mieux identifié (cf. IC III, p. 97, § à améliorer).

<sup>5</sup> Emplacement? Cf. K 293-5 (réédition, p. 120): du côté de Maleñ?

<sup>6</sup> Hapax. Emplacement? Cf. l'hypothèse de G. Coedès qui me paraît un peu compliquée, mais non invraisemblable.

<sup>7</sup> Remarquer la simplicité des titres donnés à Jayavarman VII: *bbūpati* ou, comme dans la st. précédente, *rāja*.

**CXV.** - « Śrī Jayarājadhānī<sup>1</sup>, Śrī Jayantanagari<sup>2</sup>, Jayasimhavati<sup>3</sup> et Śrī Jayaviravati<sup>4</sup>; »

**CXVI.** - « Lavodayapura<sup>5</sup>, Svarṇapura<sup>6</sup>, Śambukapāṭṭana<sup>7</sup>, ainsi que Jayarājapuri<sup>8</sup> et Śrī Jayasimhapuri<sup>9</sup>; »

**CXVII.** - « Śrī Jayavajrapuri<sup>10</sup>, Śrī Jayastambhapuri<sup>11</sup>, Śrī Jayarājagiri<sup>12</sup>, Śrī Jayavirapuri<sup>13</sup>; »

**CXVIII.** - « Śrī Jayaviravati<sup>14</sup>, Śrī Jayakirtipuri<sup>15</sup>, Śrī Jayakṣemapuri<sup>16</sup> et la purī dont le nom commence par Śrī-Vijaya<sup>17</sup>; »

<sup>1</sup> Hapax. Emplacement? *G.* le commentaire de G. Coedès.

<sup>2</sup> Hapax. Emplacement? On voit ici qu'il ne faut pas confondre les noms propres de forme légèrement différente; il me paraît évident que cette Jayantanagari ne saurait être confondu avec le Jayantapura de la stance précédente, bien qu'elle en fût peut-être peu éloignée.

<sup>3</sup> Emplacement? L'absence de Śrī devant le nom doit venir plus d'une raison métrique que d'une moindre sainteté de ce lieu.

<sup>4</sup> Emplacement? On retrouvera cette ville dans la st. CXXTIV.

<sup>5</sup> Emplacement: Lopburi., identification proposée par G. Coedès dès 1929. Pour les noms de cette stance, *cf.* G. Coedès, BEFEC XII, p. 296.

<sup>6</sup> Hapax. Emplacement: Sup'an?

<sup>7</sup> Hapax. Emplacement: ?

<sup>8</sup> Emplacement: peut-être Ratburi. *G.* K 293-3 (réédition, p. 119), mais on n'est pas dans la région du Phnom Cisor, et cela pose un problème soit pour ces petites inscriptions du Bâyon (dont on peut croire qu'elles citent des noms de villes d'une même région géographique), soit pour l'ordre dans lequel sont nommées ces (capitales de) *désa*. D'autre part, *cf.* la note 3 de la st. précédente.

<sup>9</sup> Hapax. Emplacement, selon G. Coedès, Muong Sing. Mais pourquoi choisir cette Jayasimhapuri plutôt que la Jayasimhavati de la st. précédente? Il y a aussi un Singhpuri en Thaïlande, pas très loin de Lopburi (mais sans trace d'occupation khmère).

<sup>10</sup> Emplacement: P'ecaburi? *G.* K 293-6 (réédition, p. 120): aucun nom propre n'aide à situer cette ville dans l'inscription du Bâyon.

<sup>11</sup> Hapax. Emplacement? De quel *stambha* s'agit-il? Faut-il penser aux piliers de Mahendravarman ou du même genre? Je ne connais pas de ville dont le nom contienne un élément rappelant ce mot (et ceci peut se dire d'un certain nombre d'autres villes trouvées dans cette liste).

<sup>12</sup> Emplacement?

<sup>13</sup> Hapax. Emplacement? *G.* Jayaviravati de la stance CXV.

<sup>14</sup> Hapax. Emplacement? Même remarque, à propos de Jayavajrapuri / Jayaviravati, que dans la note 5 de la st. CXVI.

<sup>15</sup> Hapax. Emplacement?

<sup>16</sup> Hapax. Emplacement? *Kṣema*, équivalent de *Sānti*.

<sup>17</sup> Vijayapuri, et non pas normalement, à mon avis, Vijayādityapuri, comme le suggère G. Coedès, *ibid.* p. 296, n. 7. Son emplacement? Tant de lieux peuvent s'appeler la "ville de la victoire" ...!

**CXIX.** - « le *grāma* dont le nom commence par Śrī Jayasimha<sup>1</sup>, et Madhyamagrāma<sup>2</sup>, ainsi que le *grāma* dont le nom commence par Samarendra<sup>3</sup> ainsi que Śrijayapuri<sup>4</sup>, »

**CXX.** - « Vihārottara(ka?)<sup>5</sup> et Pūrvavāsa<sup>6</sup> : dans chacun de ces 23 pays<sup>7</sup>, il a fait ériger ... »

#### FACE D

**CXXI.** - « ... ce roi, un vénérable Jayabuddha-Mahānātha<sup>8</sup>. Sur le bord du Yaśodharatākā<sup>9</sup>, (il a fait aménager) également dix "endroits à accomplir des actes pieux"<sup>10</sup>. »

**CXXII.** - <sup>11</sup> Depuis Yaśodharapura jusqu'à la capitale de Campā<sup>12</sup>, sur les routes, il y a 57 maisons pour garder le feu sacré<sup>13</sup>. »

<sup>1</sup> Jayasimhagrāma; emplacement?

<sup>2</sup> Emplacement? "Grāma central"? Mais au centre de quoi?

<sup>3</sup> Samarendragrāma; emplacement? Samarendra: "roi de la bataille". Il faut remarquer ce trio de *grāma*, tous des hapax, curieux au milieu de ces villes.

<sup>4</sup> Emplacement? Même remarque que dans la note 4 de la stance précédente.

<sup>5</sup> « Le Vihāra du nord» (on peut laisser de côté le *ka* final, sans doute une cheville). Emplacement?

<sup>6</sup> Emplacement?

<sup>7</sup> Cf. la stase CLIX. Il serait intéressant de savoir ce que représentent ces 23 pays, devenus 25 dans la st. CLIX, et notamment pourquoi cette différence de chiffre.

<sup>8</sup> Le Buddha victorieux, le Grand Protecteur. Le nom de ce Buddha n'est sans doute pas différent: il est difficile de croire que la protection qu'il offrait était uniquement spirituelle. Cf. les *nātak* bien connus en Birmanie, équivalents des *nāk tā* (avec qui je ne confonds évidemment pas le Buddha).

<sup>9</sup> On voit bien que ce *bārāy* n'était pas assèché, comme on le dit parfois comme justification de la construction du Bārāy occidental. Remarquer la notation de cette fondation, entre deux beaucoup plus importantes.

<sup>10</sup> Cf. la note 8 de G. Cœdès. Yāga: endroit où l'on peut accomplir un acte selon le *dharmā*, mais pas forcément un sacrifice. Ce pourrait être même des *dharmasālā*. (Bhatt).

Cf. K 1063, l. 4 (+ K 444 & 868) : *steñ añ vrab guru thve mabāddbvaravidbi*<sup>a</sup> *nā vāgīsvariyāga* : "le Sten Añ Vrah Guru accomplit un rite en rapport avec le grand *adhvāra* auprès du sanctuaire de Vāgīsvari". *Adhvāra* est proprement le nom d'un sacrifice védique, en particulier du sacrifice du Soma; toutefois le rituel n'était pas védique, évidemment, mais a dû être inspiré par des textes védiques et il est intéressant de noter ce trait au passage. D'autre part, il n'est pas étonnant qu'il ait été accompli près d'un sanctuaire de Sarasvati, puisqu'il le fut à l'occasion de l'éducation du roi Jayavarman V. *Yāgamandapa*: cf. B. Dagens, *Māyamata* I, p. 412.

a) A corriger probablement en *mabāddbvaravidbi*.

<sup>11</sup> Pour les stances qui suivent, cf. BEFEC XL, « Les gîtes d'étape à la fin du XII<sup>e</sup> siècle », p. 347-349 et réédition: p. 323-325.

<sup>12</sup> Quelle capitale? On peut songer à Vijayapura (c'est-à-dire Binh-dinh), mais ce n'est pas certain et G. Cœdès pencherait plutôt pour Phanrang (BEFEC XL); mais je crois que Phanrang était pour les Khmers comme pour les Chams la capitale du *Pāndurāṅga* et non pas celle du Campa. En revanche, il doit avoir raison au sujet du trajet pour y parvenir depuis Angkor, car c'est bien la route du grand Prâh Khan, qui devait se poursuivre jusqu'à

**CXXIII.** - « De cette ville (Yaśodharapura) à la ville de Vimāy<sup>1</sup>, il y a<sup>2</sup> 17 maisons du feu; de cette ville<sup>3</sup> jusqu'à Jayavati<sup>4</sup>, de celle-ci jusqu'à Jayasimhavati<sup>5</sup>, de là ... »

**CXXIV.** - « jusqu'à Jayaviravati<sup>6</sup>, de celle-ci jusqu'à Jayarājagiri<sup>7</sup>, puis de Jayarājagiri jusqu'à Śri Suvirapuri<sup>8</sup>, ensuite ... »

**CXXV.** - « de celle-ci jusqu'à Yaśodharapura<sup>9</sup>, il y a 44 maisons du feu; plus une sur le Śri Sūryaparvata<sup>10</sup>, »

Vat Nokor, hypothèse qui favoriserait le choix de Binh Dinh. S'il s'agit bien de gites d'étape (ou plus précisément que des gites d'étape se trouvait à côté de ces sanctuaires), on peut croire que les distances étaient régulières; il y en avait 17 d'Angkor à Phimai, soit environ 225 km, soit 12,500 km entre chaque étape. Cela ferait:  $58 \times 12,5 = 725$  km.

<sup>13</sup> Dans le BEFEO XI, G. Coedès écrit: « Ces gites d'étape où les voyageurs trouvaient du feu ... » Il ne s'agit certainement pas de cela. Ce feu pouvait servir aux sacrifices, au rituel, etc. Je rappelle aussi que ce n'est pas une invention de Jayavarman VII, puisqu'en a un témoignage dès le règne de Sūryavarman I<sup>er</sup>: dans K 1002, stèle du Phnom Srēs (éd. BEFEC LIV, p. 605-622), st. LX, on voit que le fondateur Śārikarapāṇḍita (et donc pas le roi) fait construire dans le temple de Śārikarapada un *agnigrba*, terme exactement équivalent (cf. ma note, BEFEC LVII, p. 175-176) à *vabnigrba* (st. CXXV de Prāh Khan), à *vabnes ... alaya* (*ibid.*, st. CXXIII) ou, de façon plus développée comme ici, *upakāryabutabbujas ... alaya*. Étant donné ce qu'on a vu l'an dernier, on peut se demander s'il ne s'agit pas simplement de ce qu'on a appelé jusqu'à présent des "bibliothèques" (et cela irait bien avec ce qui est dit dans la st. LX de K 1002). La différence ici est que ces bâtiments paraissent avoir existé indépendamment d'un autre temple.

<sup>1</sup> Il est important de noter cette forme indubitable du nom ancien de Phimai, à laquelle G. Coedès semble n'avoir jamais prêté attention. C'est très probablement, et malgré G. C., l'orthographe que l'on trouve dans la petite inscription K 293-25 du Bâyon. Il est vrai que l'on trouve ailleurs (K 485, Phimānākās, st. LXXXIII [*vimāye vuddbel*] et même à Prāh Khan, st. CLIX, [*vimāyasugab*]) la forme *vimāya*. On a cherché à expliquer ce nom d'après une forme sanscrito-pâlis *vi-maya*, totalement inconnue des lexiques indiens [BEFEC XXIV, p. 346]. La forme trouvée ici ferait plutôt songer à un terme local. Noter aussi qu'on ne trouve jamais *śri* préfixé à ce nom, ce qui serait surprenant pour un nom du Buddha!

D'autre part, on peut observer que ce Vimāya est absent de la liste des Sugata fondés par Jayavarman VII.

<sup>2</sup> La formule laisse penser que Jayavarman VII peut n'en avoir pas été le constructeur.

<sup>3</sup> Le mot est ambigu: G. Coedès a compris ce *purāa* comme la «capitale», ainsi qu'au premier hémistiche; mais il se pourrait tout autant que *purāa* désigne ici *Vimāy*, d'autant plus qu'on a certainement ensuite un circuit fermé.

<sup>4</sup> Emplacement? Pourquoi un nominatif, comme dans tous les mots qui suivent dans cette stance et la suivante? La correction en un accusatif ne s'impose peut-être pas; la traduction exacte pourrait être: «A partir de (telle ville), [il y a] .....»; soulignons qu'il n'y a que très peu de fautes de la part du lapicide.

<sup>5</sup> Emplacement?

<sup>6</sup> Ville déjà rencontrée dans la liste des cités abritant un Jaya-Buddha-Mahānātha: cf. C, 67, st. CXV. S'il y a quelque ordre géographique dans cette liste, on peut se rappeler que la ville suivante (st. CXVI) est Lavodayapura.

<sup>7</sup> Jayarājagiri est également cité en C, 69 (st. CXXVII).

<sup>8</sup> Suvirapuri est un hapax.

<sup>9</sup> On voit qu'on a ici un circuit; il reste qu'on ne sait si on doit y inclure Phimai, ou s'il faut mettre les 17 *agnigrba* de la route d'Angkor à Phimai à part.

Si on compte comme G. Coedès, un espace moyen de 12,500 km. entre chaque ville, ces 44 maisons correspondent à un circuit de 580 km. environ. On sait qu'il y a environ 225 km. d'Angkor à Phimai.

CXXVI.- « une à Śri Vijayādityapura<sup>1</sup> et une à Kalyāṇasiddhi<sup>2</sup>; au total, cela fait 121<sup>3</sup>. »

### Divinités du pays khmer

CXXVII.- « Les divinités faites d'or, d'argent, de bronze ou de pierre, en comptant les Yama et les Kāla<sup>4</sup>, totalisés à travers le pays, sont au nombre de 20.400<sup>5</sup>. »

Du point de départ (Ankor ou Phimai) jusqu'à Ankor, 5 villes (ou points de repère) seulement sont citées (elles n'étaient pas forcément équidistantes!) et on peut croire qu'il s'agit des étapes les plus importantes. Sur ces 5 noms, Jayavati et Suvirapuri sont des hapax; Jayasimhavati (3°), Jayaviravati (4°) et Jayarājagiri (12°) sont connues comme sièges de Jaya-Buddha-Mahānātha, mais pas autrement, ce qui ne nous avance donc guère, sauf vagues repères grâce aux autres villes citées dans la liste. On peut estimer que Jayasimhavati et Jayaviravati étaient relativement proches, et peut-être dans la région de Lopburi, tandis que Jayarājagiri était sensiblement plus loin.

G. les recherches de Bruno Dagens dans le Nord-Est: dans sa «liste des monuments visités», il a relevé comme «gîtes d'étape», le Prasat Ta Muen Tot et le Prasat Ban Bu. Le premier est situé au col et voisine avec le Prasat Ta Muen (chapelle d'hôpital) et le Prasat Ta Muen Thom, le second est proche du Phnom Rung: tous deux étaient évidemment sur la route d'Ankor à Phimai. A comparer, dans la même tournée, avec les 15 chapelles d'hôpital (peut-être 16) qui ont été repérées dans diverses zones [G. Coedès en a mentionné 11, dont au moins 3 qui n'ont pas été visités par Dagens]. Tous ces problèmes sont à reprendre.

<sup>10</sup> Le Phnom Chisor, probablement. Ici, il n'est plus question de circuit et l'*agnigrība* apparaît isolément, peut-être parce qu'on est trop loin des grandes routes (?). On attendrait sur cette route aussi le site de Tonlé Bati. Observons que le fait que cette «maison» soit isolée, comme les deux qui suivent, montre bien que ce n'était pas des «gîtes d'étape».

<sup>1</sup> Vijayādityapura est un hapax. Quid d'un rapprochement avec Vijayādipuri de C, 70 (st. CXVIII), proposé par G. Coedès (p. 296, n. 7)?

<sup>2</sup> Kalyāṇasiddhi est un hapax; des toponymes en *kalyāṇa*<sup>c</sup> (*Kalyāṇapada*, *Kalyāṇāśrama*) se trouvent dans K 32, inscription du Phnom Cisor (K II, p. 137), qui porte la date de 1038 *saka* (1116/17 A.D.), Sūryavarman II régnant; j'aurais tendance à croire que cet *āśrama* se trouvait sur les pentes du Phnom Cisor et que par conséquent ce n'est pas dans la zone du lieu recherché.

<sup>3</sup> 57 + 17 + 44 + 1 + 1 + 1 = 121.

Si je ne me trompe pas sur la nature de ces *agnigrība*, on peut supposer qu'un certain nombre d'entre eux se trouvaient inclus dans l'enceinte de certains temples, tout simplement (mais alors, il n'est pas certain qu'ils soient signalés dans cet «état»).

121, c'est 19 de plus que d'hôpitaux tels qu'ils sont indiqués dans la stèle de Tà Prohm. D'un autre côté, ces maisons apparaissent distribuées de façon plutôt irrégulières ...

<sup>4</sup> On peut se demander pourquoi on spécifie ici le nom de ces dieux. Kāla est signalé en Inde comme le nom d'un *dvārapāla* (cf. B. DAGENS, *Mayamata* II, p. 476, par exemple). Mais Yama? Il ne faut pas le voir, semble-t-il, dans un contexte spécialement bouddhiste ou hindou. Cf. *Pour mieux comprendre Angkor*, p. 78-79; rapprochement avec la Terrasse du Roi lépreux, avec Yama = Dharmarāja. Finalement, je me demande si l'indication de ces deux divinités ne veut pas dire *toutes* les divinités, même les moins importantes (comme celles-là).

<sup>5</sup> Le chiffre est important et il s'entend évidemment (on aura la preuve plus loin) en dehors des dieux de Prāh Khan et de ses annexes totalisés dans la st. XLIII. Mais je ne suis pas sûr qu'on ait là pour autant le chiffre de l'ensemble des divinités du pays khmer. Je pencherais plutôt pour le chiffre des occupants de l'ensemble des sanctuaires dont on a fait la liste depuis la st. CXII. Il s'agit donc de 2 Sugata, 3 Triratna, 23 Jaya-Buddha-Mahānātha, 10 yāga du Yaśodharatajāka et des 121 "maisons du Feu", soit en tout: 159 lieux. La moyenne

**CXXVIII.**- « Les parts de *pūjā* annuelles pour ces dieux-ci<sup>1</sup>, totalisées avec ce qui est distribué aux résidents, professeurs et élèves, est de : »

**CXXIX.**- « 183.190<sup>2</sup> *khāri* de paddy; »

**CXXX.**- « 4.533<sup>3</sup> *khāri* de riz blanc lors de l'*āpana*<sup>4</sup>, de Bhādrapada, de Māgha, etc.; »

**CXXXI.**- « 2.923 *khāri* de fèves; puis [la même chose] moins 378 de sésame<sup>5</sup>; »

**CXXXII.**- « 1.664 *gbati* de ghee, avec 10 *prastba* et 2 *kuduva* en plus; »

**CXXXIII.**- « une égale quantité de lait caillé et de lait: 1.706 *gbati* et 3 *prastba*; puis, de miel et de mélasse, »

**CXXXIV.**- « 1.693 *gbati* et 6 *prastba* de chaque; puis, d'huile de sésame, 500 ...»

est de 20400 : 159 = 128,30. C'est une moyenne probablement trop forte et il devait y avoir encore d'autres sanctuaires...

<sup>1</sup> *Ara*. Il s'agit donc des dieux totalisés dans la stance précédente. C'est ce qui me donne à penser que sont inclus dans cette stance tous les sanctuaires précédemment énumérés.

<sup>2</sup> Ce chiffre peut être comparé avec celui qui est produit pour le paddy utilisé dans Práh Khan et les temples alentour (st. LXII): 146.891 *khāri* pour 515 divinités (moyenne: 285, 225 *khāri* de paddy), contre ici 8,979 *khāri* ! C'est là un nouveau problème, qui peut être éventuellement résolu par la densité des gens vivant autour de ces temples. Autre solution, comme dans les hôpitaux: le roi donnait beaucoup plus à ses fondations propres (comme les hôpitaux qui entouraient Angkor Thom), qu'aux fondations de province, où les habitants étaient invités à participer de façon plus considérable.

<sup>3</sup> Cf. stancé LXIII ci-dessus, où on indique pour les dieux de Práh Khan 7.848 *khāri* de riz blanc, soit considérablement plus en valeur absolue et évidemment encore davantage en proportion! Explication?

<sup>4</sup> Comme dans la st. LXIII ci-dessus, on a cette leçon très nette *āpana*, qu'il faut donc bien accepter, même si elle déroute (deux erreurs ne sont guère concevables). *āpana* signifie «commerce, marché». Si on se reporte aux hôpitaux, on voit que les prestations étaient dues trois fois par an (mais il y a *ādi*, qui signifierait que la distribution peut être faite plus de trois fois. Il pourrait n'y avoir donc là qu'un seul "marché". Mais que représentait-il? Peut-on songer à la fête de *Tang tok* (cf. Adhémar Leclerc, *Cambodge: Fêtes civiles et religieuses*, p. 320-321). Mais, p. 322, A. Leclerc parle d'une création de Norodom... Cf. aussi B.-Ph. Groslier, *Inscriptions du Bayon*, p. 132-133 [avec lequel je ne suis pas d'accord d'ailleurs, lorsqu'il pense comme lieu pour cette fête aux Prasat Suor Prat et, en même temps, aux "galeries-passeages" du Bayon].

<sup>5</sup> Soit 2.545 *khāri* de sésame. Pour le temple de Práh Khan, les quantités correspondantes sont de (st. LXIV): 433 *khāri* de sésame et 422 *khāri* et 3 *drona* (avec inversion de ce qui existe en plus).

CXXXV.- « et 14 *ghati*, ainsi que 2 *prastha*; de graisse végétale, 236 *ghati* et 4 1/2 *prastha*; »

CXXXVI.- « de *śrīvāsa*: 20 *bbāra*, 5 *tulā*, 2 *katti* et 10 *pana*; de bois d'aigle, même poids; mais de santal: »

CXXXVII.- « 1 *bbāra*, 1 *tulā*, 1 *katti* et 18 *pana*; quant au camphre, 1 *tulā*, 1 1/2 *katti* et 5 *pana*; »

CXXXVIII.- « de *taruska*, 4 *tulā*, 14 *katti* et 3 *pana*; de cire, 3.000 *bbāra* ... »

CXXXIX.- « et 200, 3 *katti* et 10 *pana*; puis, de pièces de tissu servant de vêtements aux divinités, etc., 70.000 ... »

CXL.- « et 2.525; lits, etc., 1.666. »

#### Note sur les chiffres des prestations.

Nous avions vu la dernière fois, à propos du riz, des fèves et du sésame, à quel point les rapports des chiffres de Prāḥ Khan et des autres temples étaient différents (à propos des st. CXXIX et CXXXI). Les rapports les plus éloignés sont ceux de l'huile de sésame, où l'on a 315 [Prāḥ Khan] à 514 [autres temples] (*bbāra*, en laissant tomber les autres unités) et de la cire, où l'on trouve 10 *bbāra* [Prāḥ Khan] à 3200 *bbāra* [autres temples]. Il est difficile d'expliquer ces écarts très considérables.

Rituellement, cela pourrait avoir un sens: on ne donnait pas les mêmes choses aux divinités (?), ou alors, on modulait les dons suivant les productions de la région.

CXLI.- « Par le roi lui-même ont été donnés et par les propriétaires de *grāma* ont été donnés pieusement 8.176 *grāma*; »

CXLII.- « Il y a là<sup>1</sup> 208.532 serviteurs des dieux, hommes et femmes; »

<sup>1</sup> On retrouve un problème évoqué plus haut: quel est le sens du mot *atra*? Que désigne-t-il: temple ou *grāma*? Pour le Pandit Bhatt, *atra* (ou *atra*) désigne le temple et serait donc sans rapport avec les totaux qui suivent.

CXLIII.- « parmi ceux-ci, [on compte] 923 hommes inspecteurs et 6.465 secrétaires<sup>1</sup>; »

CXLIV.- « 4.332 femmes, dont 1.622 danseuses<sup>2</sup>. »

CXLV.- « Pour la fabrication des *prāsāda*, etc. et des coupes, etc., qui sont ici (on a utilisé): or: 138 *bbāra* et 12 *katti*; »

CXLVI.- « argent: 121 *bbāra*, 12 *katti* et 10 *pana*; <sup>3</sup> »

CXLVII.- « cuivre, 323 *bbāra*, 1 *tulā*, 1 *katti* avec 5 *pana*; »

CXLVIII.- « 5.360 *bbāra*, 2 *tulā* et 2 *katti* de bronze; de placage d'or: ... »

CXLIX. - « 200 *bbāra*, 1 *tulā*, 1 *katti* et 16 *pana*; 14 *bbāra*, 2 *tulā*, 4 *katti* d'étain. »

CL.- « de plomb, 1.200 *bbāra* et 5 *tulā*; de fer, 2.000 *bbāra*, 6 *katti* et 7 *tulā*; »

CLI. - « 97.328 pierres, rubis, etc.; »

CLII. - « 169.222 perles<sup>4</sup>. »

## LES CONSTRUCTIONS

Si la deuxième proposition est la bonne, on a une moyenne de 25,505 serviteurs par *grāma*, à comparer avec la moyenne des *grāma* donnée plus haut : st. LXXXIII et LXXXIV: 97840 : 5324 = 18, 377. On a le même genre de données dans la stèle de Tā Prohm: st. LXII à LXVII; les données ne sont pas fournies dans le même ordre et peut-être l'interprétation de l'ensemble en est facilitée. On a: 1<sup>o</sup> le nombre de *grāma* (st. LXII); 2<sup>o</sup> le nombre de serviteurs du temple (st. LXIII à LXV); 3<sup>o</sup> nombre de serviteurs dans les *grāma*, travaillant à la terre. En comptant alors: 79.365 : 3.140, on a 25, 275, chiffre assez proche de celui qu'on a ici.

<sup>1</sup> Je rappelle que la traduction de *karin* par "secrétaire" m'a été proposée par le Pandit Bhatt.

<sup>2</sup> Dans le temple de Prāh Khan, on comptait (st. LXXVI-LXXVII) 2298 femmes, dont 1000 danseuses. La proportion est donc en faveur de Prāh Khan.

<sup>3</sup> Noter qu'il y a plus d'or que d'argent.

<sup>4</sup> Pour le temple de Prāh Khan, (st. XCIX), 112.000 perles. Je rappelle que ce chiffre vaut, semble-t-il, pour 20.400 divinités (st. CXXVII).

CLIII. - « Il y a 514 *prāsāda* et *valabbi*<sup>1</sup>; 2.066 sections de construction en pierre; »

CLIV. - « et aussi 16.490 brasses<sup>2</sup> de murailles en latérite; »

CLV. - « 24.628 brasses de périmètre de douves<sup>3</sup>; »

CLVI. - « 93.507 brasses de périmètre de bassins<sup>4</sup>, Jayatākā, etc. »

CLVII. - « 1.512 *kuti*<sup>5</sup>; il y a en tout 2.989 résidents et étudiants. »

### La fête annuelle.

CLVIII. - « Ici, chaque année, pendant le mois de Phālgūṇa, on doit exposer<sup>6</sup> les divinités suivantes: le Roi des Muni de l'Est<sup>7</sup> et Śri Jayarājacūḍāmaṇī<sup>8</sup>; »

<sup>1</sup> Les *prāsāda* sont les tours-sanctuaires, les *valabbi* doivent être des bâtiments bas. Les "sections de construction en pierre", traduction littérale de *śilāvēśmakbandas*, se laissent deviner entre les *valabbi* et les murailles.

Le mot *valabbi* est presque ignare de l'*Index général* de DAGENS, *Mayanata*, cf. p.564, qui renvoie à *niryubavalabbi*, (*niryūba-* "proeminence, projection") qui signifie "auvent". (mais la référence donnée doit être erronée).

<sup>2</sup> Soit environ (avec 1,80 m. pour 1 brasse) : 31.331 mètres ! Si on pouvait avoir le détail ...

<sup>3</sup> Comparer avec la longueur des murs en latérite. Les gopura ne sont pas suffisants à expliquer la différence de 2 à 3 environ.

<sup>4</sup> 168.312 mètres, en comptant toujours 1,80 m par brasse. Le Jayatākā mesure approximativement 3500 x 900 m, soit un périmètre de 8.800 m. Il en faut presque 20 pour faire le compte.

<sup>5</sup> Ces *kutis* devaient être en bois.

<sup>6</sup> G. Coedès: "amener"; J'analyse mal *adbyesyā*; on ne trouve rien dans les dictionnaires.

<sup>7</sup> Voir plus haut; G. Coedès pensait que c'était la divinité principale de Bantāy Kdei; je pense plutôt à celle du grand Prāh Khan ou de Ben Mālā (mais sans certitude absolue...).

<sup>8</sup> La divinité principale de Tà Prohm. On observera que la stèle de Tà Prohm ne précise pas que la divinité de Prāh Khan était présente à sa propre fête, ce qui montre que l'inscription a été écrite avant la fondation de Prāh Khan; en revanche, on y trouvait Viraśakti, fondée par conséquent sans doute dans les cinq premières années du règne de Jayavarman VII.

+ de 100

**CLIX.** - « Les Jaya-Buddha-Mahānātha des 25 pays<sup>1</sup>, le Sugata Vīraśakti<sup>2</sup> et le Sugata de Vimāya<sup>3</sup>; »

**CLX.** - « les [dieux] Bhadreśvara<sup>4</sup>, Cāmpēśvara<sup>5</sup>, Pṛthuśaileśvara<sup>6</sup>, etc.: ceux-ci en tout sont 122<sup>7</sup>, avec leur entourage; »

**CLXI.** - « Voici ce qu'il faut prendre alors dans les magasins du Roi, comme part à la *pūjā*: or, 4 *pala*, 2 *katti*; argent: ... »

**CLXII.** - **CLXIII.** - « 14 *katti*; étain blanc: 4 *tulā*; 459 paires de pièces de tissu comme vêtements des dieux, etc.; de riz blanc à cuire, 100 *kbāri*<sup>8</sup>; 143 boîtes à parfum; »

**CLXIV.** - « ghee, miel et mélasse: 1 *gbatī* et 10 *prastba* de chaque; 1 *tulā* et 5 *katti* de cire d'abeille; »

**CLXV.** - « de śrīvāsa et de bois d'aigle, 5 *tulā* de chaque; de lait et de *dadbi*, 1 *gbatī* et 10 *prastba* de chaque. »

<sup>1</sup> Remarquer que le nombre de Jaya-Buddha-mahānātha fondés par Jayavarman VII est de 23 seulement selon la st. CXX. Encore une chose difficilement explicable : on pourrait supposer que deux de ces divinités n'ont pas été fondées par Jayavarman VII; mais il est préférable de supposer que deux nouveaux Jaya-Buddha-mahānātha ont été créés entre la rédaction de la st. CXX et celle-ci, et qu'on n'a pas pensé à corriger la première. Cela pourrait donner une indication sur la façon dont a été composé le poème de cette inscription. D'autre part, quelle est la différence en *desa* et *visaya* ?

<sup>2</sup> Le Buddha de Vat Nokor, près de Kompon Cām. Il est déjà cité plus haut dans la st. CXII, où l'on précise que ce *Sugata* est une création de Jayavarman VII. Vīraśakti est également invité à la fête annuelle de Tà Prohm (cf. st. LXXXV).

<sup>3</sup> Déjà cité dans la st. CXXIII, comme ville-repère de "maisons de feu". Mais ce n'est pas Jayavarman VII qui l'a fait consacrer.

<sup>4</sup> Plusieurs sanctuaires anciens portaient ce nom; il s'agit ici probablement du grand temple de Vat Phu au Laos. C'était un sanctuaire consacré à Śiva.

<sup>5</sup> J'ai proposé (inédit) de voir dans ce temple celui de Krol Romās, au sommet de la cascade du Phnom Kulén. C'était en tout cas un temple de Viṣṇu.

<sup>6</sup> Pṛthuśaila = Phnom Ruṇi en Thaïlande; forme de Śiva.

<sup>7</sup> Il est notable que ces trois divinités, dont le nom se termine en *śvara*, sont toutes *bindoues*. D'autre part, à quoi correspond ce chiffre? Il est difficile de le dire, d'autant qu'on précise que les "dieux de l'entourage" sont ici compris et qu'il est donc illusoire de chercher à savoir combien il y avait de dieux principaux. Par ailleurs, il est probable que ce total englobe toutes les divinités depuis la st. CLVIII. Par les prestations qui sont offertes par le roi, on peut supposer que les dieux étaient beaucoup moins nombreux qu'à Tà Prohm.

<sup>8</sup> A Tà Prohm, la prestation royale est de 630 *kbāri*; mais on spécifie qu'on doit "nourrir (à cette occasion) 1000 savants, *bbikṣu*, brāhmaṇes, etc." (st. LXXXIX).

**CLXVI.** - « Les brâhmaṇes, avec en tête Śri Sūryabhaṭṭa<sup>1</sup>, le roi des Java<sup>2</sup>, le Seigneur des Yavana<sup>3</sup> et les deux rois des Cāmpā<sup>4</sup> porteront chaque jour<sup>5</sup> avec piété l'eau des ablutions<sup>6</sup>. »

## CONCLUSIONS

**CLXVII.** - « Le chasseur Ajitendra, pour n'avoir donné qu'une planche de bois au Buddha, a atteint dans le ciel la souveraineté et est

<sup>1</sup> Comme l'indique G. Coedès (p. 267), ce titre est un hapax de l'épigraphie khmère : mais K 692 (stèle du Prâsât Tor, K I, p. 227-249) cite des noms très proches en réalité: Sūryapāṇḍita (st. L, LI, LVII, LVIII et LX) ou Sūryasūri (st. LXI et dernière du poème). Ce pourrait donc être ici ce personnage; il faut observer en outre que ce titre ne semble pas correspondre à sa charge: premier des brâhmaṇes, ce Sūryabhaṭṭa devrait pouvoir être considéré comme une sorte de "chef des *bakou*".

<sup>2</sup> Pour G. Coedès (*Inscr.*, p. 267), ce roi devait être (étant donnée la date de l'inscription) soit Kāmeśvara II, soit Śrīṅga, rois de Kediri. C'est peut-être oublier que *Jauā* est un nom de peuple nullement aussi précis qu'il semble le dire : cf. ce qu'on en dit au moment de l'accession au pouvoir de Jayavarman II. En l'occurrence, je me demande si on n'a pas là beaucoup plus vraisemblablement un roi malais.

<sup>3</sup> Les *Yavana* sont les Vietnamiens. Pour G. Coedès (p. 267), il s'agit de Long-cán, fils de Li Anh-tôn, qui régna de 1175 à 1210. Je vois mal ce roi indépendant venir annuellement offrir le tribut de l'eau à Angkor.

<sup>4</sup> G. Coedès (*ibid.*) : « Les deux rois du Champa sont le roi de Vijaya (Binh-dinh) Sūryajayavarmadeva, beau-frère de Jayavarman VII, et le roi de Pāṇḍurāṅga (Phanrang) Sūryavarmadeva, ancien prince Vidyāñandana, protégé de Jayavarman VII. La division du Champa en deux royaumes ne dura que de 1190 à 1192. A défaut du millésime 1191 donné par la stèle XXXIV, la mention des deux rois du Champa aurait suffi à dater à un an près la stèle de Prâh Khan. De nouveau, je ne peux être tout à fait d'accord: d'une part, je n'arrive pas à considérer le Champa comme un "empire"; les Cāmpā apparaissent avoir été encore plus divisés que les Khmers tout au long de leur histoire (qui d'ailleurs reste largement à faire), et il y avait sans doute bien plus de deux royaumes chams. D'autre part, je ne suis pas certain que la stèle de Prâh Khan ait été gravée aussi vite que G. Coedès le dit, même s'il est vrai que des deux rois nommés par G. Coedès, l'un a été vite défaîtu, l'autre s'est bien vite retourné contre Jayavarman VII. Il serait donc prudent de ne pas proposer de noms ici non plus. »

<sup>5</sup> Bien entendu, "chaque jour (de la fête)", c'est-à-dire chaque jour du mois de Phâlguna (février-mars, dernier mois de l'année). Je ne sais de quels "rois" il s'agit, mais un tel règlement supposait véritablement une très grande disponibilité de leur part ...

<sup>6</sup> Le tribut d'eau était un signe d'allégeance. Cf. le don de l'eau par le roi du Feu, retrouvé dans une ancienne charte de Sambor. (par exemple, *Etudes cambodgiennes*, n° 4, oct.-déc. 1965). Cf. aussi A. LECLÈRE, *Recherches sur le droit public des Cambodiens*, Paris, 1894, 2<sup>e</sup> partie, chap. V, "L'eau du serment", p. 133 à 139.

Cette eau servait à l'*abbiseka*, dit N. R. Bhatt. On peut se demander s'il s'agit d'un *abbiseka* royal, c'est-à-dire d'une sorte de reconsécration annuelle du roi. Mais ceci est peut-être à revoir: il me semble que s'il s'était vraiment agi d'*abbiseka* royal, il y aurait le terme d'*abbiseka*!

Toutefois, on pourrait penser que ce rite est à mettre en liaison avec l'origine de la cité de Prâh Khan et son nom même de Jayaśri : le temple de Prâh Khan a dû servir de capitale au roi et le temple pourrait avoir été une sorte de panthéon provisoire, en attendant la "mise en service" du Bâyon. Le détail des activités de Jayavarman VII nous fait ici gravement défaut.

La comparaison avec la fête de Tâ Prohm - où d'ailleurs la fête ne durait qu'une semaine "du huitième jour de Câtra à la Pleine Lune du même mois" - montre bien en tous cas qu'il ne s'agit pas du même type de fête et qu'ici, indépendamment des spécifications de cette stèle, la royauté et l'empire étaient beaucoup plus impliqués : les dieux invités étaient beaucoup plus nombreux, semble-t-il, et venaient de l'ensemble de l'empire, comme en témoigne la présence des "Jayabuddhamahâñâtha des 25 pays".

appelé Bhairavāsura<sup>1</sup>; que dire de ce Roi qui donne en abondance et avec respect au Saṁbuddha et aux autres (Buddha), aux divinités aux deux-fois-nés, etc., aux ascètes, des *prásāda* et des trônes, de l'or, des joyaux, des défenses des rois des éléphants<sup>2</sup>! »

**CLXVIII.** - « Devant<sup>3</sup> la tresse (Śrī Jayaśri) de cheveux (Ses actes méritoires) réunis ensemble de Sa reine (la Terre) brillamment ornée avec bon goût, (tresse) illuminée de pierres précieuses, d'or et de guirlandes, ce Roi a placé un miroir, le Jayataṭāka, plein de beauté. »

**CLXIX.** - « Cette masse d'eau, rougie par la lumière des temples d'or et fardée de la couleur des lotus, resplendit, prenant l'aspect de l'étang de sang qu'a créé le Bhārgava<sup>4</sup>. »

**CLXX.** - « A l'intérieur de cet (réservoir), il y a<sup>5</sup> un îlot agréable par son bassin<sup>6</sup>, qui regroupe (en un lieu) unique les eaux de [tous] les

<sup>1</sup> On ne connaît pas la légende, qui fait penser à celle d'un *Jātaka*, à laquelle le poète se réfère ici. Ajitendra est inconnu des lexiques que j'ai pu consulter (il a tout aussi bien échappé à G. Coedès): doit-on penser à une légende uniquement khmère ? Bhairava, "le terrible" est une forme bien connue de Siva, mais c'est ici un *asura* et je comprend mal pourquoi son beau geste l'a transformé en une divinité aussi peu aimable (il est vrai que le bouddhisme tantrique est susceptible de telles choses)... Quoi qu'il en soit, cet *asura* n'est pas répertorié dans l'*Introduction à l'iconographie du tantrisme bouddhique* de Marie-Thérèse de MALLMANN (Paris, 1975).

<sup>2</sup> L'indication du don de trônes pourrait suggérer, comme me l'a fait remarquer Sunsgeng Sunkimmeng, que la planche donnée par Ajitendra pouvait permettre au Buddha de s'asseoir. A défaut de témoignage écrit, peut-être serait-il utile de chercher dans l'iconographie khmère du Bayon si l'on n'a pas une image pouvant rappeler cette légende.

<sup>3</sup> G. Coedès avait traduit normalement ce locatif par "dans"; on aboutit pourtant alors à un faux sens, car il est difficile de dire que le bassin du Jayataṭāka est "dans" Jayaśri. Le sens que j'adopte ici, conforme à la topographie, est proposé par Louis RENOU dans sa *Grammaire sanscrite*, p. 309, § 223 a). On place d'ailleurs un miroir plutôt "devant" les cheveux que "dans".

<sup>4</sup> C'est-à-dire le roi des Chams, Jaya-Indravarman IV. *q.* plus haut, st. XXIX, et XXXII. Ces stances m'ont amené à penser que la défaite finale des Chams s'était accomplie en ce lieu, d'où j'ai déduit que ce devait être l'emplacement du palais royal de Tribhuvaradityavarman et de Yaśovarman II. Des fouilles (notamment sous le temple, à l'occasion de sa restauration) pourraient confirmer ce fait.

<sup>5</sup> Noter que la création de l'îlot n'est pas directement attribuée au roi, comme si un site sacré avait préexisté même au Jayataṭāka. Il s'agit évidemment du Nāk Pān, appelé autrefois, semble-t-il, Rājyaśri (st. XLI), nom qu'on peut s'étonner de ne pas trouver ici, étant donné le nombre de cheveilles utilisées pour cette stase. De même peut-on s'étonner de ne pas y trouver le nom du lac Anavatapta (s'il s'agit bien de cela). *q.* Jean BOISSELIER, "Pouvoir royal et symbolisme architectural : Neak Pean et son importance pour la royauté angkorienne" dans *Arts Asiatiques*, t. XXI, 1970. Traduit par M. C. S. DISKUL dans *SPAFA Diges*, vol. XI n° 3, 1990. *q.* aussi *Pour mieux comprendre Angkor* et "Le Symbolisme de Nāk Pān", par G. COEDÈS et L. FINOT, *BEFEC* XXIII, p. 401-405.

<sup>6</sup> Peut-être vaudrait-il mieux dire "ses bassins", comme G. Coedès.

tīrtha<sup>1</sup>, (ilot) excellent qui efface la boue et les fautes de ceux qui le touchent, qui sert de radeau pour traverser<sup>2</sup> l'océan des existences<sup>3</sup>. \*

CLXXI. - \* Ayant constamment réalisé des actes méritoires, excellents, incommensurables, en faveur de tous les êtres vivants, ce Roi, faisant toutefois ces choses-ci appropriées particulièrement par dévotion excellente envers son père<sup>4</sup>, prononce cette prière: \*

CLXXII. - \* Grâce à ces actes méritoires<sup>5</sup> qui répandent les rayons de la Connaissance et du Soleil (et) qui ont soudain dissipé les ténèbres<sup>6</sup> qui les cachaient l'un et l'autre, la Bodhi que les autres ne peuvent atteindre, que Mon père en jouisse pour faire traverser l'océan des existences par les êtres. \*

CLXXIII. - \* Et, ayant fixé selon les Ecritures pour longtemps la stabilité du Dharma rompue par l'autre<sup>7</sup>, qui est un pont pour le But excellent, ce Roi, qui est le guide de ceux qui protègent la stabilité, dit cela aux rois futurs qui protégeront la stabilité: \*

<sup>1</sup> Puisque le réceptacle est unique, il faut que les *tīrtha* soient multiples. Noter que G. Coëdès a oublié de traduire tout le début du mot composé, *tīrbajalaikarāśi*! Cet oubli a probablement de l'importance en ce que ce qui est dit là, qui n'est pas sans intérêt, a été ignoré de lui-même dans ses commentaires, puis de J. Boisselier.

<sup>2</sup> Noter cet accusatif *taraṇam* marquant le but.

<sup>3</sup> Il est légitime de se demander ce que vient faire cette strophe sur le Neak Pean à cet endroit du poème, dans les conclusions. Il s'agit probablement d'une "transition" vers l'idée de la libération générale des êtres indiquée dans les stances qui suivent. En même temps, on met l'accent sur cet ensemble, dont l'interprétation actuelle par le lac Anavatapta est loin de me donner satisfaction. Les objections sont fournies par l'article de Boisselier lui-même (absence du nom d'Anavatapta, en particulier; le nom de Rājyaśri en est un substitut parfaitement incompréhensible); j'ajouterais que les bassins ne sont en rien "source" de fleuves: au contraire, ils sont affirmés comme la réunion des *tīrtha*. D'autre part, personne n'a jamais dit ce que faisait là aussi bien le sanctuaire central, jamais signalé dans une description du lac (c'est une objection faite par J. Boisselier) que le groupe du cheval Balâha, censé arracher les marchands indiens aux charmes des Râksasi vivant dans l'île de Tâmradvipa. On ne met guère l'accent sur le lieu de destination. En tous cas, il est peu vraisemblable que le lac Anavatapta, tellement sacré, ait porté sur ses bords une île aussi dangereuse... [ cf. Victor GOLOUBEW, *Le cheval Balâha dans BEFEC*, XXVII, p. 223-237 ].

<sup>4</sup> On pourrait tout aussi bien comprendre "ses parents"; il semble pourtant qu'il s'agisse ici précisément du père, et que c'est dans ce sens sans doute qu'il faut comprendre *kuśalāni*.

<sup>5</sup> Les actes *kuśalāni* dont il est question dans la strophe précédente, particulièrement destinés à la mémoire de son père.

<sup>6</sup> G. Coëdès donne comme sujet de cet absolutif le roi lui-même: je ne vois guère comment le justifier! Voir pourtant les explications de G. C. pour la Connaissance et le Soleil, notes 4 et 5.

<sup>7</sup> G. Coëdès n'a pas traduit le mot *parasya*, qui me paraît important; il devrait s'agir ici de son prédécesseur, le roi Tribhuvanâdityavarman, l'"usurpateur", ou bien plutôt du roi cham (*para* = "étranger") particulièrement honni de Jayavarman VII, Jaya-Indravarman IV.

**CLXXIV.** - « Lorsqu'épouses et enfants sont morts depuis longtemps, même lorsqu'ils étaient aussi chers que sa propre vie, et (dès lors) que d'autres (épouses ou enfants) sont vivants, il y a absence de souffrance chez les hommes; mais lorsque père et mère sont partis vers la mort même depuis un temps très long, comme il ne (peut) en exister d'autres, le malheur est sans limite. »

**CLXXV.** - « C'est pourquoi, me souvenant d'eux et des services sans prix qu'ils ont rendus, il faut que je fasse<sup>1</sup> ces bonnes œuvres avec une piété sans mesure; celles-ci, il est suffisant pour les rois reconnaissants<sup>2</sup> de les protéger pour obtenir plus de fruits que celui qui fait le Dharma. »

**CLXXVI.** - « Et les rois fixent la règle de protection nécessairement, même sans ma requête, car ils en sont chargés par la règle; bien que je sache cela, ô rois, je vous supplie d'être vous-mêmes insatiablement anxieux de protéger mes fondations. »

**CLXXVII.** « Que les hommes et les femmes qui s'y trouvent<sup>3</sup>, avec les Cāmpa et les Yavana<sup>4</sup>, ainsi qu'avec les gens de Pukām et de Rvañ, soient protégés - ils sont ici 306.372<sup>5</sup> - ainsi que les grāma au nombre de 13.500<sup>6</sup>, et que tout ce qui est au service des dieux, en bois, en pierre, etc., soit conservé intact. »

**CLXXVIII.** - « Et que pour ceux qui sont là, qu'il y ait sans faute chaque année, comptés comme un sacrifice aux dieux, 400.126 kbāri de riz blanc<sup>7</sup>; et les terres, productrices de revenus qui sont attribuées à cet

<sup>1</sup> Je rends ainsi *kuryām*, optatif présent, apparemment hortatif : cf. Louis RENOU, *Grammaire sanscrite.*, p. 411, § 292.

<sup>2</sup> Reconnaissants de quoi ? Probablement d'être protégés par leurs prédécesseurs.

<sup>3</sup> Dans toutes les fondations célébrées sur cette stèle.

<sup>4</sup> Normalement, ce sont les Vietnamiens. Mais il est intéressant de noter qu'en Thaïlande, le terme *Yavana* désigne les gens du Lan-na (observation de Kannika).

<sup>5</sup> Cf. stances LXXIV et CXLI, où l'on a respectivement 97.840 et 208.532. Remarquer la précision du chiffre, ainsi que la façon d'écrire 72 : *saptir dvādaśa*, soit 60 + 12, façon khmère de compter.

<sup>6</sup> Cf. stances LXXIII et CXLI, où l'on a respectivement 5.324 et 8.176 grāma. On a donc aussi bien en hommes qu'en grāma l'ensemble de ce qui est recensé dans cette stèle de Prāh Khan, comme si l'ensemble des œuvres pies énumérées formait un ensemble.

<sup>7</sup> Si l'on fait la moyenne par hommes, on trouve 1.3060136 kbāri par an (même pas 150 kilos), ce qui n'est pas très considérable: les hommes avaient donc d'autres moyens de subsistance.

Il faudrait pourtant trouver comment l'auteur arrive à ce chiffre énorme de riz blanc: 400.126! En effet, pour le temple de Prāh Khan, on avait besoin de 146.891 kbāri de paddy (st. LXII), soit, selon Tà Prohm, 146.891 : 4 = 36.722, 75 kbāri de riz blanc. Ajouté au chiffre

suivent le Dharma, celui-là, appelé Sri Virakumāra, a composé cette belle inscription. •

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# WORLD MONUMENTS FUND

## APPENDIX D

C/o Conservation & Archaeology  
Siem Reap

16th March 1992

From: John Sturges  
Program Director

To: Mr. Heng  
Siem Reap

Subject: Proposal  
for  
Angkor  
Retail

World Monuments Fund  
is Angkor which it sold  
1990, while at the same time  
Architecture and Archaeology.

After initial investigations  
information centers on Angkor  
the sale of good quality books  
internationally, why is the  
above mentioned building the  
hands of Angkor Tourism because  
Chief of the Provincial Committee  
consider handing over this  
it using traditional Khmer  
organizations to arrange the  
history, information on Angkor  
from this enterprise will be used  
of the monuments of Angkor or other areas.

WMF assures you that all expenses for operating the  
interpretation Center will be paid for from private funds  
will be kept in Cambodia for use by other organizations.

We attach an English copy of a Preliminary proposal for your information  
with a Khmer translation.

Please, Chief of the Provincial Committee send the original information to  
the World Monuments Fund.

JOHN STURGES  
Program Director  
World Monuments Fund

C/o Deang Nor Let  
Department of Archaeology  
Phnom Penh

# WORLD MONUMENTS FUND

174 East 80th Street  
New York, New York 10021  
Telephone: 212 517 9367  
Telefax: 212 628 3146

C/o Conservation d'Angkor  
Siem Reap

16th March 1993

From: Program Director, World Monuments Fund  
  
To: Mr Noe Sam Leader of People's Provincial Committee,  
Siem Reap - Odor Mencheay, State of Cambodia.  
  
Subject: Proposal for Converting the Angkor Tourism Building (in front of  
Angkor Wat) to an Interpretive Center Exhibition Hall and Simple  
Retail Outlet for Angkor.

World Monuments Fund is continuing its program for the conservation of Preah Khan at Angkor which it began in 1990 and has continued to undertake during 1992 and 1993, while at the same time training students from the Departments of Architecture and Archaeology from the University of Beaux Arts Phnom Penh.

After initial investigation WMF has realized that there is a shortage of information centers on the Angkor region for tourists and there is no place for the sale of good quality books maps and souvenirs to promote the image of Angkor internationally. WMF is therefore interested in developing a proposal to use the above mentioned building for such purposes. As this building is presently in the hands of Angkor Tourism but not being put to any use we respectfully request you, Chief of the Provincial Committee, to consider the above proposition and to consider handing over this building to the WMF and its collaborators to repair it using traditional Khmer architecture, and in collaboration with other organizations to arrange the interpretive center for the promotion of national history, information on Angkor and for the sale of souvenirs. Any profit derived from this enterprise will be used solely for the conservation and interpretation of the monuments of Angkor or other monuments within Siem Reap Province.

WMF assures you that all expenses for renovation and for stocking and running the Interpretation Center will be paid for from external funds. All profits generated will be kept in Cambodia for use on Khmer Monuments.

We attach an English copy of a formal proposal for your consideration together with a Khmer translation.

Please, Chief of the Provincial Committee, accept the highest salutations from the World Monuments Fund.

JOHN STUBBS  
Program Director  
World Monuments Fund

C/o Dean Hor Lat  
Department of Architecture  
Phnom Penh.

# WORLD MONUMENTS FUND

174 East 80th Street  
New York, New York 10021  
Telephone: 212 517 9367  
Telefax: 212 628 3146

4 March 1993

## PROPOSAL FOR ESTABLISHMENT OF A TEMPORARY INTERPRETIVE CENTER AND SHOP

### ANGKOR WAT (SIEM REAP) CAMBODIA

In the recent efforts to rebuild the economy and infrastructure of Cambodia there is a pressing need for amenities and materials which can enhance the appreciation of visitors when touring the various historic monuments and sites of the country. Comprehensive plans for the betterment of education at all levels, infrastructure improvements, conservation of sites, and a number of other useful operations are being conducted by the National Heritage Protection Authority of Cambodia (NHPAC), within which UNESCO and the Ministry of Culture are key components.

Angkor Wat is the principal site within Cambodia's most famous tourist destination, the Historic City of Angkor. Cultural resource management plans are presently underway for the Angkor area which consider all aspects of the visitor experience, but designs for these needs will be years in their implementation.

In concert with NHPAC, UNESCO, the Ministry of Culture, The Governor of Siem Reap Province, Conservation d'Angkor, The University of Beaux Arts at Phnom Penh and Angkor Tourism, WMF proposes the immediate installation of a temporary exhibition, information center and modest retail sales outlet at a small building located across from the west entrance of Angkor Wat. This structure (see illustrations) is presently available and in a location which is ideally suited as a simple reception facility for visitors to the chief tourist attraction of the area. The building is in fair to good condition and is of a design which lends itself readily to reuse as a small, partly open air, orientation facility.

The physical parameters of the proposed facility are described herewith, including a budget cost estimate. The design assumes that there will be simple, easily intelligible and durable exhibitory, such as display panels, graphics, and perhaps an audio visual presentation and model(s). The plan calls for adequate lighting, minimal toilet facilities, various architectural improvements and building security. The proposal assumes that an on-site custodian, and his residence, would be provided by the government.

Items for sale would include publications on Angkor and the Khmer people, especially the publications of the various international organizations working at Angkor, and good quality tourist souvenirs including post cards, T shirts and other items. Excellent management, imaginative displays and good maintenance of the facility are of paramount importance to the scheme.

Financial proceeds of the not-for-profit enterprise will be initially reinvested into improved operation of the facility. Surplus proceeds would be spent at the discretion of a Board of Managers representing each of the above-listed sponsor organizations.

All members of the Board of Managers of the Temporary Angkor Visitor Facility would be expected to play a role in its development either as a financial partners or as in-kind contributors of materials, sales stock, labor and other needed services.

It is anticipated that rehabilitation of the building will be the responsibility of Cambodian architects and builders and that special exhibitory will be produced by a consultant graphic designer and interpretive specialist. Items for sale would first be obtained from the sponsoring organizations and second from acceptable outside vendors. Financial management of the operation would comply with acceptable accounting standards guidance of the Board of Managers.

The optimum budget cost estimate for the proposed scheme is approximately U.S.\$ 94,270. The present proposal assumes that an electrical generator would be installed, but this item and attendant lighting fixture and operations costs could be deleted from the proposal if necessary. On approval of the plan from the responsible authorities, the facility could be in service within 6 months time.

### **ARCHITECTURAL AND ENGINEERING SITE IMPROVEMENTS**

#### **Building:**

Exterior Repair: roof repair, stucco, paint, windows and doors	\$ 6,000.00
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Interior Repair: repaired finishes, ceiling installation, misc. woodwork, painting	\$ 5,000.00
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#### **Electrical/Plumbing:**

Wiring, standard fixtures and track lighting	\$ 6,000.00
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Generator and housing	\$ 5,000.00
-----------------------	-------------

2 toilet rooms, 2 fixtures each, new cistern \$ 4,000.00

Site:

Improvements to parking lot, tree pruning  
removal of debris and substantial structures \$ 2,000.00

Subtotal \$28,000.00

Contingency for architectural improvements (10%) \$ 2,800.00

Architectural Improvements total \$30,800.00

**EXHIBITION DESIGN AND INSTALLATION**

**PROFESSIONAL FEES AND SHIPPING**

Shipping, crating, special installations and insurance \$ 3,500.00

Planning, research, artifact and text preparation \$13,000.00

Design, layout and artwork \$12,000.00

**THEME: Cultural and restoration history of Angkor**

Location: Room One (10'x 13')

Exhibit components: wall panels

Purchase of photography \$ 1,500.00

6 mounted panels (2- or 3-color silk screen on aluminum  
panels); cost includes layout, typesetting & installation  
hardware \$ 4,800.00

**THEME: Interpretation of site for visitors**

Location: Room Two (18'x 29')

Exhibition components: wall panels with 19th-century  
illustrations, text, maps, watercolor reproductions,  
photographs and artifacts

Commissioned art: site drawings and map \$ 3,500.00

10 mounted panels	\$ 8,000.00
Carpentry for bases	\$ 500.00

THEME: Restoration efforts

Location: Room Three (10'x 16')

Exhibit components: wall panels, models, special displays

8 mounted panels	\$ 6,400.00
Carpentry for bases	\$ 500.00

THEME: Local crafts, literature and arts associated with the region

Location: Room Four (16'x 18')

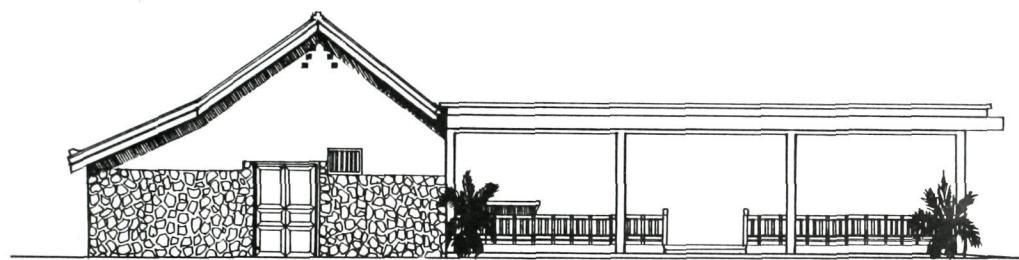
Shop components: shelves, baskets, bins, display vitrine, storage areas, table for cash register

Carpentry/materials/installation	<u>\$ 4,000.00</u>
Subtotal Exhibition items*	\$57,700.00
Contingency at 10%	<u>\$ 5,770.00</u>
Exhibition total	\$63,470.00
+ Architectural Improvements total	<u>\$30,800.00</u>
Total Estimated Project Cost	\$94,270.00

\* Travel and accommodations are not included in this budget.

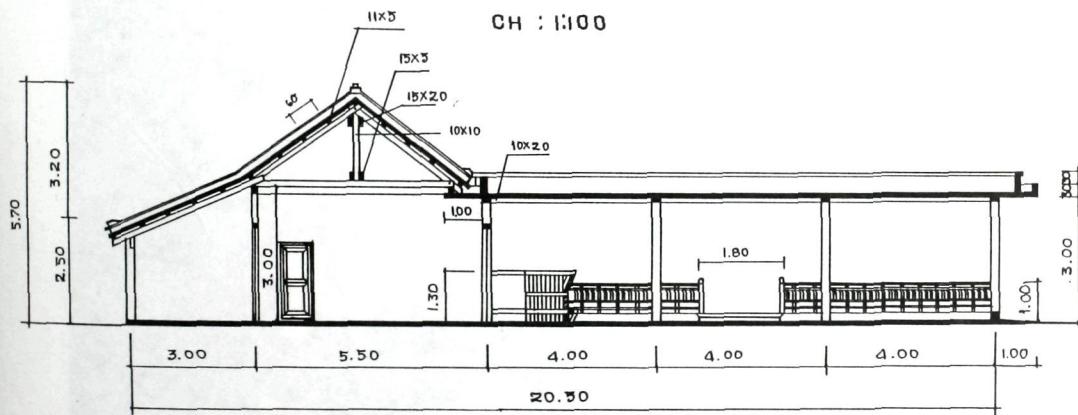
## FAGADE LATERALE

ECHELLE : 1:100



## COUPE: AA

CH : 1:100



South Elevation and Section of Existing Facility Proposed for Reuse as Temporary Reception Center,  
Near West Entrance to Angkor Wat. November 1993.



WMF Field House, 1993/94, Siem Reap.



WMF Preah Khan Field Team, March 1993.