

**PREAH KHAN CONSERVATION PROJECT  
HISTORIC CITY OF ANGKOR**

Siem Reap, Cambodia

**REPORT IV**

**FIELD CAMPAIGN I - PROJECT MOBILIZATION**



**APPENDICES**

IV/A West Processional Way Inventory & Condition Report

IV/B Vishnu Temple Complex (West) - Survey & Drawings

IV/C Dharmasala (Pilgrim's Resthouse) - Survey & Drawings

**WORLD MONUMENTS FUND**

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HISTORIC CITY OF ANGKOR**

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*An Archaeological*

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*Prepared for the World Monuments Fund*

New York  
September 1993

# THE CONSERVATION PRACTICE

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## Preah Khan, Angkor THE WEST LANTERN APPROACH

An Archaeological Appraisal & Condition Report



*Prepared for the World Monuments Fund*

Preah Khan, Angkor  
THE WEST LANTERN APPROACH

An Archaeological Appraisal & Condition Report

*Prepared for the World Monuments Fund*

by Fred Aldsworth BA FSA MIFA  
The Conservation Practice International<sup>1</sup>

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<sup>1</sup> The author is grateful to Nicola Smith for assistance in the preparation of this report.

## Foreword

This report was conducted as part of WMF Field Campaign I (November 1992 to April 1993) at Angkor.

It represents one of three surveyed areas of Preah Khan which were documented and analyzed as a basis for conservation action in future phases of work. This report is referred to in *Report III : Preah Khan Conservation Plan*, and is more specifically to read in conjunction with *Report IV : Preah Khan Project Mobilization*, in which the enclosed information and conclusions are summarized.

The conservation recommendations portion of this survey will be treated in a separate document at the time when the Western Lantern Approach is restored.

# PREAH KHAN

## The West Lantern Approach

### Introduction

The vegetation and a certain amount of soil was cleared from the west lantern approach in November 1992 (WMF Mission IV). Following this the feature was surveyed and a description was prepared of each lantern giving recommendations for repair and re-assembly on the basis of pre-determined criteria.

### Description

The main feature of the approach is an avenue of forty-one pairs of lanterns<sup>1</sup> supported on a continuous moulded plinth which measures internally 95.95 meters in length and between 8.40 & 8.47 meters in width (Fig.1). The avenue is entered at either end over the plinth and a carved step. At the east end the avenue widens in a series of steps in the line of the plinth which is surmounted by a further six pairs of lanterns before giving way to the bridge abutments over the moat which include by a pair of *naga* and the figures of gods and devils.

Each lantern is of similar design varying only in form of construction and detail (Fig.2) and each is carved from a single stone or two stones set one above the other. The horizontal joint between adjoining stones varies in position.

The three main components of each lantern are the pedestal, the lantern and a finial at the top (Fig.3), all supported on the continuous plinth. The pedestal carries the figure of a *garuda* on each face and this supports the lantern, carved with a flame-surrounded niche on each face which formerly carried the effigy of buddha, defaced in the thirteenth century. A single example of an undefaced buddha was found during soil clearance and this appears to have belonged to Lantern No. 29 (Fig.4). For purposes of description other component names used in the text are also shown in Figure 3.

The lanterns have been numbered from 1 - 47 west to east on both the north (N1-N47) and the south (S1-S47) sides of the approach and those which represent potential candidates for conservation have been photographed.

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<sup>1</sup> These carved standing stones have been variously described as lanterns, milestones, or, by the French, *bornes* in the past. I understand that the French term means a stand to signal from and is perhaps therefore an inappropriate use here where the flamed buddha niches appear to have been intended to light the way to the west gate. The use of the term milestone also seems inappropriate, so for the purposes of this report they are described as lanterns.

# PREAH KHAN, ANGKOR West Lantern Approach

Plan at 1:200

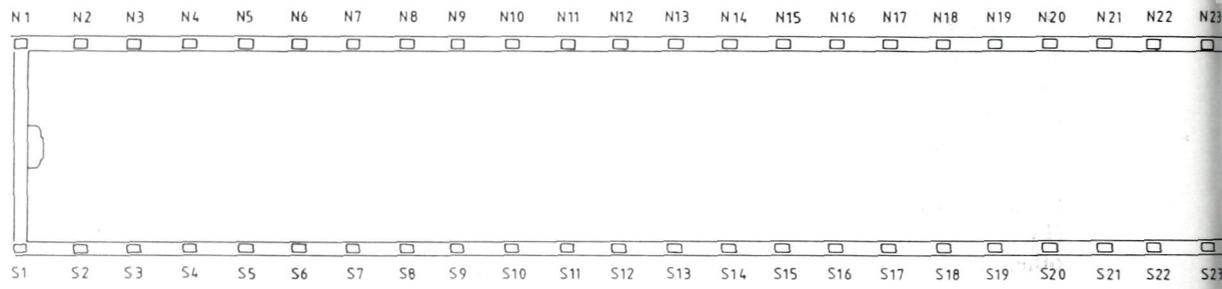
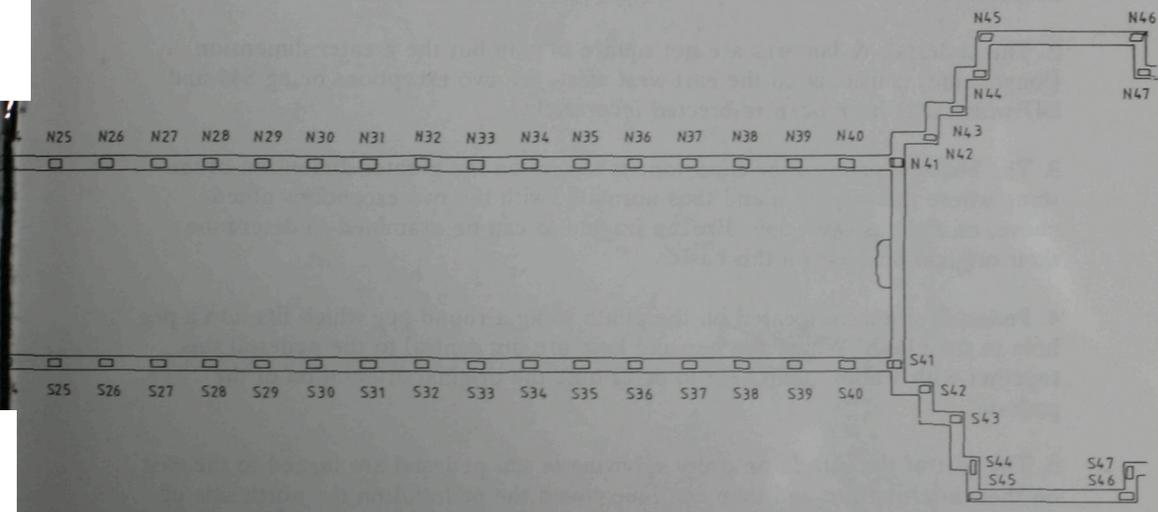


Figure 1



In an attempt to ensure authentic reconstruction certain characteristics of each lantern were examined to determine criteria which might help to indicate the former position of those components which are broken or collapsed.

1. The lanterns, which are made from either one or two pieces of stone, appear to have been finished *in situ* or at least the plinths on which they stand were cut to accommodate them. Hence most of the pedestals sit on a raised section cut into the plinth - which I have called the plinth base - and so it should be possible to relocate fallen pedestals by their size and the level of the conjoining surfaces between the pedestal and the plinth base.

2. The pedestals & lanterns are not square in plan but the greater dimension (longer side) is usually on the east-west axis - the two exceptions being S44 and S47 which may have been re-erected incorrectly.

3. The bedding plain of the sandstone is always on the greater dimension of the stone where this is known and thus normally, with the two exceptions noted above, on the east-west axis. Broken fragments can be examined to determine their original position on this basis.

4. Pedestals are/were located on the plinth using a round peg which fits into a peg hole in the plinth. Where the peg and hole are not central to the pedestal this, together with 1 above, can help to determine the original orientation of the pedestal.

5. The feet of the *garuda* 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 on the south side of the approach in a clockwise direction.

6. The position of the horizontal joint between two stones making up a pedestal and lantern varies and this can be used to some extent to indicate which upper part fits which lower part.

7. Not all the pedestals and lanterns sit comfortably on their respective plinth bases or pedestals and there is evidence of incorrect re-positioning in the past. For example S44 & S47 are both on a north-south axis whilst S2 sits on a bed of mortar or cement. Conservation interventions are known to have taken place at Preah Khan between 1954 & 1959 by Jean Laur & Rene Dumont and dates in 1956 appear carved on at least two of the lanterns in the west approach (N1 & S2). It is to this period of work that we can ascribe the repairs noted below, some of which appear to have been successful others not so.

For a full description of each lantern and some photographs see Appendices 1 & 2.

PREAH KHAN, ANGKOR  
West Lantern Approach

Typical decoration on long side  
based on finial of N6 and  
remainder on N42

Scale 1:10

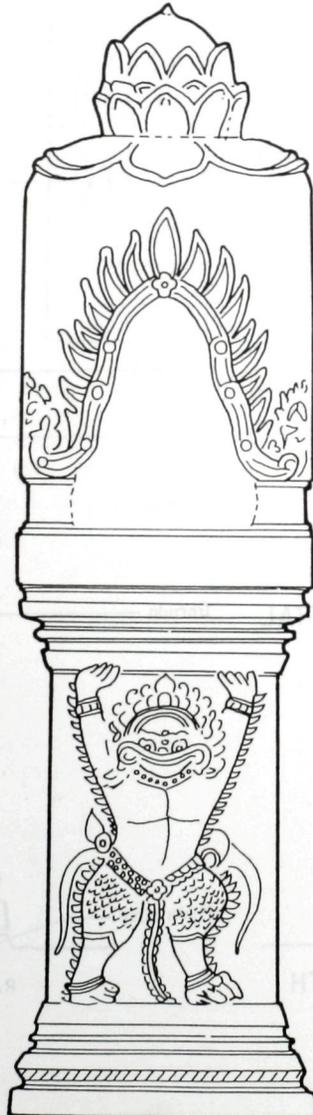
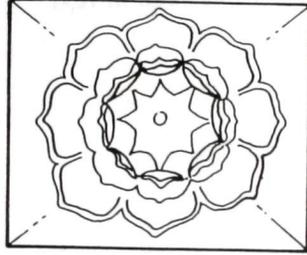


Figure 2

PREAH KHAN, ANGKOR  
West Lantern Approach

Component names used in text

Scale 1:10

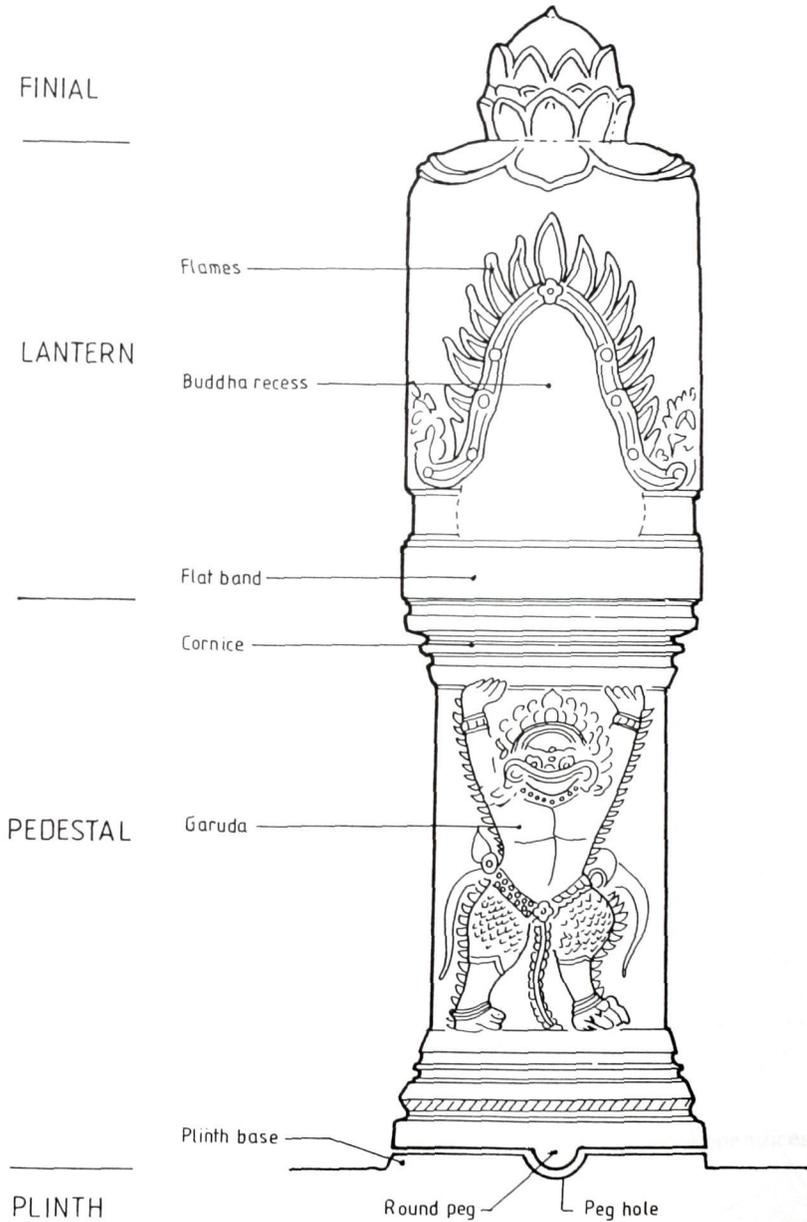


Figure 3

PRAEH KHAN, ANGKOR  
West Lantern Approach

Lantern fragment, probably from S29

Scale 1:10

Priorities

I have attempted to categorise the fragments into low, medium and high - the priorities are suggested in the table below.

NORTH SIDE

N1	Low/Medium	
N2	High	
N3	Low	
N4	No action	
N5	Low	
N6	High	
N7	Medium/High	
N8	Low	
N9	Medium/High	
N10	Medium/High	
N11	Low	
N12	High	
N13	Medium	
N14	Medium	
N15	High	
N16	No action	
N17	Low	Check crack.
N18	No action	
N19	No action	
N20	No action	
N21	Medium/High	Diamantle, repair the hole.
N22	Low	Check hairline crack in pedestal.
N23	High	Offer pieces, repair & re-assemble.
N24	Low	Check crack in pedestal.
N25	High	Re-assemble.
N26	High	Repair & re-assemble.
N27	High	Re-locate & re-assemble if possible.
N28	No action	
N29	No action	
N30	High	Remove, re-align, repair & replace.
N31	High	Remove, repair & replace.
N32	High	Remove, repair, replace & reposition finial.



Figure 4

## Recommendations

I have suggested what action might be taken to repair and re-assemble each lantern and have indicated, using the above criteria, which piece belongs where. Recommendations vary from those where no action is required to those where immediate remedial work is required to avoid imminent collapse.

## Priorities

I have attempted to indicate by using the simple terms - no action, low, medium and high - the priority which I attach to the repair work and these are summarised in the following lists.

### NORTH SIDE

N1	Low/Medium	Re-organise pedestal, place lantern beside
N2	High	Remove lantern for safety
N3	Low	Re-align lantern
N4	No action	
N5	Low	Re-align pedestal and lantern
N6	High	Dismantle, repair & re-assemble or leave on ground
N7	Medium/High	Dismantle, repair, re-set. Check crack.
N8	Low	Check hairline crack in lantern.
N9	Medium/High	Perhaps replace old repair. Check crack in pedestal.
N10	Medium/High	Perhaps replace old repair. Compare lantern on N12.
N11	Low	Check crack in lantern.
N12	High	Remove incorrect lantern.
N13	Medium	Perhaps replace old repair in pedestal. Repair lantern.
N14	Medium	Re-set part of finial.
N15	High	Dismantle, repair, & re-build.
N16	No action	
N17	Low	Check cracks.
N18	No action	
N19	No action	
N20	No action	
N21	Medium/High	Dismantle, repair cracks, rebuild.
N22	Low	Check hairline cracks in pedestal.
N23	High	Offer pieces, repair & re-assemble.
N24	Low	Check crack in pedestal.
N25	High	Re-assemble.
N26	High	Repair, & re-assemble.
N27	High	Re-locate & re-assemble if possible.
N28	No action	
N29	No action	
N30	High	Remove, re-align, repair & replace.
N31	High	Remove, repair & replace.
N32	High	Remove, repair, replace & reposition finial.

N33	High	Remove, repair and replace.
N34	No action	
N35	High	Dismantle, repair & erect.
N36	Low/medium	Check cracks in foot and lantern.
N37	High	Remove, repair & replace.
N38	No action	
N39	High	Compare, replace & stabilise.
N40	High	Compare, replace & stabilise
N41	High	Compare, reconstruct & replace.
N42	Medium/High	Re-align & repair.
N43	No action - missing	
N44	Low	Check stability, check crack in lantern.
N45	Low	Re-align lantern
N46	No action	
N47	Low	Check hairline crack.

#### SOUTH SIDE

S1	Medium/High	Check crack in lantern, reset on pedestal if possible.
S2	No action	
S3	Medium/High	Repair cracks in pedestal & re-set lantern.
S4	Low	Re-align
S5	Medium/High	Repair cracks in lantern, dismantle & re-erect.
S6	High	Dismantle, repair pedestal & re-erect.
S7	No action	
S8	Medium/High	Repair crack in lantern.
S9	Medium/High	Dismantle, repair cracks in pedestal, & re-erect.
S10	Medium/High	Check cracks in pedestal - repair & re-erect.
S11	Low	Check cracks in pedestal.
S12	Medium/High	Repair lantern & re-set if possible.
S13	High	Dismantle, repair lantern, re-erect & re-align.
S14	No action	
S15	High	Dismantle, repair pedestal & re-erect.
S16	Medium/High	Re-align pedestal & re-set lantern.
S17	No action	
S18	High	Check cracks in pedestal, repair lantern & re-erect
S19	No action	
S20	High	Dismantle, repair pedestal, re-set finial & re-erect.
S21	No action	
S22	No action	
S23	Low	Check crack in lantern.
S24	Low	Check crack in lantern.
S25	High	Re-assemble & repair & re-erect if possible.
S26	No action	
S27	No action	
S28	High	Repair pedestal, repair lantern & place on plinth.
S29	High	Repair & reposition.

S30	Medium/High	Dismantle, repair cracks & re-erect.
S31	High	Re-erect pedestal, repair & rebuild lantern if possible.
S32	Medium/High	Re-erect.
S33	Medium/High	Repair pedestal & re-erect.
S34	Medium/High	Dismantle, repair cracks in pedestal & re-erect.
S35	High	Repair pedestal & re-erect lantern.
S36	No action	
S37	No action	
S38	High	Repair pedestal & lantern, then re-erect.
S39	Low	Re-position lantern, and offer extra pieces for repair.
S40	No action	
S41	No action	
S42	Medium/High	Re-erect pedestal.
S43	Medium/High	Re-erect and check for cracks.
S44	Medium/High	Check cracks in pedestal, re-erect lantern. ?Alignment.
S45	Medium/High	Remove lantern, repair & replace.
S46	High	Dismantle, repair pedestal, & re-erect.
S47	High	Dismantle, repair pedestal, & re-erect. ?Alignment.

#### PRIORITY GROUPINGS

High North 2, 6, 12, 15, 23, 25, 26, 27, 30, 31, 32, 33, 35, 37, 39, 40, 41  
 South 6,13, 15, 18, 20, 25, 28, 29, 31, 38, 46, 47

#### Medium/High

North 7, 9, 10, 21, 42  
 South 1, 3, 5, 8, 9, 10, 12, 16, 30, 32, 33, 34, 42, 43, 44, 45

#### Medium

North 13, 14  
 South 35

#### Low/Medium

North 1, 36  
 South

Low North 3, 5, 8, 11, 17, 22, 24, 44, 45, 47  
 South 4, 11, 23, 24, 39

#### No Action

North 4, 16, 18, 19, 20, 28, 29, 34, 38, 43, 46  
 South 2, 7, 14, 17, 19, 21, 22, 26, 27, 36, 37, 40, 41

## Appendix 1

### LANTERNS ON THE NORTH SIDE OF THE APPROACH

#### Description

This comprises two pieces of pedestal and one lantern. The lantern was found in front of N2. The lantern is a square, 15 cm x 15 cm, carried on its base 7.5 x 3.5 cm, which was found in front of N2. The buddha is defined on the three sides. The bottom of the lantern measures 55x40 cm, which is parallel to the ground.

Part of the pedestal (b) seems to be a part of the building. It is 58 cm wide, on the axis of the building and 15 cm high. The other piece (a) looks as if it will fit (b). It is 15 cm high, broken top and includes the peg at the bottom, at 15 cm long. Piece (a) sits immediately adjacent to a standing piece of stone. It is almost certain that all three pieces came from a single pedestal. The lantern looks as if it will fit the pedestal with a horizontal band above the cornice and below the flat band. A few small pieces of stone were found during excavation and they seem to fit to the pedestal.

#### Recommendation

The two main pedestal pieces could possibly be re-set though their adjoining faces are clearly very worn. The lantern could be placed at the side of the re-erected pedestal.

Priority: Low/Medium

Action Taken:

## **PREAH KHAN**

### **West Lantern Approach**

**Lantern No. N1**

#### **Description**

This comprises two pieces of pedestal (a & b) and a complete lantern (c) which was found in front of N2. The lantern seems to be complete. It has a number carved on its face "26.8.56", which is presumably a date and also some lettering. The buddha is defaced on the three exposed sides. The finial is broken off. The bottom of the lantern measures 55x46cms., lying with its longest dimension parallel to the ground.

Part of the pedestal (b) seems to be a more or less complete half measuring up to 58cms. wide, on the axis of the bedding and 99cms high to the top of the cornice. The other piece (a) looks as if it will fit (b). It is 59cms. from the bottom to the broken top and includes the peg at the bottom, up to 14 cms. diameter and 6cms. long. Piece (a) sits immediately adjacent to a standing place on the plinth and it is almost certain that all three pieces came from a lantern in this position.

The lantern looks as if it will fit the pedestal with a horizontal joint immediately above the cornice and below the flat band.

A few small pieces of stone were found during excavation and these may belong to the pedestal.

#### **Recommendation**

The two main pedestal pieces could possibly be re-set though their adjoining faces are clearly very worn. The lantern could be placed at the side of the repaired pedestal.

**Priority**    **Low\Medium**

**Action Taken**

Between N1 & S1, seven pieces of sandstone were found adjoining the main step into the lantern approach.

Four pieces (a-d) appear to have formed part of a lantern although the decoration on the two or three which conjoin (a-c) is all but worn away. The fourth (d) includes part of the buddha recess and flames to the top left of a lantern. All four pieces are up to about 10cms. thick.

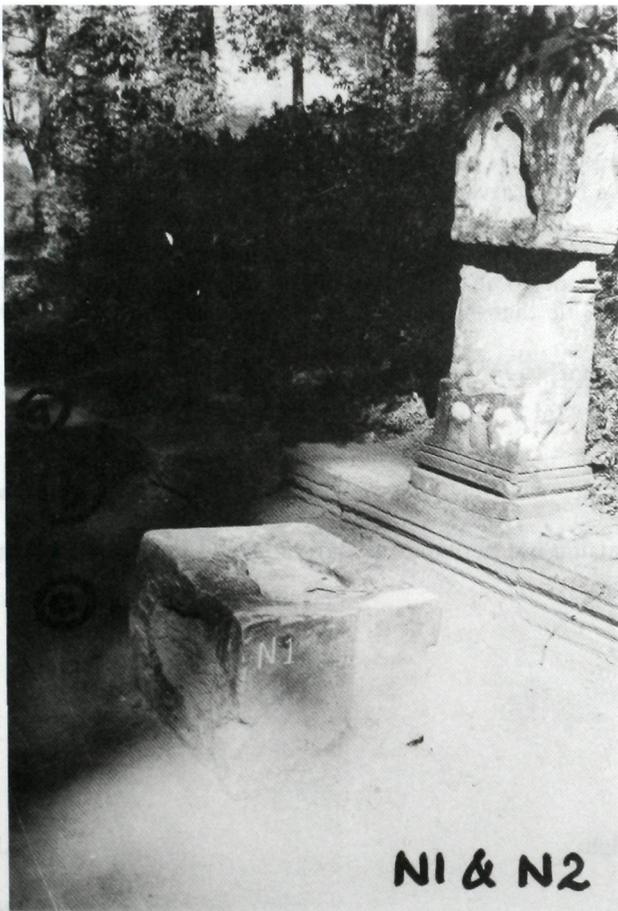
A fifth piece (e) is a small part of a base with the garuda legs and tail. It may be from N1.

The other two pieces (f & g) are small, seemingly undecorated fragments.

**PREAH KHAN**  
**West Lantern Approach**

Lantern Nos. **N1 & N2**

Description



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N2**

**Description**

An almost complete example with part of the pedestal missing on the upper part of the north side.

It is in two pieces with the horizontal joint immediately above the cornice but there is no clearly defined flat band.

The pedestal (58x48cms) sits comfortably on the plinth base and there is no reason to doubt that it is in its original position. On the broken face the letter LUVTHA have been carved.

The lantern, which is almost complete, looks insecure on the pedestal. The apparent absence of a flat band may suggest that the lantern is not the original, though it is possible that the horizontal joint cuts the flat band in half.

There is some graffiti on the lantern -

**Recommendation**

No remedial action but perhaps the lantern should be moved to the ground for safety reasons.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. N3

**Description**

Complete in two pieces with the horizontal joint above the flat band.

The pedestal (60x46cms) fits comfortably on the plinth base and there is no reason to doubt its position.

The lantern has no finial but sits a little askew.

**Recommendation**

Turn lantern. pedestal and lantern.

**Priority** Low

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N4**

**Description**

Complete in two parts with the horizontal joint through the flat band.

The pedestal (58x46cms) fits comfortably on the plinth base.

Complete lantern.

**Recommendation**

No action

**Priority** No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N5**

**Description**

Complete in two parts with the horizontal joint immediately below the flat band.

Pedestal (56x48cms) is slightly askew to the plinth base. Faces partly damaged but still sufficient to support the lantern.

Complete lantern appears to be on the correct pedestal but sits slightly askew.

**Recommendation**

Re-align both pedestal and lantern.

**Priority**    **Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N6**

**Description**

Complete in two parts with the horizontal joint above the flat band.

Pedestal (57x49cms) probably in original position but there is a vertical crack, an old cement mortar repair, and part of the north face is lost. Looks as if in imminent danger of collapse.

Lantern is complete and look as if it is on the correct pedestal.

**Recommendation**

Dismantle and either repair and re-assemble or repair pedestal and leave the lantern on the ground.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N7**

**Description**

Complete in two parts with the horizontal joint part way up the lantern.

Pedestal (58x47cms) looks as if it is on the correct plinth base and it is complete. Some signs of cracking on east and west faces.

Lantern is complete with finial but it has cracked into two pieces on the bedding plain and is in need of repair.

**Recommendation**

Dismantle, repair lantern and re-set.

Check crack on pedestal.

**Priority Medium/High**

**Action Taken**

**PREAH KHAN**  
**West lantern Approach**

**Lantern No. N8**

**Description**

Complete in two parts with the horizontal joint below the flat band.

Pedestal (55x51cms) sits comfortably on the plinth base and is complete.

Lantern is complete with finial and looks as though it is on the correct pedestal.  
Vertical hairline crack on the east & west sides.

**Recommendation**

Perhaps deal with hairline crack.

**Priority    Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N9**

**Description**

Complete in two parts with the horizontal joint below the flat band.

Pedestal (60x48cms) looks to be in its original position but it has severe cracking.

Lantern probably on correct pedestal but lacks a finial. A severe crack up to 35mm. wide has previously been filled with cement or mortar - perhaps there is a steel rod in here.

**Recommendation**

Check and repair cracks in pedestal.

Check previous repair to lantern and replace if necessary.

**Priority Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N10**

**Description**

Only the pedestal (53x43cms) survives here with its flat top part way up the lantern. It has been re-set and repaired with cement and using what appears to be a replacement flat slab of stone at the base. No evidence to indicate whether it is in its original position. There is a vertical crack and then a horizontal break on the south face, together with an old repair at the top as an attempt to hold it together.

There must be some doubt as to whether this is in its original position.

No trace of a lantern here but there is a spare lantern on N12 which looks from its size and decoration as if it might fit here.

Also a piece of finial sits alongside the N12 pedestal.

**Recommendation**

Either no action or dismantle and repair using more appropriate methods & materials.

Re-locate lantern from N12 if it fits here.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N 10**

**Description**

Incomplete stone lantern with a cylindrical body, the top of which is missing, terminating in a horizontal band. The body is decorated with a series of horizontal bands.

An important piece of stone, probably a fragment of a larger structure, is located to N10.

The pedestal is in poor condition with no inscriptions.

A small piece of stone is located to N10.



**Recommendation**

Highly recommended.

Priority: High

Action Taken:

**PREAH KHAN  
West Lantern Approach**

**Lantern No. N11**

**Description**

Complete in two pieces with the horizontal joint above the flat band.

Pedestal (59x46cms) is probably in its original position though slightly askew.  
There is a vertical crack at the base on the west side.

Lantern is complete with finial but it has a vertical crack which passes through the finial.

**Recommendation**

The hairline crack in the lantern may need attention where it passes through the finial.

**Priority    Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N12**

**Description**

Incomplete with pedestal and part of the lantern, as one piece of stone, terminating in a horizontal flat surface part way up the lantern.

An incorrect piece of lantern has been placed on the top which probably belongs to N10.

The pedestal (59x57cms) appears to be in its original position and is in good condition with no obvious cracks.

A small piece of finial is sitting on the east side of the base.

**Recommendation**

No action, other than to remove the incorrect lantern fragment.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N13**

**Description**

Incomplete and broken.

The north half of the pedestal survives up to a horizontal face just below the flat band. It is on a plinth base (60x43cms) and its east-west dimension is the same so it may be in its original position. It has a break that has been repaired with cement.

There are fragments of a lantern adjoining, and this comprises two faces (presumably north and south) which probably do not conjoin. There are also several stone flakes which may have made up the original thickness.

**Recommendation**

In the absence of the discovery of further pieces there is little that can be done at present. The old repair on the pedestal could be replaced.

**Priority    Medium**

**Action Taken**

**PREAH KHAN  
West Lantern Approach**

**Lantern No. N13**

Description

Original  
lay piece  
on the  
cracks  
arms  
cracks



Recommendation

Disassemble, repair

Priority High

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N14**

**Description**

Complete in two pieces with the horizontal joint part way up the lantern.

Pedestal (58x56cms) appears to be in its original position. It is complete with no evidence of cracking or old repairs, but towards the top there are pieces missing from the lantern.

The lantern top seems to go with this pedestal. It is also complete and without cracks or repairs but the finial is broken off but present.

**Recommendation**

Finial to be re-set

**Priority    Medium**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N15**

**Description**

Originally two pieces with the horizontal joint part way up the finial, but the latter top piece is now missing.

There is no reason to believe that the lantern has been moved, but horizontal cracks at the height of the garuda's legs and feet and on the line of the garuda's arms suggest some former reconstruction. There are also some vertical hairline cracks.

**Recommendation**

Dismantle, repair and reconstruct.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N16**

**Description**

Complete and all in one piece. No reason to believe that the pedestal (58x46cms) has been moved. There is a hairline crack at the base, otherwise it is undamaged and unrepaired.

**Recommendation**

No Action

**Priority** No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N17**

**Description**

Complete and all in one piece. No reason to believe that the pedestal (58x50cms) has been moved.

There are cracks in the east and west faces which widen at lantern level and one passes through the finial.

Two small pieces of the finial are missing.

**Recommendation**

Probably no action but cracks need checking.

**Priority** Low

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N18**

**Description**

Complete and all in one piece.

Pedestal (56x48cms) probably in original position.

Finial intact and no cracks, no damage and no old repairs.

**Recommendation**

No action

**Priority** No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N19**

**Description**

Complete in two pieces with the horizontal joint near the bottom of the lantern.

Pedestal (60x51cms) seems to be in its original position. One crack part way up the base on the east and west sides but no other damage.

Lantern, with finial, seems to fit this pedestal and there are no cracks or other damage.

**Recommendation**

No action

**Priority**    No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N20**

**Description**

Complete and in one piece.

No cracks, damage or old repairs.

**Recommendation**

No action

**Priority** No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N21**

**Description**

Complete in two pieces with the horizontal joint just above the flat band.

No reason to believe that the pedestal (55x46cms) has been moved but like N22 the lowest element in the carved base is almost missing as if the bottom has been removed. Vertical cracks towards the top.

The lantern is complete, with finial, but there are vertical cracks.

**Recommendation**

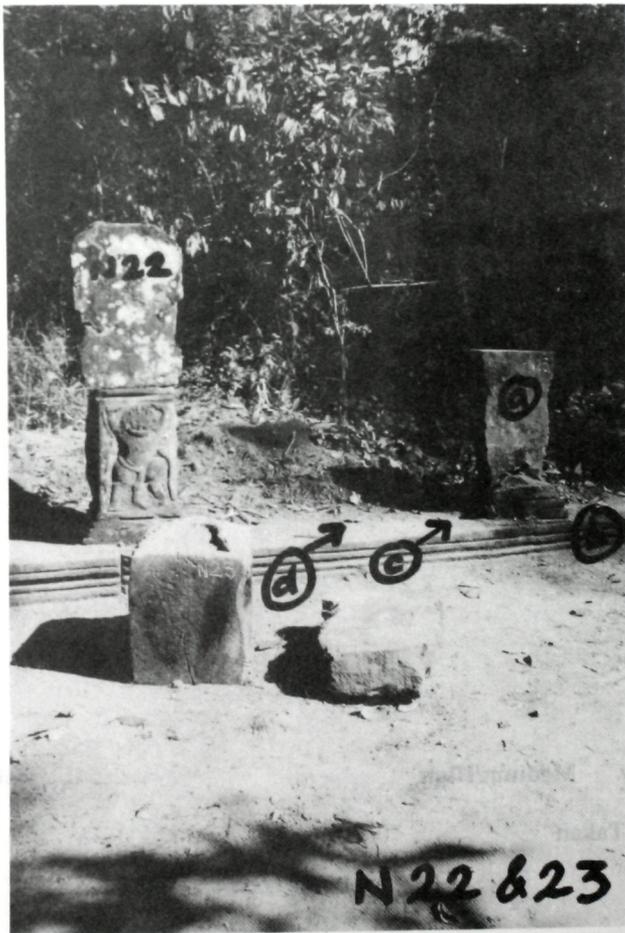
Remove and repair lantern. Repair crack in pedestal and replace lantern.

**Priority**    **Medium/High**

**Action Taken**

**PRAEH KHAN**  
**West Lantern Approach**

Lantern NoS. N 22 & N 23



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N22**

**Description**

Pedestal and part of lantern only with the horizontal joint part way down the cornice.

Pedestal (60x46cms) sits slightly askew on the plinth and, like N21, the lowest order at the base is missing. Some damage at the bottom on the south side and some, minor, cracks.

Lantern seems to be on its original pedestal but the south face and the finial are missing.

**Recommendation**

Possibly no action, but minor cracks in the pedestal may require attention.

**Priority**    **Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N23**

**Description**

This comprises three pieces of pedestal and a complete lantern, the horizontal joint between the original two pieces being above the flat band.

Two pieces of pedestal (about 58x50cms) sit askew on a plinth base and probably originate here. The larger piece (a) is the north half and survives to full height. A small piece (b), with only the lower mouldings, sits next to it. To the south-west is the third piece of pedestal (c), which has a small broken piece at the top, and if re-assembled this should complete the pedestal, although the conjoining pieces show signs of wear.

The lantern lying nearby (d), probably came from this pedestal. It is complete, with its finial, but shows signs of cracking.

**Recommendation**

Offer all four pieces of the pedestal together and, if they fit, repair and re-assemble.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N24**

**Description**

Complete, though lacking a finial, and originally of two pieces with the horizontal joint in the cornice.

The pedestal (58x52cms) is probably in its original position but there is no plinth base. It shows signs of cracking on the west side only so this may not be serious.

The lantern is complete, without finial, and has no obvious cracks.

**Recommendation**

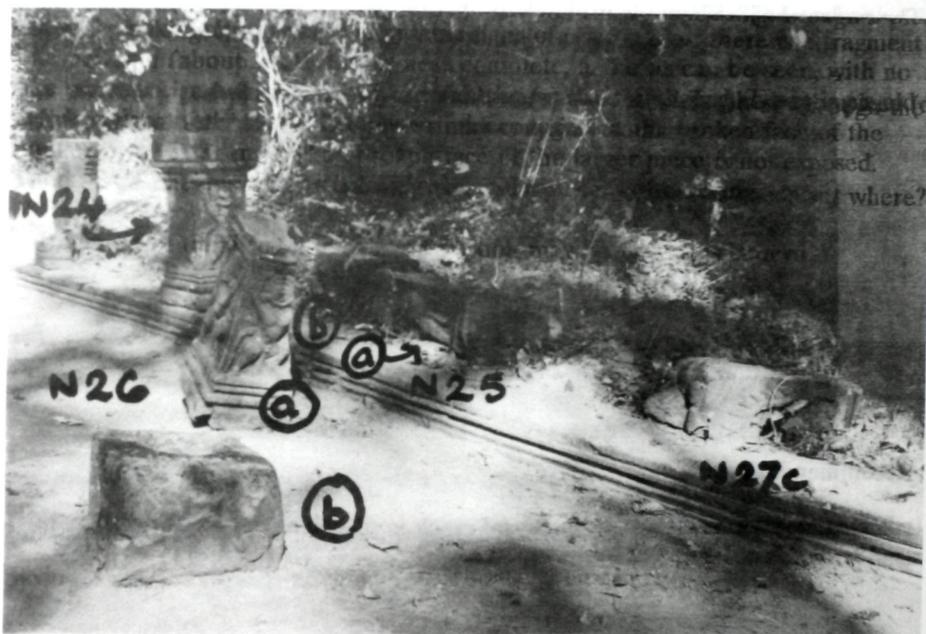
Probably no action unless the pedestal crack is sufficient to warrant repair. In which case dismantle, repair and re-assemble.

**Priority    Low**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern Nos. 24-27



# PREAH KHAN

## West Lantern Approach

Lantern Nos.25-27

### General Note

All three lanterns are missing from their bases and some fitting may be required for accurate reconstruction. However, there seems to be little doubt about N25 & N27 so the remaining pieces can probably be allocated to N26.

What appears to be the pedestal base of its plinth base. The base of the lantern is a small square block with a hole in the center of the top surface.

The lantern is the only one of its kind though there are some signs of weathering and obvious signs of cracking.

### Recommendation

It is recommended that the lantern be removed from the site and stored in a secure location. The lantern is probably the south lantern.

Priority High

Action Taken

Full Report

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N25**

**Description**

This is near complete, with its finial, and originally in two parts with the horizontal joint cutting through the flat band. Both pieces are lying on the plinth with the base of the pedestal close to the peg hole and the lantern next to it. It seems to have toppled or been pushed over.

The pedestal (about 58x45cms) is near complete, as far as can be seen, with no sign of cracking. A fragment of pedestal base was found during excavation and may be from this example.

The lantern is complete, with finial, and with no signs of cracking.

**Recommendation**

Re-assemble the two pieces of the pedestal, if they conjoin, the re-erect the whole as N25 with the longest axis east-west. The position of the peg should assist here. The upper face of the lantern is probably the south face.

**Priority    High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. N26

**Description**

The fragment of lantern lying adjacent to plinth base N26 looks as if it will go with N27.

What appears to be the pedestal for N26 (a) lies about three metres to the west of its plinth base. The horizontal joint at the top is below the flat band. One vertical slice, about one third of the full thickness is missing and there is a crack on the east and west faces.

The lantern to the south-east of this (b) may be complete, but missing its finial, though there may be some loss of stone on the buried underside. There are no obvious signs of cracking.

**Recommendation**

Repair the pedestal crack and re-assemble the two pieces as N26. If the position of the locating peg cannot assist with orientation place the best preserved face to the south.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N27**

**Description**

There is a complete pedestal (a) and two pieces of lantern (b & c) which probably conjoin, with the horizontal joint through the cornice.

The pedestal (a-56x49cms) lies behind N28 and seems to be complete with no signs of cracking.

The smaller piece of lantern (b) lies close to (a) & N28 whilst the larger piece (c) is five metres to the west. The pieces may conjoin but the broken face of the smaller piece is worn and the broken face of the larger piece is not exposed. There is no obvious sign of cracking on either piece.

A fragment of finial found during excavation may be from this lantern.

**Recommendation**

Relocate pedestal as N27 and if the locating peg does not assist with orientation, place the best preserved face to the south. If possible, re-assemble the two lantern pieces and place on pedestal.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No.s. **N 27 & N 28**

Description

Cracks were noted in the wall of the lantern below the cornice.

The pedestal was noted to be in fair condition with cracking.

The lantern is on the north face.

Recommendation

No action

Priority No action

Action Taken



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N28**

**Description**

Complete, except for the finial, in two pieces with the horizontal joint near the top of the lantern and a piece of the lantern top is missing.

The pedestal (58x50cms) seems to be on its original plinth base and neither this or the lantern shows any sign of cracking.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N29**

**Description**

Complete, except for finial, in two pieces with the horizontal joint immediately below the cornice.

The pedestal (56x44cms) appears to be on its original plinth base and there is no cracking.

The lantern is complete, except for the finial, and there is a small crack on the north face.

**Recommendation**

No action

**Priority**    No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N30**

**Description**

Complete, with only part of a finial, and in two parts with the horizontal joint part way up the lantern.

The pedestal (56x46cms) sits slightly askew on its plinth base but is probably in its original position. It is complete with no signs of cracking.

The lantern is in two parts of which one, the north, is damaged. There is an old repair which attempts to hold the two pieces together.

**Recommendation**

Remove and repair lantern, Re-align pedestal and re-assemble two pieces.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N31**

**Description**

Complete, with finial, in two parts with the horizontal joint through the flat band.

The pedestal (53x48cms) appears to be on its original plinth base. It is almost complete but with a vertical crack on both sides and one fragment missing on the west side.

The lantern is in two pieces with a serious crack which passes through the finial and an old repair. The north half of the finial does not belong here.

**Recommendation**

Remove incorrect finial fragment.

Dismantle, repair and re-assemble.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N32**

**Description**

Complete, with finial. In two parts with the horizontal joint above the flat band.

The pedestal (57x46cms) is probably in its original position but there is no plinth base. There is minor cracking and part of the north face is missing, though a piece of this was found during excavation.

The lantern is complete but there is a serious crack which passes up through the finial and an old repair.

NB There is a near complete finial at the base which can be re-used, but where?

**Recommendation**

Dismantle, repair and re-erect lantern.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N33**

**Description**

Complete, with finial. In two pieces with the horizontal joint below the flat band.

Pedestal (56x50cms) sits slightly askew with no clear evidence for a plinth base.  
Complete with no signs of cracking.

The lantern is complete with a serious crack and an old repair.

**Recommendation**

Dismantle lantern, repair and re-assemble.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N34**

**Description**

Near complete, with finial. In two parts with horizontal joint through the flat band.

Pedestal (58x46cms) sits comfortably on a plinth base and is probably in its original position. It is complete with no signs of cracking but there is a fragment missing from the top south-east corner.

The lantern is missing its south face and has minor cracking.

**Recommendation**

No action

**Priority** No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N35**

**Description**

Complete, with finial. In two parts with the horizontal joint above the flat band. The whole has fallen northwards and there is damage at the bottom. There is no reason to believe that it is not at its original location.

The pedestal is near complete and there is no sign of serious cracking. The lantern seems to be complete but there is a serious crack and an old repair with metal ties in cement.

**Recommendation**

Dismantle, repair and re-assemble.

**Priority High**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern No. N 35



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N36**

**Description**

Complete, but without finial. In two pieces with the horizontal joint through the cornice.

Pedestal (56x47cms) is slightly askew its plinth base. Complete with no signs of cracking but part of the foot has split off.

Lantern has minor cracks.

**Recommendation**

The broken piece could be re-set but otherwise no action.

**Priority**    **Low/Medium**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N37**

**Description**

Complete, with finial. In two pieces with the horizontal joint above the flat band.

Pedestal (53x52cms) sits on a plinth base. Near complete but with serious cracks, one vertical and one horizontal. Part of the foot is missing in the south-west corner.

Lantern complete, but with a serious vertical crack.

**Recommendation**

Dismantle, repair, and re-erect.

**Priority    High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. **N 37**



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N38**

**Description**

Near complete, with part of a finial. In two pieces with the horizontal joint above the flat band.

The pedestal (56x47cms) sits on a plinth base. It is complete with no signs of cracking but there is a piece missing from the top north-east corner.

Only the south half of the lantern survives *in situ* with a fragment of finial. There are fragments of stone nearby but these do not conjoin.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. **N 38**



## **PREAH KHAN**

### **West Lantern Approach**

#### **Lanterns 39 & 40**

#### **Description**

There is an *in situ* pedestal on N40 which looks as if it has been re-erected and another to the south-west lying on the ground (N39). Adjacent is a lantern. Since the horizontal joint on each pedestal is about 8cms above the flat band it is difficult to judge, without re-erection, to which pedestal the lantern belongs.

Pedestal N39 (58x54cms) is near complete but with pieces broken off at the top and bottom. At position N39 there is a good plinth base which is probably for this pedestal. The pedestal shows no signs of serious cracking.

Pedestal N40 (60x50cms) is now supported on several small pieces of stone and there is little sign of a plinth base. It is in good condition with no serious cracking.

The lantern is complete with finial with some cracking but this is not serious. A further lantern, complete with finial, was found behind (north of) N40 during excavation but its horizontal joint is similarly placed to the other one - so the two lanterns need to be offered up to the pedestals N39 & N40 to see which fits the best.

#### **Recommendation**

No obvious need for repairs but the two pedestals should each be offered to the plinth base at N39 & N40 to see which fits the best. The peg positions may help with orientation. If all else fails retain existing pedestal on N40 but need to examine why it is supported on small stones.

The lanterns should be placed where they best fit.

**Priority    High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern Nos. N 39 & N 40



## **PREAH KHAN**

### **West Lantern Approach**

**Lantern No. N41**

#### **Description**

This has collapsed but comprises a pedestal, three or four pieces of lantern, and a finial on which the larger piece of lantern is now propped.

The pedestal has one part of one side missing, the south face, It is 60cms wide. Signs of cracking on the north side which could remove the face including the garuda. The horizontal joint between the two original pieces is at the top of the flat band.

There is a large piece of lantern to the east of the pedestal which is of full height and the finial should fit on here. Lying next to it is a piece of the lower side of a lantern which will probably fit and complete the lower part of this one. Under the pedestal is part of the face of a lantern and there is another piece near N40. Both contain the remains of a circular hole and there is the remains of a hole of similar dimensions in the back of the large lantern fragment. The two smaller fragments look as if they conjoin the larger piece and together with the base fragment they may provide a complete lantern.

#### **Recommnedation**

Re-erect the pedestal having regard for minor damage to the plinth. Offer up all the pieces of lantern and reconstruct as far as is possible. Though partly damaged, the pedestal may retain sufficient width to support a full lantern.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. **241**

Description

This is a fragment of a stone  
near 541 which was



Priority No action

dgill/vaults/M 2/10/5

Action Taken

22221 10/10/5

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N42**

**Description**

Complete, except for the missing finial. In two pieces with the horizontal joint near the top of the lantern.

The pedestal (58x50cms) is slightly askew on its plinth base but there is no reason to believe that it is not in its original position. No cracking.

The lantern is complete, except for the finial. There are no signs of cracking in the larger piece but there is a break in the small piece at the top.

**Recommendation**

Re-align and repair the uppermost piece.

**Priority    Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N43**

**Description**

There are no remains of this lantern but there is a small fragment of pedestal near S41 which needs to be located somewhere.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N44**

**Description**

Complete, with broken finial. In two pieces with the horizontal joint below the cornice.

Pedestal (59x49cms) is complete but there is no plinth base and the plinth itself is damaged under the pedestal. There may be sufficient plinth left to support the pedestal. No cracking on the pedestal but there is some damage to the top.

Lantern complete but only part of the finial survives. There is some cracking which has passed through the finial.

**Recommendation**

Check stability of the pedestal on the plinth.

Repair lantern if necessary.

**Priority**    **Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N45**

**Description**

Complete, with finial. In two pieces with horizontal joint at the bottom of the flat band.

Pedestal (55x46cms) has no plinth base. No cracking or damage.

Lantern complete, with finial, sits askew on pedestal. No cracking.

**Recommendation**

Re-align lantern.

**Priority    Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N46**

**Description**

Incomplete, bottom part only, with horizontal joint part way up the lantern.

Pedestal (56x43cms) has no plinth base. No cracking and no damage.

**Recommendation**

No action, assuming we cannot find the top of the lantern.

**Priority**    **No action**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern Nos. N46 & N47



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. N47**

**Description**

Incomplete, bottom part only, with the horizontal joint half way up the lantern.

Pedestal (57x47cms) sits on plinth base. Good condition with only hairline cracks but these seem to pass through full width of stone.

**Recommendation**

Hairline cracks may need attention.

**Priority    Low**

**Action Taken**

## Appendix 2

### LANTERNS ON THE SOUTH SIDE OF THE APPROACH

Lantern No. 81

#### Description

Complete, with glass, but the glass is  
horizontal (not set back) 7/11/11

Pedestal (55x40cm) set on top of a  
which will make replacement of glass

Lantern complete, with glass, but  
attention. An old concrete water pipe  
band indicate that it has been set on

#### Recommendation

Repair lantern, re-set on pedestal if possible

Priority: Medium/High

Action Taken:

## **PREAH KHAN**

### **West Lantern Approach**

**Lantern No. S1**

#### **Description**

Complete, with finial, but the lantern has fallen to the south. In two pieces with horizontal joint just below flat band.

Pedestal (55x46cms) sits on a plinth base. Complete but much wear on the top which will make re-positioning of lantern difficult. No damage and no cracking.

Lantern complete, with finial, but partially buried. Some cracking which may need attention. An old concrete underpinning and the date of "26.8.56" cut into the flat band indicate that it has been re-set in the past.

#### **Recommendation**

Repair lantern, re-set on pedestal if possible.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. **S1**



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S2**

**Description**

Complete, with finial, in two parts with horizontal joint below the flat band.

Pedestal (62x48cms) sits slightly askew on slight plinth base. Complete with no signs of cracking.

Lantern, complete with finial, but has been re-set on pedestal using cement. Seems to fit this pedestal. No signs of cracking but north face has already been partially removed by surface flaking. Bears several cut graffitti including the date "26.8.56".

**Recommendation**

No Action except re-alignment.

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S3**

**Description**

Complete but lantern has fallen to the south and the finial, if it exists, is now buried. In two parts with the horizontal joint through the cornice.

Pedestal (61x50cms) sits on slight plinth base. Complete but with a vertical crack and the top shows signs of wear.

Lantern has lost its south face by the removal of a large flake. Otherwise intact with no obvious sign of cracking.

**Recommendation**

Repair pedestal and re-set lantern.

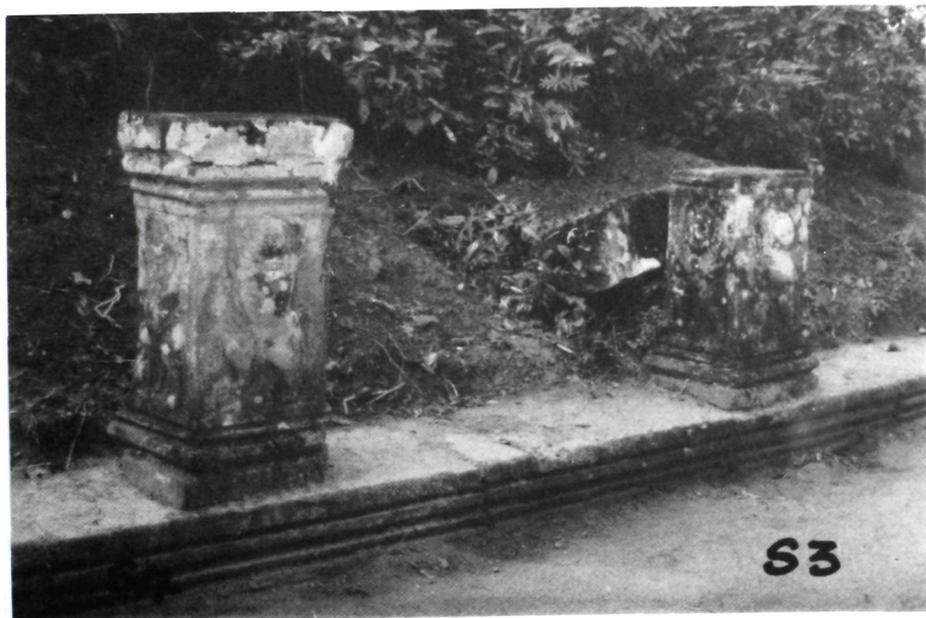
Check presence and condition of finial.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN  
West Lantern Approach**

**Lantern Nos. 53 & 54**



Priority Medium

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S4**

**Description**

Only the pedestal (58x48cms) survives with the horizontal joint above the flat band. Sits slightly askew on a slight plinth base. No signs of cracking.

**Recommendation**

Re-align

**Priority    Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S5**

**Description**

Complete, with finial, in two pieces with horizontal joint through the cornice.

Pedestal (61x46cms) with no signs of a plinth base. In good condition with no signs of cracking.

Lantern in good condition but some cracking which may require attention.

**Recommendation**

Dismantle and repair lantern.

Re-erect.

**Priority Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S6**

**Description**

Complete, with finial, in two parts with the horizontal joint above the flat band.

Pedestal (56x50cms) is located on a plinth base. Complete with a fragment missing from the top north-east corner. There is a serious crack right through which has opened up and there is some loss of stone.

Lantern, complete with finial, shows no sign of cracks.

**Recommendation**

Dismantle, repair cracks in pedestal and re-assemble.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern Nos. **S6 & S7**



Priority M.

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S7**

**Description**

Incomplete, only a lantern exists here, sitting where a pedestal should be. The horizontal joint is through the cornice. No evidence to suggest whether it derives from this position or not.

Lantern complete, with finial, but with minor crack on west side.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S8**

**Description**

Complete, with finial, in two pieces with horizontal joint near the bottom of the cornice.

Pedestal (56x50cms), sits on slight plinth base. Complete and with no signs of cracking.

Lantern in good condition, with finial, but part of the south face is missing due to flaking. Some cracking could cause further flaking if not arrested.

**Recommendation**

Repair crack in lantern.

**Priority**    **Medium/High**

**Action Taken**

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S9**

**Description**

Complete, with finial, in two parts with horizontal joint through the cornice.

Pedestal (58x50cms) has no sign of a plinth base. Some damage at the bottom and some cracking.

Lantern complete, with finial, and no cracks.

**Recommendation**

Dismantle, repair pedestal and re-erect.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S10**

**Description**

Complete, with finial, in two pieces with the horizontal joint part way up the lantern.

Pedestal (60x50cms) with no sign of plinth base. Some cracks which may be serious.

Lantern complete, with finial, but no signs of cracking.

**Recommendation**

Dismantle, repair pedestal and re-erect.

**Priority Medium/High**

**Action Taken**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S11**

**Description**

Complete, with finial, in two pieces with horizontal joint above the flat band.

Pedestal (60x54cms) sits on a shallow plinth base. In good condition with minor cracking.

Lantern complete, with finial. Minor cracks.

**Recommendation**

No action, unless cracks near the base are considered to be serious.

**Priority    Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S12**

**Description**

Complete, with finial, in two pieces with the horizontal joint through the flat band. The lantern has fallen to the south.

Pedestal (53x42cms) is dislodged from its plinth base. Part of its south face has flaked off and there are further cracks. There must be some doubt as to whether the pedestal has sufficient depth to support the lantern. There is evidence of an old repair, presumably securing the lantern to the pedestal. Minor cracks.

Lantern complete, with finial, but lying on the ground. Serious crack which threatens to split the stone into two halves.

**Recommendation**

Repair lantern and re-set on pedestal if sufficient support is available. Otherwise place on plinth next to pedestal.

**Priority**    **Medium//High**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern No. **S12**



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S13**

**Description**

Complete, but finial missing, in two pieces with horizontal joint part way up the lantern.

Pedestal (56x49cms) slightly askew, on a slight plinth base. In good condition with minor cracks.

Lantern now in two parts with a very serious vertical open crack and some stone missing.

**Recommendation**

Dismantle, repair and re-erect lantern.

Re-align pedestal.

**Priority    High**

**Action Taken**

**PREAH KHAN  
West Lantern Approach**

**Lantern No. S14**

**Description**

Complete, with finial and all in one piece.

Pedestal (54x46cms) sits on a plinth base.

All in good condition with no signs of cracking.

**Recommendation**

No action

**Priority** No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S15**

**Description**

Complete, with finial, in two pieces with horizontal joint above the flat band.

Pedestal (56x46cms) sits askew on a plinth base. Broken at bottom and with serious cracks. One piece broken from the base lies adjacent.

Lantern complete, with finial, and only minor crack.

**Recommendation**

Dismantle, repair pedestal and re-erect whole.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. **S16**



**S16**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S16**

**Description**

Complete, though missing finial, in two parts with the horizontal joint below the cornice. Lantern is upside down next to the pedestal.

Pedestal (58x50cms) sits slightly askew on plinth base. In good condition with no signs of cracking.

Lantern complete, without finial, and no signs of cracking.

**Recommendation**

Re-align pedestal and re-set lantern.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S17**

**Description**

Complete, with finial, in two pieces with the horizontal joint through the cornice.

Pedestal (54x40cms) sits on plinth base. Complete with only minor cracking which will probably not require repair.

Lantern is complete, with finial. No obvious cracking.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S18**

**Description**

Near complete, with finial, but part of the lantern has fallen off. Was in two pieces with the horizontal joint just above the flat band.

Pedestal (56x46cms) stands on a plinth base. Some cracks which may require attention.

Lantern in two halves. South face is *in situ* on the pedestal with most of the finial in place. What seems to be the other half has fallen face down. Presumably they conjoin.

**Recommendation**

Dismantle, repair both pedestal and lantern and re-erect.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

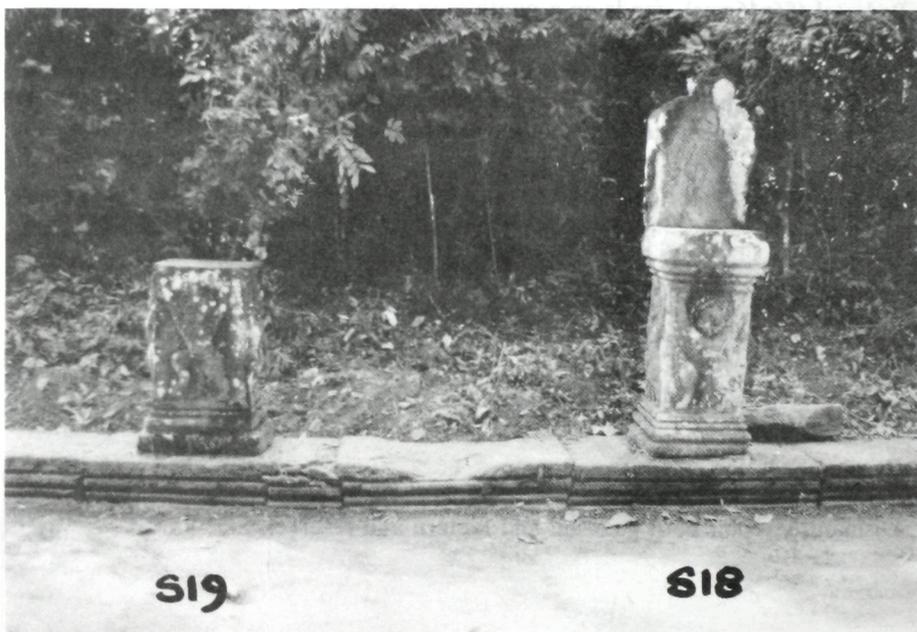
Lantern Nos. **S18 & S19**

PREAH KHAN  
West Lantern Approach

Lantern No. S18

Description

Decorated with floral and geometric  
pieces with the horizontal line  
which indicates a change in the



Priority High

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S19**

**Description**

Pedestal only survives *in situ* with no trace of the lantern. The horizontal joint between the original two pieces was below the cornice.

The pedestal (56x44cms) sits on a slight plinth base. In good condition with minor cracking.

**Recommendation**

No Action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West lantern Approach**

**Lantern No. S20**

**Description**

Complete, with finial, in two pieces with the horizontal joint at the top of the flat band.

Pedestal (56x48cms) sits on a slight plinth base. The lower north face is both cracked and broken, and one piece has all but separated.

The lantern is complete, with finial, though the latter is broken off.

**Recommendation**

Dismantle, repair pedestal and replace finial on lantern. Re-erect.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S21**

**Description**

Complete, with finial, in two parts with the horizontal joint at the top of the flat band.

Pedestal (58x44cms) sits on a plinth base. In good condition with no signs of cracking.

Lantern in good condition, with finial, and no signs of cracking.

**Recommendation**

No Action

**Priority**    **No Action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S22**

**Description**

Complete, except for finial, in two parts with horizontal joint at the top of the flat band.

Pedestal (61x48cms) with no trace of plinth base. In good condition and no signs of cracking.

Lantern complete, except for finial, and no signs of cracking.

**Recommendation**

No Action

**Priority** No action

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S23**

**Description**

Complete, except for finial, in two parts with horizontal joint cutting through the cornice.

Pedestal (59x50cms) sits on a slight plinth base. In good condition with no signs of cracking.

Lantern is complete, except for finial, but there is a crack, beginning to look serious, on the west side.

**Recommendation**

No action, unless crack in lantern considered necessary for repair.

**Priority**    **Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S24**

**Description**

Complete, with finial, in two pieces with the horizontal joint at the top of the flat band.

Pedestal (60x47cms) complete and in good condition with no signs of cracking.

Lantern complete, with finial, but a crack is beginning to appear and this may need attention.

**Recommendation**

Examine lantern and, if necessary, repair.

**Priority**    **Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S25**

**Description**

Now in three pieces lying on the ground but if repaired and re-assembled there may be sufficient to complete both the pedestal and lantern. Originally in two pieces with the horizontal joint at the bottom of the flat band.

Pedestal (about 57x46cms) with little trace of plinth base. Now in two halves, one of which is part buried. They may conjoin.

Lantern in one piece, with finial, in good condition with no signs of cracking.

**Recommendation**

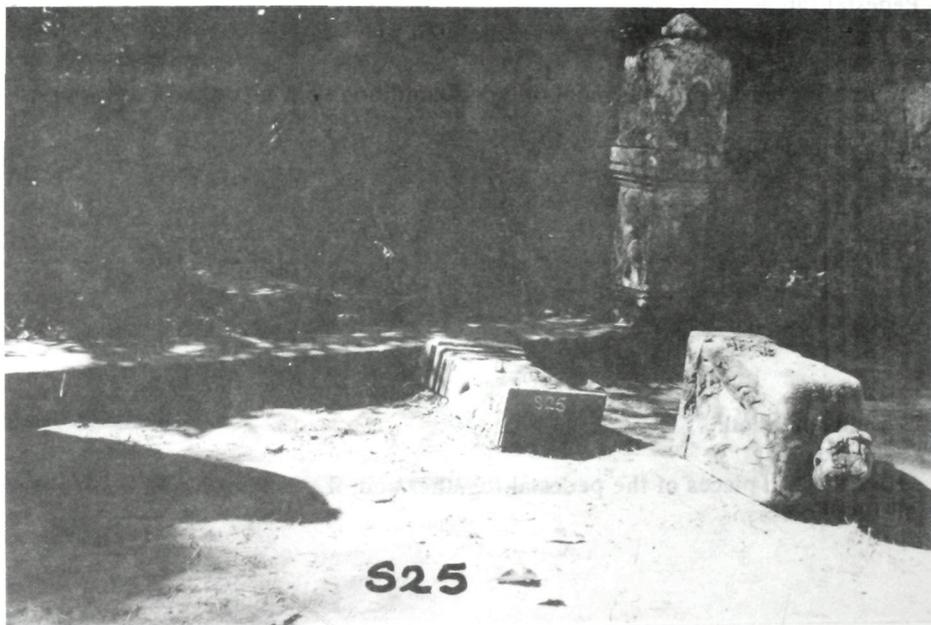
Offer the two pieces of the pedestal together and, if possible, repair and re-erect all three pieces.

**Priority**    **High**

**Action Taken**

**PREAH KHAN  
West Lantern Approach**

Lantern No. **S25**



Priority High  
Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S26**

**Description**

Near complete in two pieces with the horizontal joint part way up the lantern.

Pedestal (54x54cms) on traces of a plinth base. In good condition with no signs of cracking.

Lantern top, part loss of north face and north side of finial but otherwise in good condition and no signs of cracking.

**Recommendation**

No action

**Priority**    **No Action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S27**

**Description**

Complete, in two parts with horizontal joint above the flat band.

Pedestal (56x49cms) in good condition with fragment missing from bottom north-west corner. Crack on east side is not serious.

Lantern complete, with finial, though latter has small piece missing. No cracks.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S28**

**Description**

Incomplete and comprising part of the pedestal and lantern, with finial. In two parts with the horizontal joint at the bottom of the flat band.

Pedestal (58x50cms) comprises north half and bottom of south half as two pieces, sitting on a slight plinth base. North part is part damaged and cracked. Small part is worn on the top.

Lantern is complete, with finial, but lying on the ground. A fragment is breaking off and, as a result, part of the finial is missing.

**Recommendation**

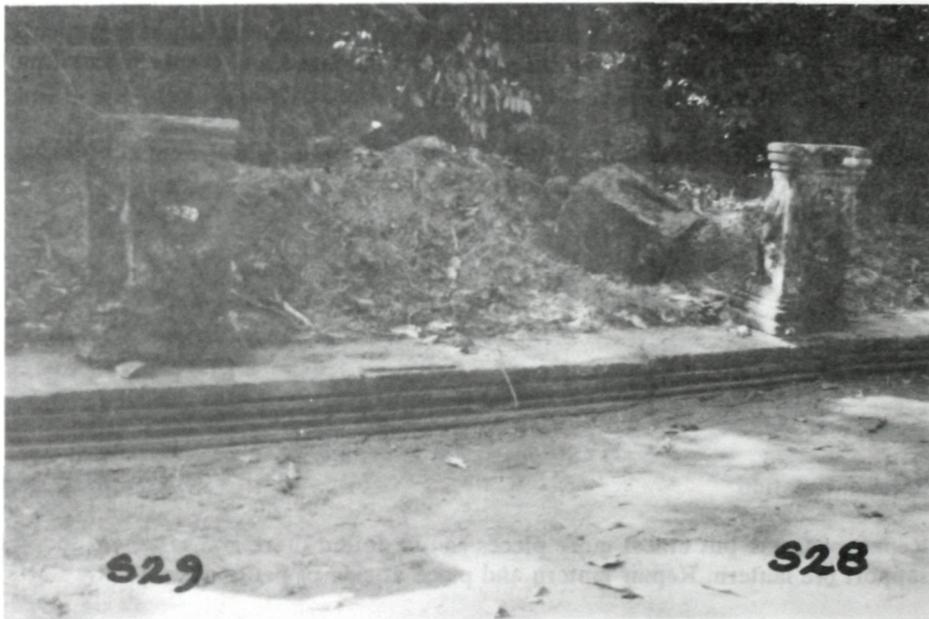
Repair pedestal, but unless more pieces can be found there is insufficient to support the lantern. Repair lantern and place at side of pedestal on plinth.

**Priority High**

**Action Taken**

**PREAH KHAN  
West Lantern Approach**

Lantern Nos. **S28 & S29**



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S29**

**Description**

Only the damaged remains of the pedestal survive alongside the locating peg hole. There is a plinth base here.

The pedestal (about 56x?) is both cracked and damaged at the top and bottom but using the remains of the peg it may be possible to relocate this in an authentic orientation.

A fragment of lantern with an intact buddha was found near here during excavation and may belong here or on S31.

**Recommendation**

Repair and re-position on peg hole.

**Priority High**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern No. S29



S29

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S30**

**Description**

Complete, with finial, in two pieces with the horizontal joint below the flat band.

Pedestal (57x42) sits on plinth base. Crack on west side which may need attention.

Lantern complete, with finial, part-damaged on north face and some serious cracking.

**Recommendation**

Dismantle, repair, and re-erect.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S31**

**Description**

A complete pedestal and two fragments of lantern all lying on the ground. Originally in two pieces with the horizontal joint above the flat band.

Pedestal (58x46) is complete with no signs of cracking.

Lantern - only two fragments survive and these may not conjoin.

A further fragment of lantern with an intact buddha was found near S29 during excavation and may belong here.

**Recommendation**

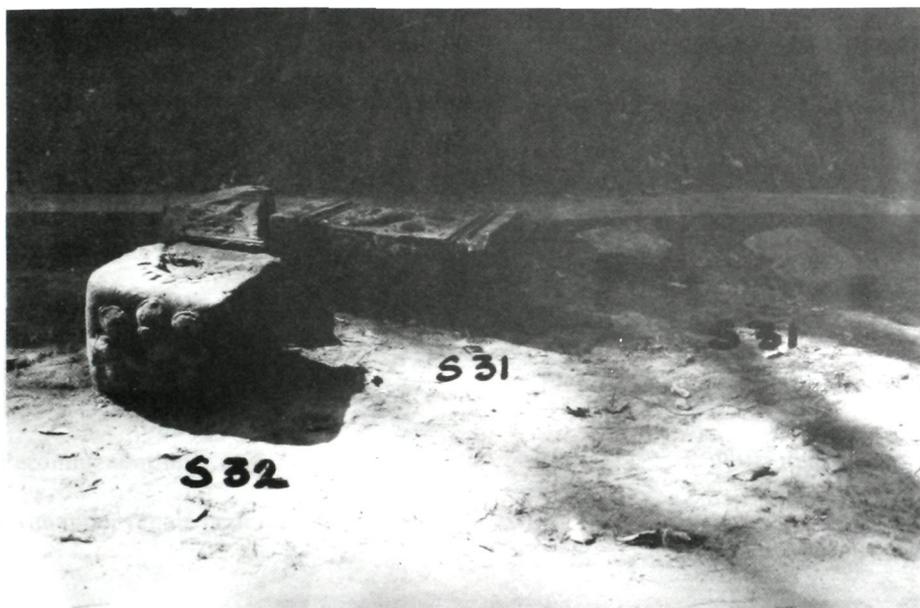
Re-erect pedestal and orientate to give the best fit in the peg hole and on the slight plinth base. Offer all three pieces of lantern together and, if they conjoin, repair and re-erect on pedestal.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern Nos. **S 31 & S 32**



Priority

Action Taken

**PREAH KAHN**  
**West Lantern Approach**

**Lantern No. S32**

**Description**

Complete in two pieces, without finial, but both lying on the ground. The horizontal joint is below the flat band.

The pedestal (59x?cms) is part damaged at both the top and bottom but there is no sign of cracking.

Lantern complete, except for finial, and there are no signs of cracking.

**Recommendation**

Re-erect

**Priority Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S33**

**Description**

Complete, with finial, in two pieces with the horizontal joint through the flat band.

Pedestal (59x49cms) without plinth base. There is some cracking which may require attention.

Lantern complete, with finial, but with minor cracks.

**Recommendation**

Dismantle, repair pedestal and re-erect

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S34**

**Description**

Complete, with finial, in two pieces with horizontal joint through the flat band.

Pedestal (60x49cms) but no sign of plinth base. Cracking on south side could worsen and remove wedge-shaped fragment.

Lantern complete, with finial, in good condition and no sign of cracking.

**Recommendation**

Dismantle, repair pedestal, and re-erect.

**Priority Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S35**

**Description**

Complete, with finial, in two pieces with lantern on the ground. Horizontal joint through the flat band.

Pedestal (57x?cms). Cracked and with one piece broken off but lying next to the base. Sits askew on slight plinth base.

Lantern complete, with finial, and no signs of cracking.

**Recommendation**

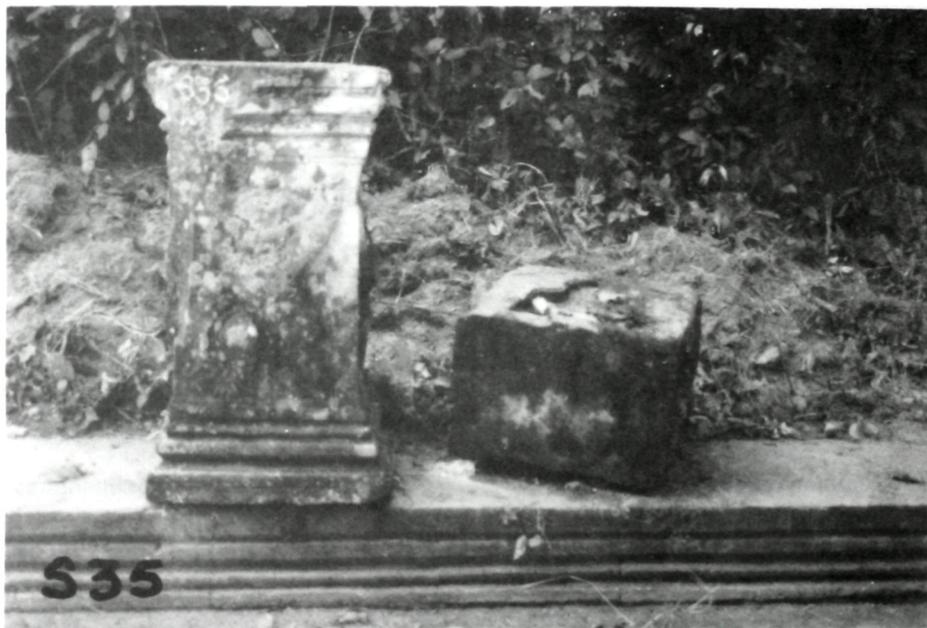
Repair pedestal and re-set lantern.

**Priority Medium**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern No. S35



Priority Medium

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S36**

**Description**

Complete, without finial, in two pieces with horizontal joint at the top of the flat band.

Pedestal (54x43cms) sits on slight plinth base. In good condition with no signs of cracking.

Lantern complete, without finial, but no signs of cracking.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S37**

**Description**

Complete, without finial, in two parts with horizontal joint part way up the lantern.

Pedestal (57x46cms) sits on a plinth base. In good condition with only minor cracks on west side.

Lantern, without finial, otherwise complete and no cracks.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S38**

**Description**

Near complete, with finial, but lantern has fallen off and is broken. Originally in two parts with horizontal joint above the flat band.

Pedestal (60x?cms) sits on a plinth base. Fragments missing from top and bottom of north face and from south-east side. No signs of cracking.

Two pieces of lantern lie on the ground, including finial, and may conjoin. Old repair using iron rods has failed.

Also several pieces of stone partially buried may belong here.

**Recommendation**

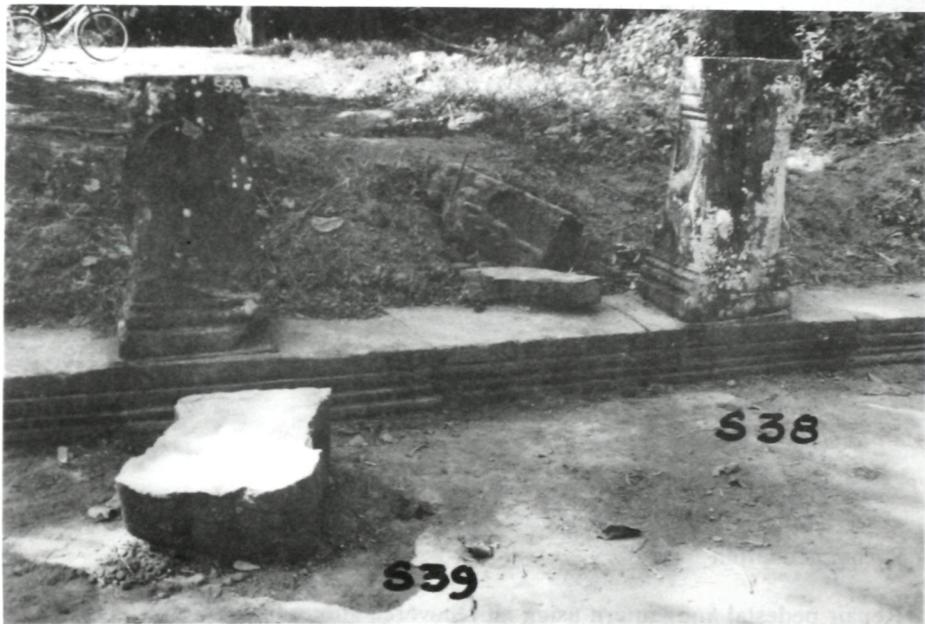
Repair pedestal and lantern using all recovered stones, and re-erect.

**Priority High**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern No. S38 & S39



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S39**

**Description**

Comprises only part of the pedestal and half the lantern. Originally in two pieces with the horizontal joint below the flat band.

Pedestal (58x50cms) sits on a plinth base. Substantial part of north side missing.

Lantern comprises only one half, without finial.

**Recommendation**

No action but a fragment from the top of a pedestal with a horizontal joint similar to S39 was recovered from near the east step of the lantern approach. This may conjoin S39 and has provisionally been placed next to it.

If this conjoins it could be re-fixed.

**Priority**    **Low**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S40**

**Description**

Complete, with finial, in two parts with the horizontal joint at the top of the flat band.

Pedestal (60x50cms) on slight plinth base. In good condition with no signs of cracking.

Lantern, with finial, in good condition with no signs of cracking.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S41**

**Description**

Complete, with finial, in two pieces with the horizontal joint immediately below the cornice.

Pedestal (58x52cms) sits at the corner of the plinth with no sign of a plinth base. In good condition with no cracks.

Lantern complete, with finial, and no cracks.

**Recommendation**

No action

**Priority**    **No action**

**Action Taken**

PREAH KHAN  
West Lantern Approach

Lantern No. **S41**



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S42**

**Description**

Pedestal *in situ* and part of a lantern on the ground. Originally in two pieces with the horizontal joint near the top of the cornice.

Pedestal (57x41cms) complete. In good condition with no cracks.

Lantern, without finial, and part broken off and missing. No obvious cracks.

**Recommendation**

Re-erect lantern on pedestal with damaged face to the south ie as it has fallen.

**Priority Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern No. **S42**



PREAH KHAN  
West Lantern Approach

Lantern No. S42

Description

Pedestal in  
the horizon

Pedestal (S)

Lantern with

Recommend

Research

Priority

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S43**

**Description**

Complete, without finial, but fallen over to south-west. In two parts with horizontal joint at the top of the flat band.

Pedestal (50x40cms) complete with no signs of cracking.

Lantern, without finial, but no obvious signs of cracking.

**Recommendation**

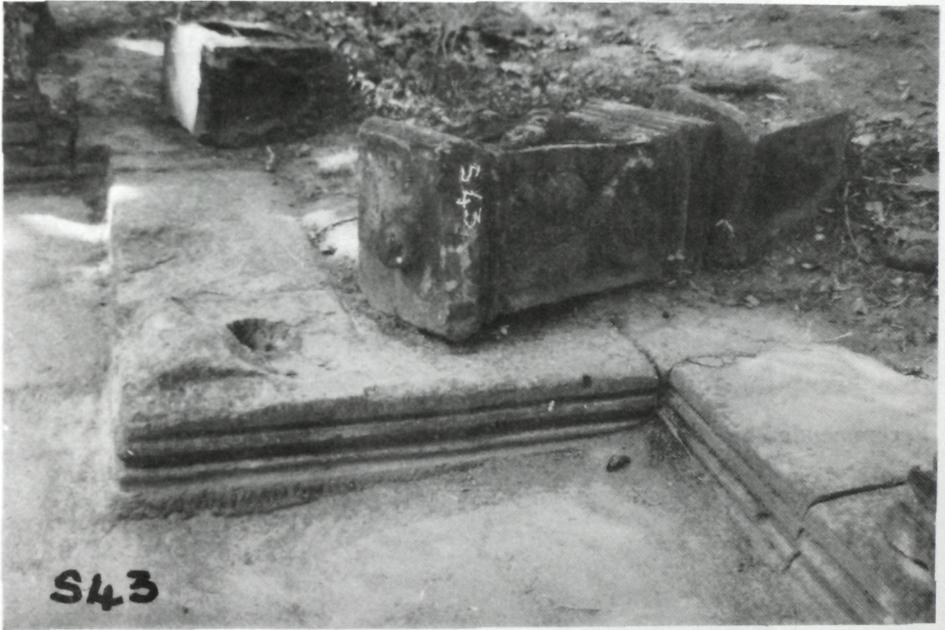
Re-erect, having first dealt with any hidden cracks.

**Priority Medium/High**

**Action Taken**

**PREAH KHAN  
West Lantern Approach**

Lantern No. **S43**



**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S44**

**Description**

Complete, except for finial, in two pieces with horizontal joint at the top of the flat band.

Pedestal (53x46 - aligned north-south). In good condition but with a single crack. There is no obvious plinth base here so it is not possible to determine whether the pedestal has been previously re-erected incorrectly, but this seems likely.

Lantern, without finial, but no cracks.

**Recommendation**

Repair crack in pedestal and re-erect lantern.

Check for plinth base and re-align pedestal if necessary.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S45**

**Description**

Complete, without finial, in two parts with horizontal joint part way up the lantern.

Pedestal (51x37cms) in good condition with no cracks.

Lantern, without finial, has a large crack, probably with some loss of stone, and an old repair in which an iron rod is exposed.

**Recommendation**

Remove lantern, repair and re-erect.

**Priority**    **Medium/High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

Lantern NoS. **S44 & S45**



Priority

Action Taken

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S46**

**Description**

Complete, with part of a finial, in two pieces with horizontal joint part way up the lantern. Top of finial, now missing, may have been cut from a third stone.

Pedestal (57x50cms) has a large crack at the bottom with one piece broken away. Another piece has broken off the north-west corner at the top.

Lantern retains bottom of finial. No cracks.

**Recommendation**

Dismantle, repair pedestal and re-erect lantern.

**Priority High**

**Action Taken**

**PREAH KHAN**  
**West Lantern Approach**

**Lantern No. S47**

**Description**

Complete and all in one piece.

Pedestal (55x40cms) is aligned north-south but slightly askew. There is no trace of a plinth base so it is not possible to determine whether the pedestal has been incorrectly set up in the past, as seems likely. Broken and repaired in several places.

Lantern cracked and repaired with iron and concrete.

**Recommendation**

Dismantle, repair and re-erect.

Check for evidence of plinth base and re-align if necessary.

**Priority High**

**Action Taken**

# THE CONSERVATION PRACTICE

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Preah Khan, Angkor  
**THE VISHNU TEMPLE COMPLEX (WEST)**

An Archaeological Appraisal & Condition Report



*Prepared for the World Monuments Fund*

JULY 1993

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by Fred Aldsworth BA FSA MIFA  
The Conservation Practice International<sup>1</sup>

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Fig. 19 Door and Fronton 4 ~ scaled photograph (a); record drawing (b); and reconstruction drawing (c) (Based on drawings by Chhun Soma, Cheam Phally, and Var Morin).

Fig. 20 Yard B ~ showing the stored locations of stones belonging to Door and Fronton 4.

## FOREWORD

This report was prepared as part of the World Monuments Fund Field Campaign I for the Buddhist Monastic Complex of Preah Khan (November 1992 to April 1993) at Angkor, Cambodia.

It represents one of three surveyed areas of Preah Khan which was documented and analyzed as a basis for conservation action in future phases of work. This report is to read in conjunction with *Report IV: Preah Khan Project Mobilization* in which the enclosed information and conclusions are summarized.

The conservation recommendations portion of this report will be treated in a separate document at the time when the west end of the Vishnu Temple Complex is repaired and conserved.

## INTRODUCTION

The structures described in this report are located at the west end of the Vishnu Temple Complex (West) immediately inside the Enclosure Wall III along the western access (Figs 1 & 2).

The remains of the central tower of this wing and the adjacent passages, to the north, east and south (shown stippled on Fig 2), were recognized as being in a precarious state and a hazard to visitors in September 1992 (*Report III: Preah Khan Conservation Plan Project 5* pages 77 & 78).

It was noted in the report of September 1992 that the central passage was an addition to the complex and therefore represents an interesting architectural development at Preah Khan (*Report III: pages 20 & 115*). It was, therefore, recommended that, despite severe structural movement, dismantling and reconstruction of this component should be avoided in favour of consolidation in its present form. As an exception to the principle established by WMF of conservation rather than reconstruction, it was recommended that reconstruction should be considered for the tower and the passages to the north and south, following a programme of survey and identification.

During WMF Field Campaign I (November 1992 to April 1993) work on disengaging and sorting dressed stones from the piles of rubble and debris found in the two yards (A & B) to the west of the complex was completed. Following this the structure was surveyed and an attempt was made to determine where individual stones had belonged prior to collapse.

This report, prepared in June 1993, represents a statement on progress during WMF Field Campaign I and it is proposed that the work to disengage and sort through the remaining piles of collapsed masonry, and the survey and appraisal techniques following the methods evolved during Field Campaign I will continue prior to the commencement of the programme for repair, consolidation and partial reconstruction.

## METHODOLOGY

The two open paved yards where the disengagement of worked stones was commenced in November 1992 are bounded on the east side by the west end of the Vishnu Temple complex, on the west side by the West Gopura (Enclosure Wall II), and on the north and south sides by boundary walls linking these two structures (Fig 2 Yards A & B).

The two boundary walls, of which only the footings survive of the one on the south side, are clearly later additions to an original arrangement possibly for two stone-lined tanks, at approximately original ground level, about 110 cms below the level of the present yard floors. The walls were later added, the tanks filled, and the present yard surfaces laid.

The two stone heaps were laid up, as they fell, against the west end of the Vishnu Temple Complex and, since the West Gopura and the north boundary wall are both essentially intact, it is assumed that the heaps derive from the temple complex and the boundary wall to the south.

An initial examination suggested that there was no specific pattern to the collapsed masonry, which would help indicate from where individual stones or groups of stones had fallen. It was decided therefore that no particular advantage would be gained from introducing a recording or numbering system during the initial phase of disengagement. However, it was considered that confusion would occur if stones were moved outside the yard in which they were found. With very limited space available in which to manoeuvre, an area on the west side of each yard was cleared of rubble, vegetation, and soil, and stones were gradually disengaged from the heaps and moved to storage locations and stacked in the order that they were taken out, using wooden levers and rollers, manufactured from the surrounding trees (Plates 1 & 2). Within a period of three weeks the two yards had been cleared of collapsed masonry and each stone had been disengaged and stored (Plates 3 & 4).

Once the stone and debris had been removed from against the structures, it was possible to survey and carefully study the surviving *in situ* fabric and then analyze the disengaged worked stones in an attempt to determine the feasibility and logic of reconstructing components of the building for both its stability as well as its presentation.

## METHOD OF SURVEY

The survey of the *in situ* remains was restricted to the west elevation of the west passage and the three porches which give access to it (Fig 3).

A horizontal datum was first established on all the external walls, initially using a waterfilled plastic pipe and later using a surveyor's level, and this was marked as a continuous line on the walls using white chalk. The elevations were then photographed (Plates 5-13) and the prints were used as the basis for the production of a series of scaled photographs, drawn elevations, and measured sections, all recording the condition of the remains as found (Figs 4 -12, 13a & b, 17a and 19a & b).

The roof survived, complete, over the central porch and in part in four areas over the west passage. In two places the roof was in a partially collapsed state, giving concern about its stability and the safety of visitors, and in three places it had completely collapsed over the junction of the central and west passages, and over the north and south porches. Generally speaking, however, the walls have stood to their full height with little sign of movement.

The survey of the Vishnu Temple Complex served as a training program for the architectural and archaeological students from the University of Fine Arts, Phnom Penh. During the process of disengagement between November and April the work was monitored by two groups of students.

## ANALYSIS & INTERPRETATION

Since consideration was to be given to the reconstruction of the central tower and the adjoining passages to the north and south, attempts were made to analyze both the standing remains and the collapsed masonry in order to determine the original form of these structures and to what extent it might be possible to relocate stones in their original positions.

Three specific areas of the building were considered:-

- a) The doors and frontons
- b) The roof
- c) The central tower

### The Doors and Frontons

Careful study produced evidence to show that there were five doorways leading into the building from the west side of the complex - a north porch (Door 1), a central porch, and a south porch (Door 4), and two intermediate doorways (Doors 2 & 3). The *central porch*, with door and decorated triangular fronton survives intact (Plates 7, 8 & 13 and Figs 6, 7 & 10).

#### DOOR 1

The *north porch* had collapsed but the surviving *in situ* evidence (Plates 9 & 10 and Fig 13a & b) show that it had originally contained a door. A study of the carved stones found in the adjoining yard (Fig 14) provided evidence that the door had been surmounted by a large fronton, the majority of which could be re-assembled to produce a beautifully sculpted scene depicting Vishnu and his attendants (Plate 14 & Fig 13 c & d).

The decorated lintel (Plate 15 & Fig 13c 101 - 105) is supported on a pair of octagonal columns (107 - 110 & 111 - 114), which are each secured at their base by a small tenon set into a mortice hole in the stone blocks on either side of the threshold. Neither the lintel nor the columns appear to have been attached to the porch in any way. The lintel and side pillars support the fronton over the doorway, at the west end of the north passage. The stones making up the lower part of the panel are end-on to the west elevation. They appear on the internal elevation as part of the cornice arrangement, and as bonders, they form an integral part of the main structure. It is not until this level is reached that there is any bonding between the door surround and fronton and the north porch. A few missing pieces belonging to the fronton have yet to be found amongst the stored stones, but doubtless they can be located.

The interior of the porch has yet to be cleared of collapsed masonry. During the process of clearance, it is essential that each individual stone is examined, identified and recorded during the progress of work in order to identify individual members belonging to the lintel and those backing on to it.

## DOOR 2

To the south of the north porch are two windows and the opening for a second door leading into the west passage (Door 2 Plate 5, Figs 4, 9, & 15a). A study of the stones found in the adjoining yard (Fig 16) enabled the reconstruction of the door surround and the fronton which it supported (Plates 17 - 19 & Fig 15b). Octagonal columns on either side of the opening, one of which survived *in situ* and the other recovered in pieces from the collapsed debris (Plate 16 and Fig 15b 1 - 3), supported a decorated lintel (Plate 17 and Fig 15b 30 & 31), which at its south end may also have engaged the body of the wall in a shallow rebate.

The fronton was directly supported off the lintel and side pillars. However unlike the fronton over Door 1 which is bonded into the masonry of the north porch, the decorated stones in this example were carved lengthways and they merely abut the face of the passage wall with little or no sign of bonding between the two. A number of holes cut into the masonry wall, however, indicate the probable use of metal ties to restrain movement of these stones.

All but one of the decorated stones needed to reconstruct the door surround and fronton have been identified, and the completed scene includes the rows of nine kneeling figures beneath an individual figure, perhaps Vishnu, with two attendants (Plate 18 & 19 and Fig 15c).

## DOOR 3

To the south of the central passage is a single window and the opening for a doorway (Door 3, Plate 6, Figs 5, 11 & 17a). South of the doorway are a further two windows, the first of which was never completed as it was blocked partially by the south pillar of the door.

An examination of the stones found in the adjoining yard (Fig 18) enabled a reconstruction of the door surround and the fronton which it supported (Plates 20 & 21 and Fig 17b). Octagonal columns on either side of the opening supported a decorated lintel (219 & 220) which may also have engaged in a shallow rebate cut in the stone at the head of the door.

The fronton was supported on the lintel and side pillars. Similar to the construction of Door 2, stones were placed lengthways abutting the face of the passage wall with little or no signs of bonding between the two. However, as with Door 2, a number of holes survive in the masonry which indicate the probable use of restraining ties.

Most of the decorated stones needed to reconstruct the door surround have been identified, and the completed scene includes a row of nine kneeling figures beneath a coiled serpent mounted by a seated figure with five attendants (Plates 20 & 21). The scene is thought to depict the story of Krishna protecting the cow-herders by capturing the King of the Nagas and pulling off all his heads.<sup>2</sup>

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<sup>2</sup>I am grateful to Nicola Smith for providing this provisional interpretation of the scene.

## DOOR 4

The *south porch* had collapsed but the surviving *in situ* evidence (Plates 11 & 12 and Fig 19a & b) showed that it had contained a doorway (Door 4). A study of the stones found in the adjoining yard (Fig 20) provided evidence that the door had been surmounted by a large fronton, part of which has been re-assembled (Plate 22 & 23 and Fig 19c). The method of construction was similar to that for Door 1 with a lintel (301 - 303) supported on octagonal columns and a shallow rebate. The fronton, supported on the lintel and side pillars, includes a large number of bonding stones, forming an integral part of the main structure of the porch.

Several pieces of the door surround and fronton have yet to be located amongst the stored stones and those yet to be removed from the porch. The scene on the fronton appears to depict two rows of nine kneeling figures surmounted by a figure, perhaps Vishnu, riding a creature, perhaps a garuda.

## The Roof

The roof survived, partially intact, in four places over the west passage. The intact sections are on either side of the collapsed central tower and at either end of the passage immediately before it adjoins the north and south porches at either end (Plates 5, 6, & 24).

Most of the surviving *in situ* structure was built of the local Kulen sandstone but there are two areas where laterite had been used, possibly as a later repair. It may be of significance that these two areas of roof would have been obscured from the west by the frontons over Doors 2 & 3. Perhaps not surprisingly, both areas had either completely or partially collapsed.

The method of roof construction is typical of the Preah Khan temple complex, with corbelled roof slabs rising from a stone cornice to a capstone surmounted by a ridgepiece (Plate 25 & Fig 6). Rebated joints between roof slabs slope downwards from the centre to provide a rainwater run off between slabs. Where the roof extended over an interior dividing wall bonding stones are included over the wall to carry the roof and a reduced form of fronton between roof sections (Plate 26). The stone corbels forming the vaults have extremely smooth horizontal faces and were probably rubbed using an abrasive to produce a remarkably tight dry bed.

A very careful examination of the roof showed that, whilst it had the appearance of being constructed in fairly regular courses of stone, each stone had been individually prepared and laid in such a way that it would be very difficult to replace a stone in any position other than its original.

Generally speaking in Preah Khan floor levels, threshold levels, window levels, and roof levels all fall away from the central shrine on the north-south, east-west axis accentuating the shrine as the highest point in the temple complex. This pattern appears to apply also to the Vishnu complex. The threshold and window levels certainly fall away north of the central passage although as far as can be determined from the surviving structure, the roof level remains consistent. South of the central passage there is also an attempt to achieve the same desired effect but the levels of the last window cill and the roof above it are higher rather than lower.

The form of the roof at the crossing points immediately behind the north and south porches was also studied in detail and compared with evidence elsewhere in the temple complex. It is now clear that the crossing points did not carry towers, as had previously been suggested, but were simply completed by a large capstone surmounted by a cruciform ridge piece. Two parts of a capstone were salvaged from the south end of the west passage as well as some interlocking ridge or crest pieces. The capstone measures 190cms square and is 34 cms deep and carries a shallow groove 32 cms wide, in two directions to locate the decorated ridge piece. The capstone from the south-east corner of the Vishnu complex survives complete (Plate 27). A number of fragments of ridge pieces can be seen *in situ* and in store. One piece is of particular significance as it was clearly used to form the junction of two ridge pieces at right angles to one another on the capstone at the south end of the west passage (Plate 28).

### The Central Tower

No attempt has yet been made to identify and reconstruct parts of the central tower, although it is clear from an initial inspection of the sculptural stones in store that one formerly existed. It appears that the towers of Preah Khan followed a typical format and it would be possible, in theory, to reconstruct the tower following existing extant examples such as the surviving example on the Dharmasala.

By a process of elimination of those stones which belong elsewhere on the west end of the Vishnu Temple Complex, it might be possible to isolate those which belong to the tower, and attempt a reconstruction drawing.

## ARCHAEOLOGICAL INVESTIGATIONS

During the thorough study of the structures and the building elements of the Vishnu Temple Complex, several interesting details emerged concerning the chronology of construction and methodology.

It has already been noted that the central passage and the boundary walls were additions to the complex, and that the level of the two yards to the west had been raised. The use of laterite stone in the roof might indicate a repair. Apart from these exceptions, no further evidence was found during the survey process to indicate that the complex is the result of a phased program of construction. However, two anomalies were noted, both to the south of the central passage.

As far as can be determined from the *in situ* remains, the roof level is neither horizontal to the south of the central passage, as is the case to the north, nor does it decrease in height, as might be expected. The completed surround of Door 3 partly covers the window to the south which is incomplete as is the carved decoration on the wall. On balance this evidence is considered *not* to indicate phases of construction but inconsistencies, errors and changes of plan, during a single building program.

## CONCLUSION

The method employed for disengaging and recording the two stone heaps in Yards A & B was adequate for the process of analysing this material and in particular in dealing with decorative features, such as the frontons. However, for components where the original location of individual stones is much less obvious it is essential to study their existing location and to analyse whether there is a relative position between the stone's original position and its present fallen state. Should this be the case, as is likely to be the case with roof slabs, then a more rigorous approach to recording is desirable until such time as the workforce is more familiar with the material.

The straight sections of roof will be difficult to reconstruct from stone heaps, simply because they lack the detailed decoration present on the frontons. However, there is evidence for coursing in the stone slabs and this together with rebating and minimal decoration will assist, particularly where approximate locations are known from collapsed positions.

The reconstruction of towers from collapsed masonry is an activity yet to be considered and will require careful study. The reconstruction of the Vishnu Temple complex towers are not a priority and it is unlikely that they will ever be reconstructed other than as an academic exercise by surveys and drawings.

Following the studies made in Field Campaign 1 it has been demonstrated that authentic reconstruction is possible with certain elements of the structure, such as door surrounds and frontons, but in these cases an exhaustive search is still necessary to find all the pieces before re-assembly can begin. Decisions will be required on how missing or severely damaged pieces should be replaced. In the case of the Vishnu Temple Complex roof it might be quite legitimate to use precast concrete slab replacements for the blocks that cannot be identified or are too badly broken for re-use.

## RECOMMENDATIONS

Consideration is being given to the proposals made in *Report III* to repair, conserve and partially reconstruct the western wing of the Vishnu Temple Complex.

If a decision is made to proceed with this work then I suggest that it will be necessary, first, to complete the disengagement of the collapsed masonry within the passages and the areas to the north, east and south of it. Components of the door surrounds and frontons on the west elevation (Doors 1-4), which have yet to be identified, are most likely to be found amongst the stoned material in Yards A and B. Roof slabs, and pieces of the lesser frontons between roof sections are most likely to be found within the passages and porches, whilst stones from the tower are likely to be widely scattered.

As regards the extent of reconstruction perhaps serious consideration should initially be given to dealing with the surviving sections of the roof to provide complete cover between the central tower and the north and south porches. A major task here will be dealing with a repair which is not a natural end to the roof. This will be a re-occurring problem not only at Preah Khan but in the whole Angkor complex and needs to be addressed. One possibility would be to terminate reconstruction at the lesser frontons between roof sections which usually occur over interior dividing walls.

In the areas where laterite stone had previously been used it is recommended that consideration be given to the use of modern replacements or precast slabs to replace those that are broken or beyond recognition and repair.

# THE VISHNU TEMPLE COMPLEX



Plate 1 The stone-moving operation in Yard B.

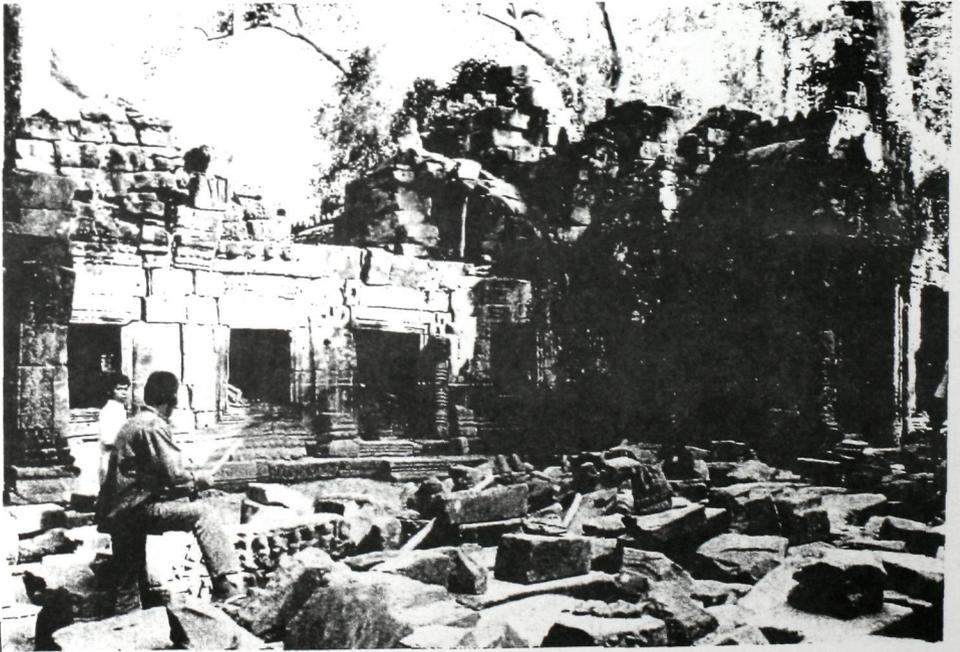


Plate 2 Yard A - on completion of clearance in November 1992, looking south-east.

Preah Khan, Angkor

## THE VISHNU TEMPLE COMPLEX

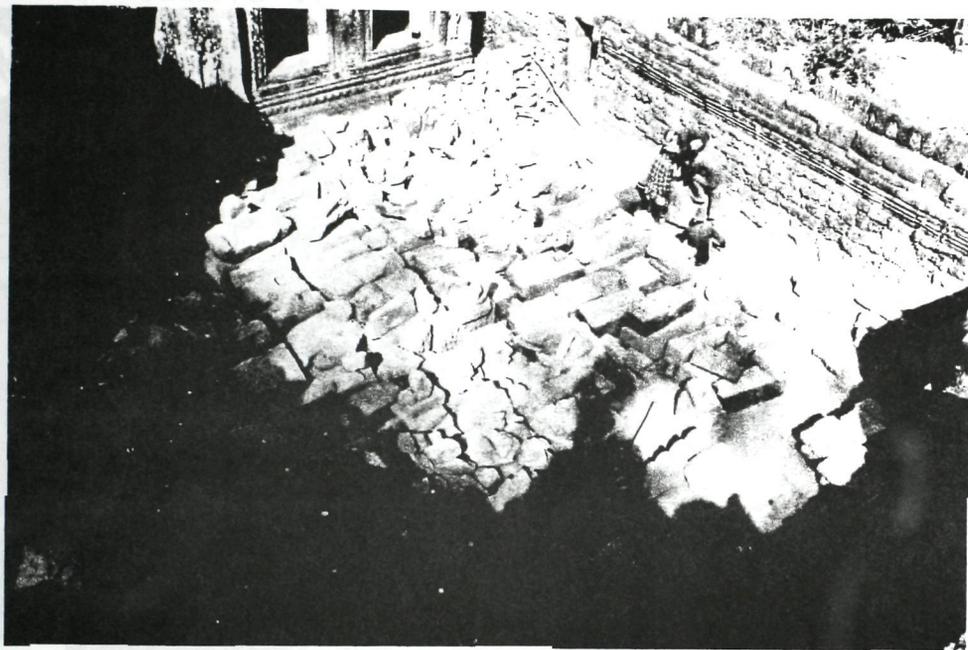


Plate 3 Yard A - stone storage in November 1992, looking north-west from above.



Plate 4 Yard B - stone storage in November 1992, looking south-west from above.

# THE VISHNU TEMPLE COMPLEX

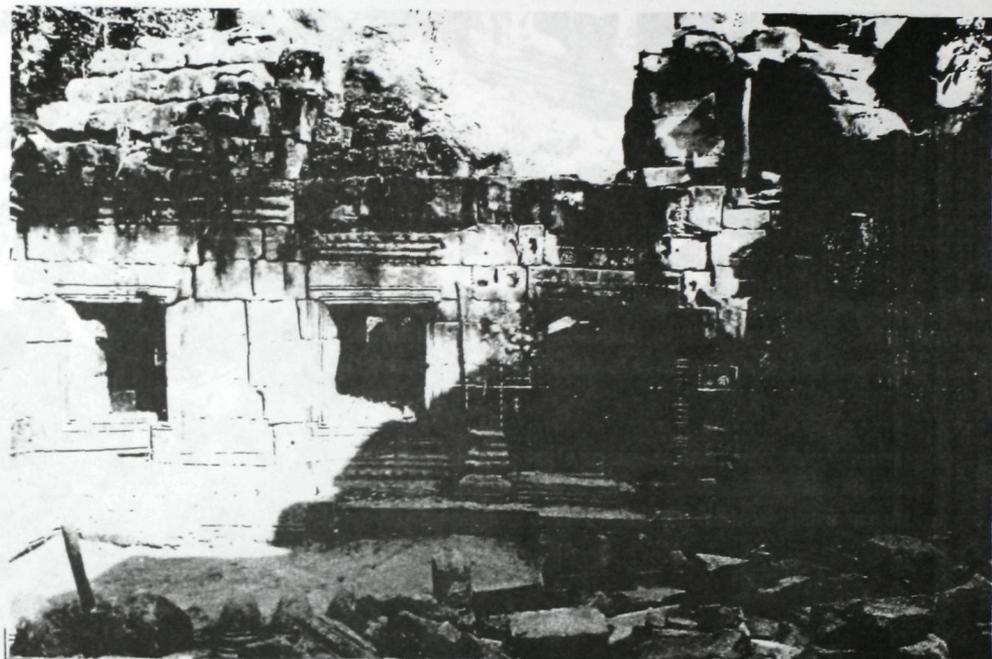


Plate 5 Yard A - the west elevation of the Vishnu Temple complex north of the central passage (for Record drawing see Fig 4).

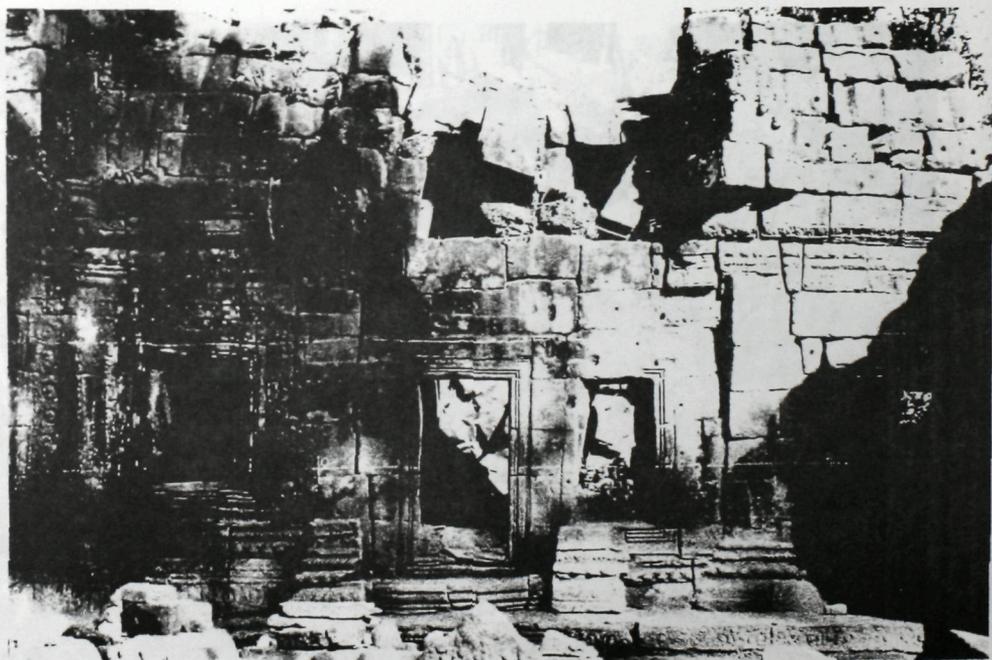


Plate 6 Yard B - the west elevation of the Vishnu Temple complex south of the central passage (for Record drawing see Fig 5).

Preah Khan, Angkor

## THE VISHNU TEMPLE COMPLEX



Plate 7. Yard A - the north elevation of the central passage and porch  
(see also Fig 6).

Preah Khan, Angkor

# THE VISHNU TEMPLE COMPLEX



Plate 8 Yard B - the south elevation of the central passage and porch  
(see Fig 7).

Preah Khan, Angkor

# THE VISHNU TEMPLE COMPLEX



Plate 9. Yard A - west elevation of the north porch  
(for Record drawing see Fig 13).

Preah Khan, Angkor

# THE VISHNU TEMPLE COMPLEX



Plate 10 Yard A - south elevation of the north porch.

Preah Khan, Angkor

# THE VISHNU TEMPLE COMPLEX

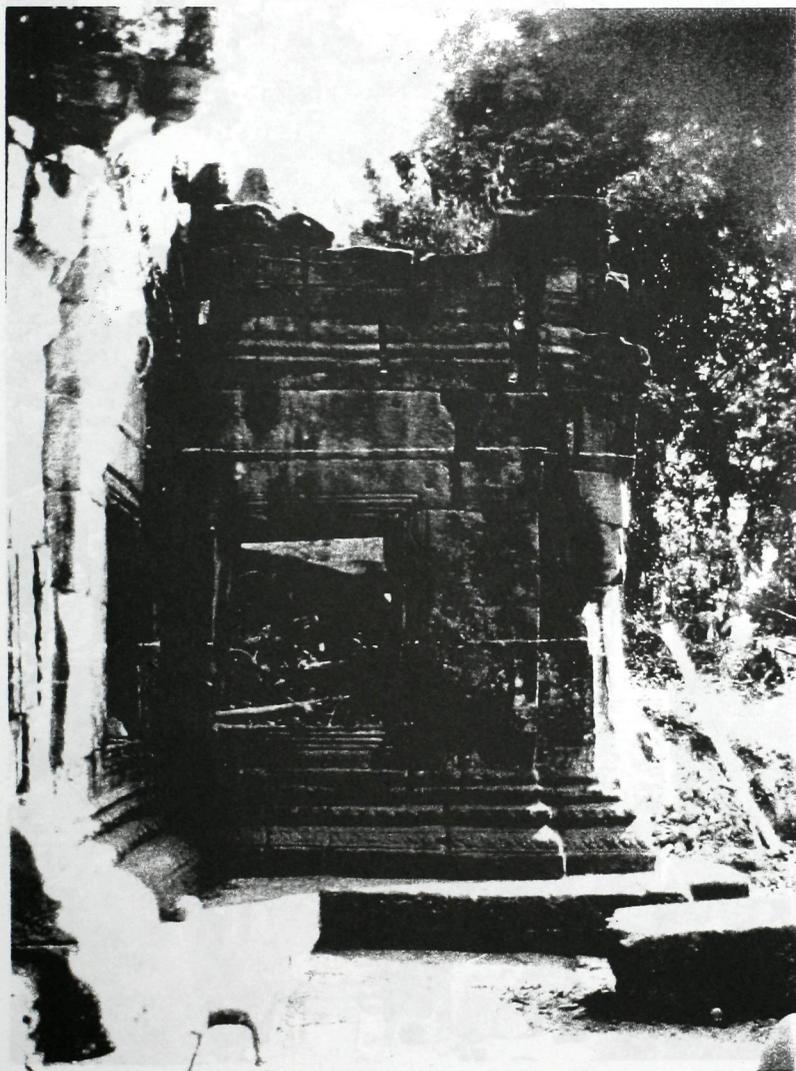


Plate 11 Yard B - north elevation of the south porch.

Preah Khan, Angkor

THE VISHNU TEMPLE COMPLEX

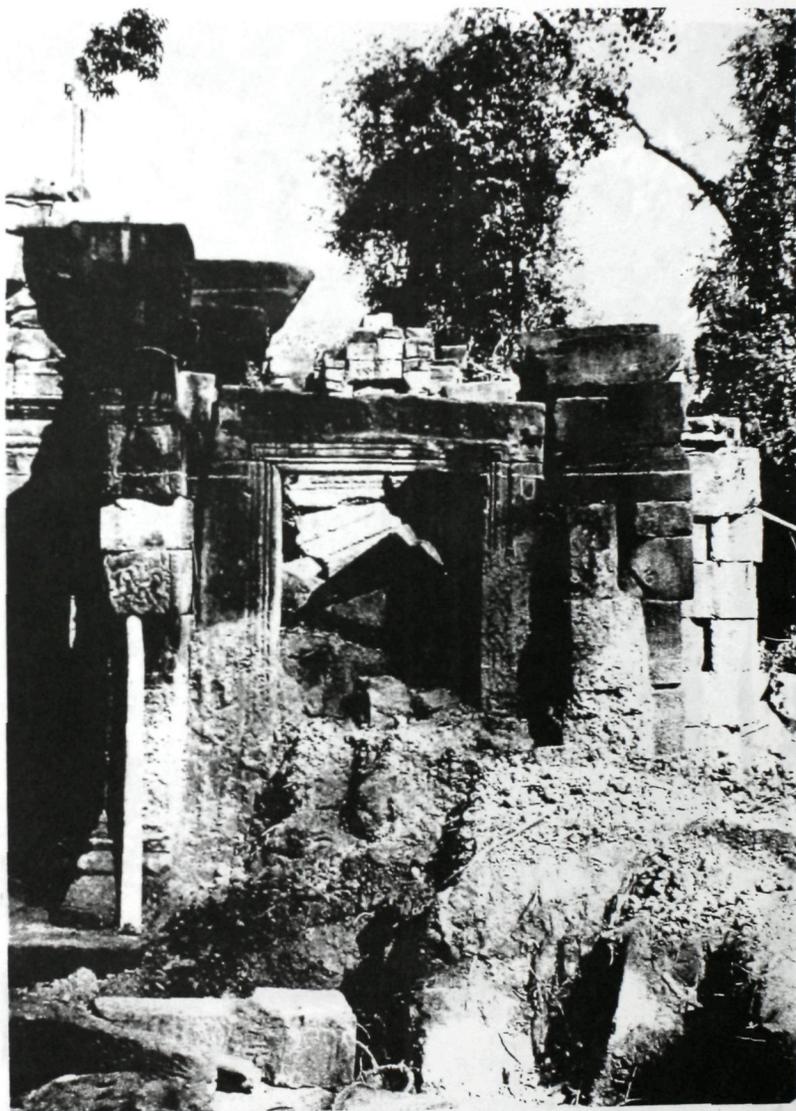


Plate 12 Yard B - west elevation of the south porch, partially cleared.

Preah Khan, Angkor

# THE VISHNU TEMPLE COMPLEX



Plate 13 The west elevation of the central porch.

THE VISHNU TEMPLE COMPLEX



Plate 14 Door 1 - re-assembled components of the decorated fronton (see Fig 13c & d).



Plate 15 Door 1 - components of the carved stone lintel (see Fig 13 c & d).

THE VISHNU TEMPLE COMPLEX

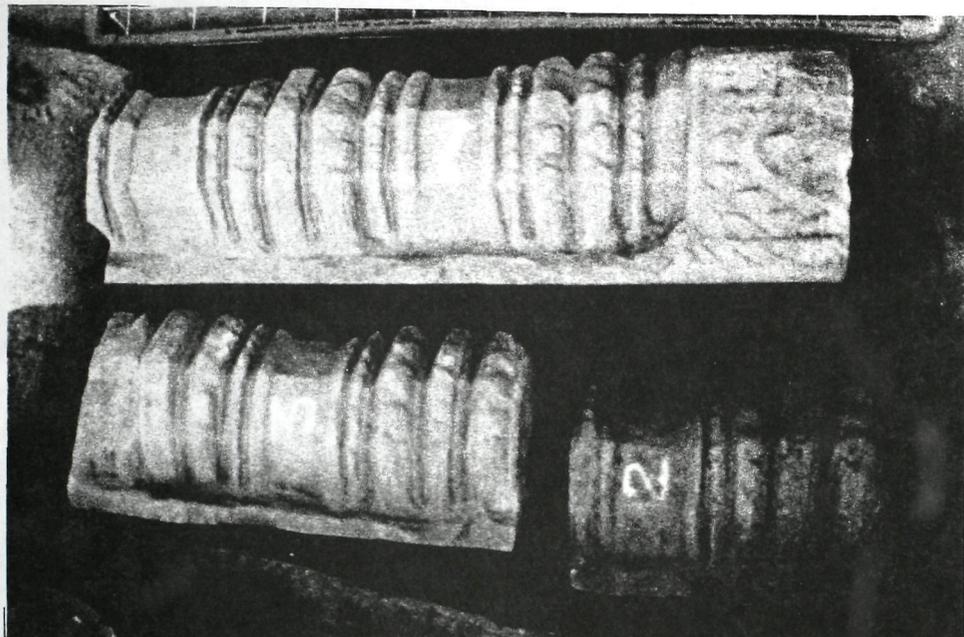


Plate 16 Door 2 - column fragments

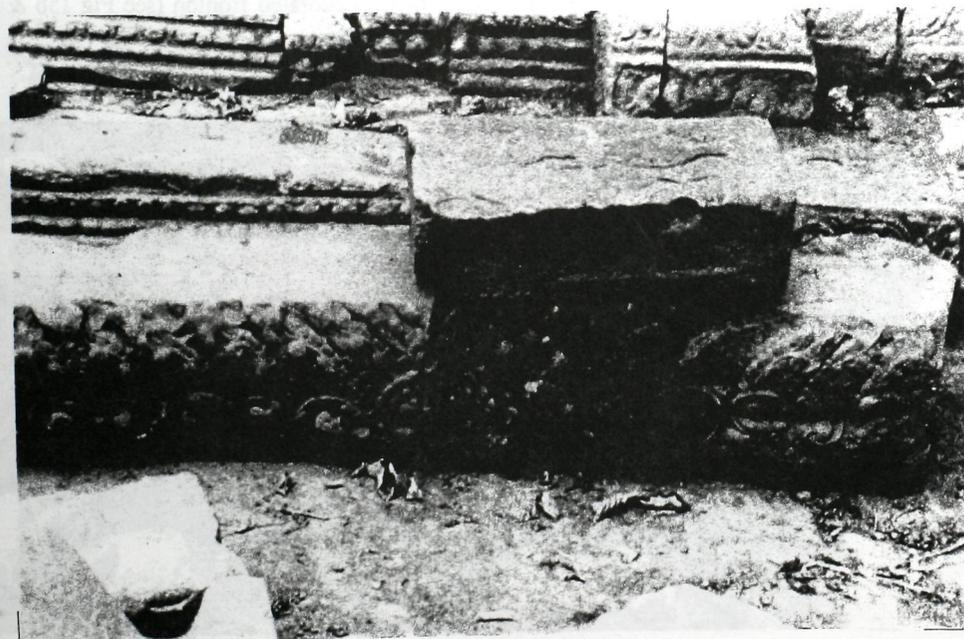


Plate 17 Door 2 - lintel components

THE VISHNU TEMPLE COMPLEX



Plate 18 Door 2 - re-assembled components of the decorated fronton (see Fig 15b & c).

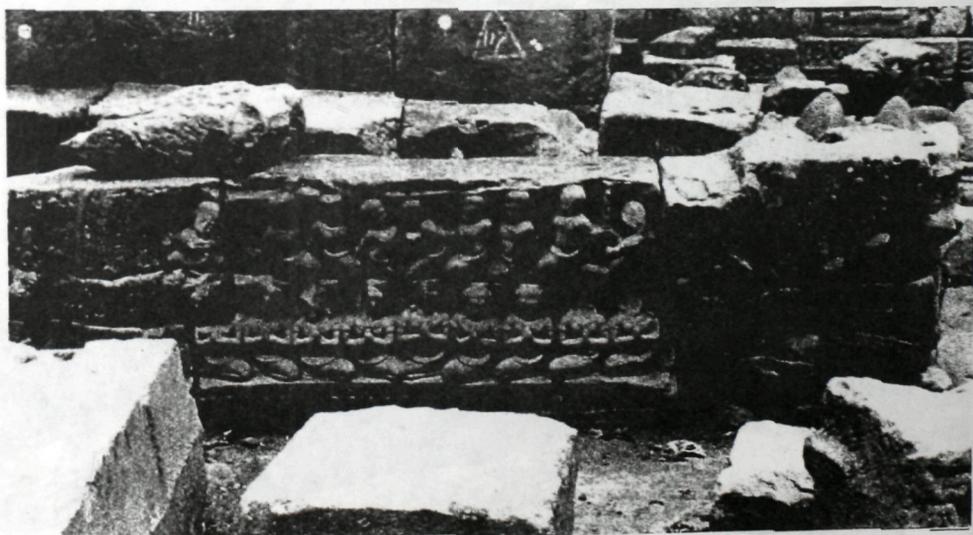


Plate 19 Door 2 - re-assembled components of the decorated fronton (see Fig 15b & c)

THE VISHNU TEMPLE COMPLEX

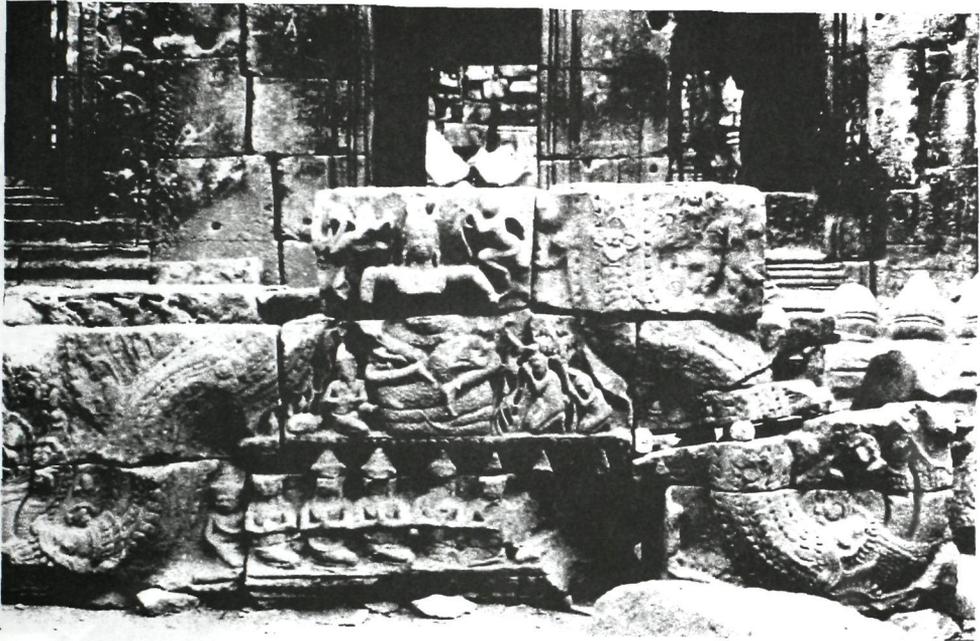


Plate 20 Door 3- re-assembled components of the decorated fronton (see Fig 17b).

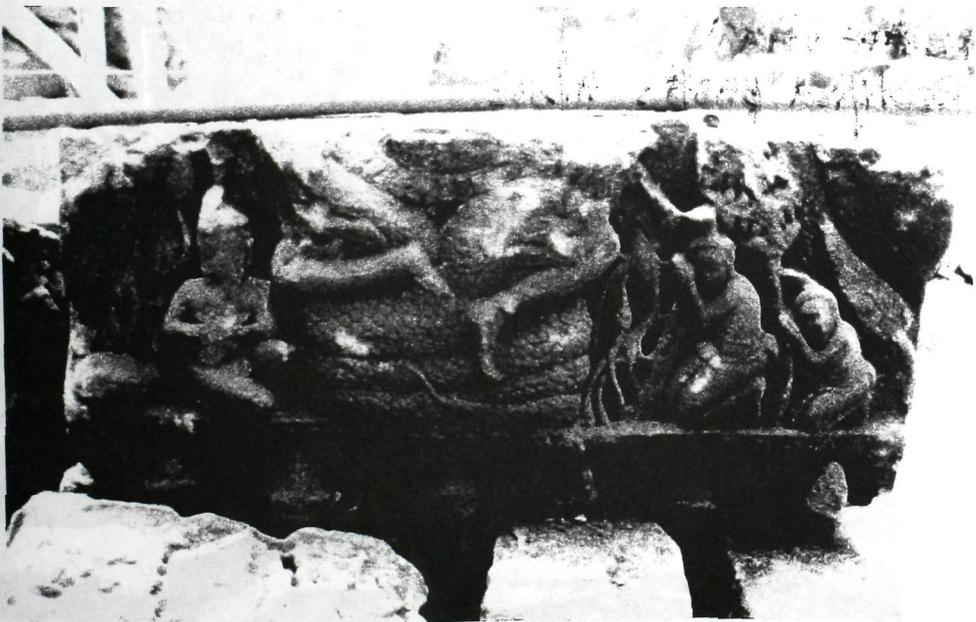


Plate 21 Door 3 - one of the decorated stones from the fronton .



Plate 22 Door 4 - re-assembled components of the decorated fronton (see Fig 19c).

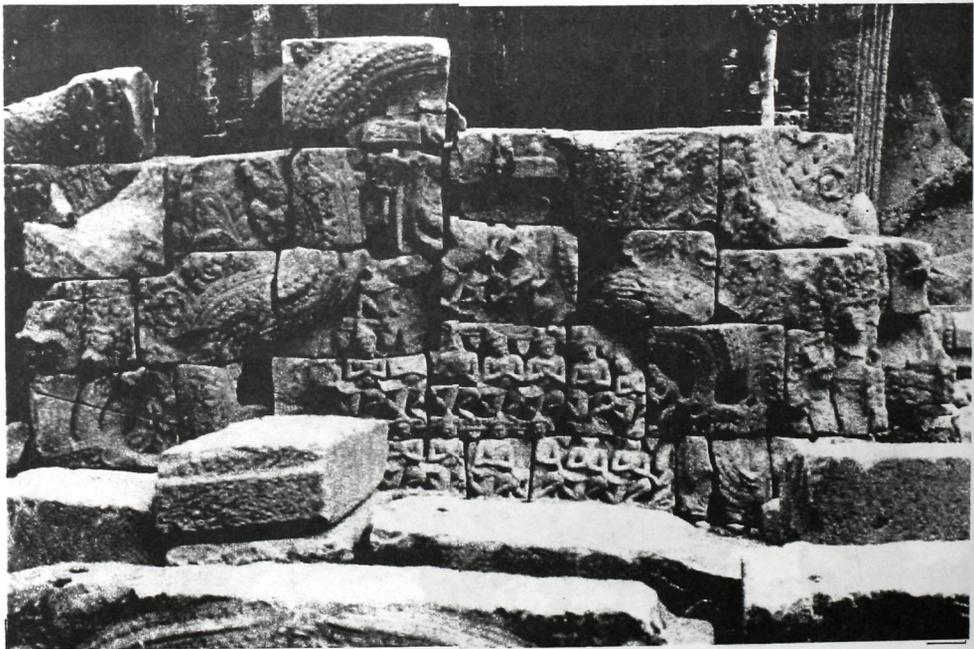


Plate 23 Door 4 - re-assembled components of the decorated fronton (see Fig 19c).

Preah Khan, Angkor

## THE VISHNU TEMPLE COMPLEX



Plate 24 The roof - the east elevation of the west passage, north of the central passage.  
Note the roof section constructed partially in laterite stone.

Preah Khan, Angkor

# THE VISHNU TEMPLE COMPLEX

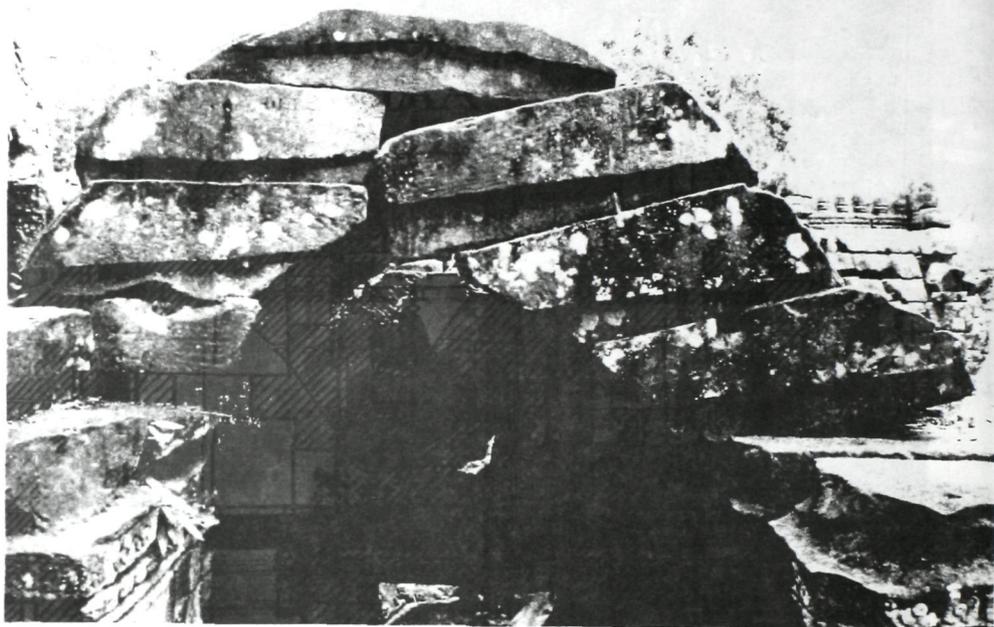


Plate 25 The roof - section at the north end of the west passage, looking south.



Plate 26 The roof - section on the north side of the central tower, looking south.

Preah Khan, Angkor

## THE VISHNU TEMPLE COMPLEX



Plate 27 The roof - complete capstone from the south-east corner of the Vishnu Temple complex.



Plate 28 The roof - crest fragment from the capstone at the south end of the west passage.

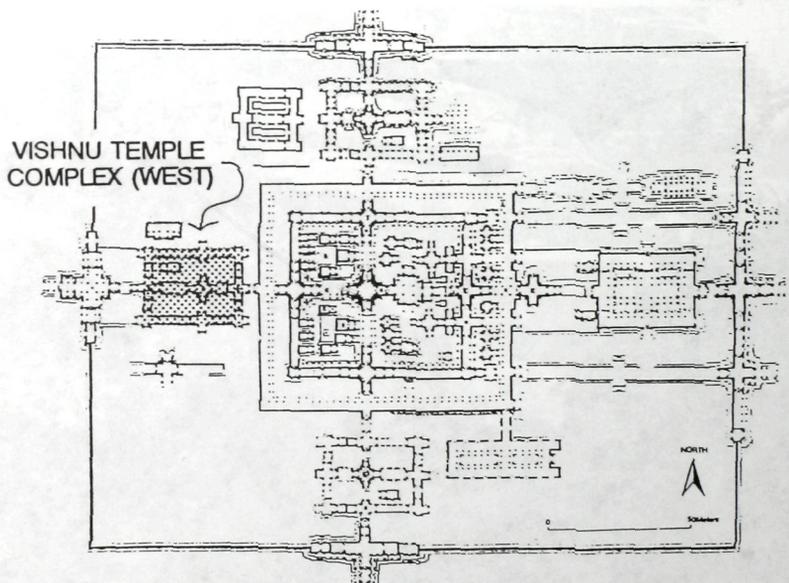
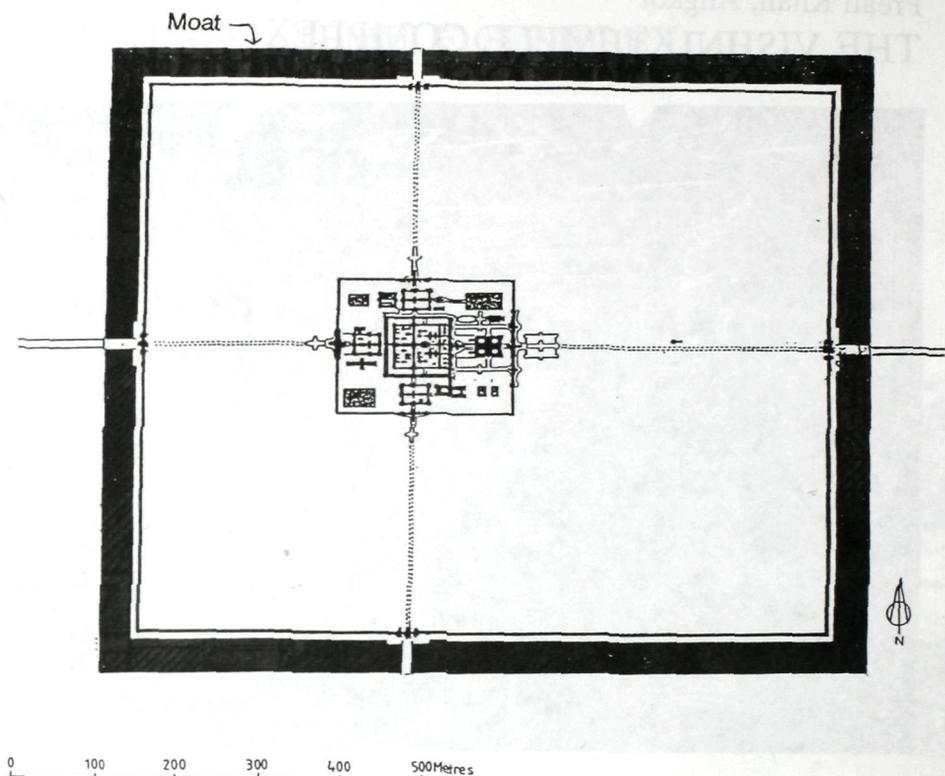


Fig. 1a (above) Location: Plan of Preah Khan (after J Boisselier 1966).

Fig. 1b (below) Plan of the Temple Complex (after J.Dumarcay 1988).

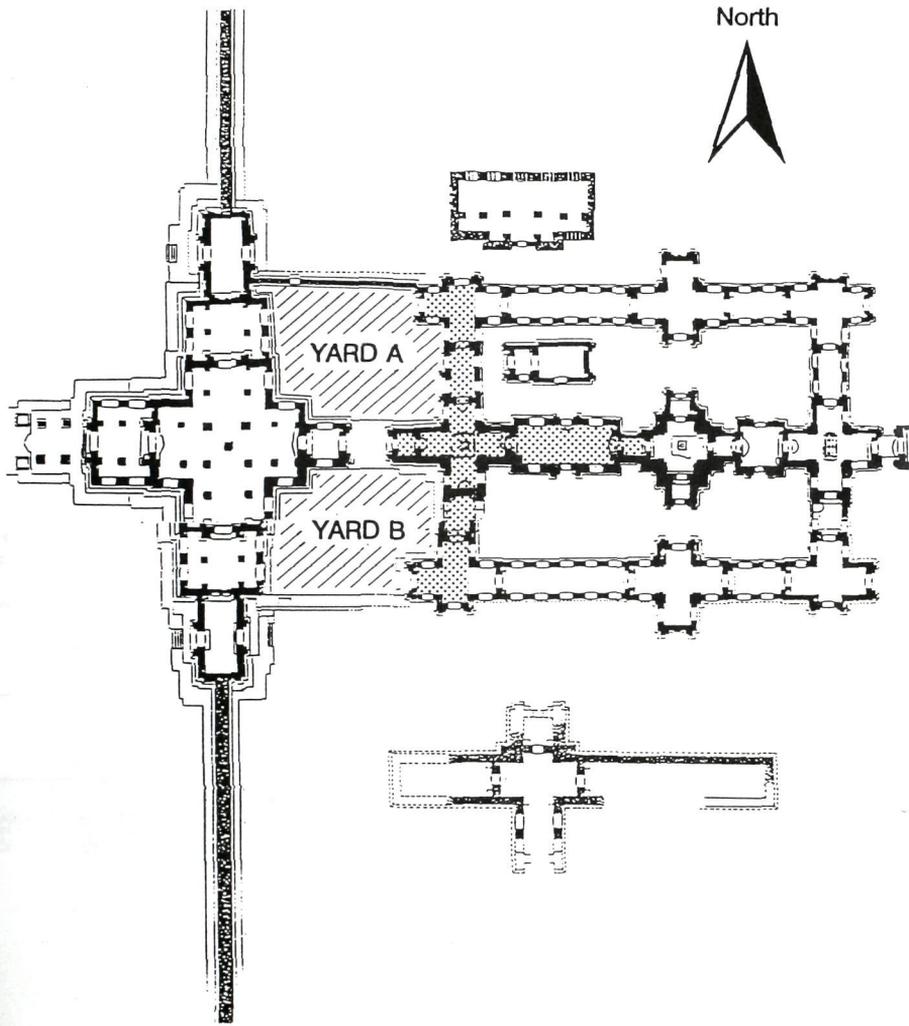


Fig. 2 Plan of the Vishnu Temple Complex (West) and the West Gopura (after J Dumarçay 1988)

# Preah Khan, Angkor

## VISHNU TEMPLE COMPLEX (WEST)

### Plan of West End

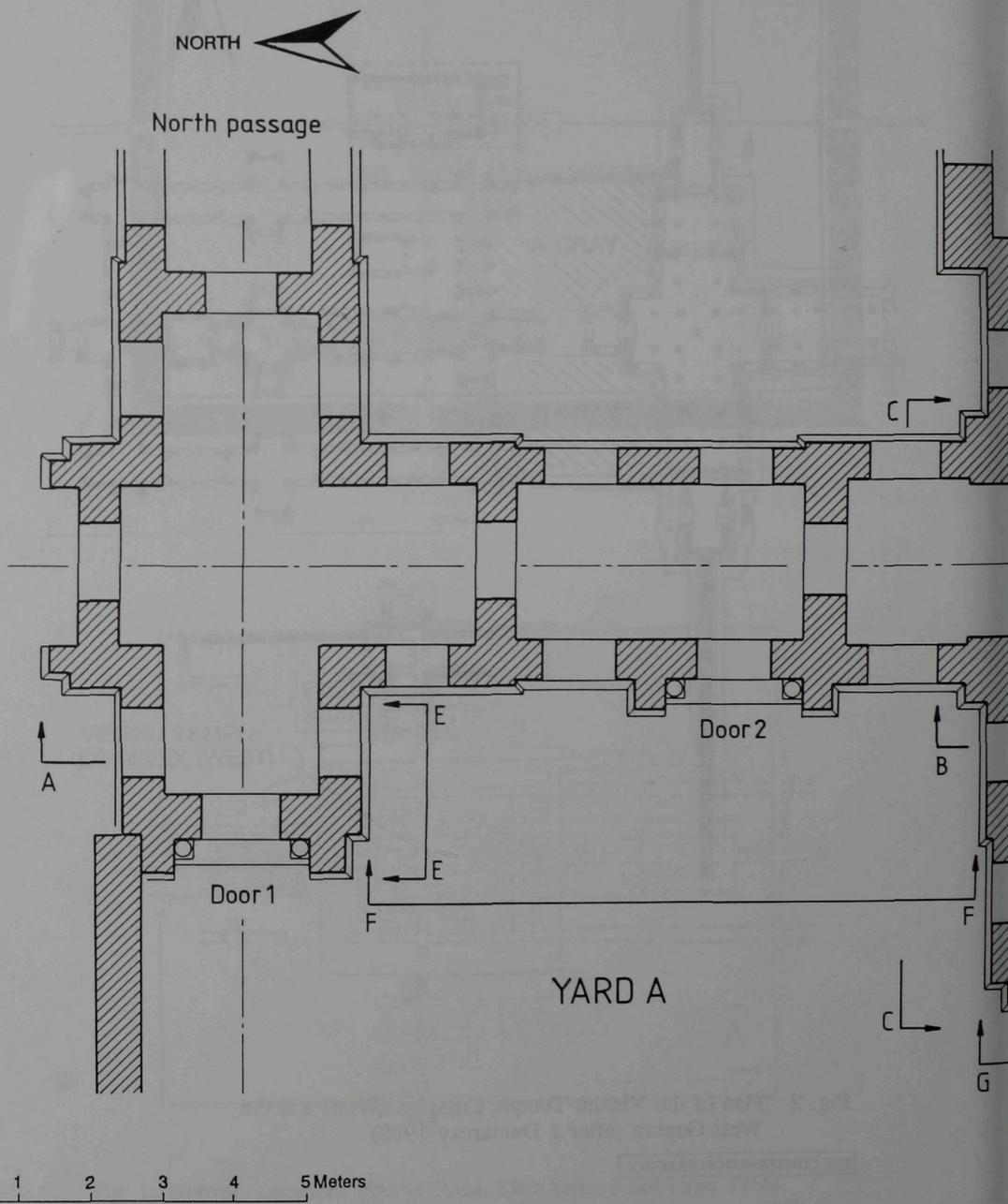
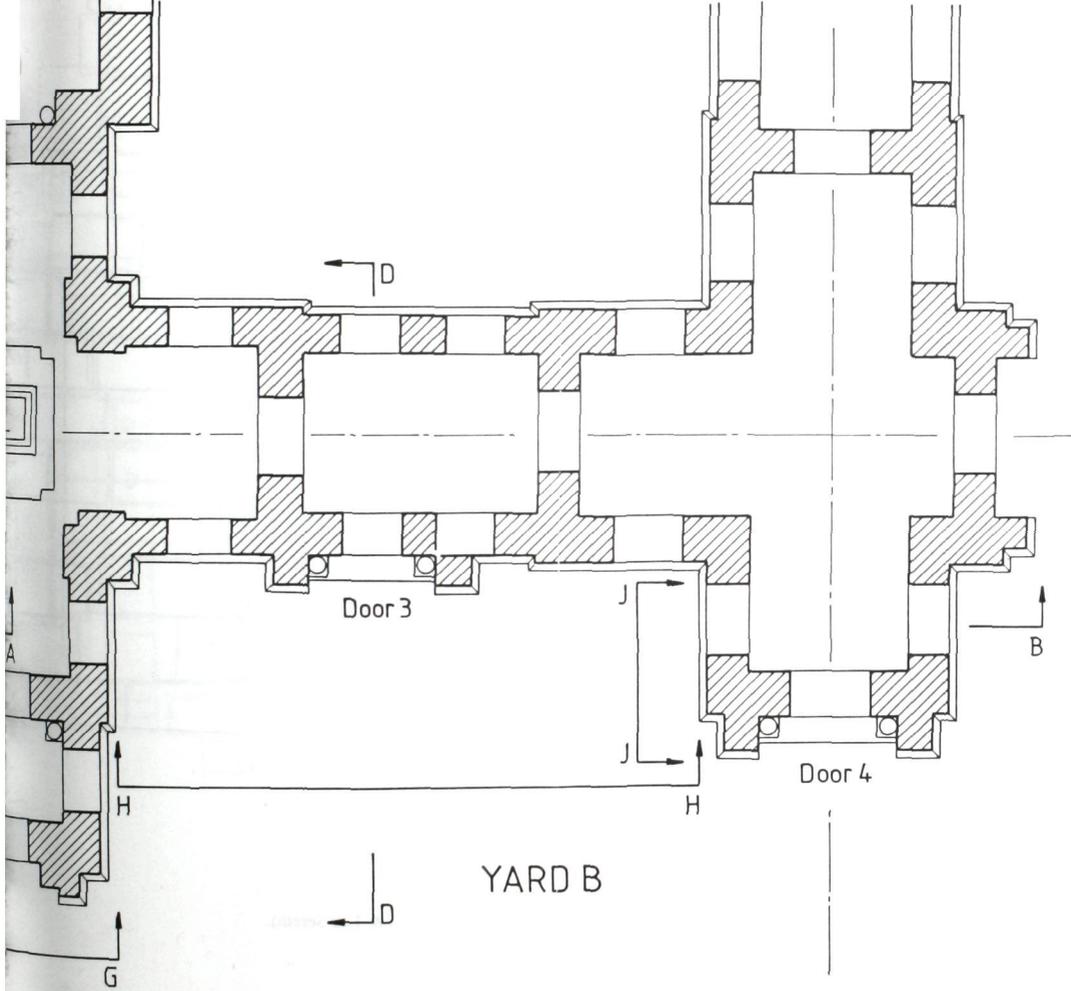


Fig. 3 Plan of the west end of the complex, showing the location of elevation drawings, sections and scaled photographs.  
(Based on a survey by Var Morin & Lek Sareth).

Passage

South passage



Door 3

Door 4

YARD B

Preah Khan, Angkor  
VISHNU TEMPLE COMPLEX (WEST)  
West Elevation - AA

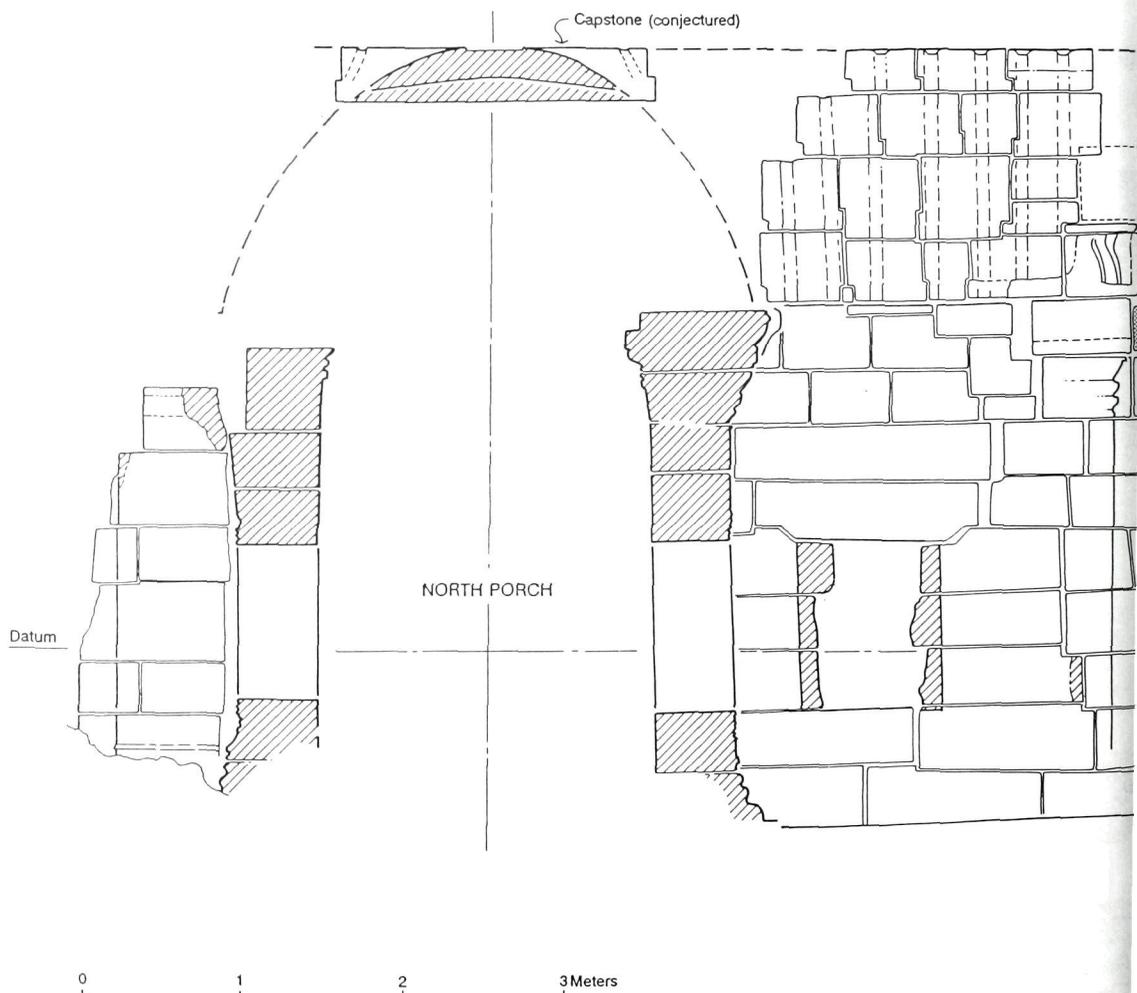
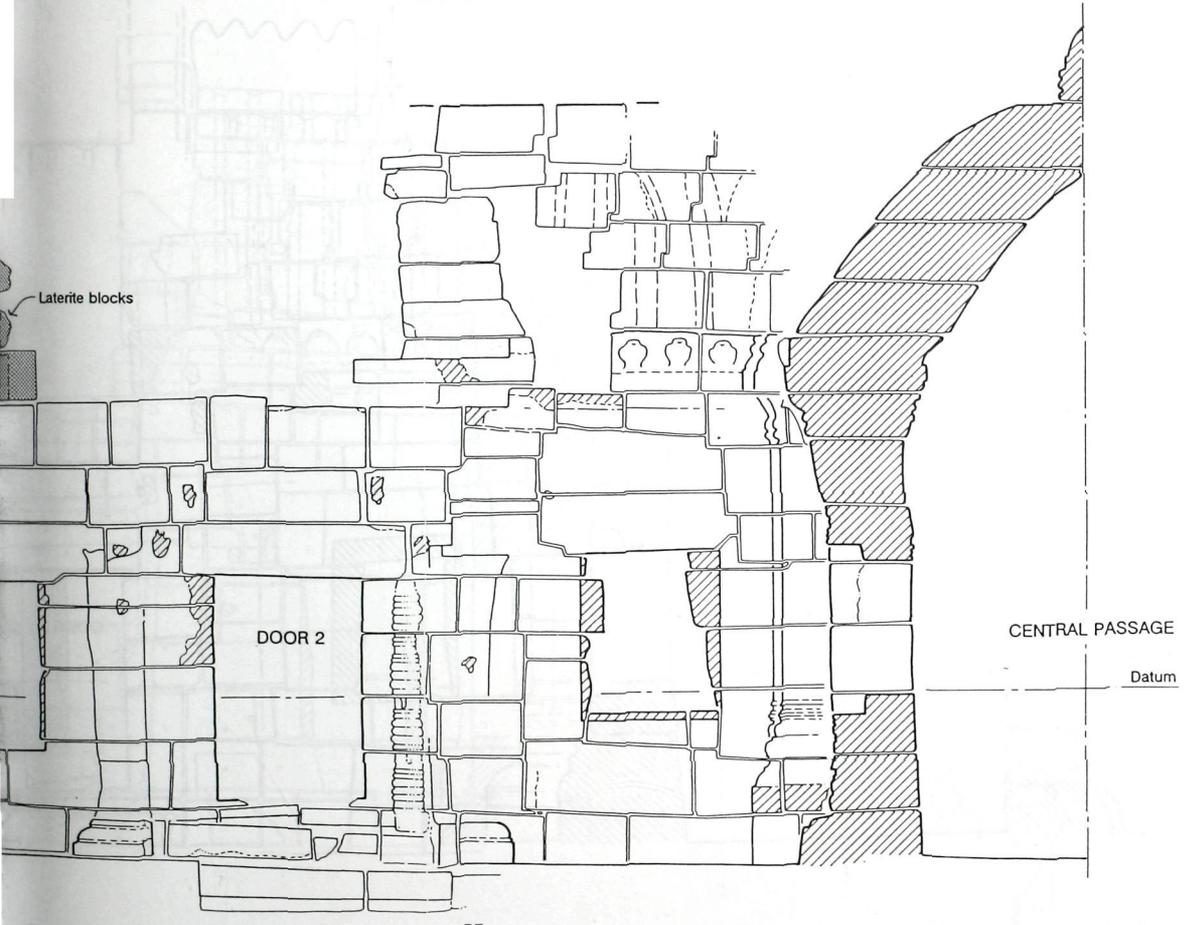


Fig. 4 Record elevation drawing and sections AA (Based on surveys by Cheam Phally & Lek Sereth).  
(For a scaled photograph see Fig.9).

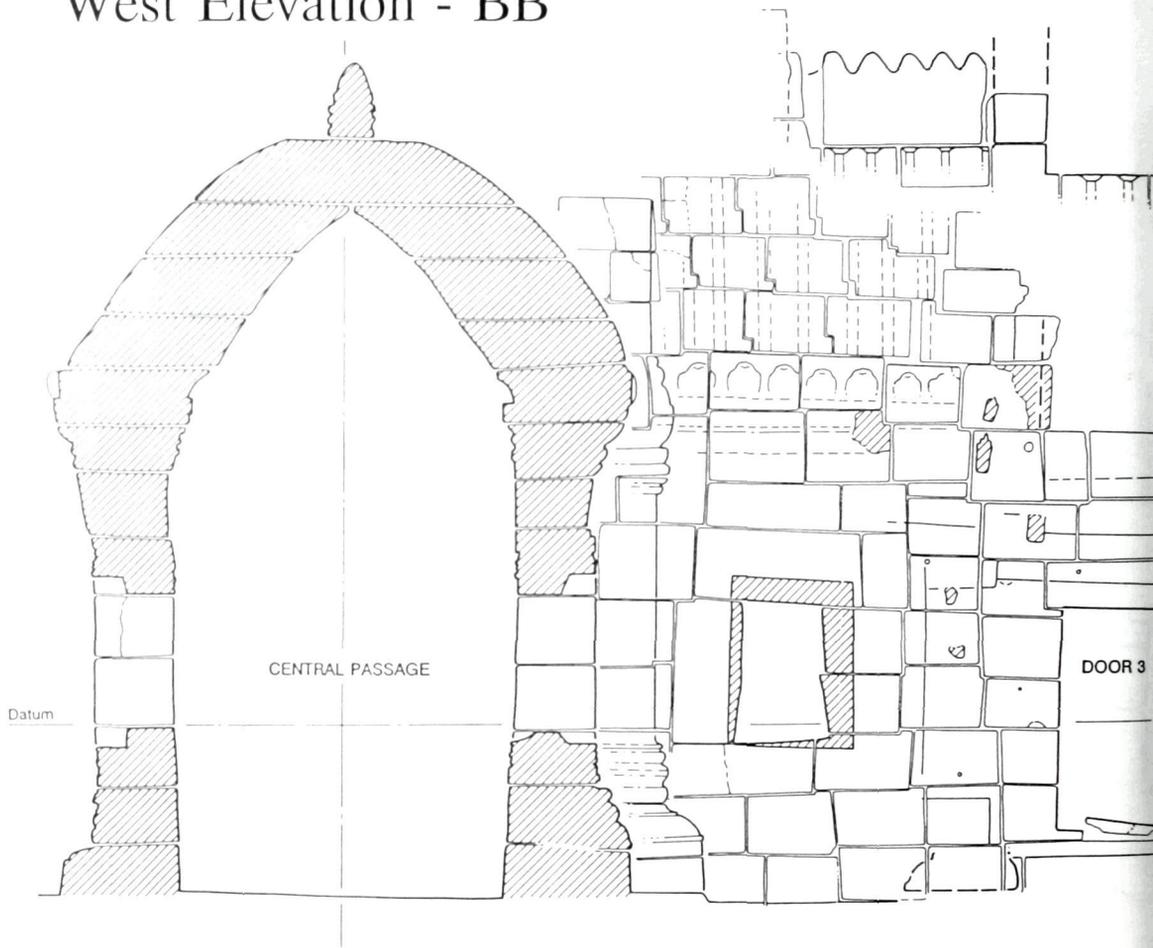
(WEST)



Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX (WEST)

## West Elevation - BB

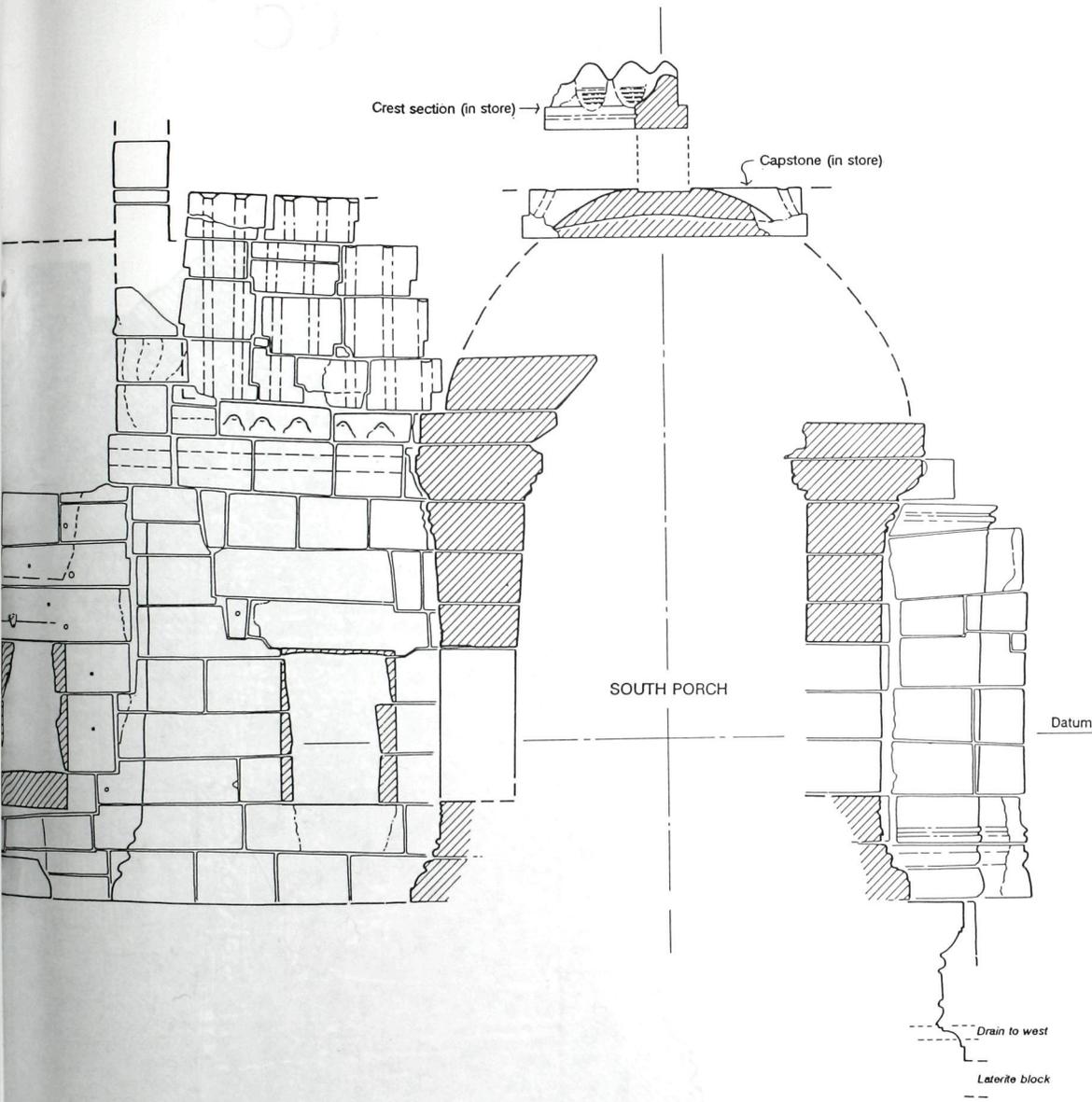


0 1 2 3 Meters

Fig. 5 Record elevation drawing and sections BB. (Based on surveys by Chhun Soma and Lek Sereth).  
(For a scaled photograph see Fig. 11).

THE CONSERVATION PRACTICE

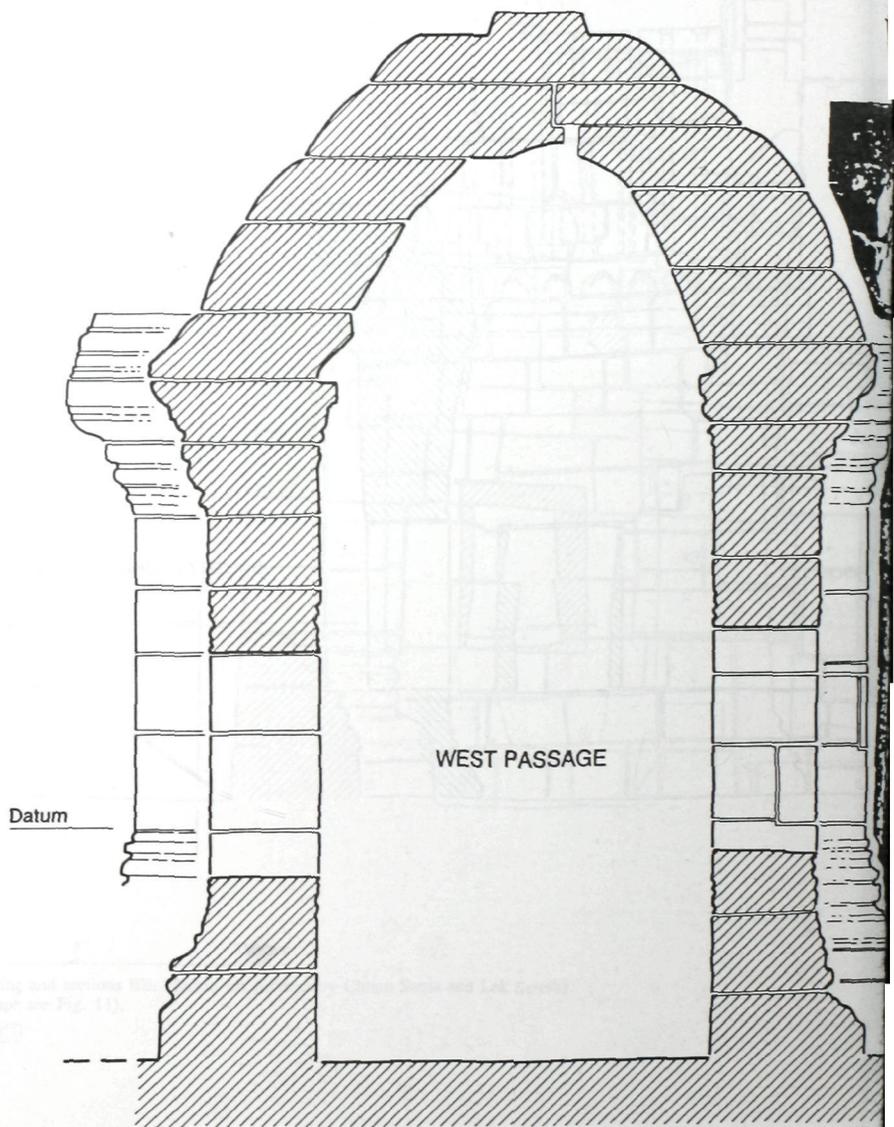
WEST (WEST)  
CC



Preah Khan, Angkor

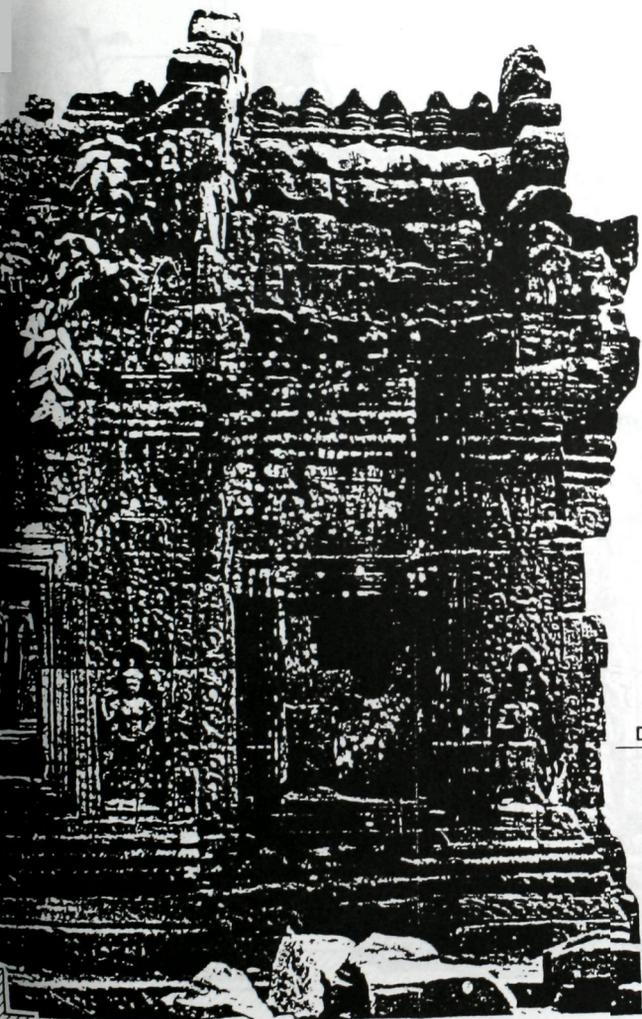
# VISHNU TEMPLE COMPLEX (WEST)

## Section & Photograph - CC



0 1 2 3 Meters

Fig. 6 Section drawing and scaled photograph CC. (Based on a survey by Nay Sophea).



Datum

Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX (WEST)

## Section & Photograph - DD

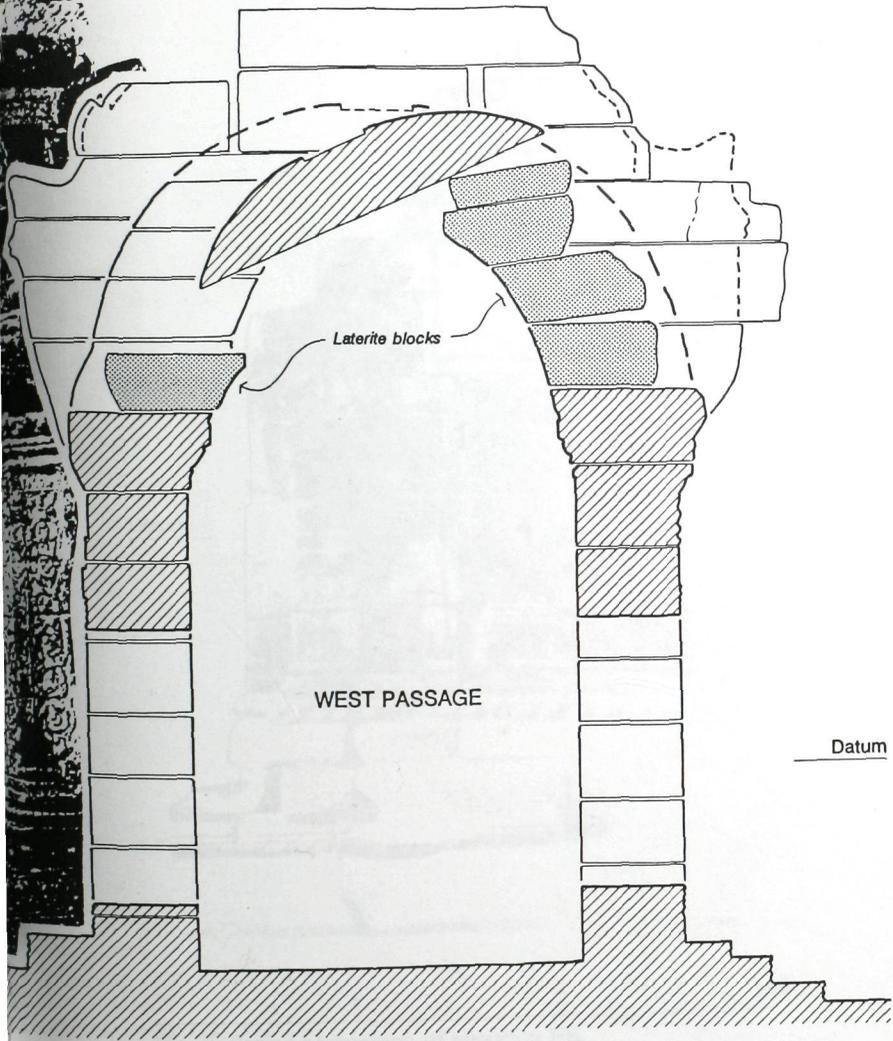


0 1 2 3Meters

Fig. 7 Section drawing and scaled photograph DD. (Based on a survey by Var Moris).

**THE CONSERVATION PRACTICE**

COMPLEX



Laterite blocks

WEST PASSAGE

Datum

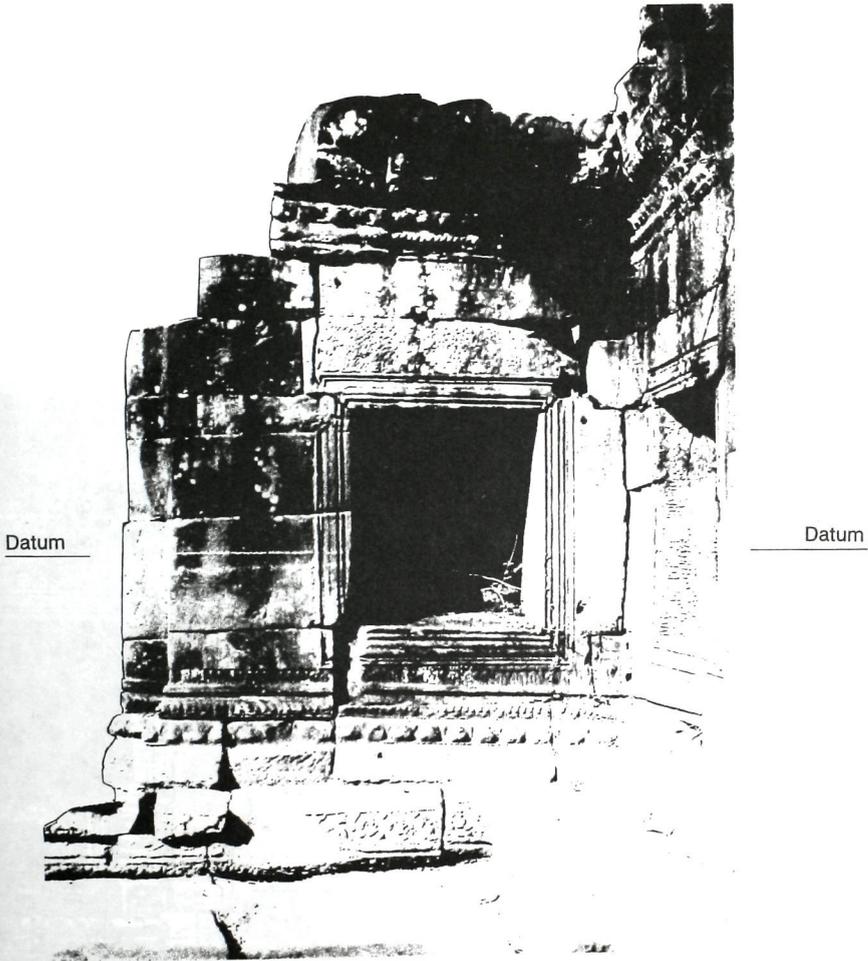
THE CONSERVATION YEAR 1952

PREAH KHAN (WEST)  
1971

Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX

## Photograph - EE



0 1 2 3Meters

Fig. 8 Scaled photograph of elevation EE.

**THE CONSERVATION PRACTICE**

Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX (WEST)

## Photograph - FF

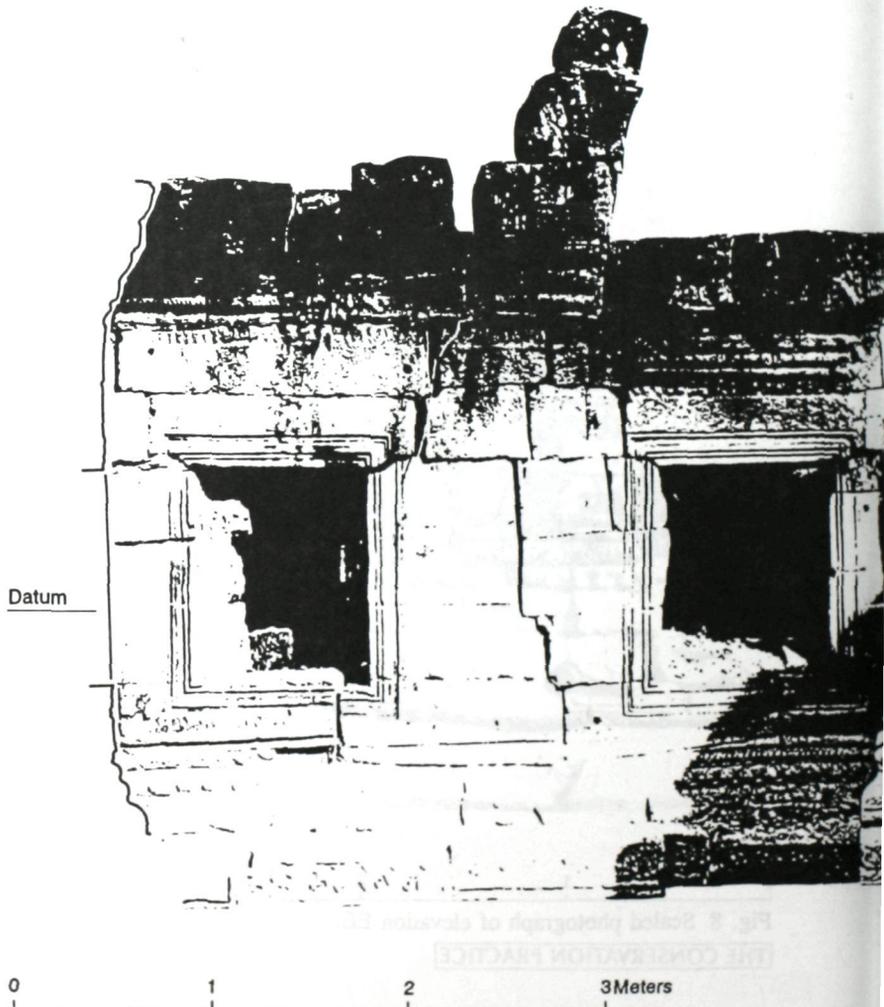
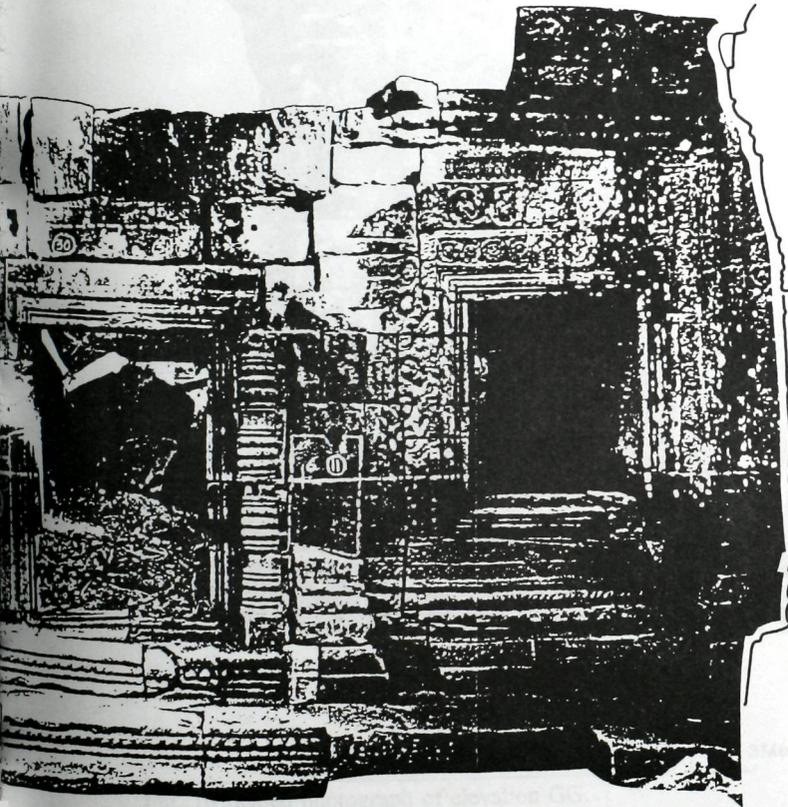


Fig. 9 Scaled photograph of elevation FF.

THE CONSERVATION PRACTICE

COMPLEX



Datum

CONCRETE

MPLEX (WEST)

Preah Khan, Angkor

VISHNU TEMPLE COMPLEX

Photograph - GG



Fig. 9 Scaled photograph of elevation FF.  
THE CONSERVATION PRACTICE

(WEST)

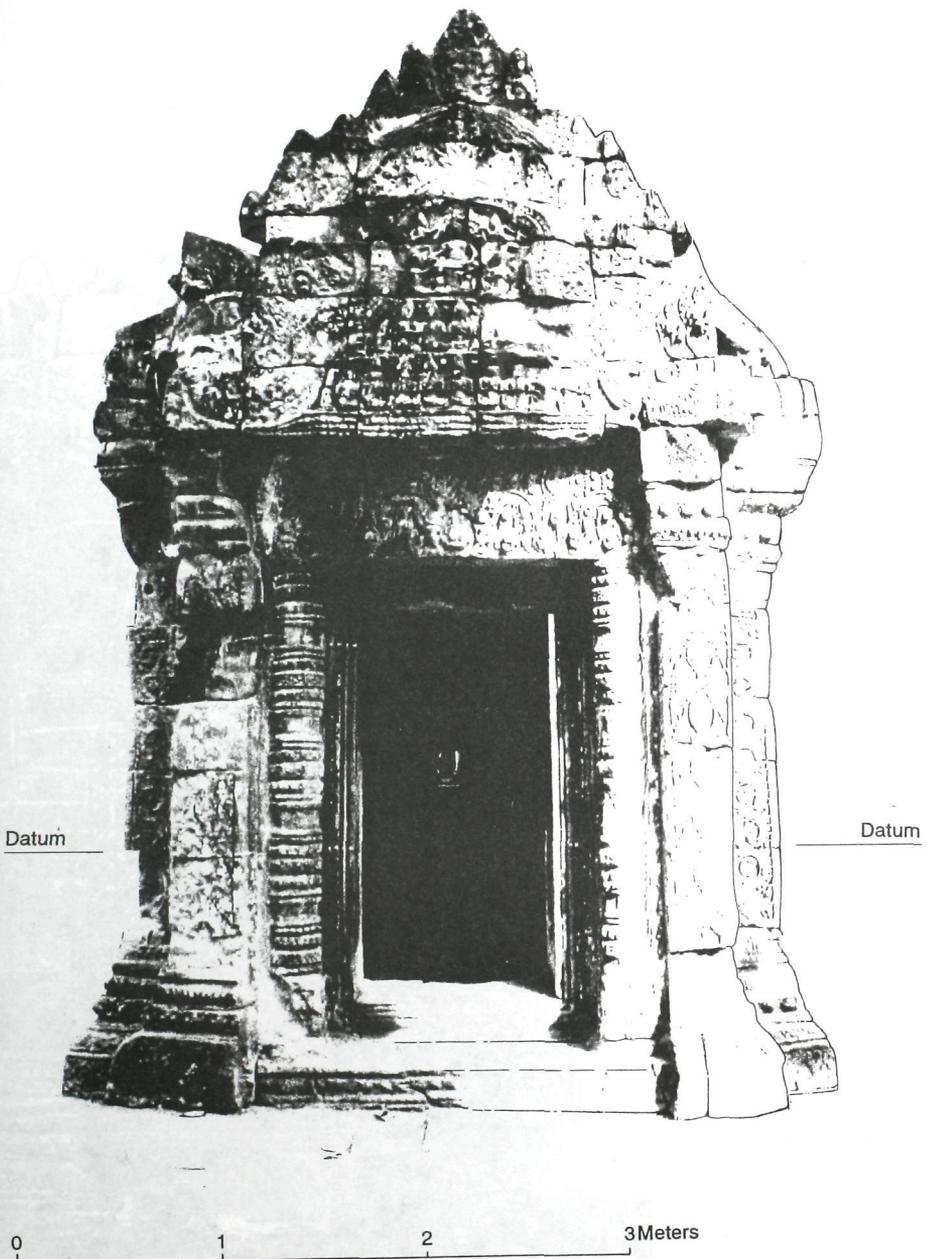


Fig. 10 Scaled photograph of elevation GG.

**THE CONSERVATION PRACTICE**

Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX (WEST)

## Photograph - HH

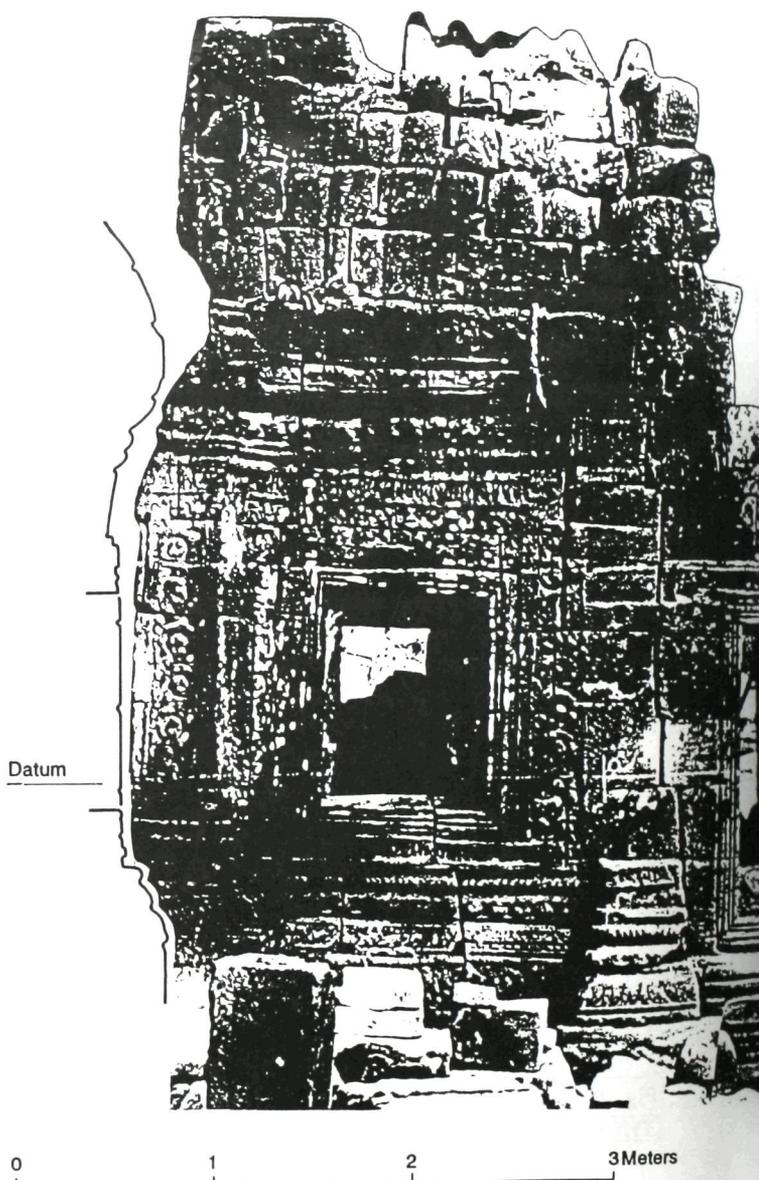
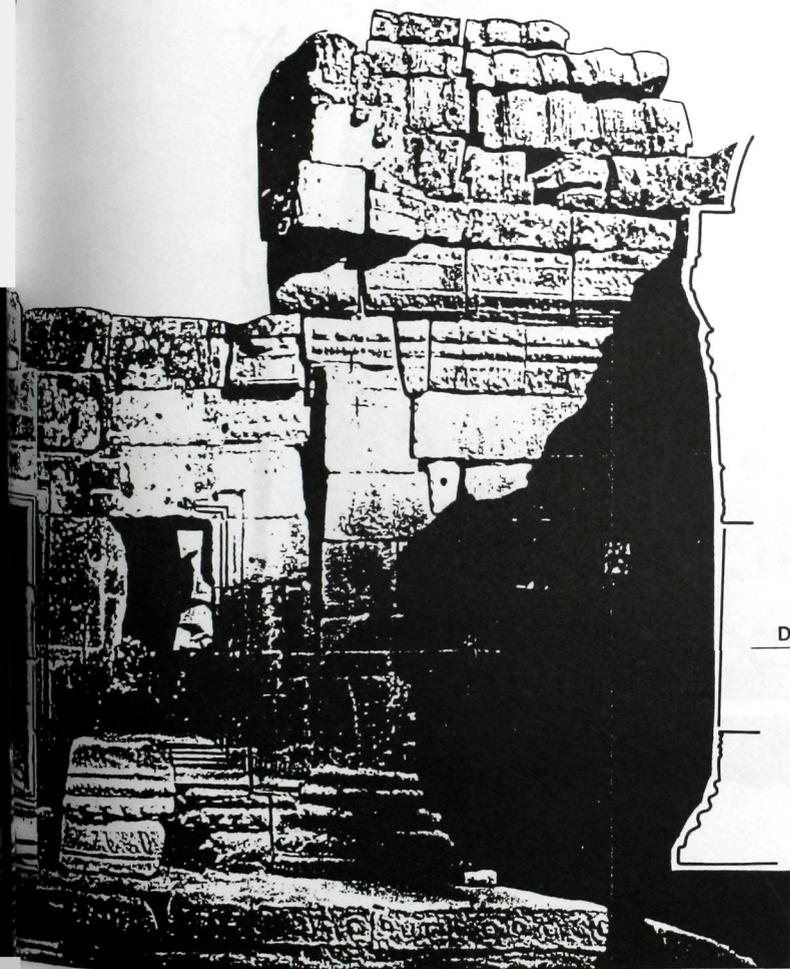


Fig. 11 Scaled photograph of elevation HH.

THE CONSERVATION PRACTICE



Datum

Preah Khan, Angkor  
VISHNU TEMPLE COMPLEX  
Photograph - JJ

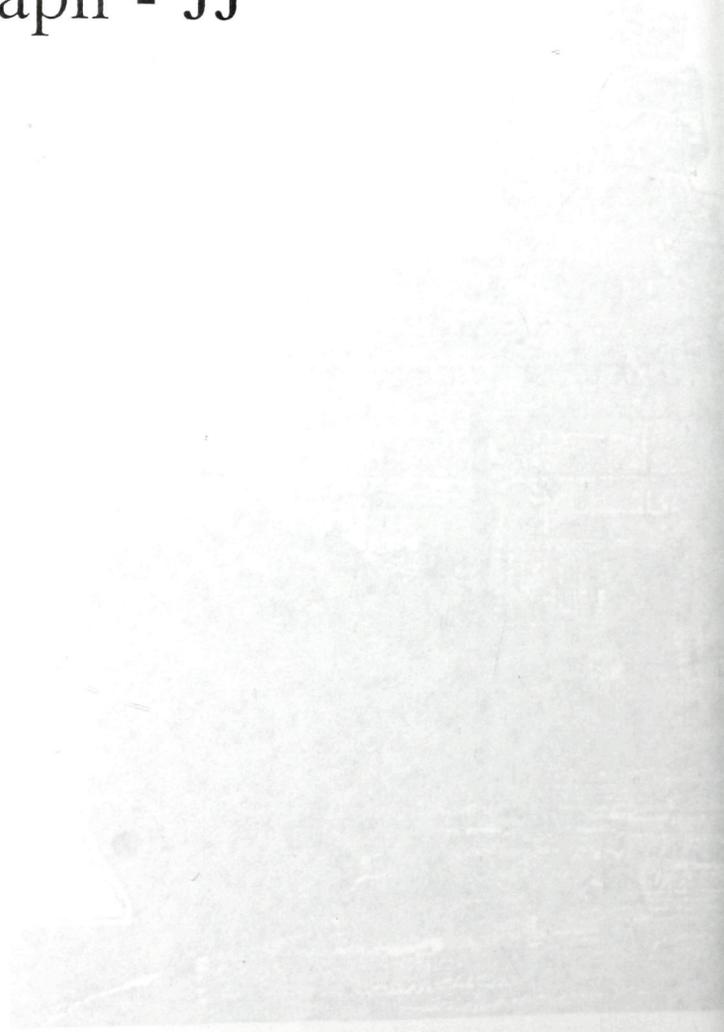
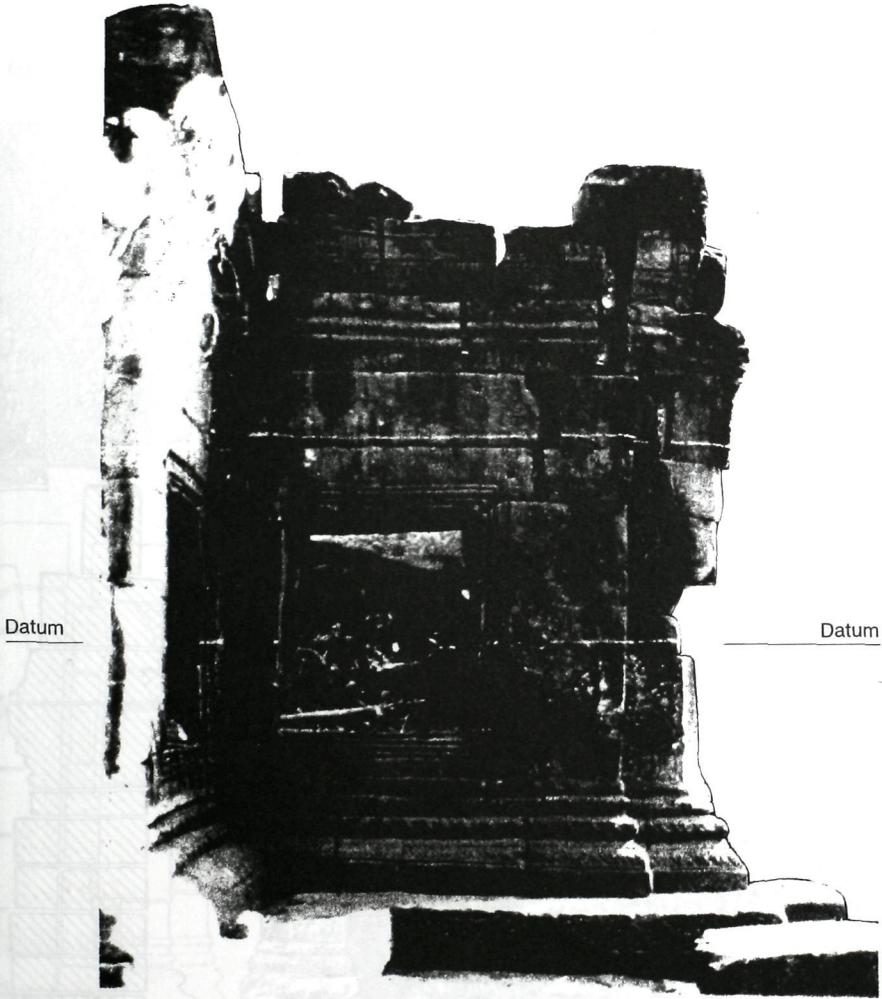


Fig. 11 Scaled photograph of elevation III.

(WEST)



Datum

Datum

0 1 2 3 Meters

Fig. 12 Scaled photograph of elevation JJ.

**THE CONSERVATION PRACTICE**

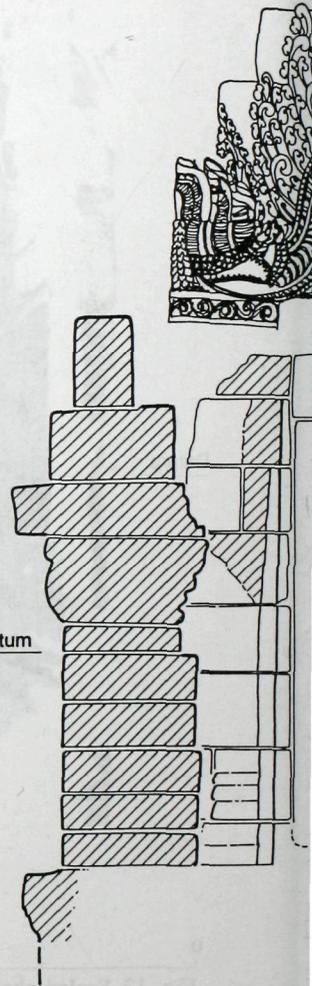
Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX (WEST)

## Door & Fronton 1



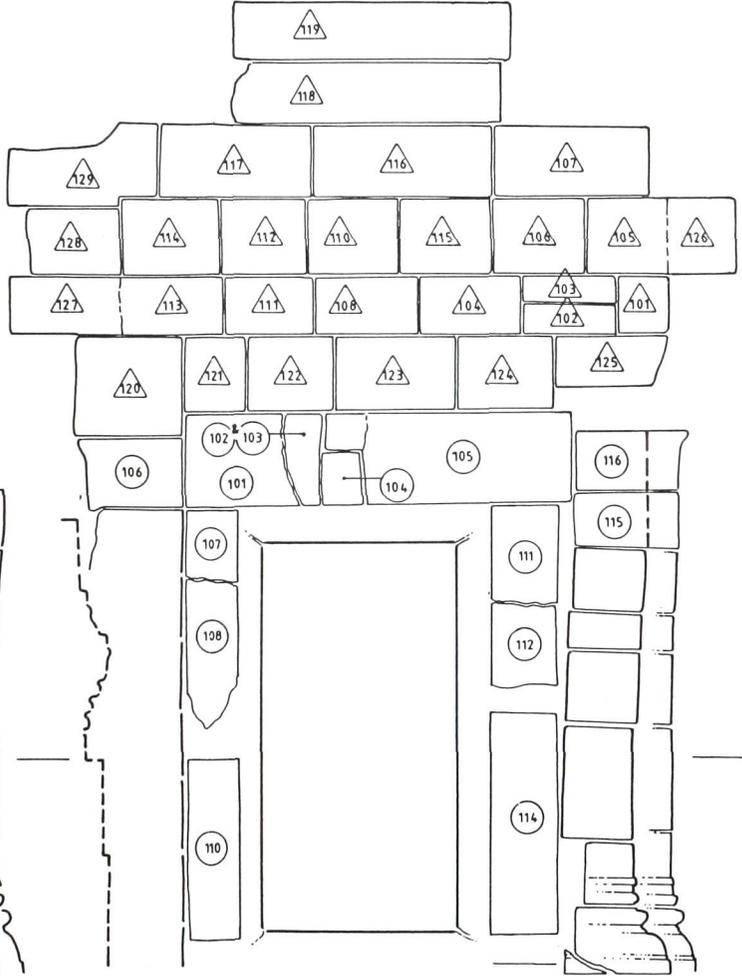
(a)



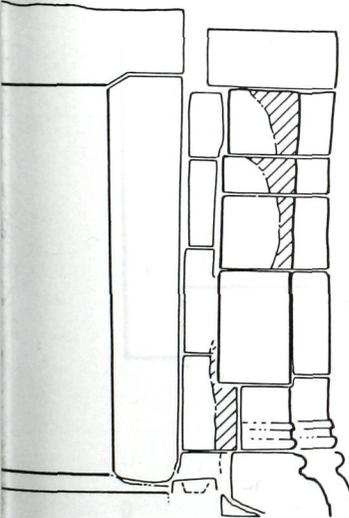
0 1 2 3 Meters

Fig. 13 Door and Fronton 1 ~ Scaled photograph (a); record drawing (b); reconstruction drawing (c); and detail drawing (d).  
(Based on drawings by Chhun Soma, Cheam Phally, and Var Morin).

(d)



(b)



(c)

Fig. 14. Yard A - Plan of  
to Door and

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Preah Khan, Angkor  
VISHNU TEMPLE COMPLEX (WEST)  
Yard A - Door & Fronton 1

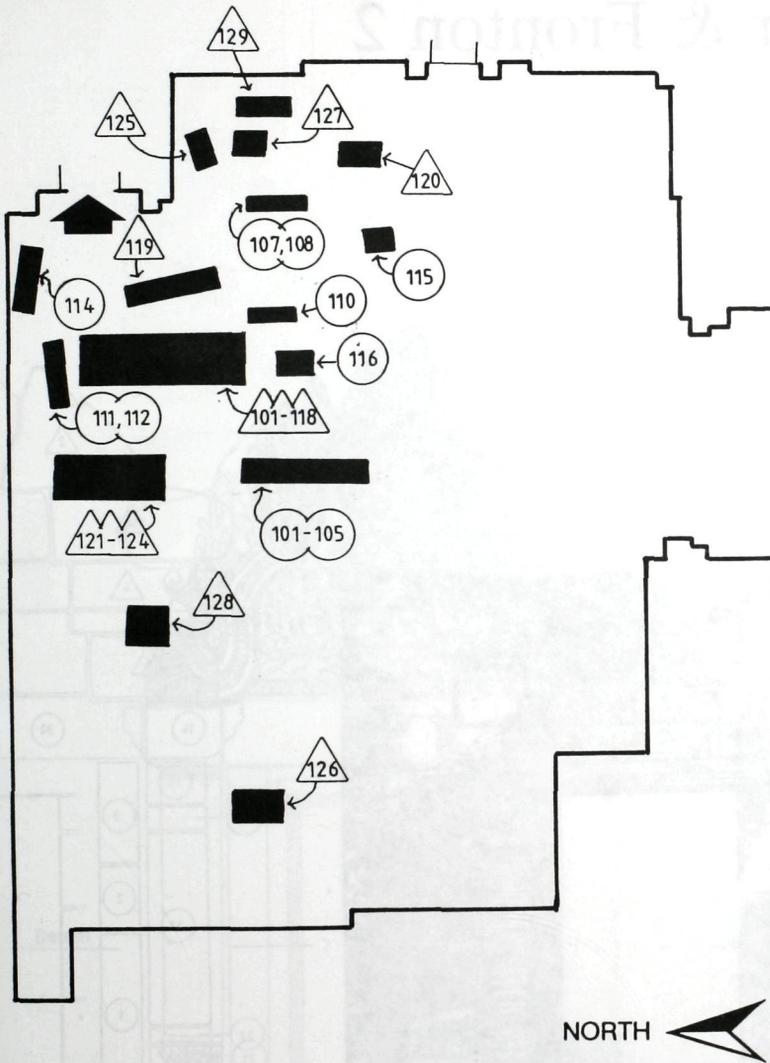
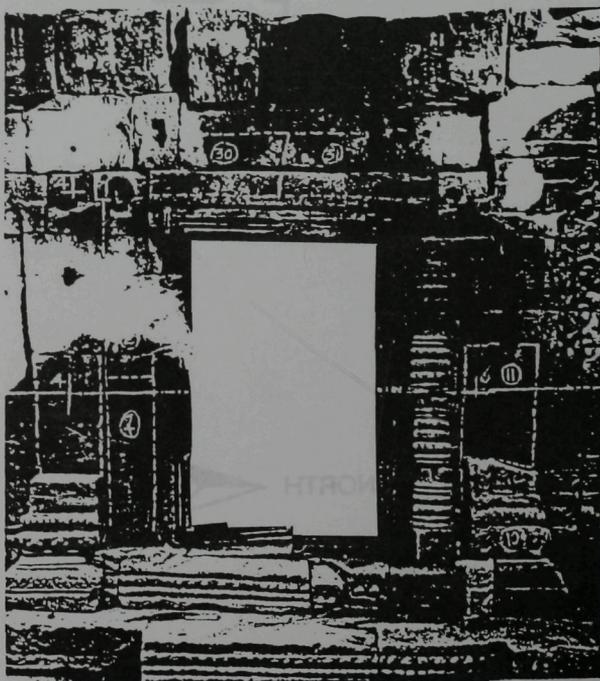


Fig. 14 Yard A ~ showing the stored locations of stones belonging to Door and Fronton 1.

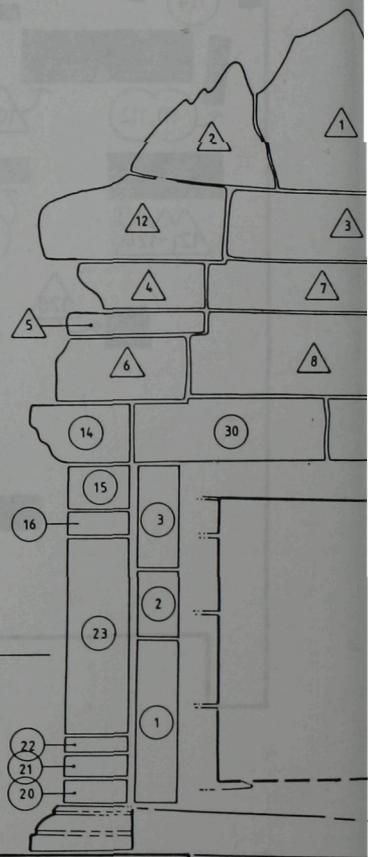
# Preah Khan, Angkor

## VISHNU TEMPLE COMPLEX (WEST)

### Door & Fronton 2



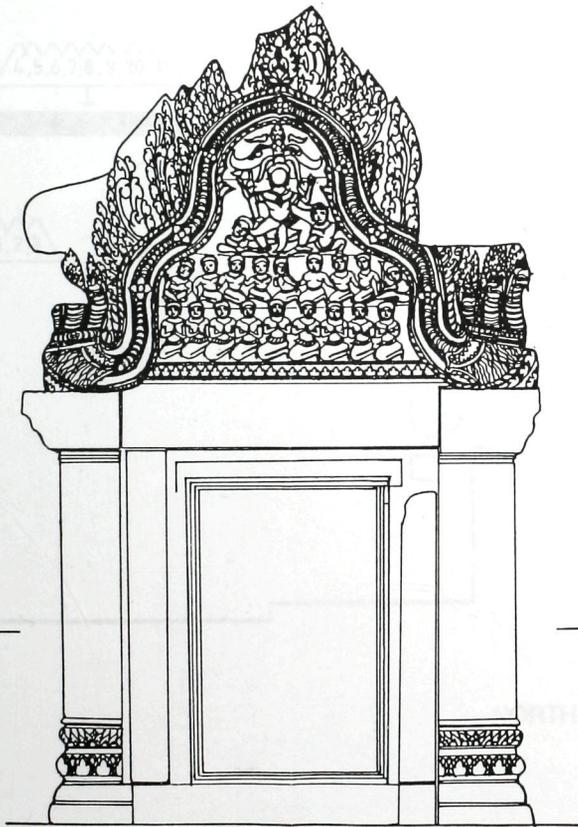
(a)



(b)

0 1 2 3 Meters

Fig. 15 Door & Fronton 2 ~ scaled photograph (a); reconstruction drawing (b); and detailed drawing (c). (For the record drawing see Fig. 4).  
(Based on drawings by Chhun Soma, Cheam Phally, and Var Morin).

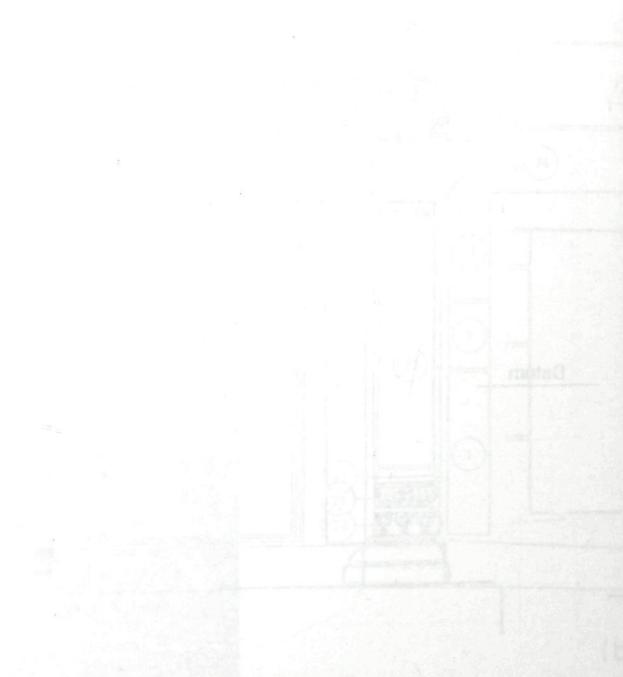


Datum

(c)

Fig. 16 Yard - showing the actual location of stones belonging to Deva and Prastava 2.

Preah Khan, Angkor  
VISHNU TEMPLE COMPLEX (WEST)  
Yard A - Door & Fronton 2



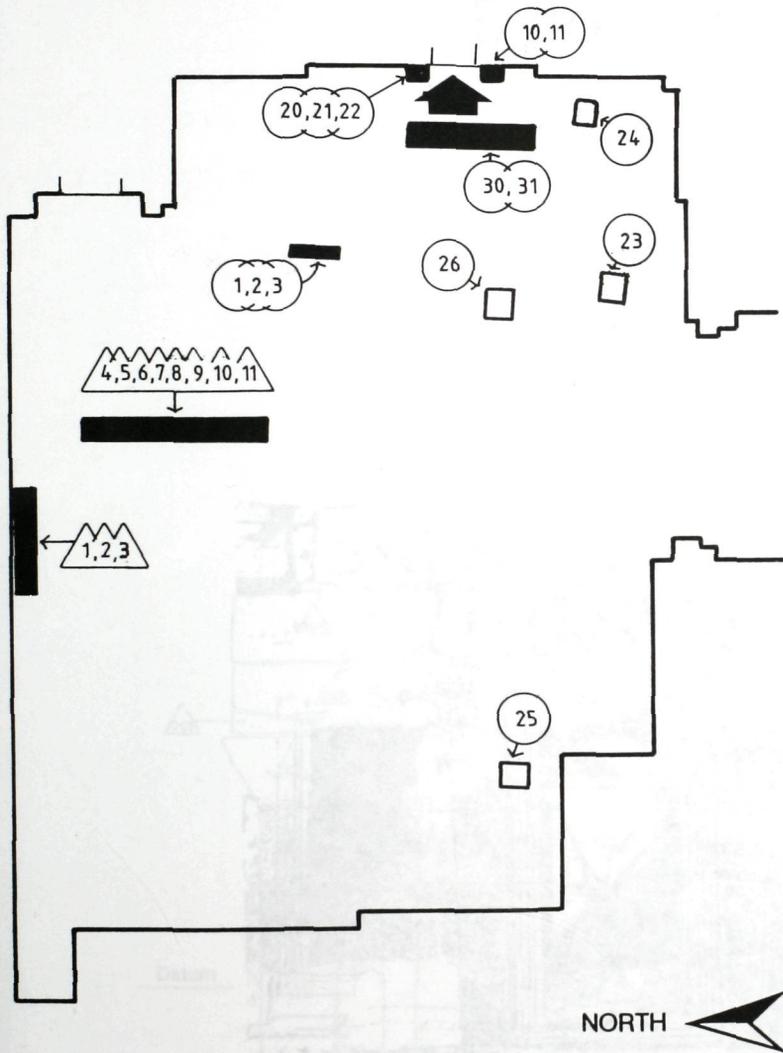
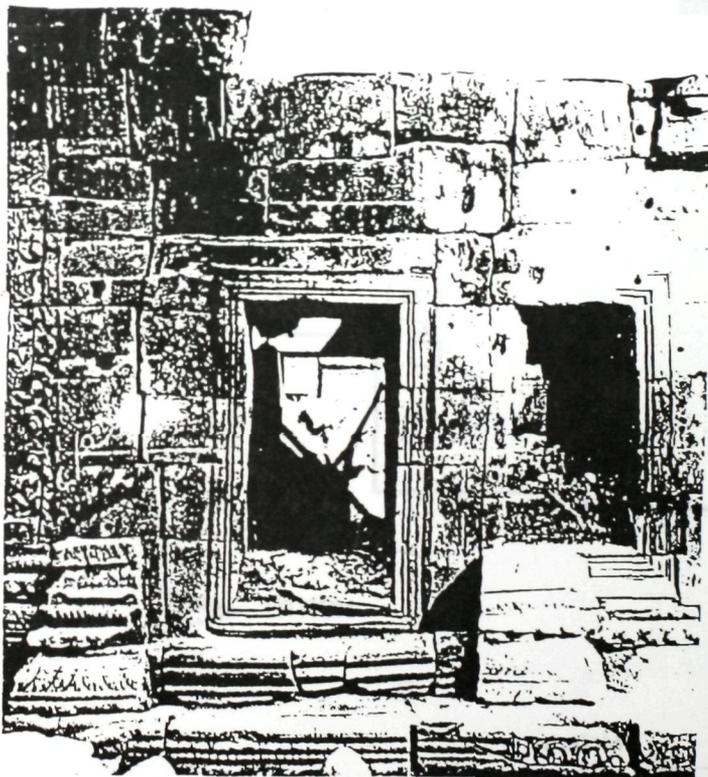


Fig. 16 Yard A ~ showing the stored locations of stones belonging to Door and Fronton 2.

Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX (WEST)

## Door & Fronton 3



(a)

0 1 2 3 Meters

Fig. 17 Door and Fronton 3 ~ scaled photograph (a); and reconstruction drawing (b). (For the record drawing see Fig. 5).  
(Based on drawings by Chhun Soma, Cheam Phally, and Var Morin.)

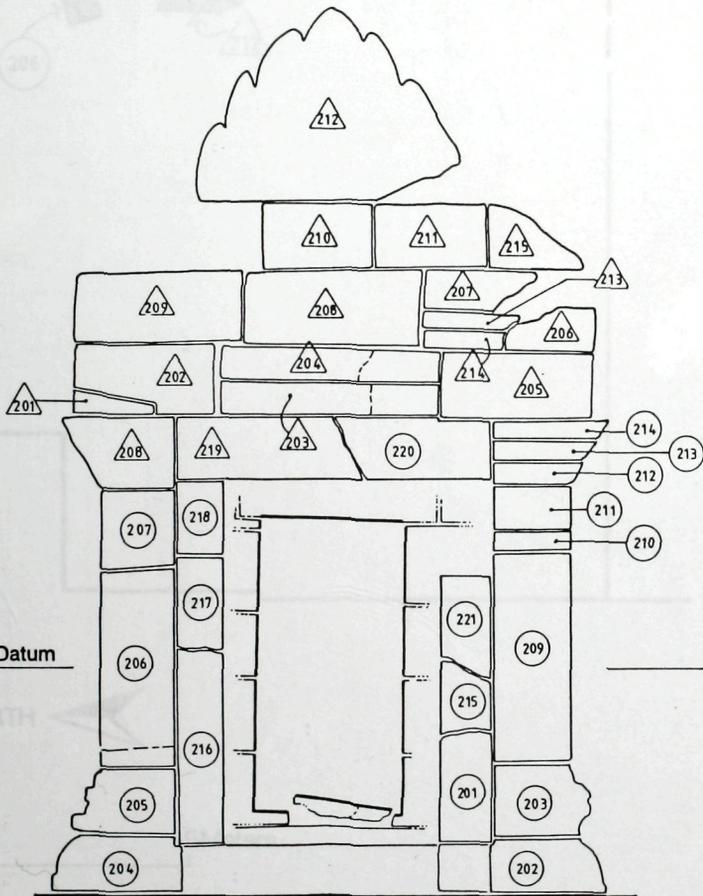


Fig. 18 Yard B - showing the Shivalinga Shrine and the Shrine to Door and Pylon 3.

(b)

Preah Khan, Angkor  
VISHNU TEMPLE COMPLEX (WEST)  
Yard B - Door & Fronton 3



(d)

...photograph (a) and technical drawing (b). (For the record drawing see Fig. ...  
...Soma, Chiem Phally, and Van Merin.

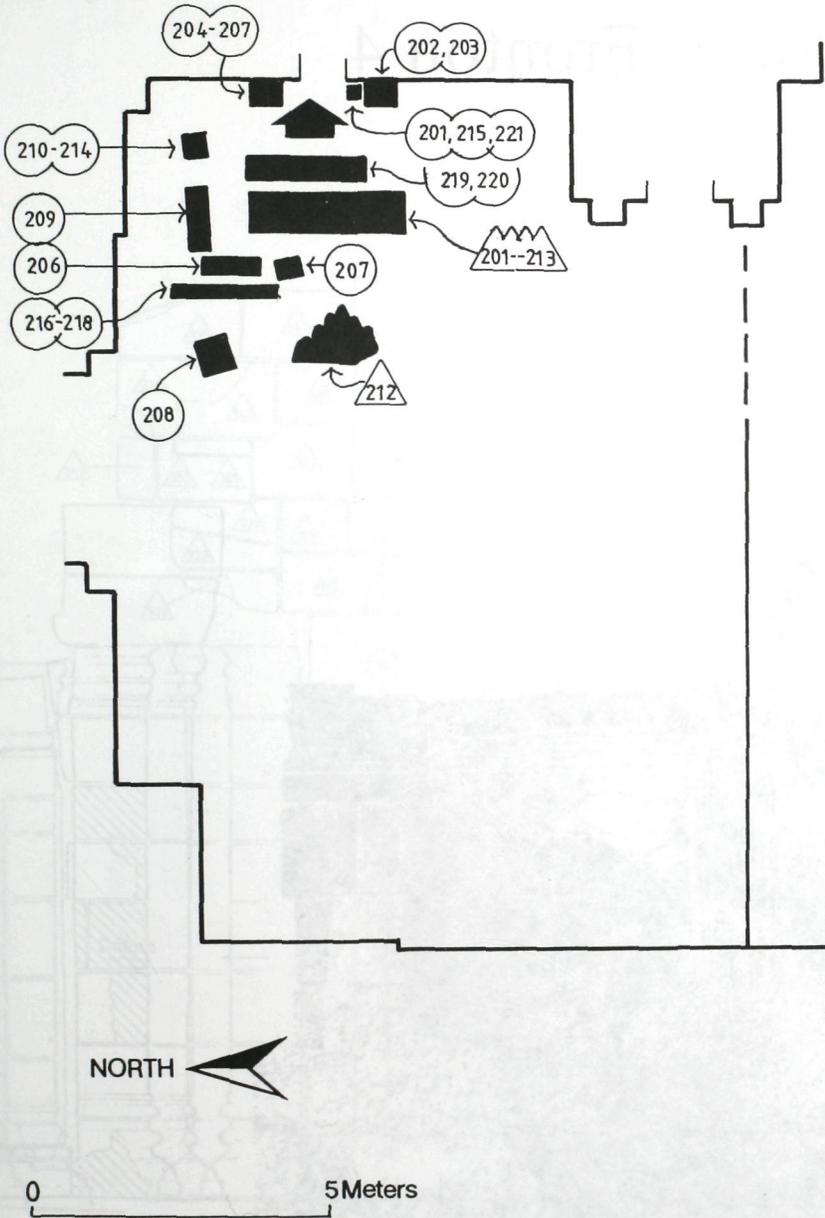
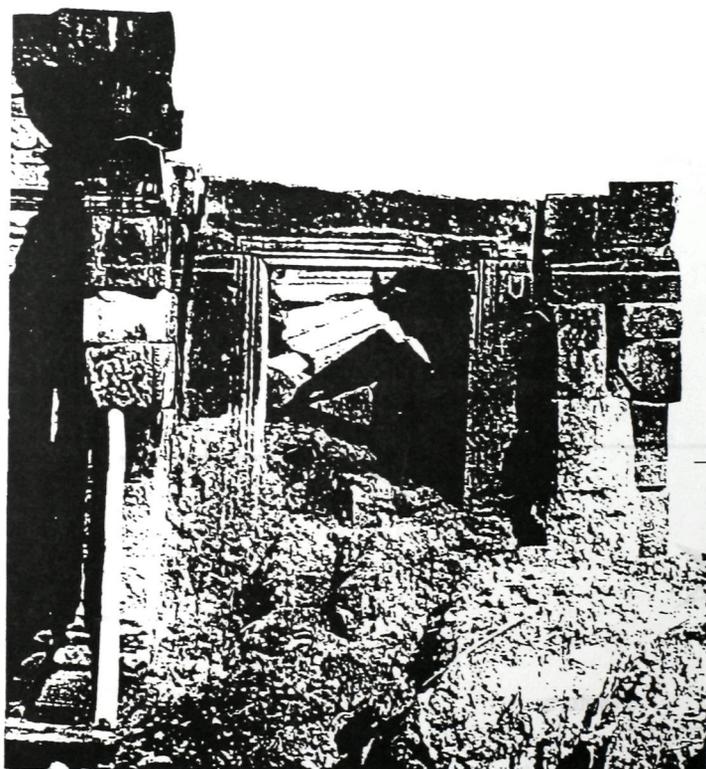


Fig. 18 Yard B ~ showing the stored locations of stones belonging to Door and Fronton 3.

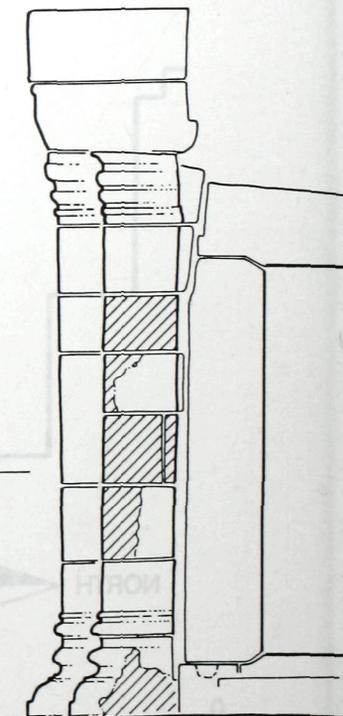
Preah Khan, Angkor

# VISHNU TEMPLE COMPLEX (WEST)

## Door & Fronton 4



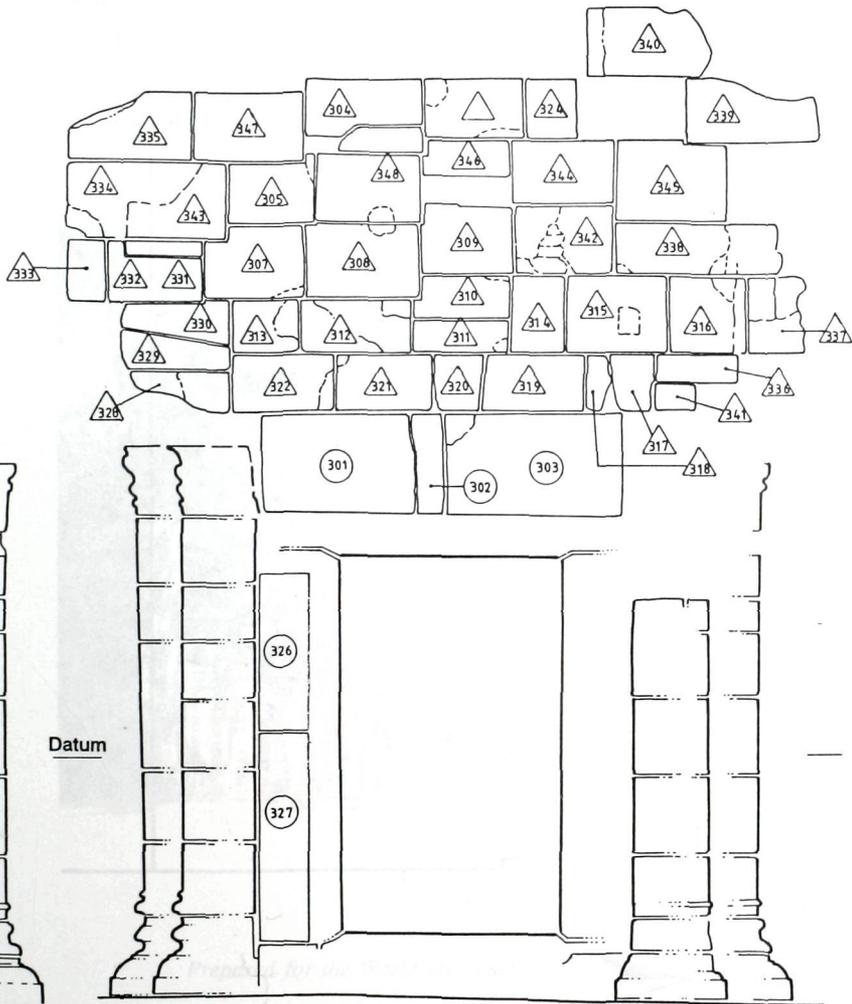
(a)



(b)

0 1 2 3 Meters

Fig. 19 Door and Fronton 4 ~ scaled photograph (a); record drawing (b); and reconstruction drawing (c).  
(Based on drawings by Chhun Soma, Cheam Phally, and Var Morin).



(c)

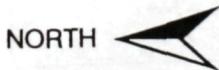
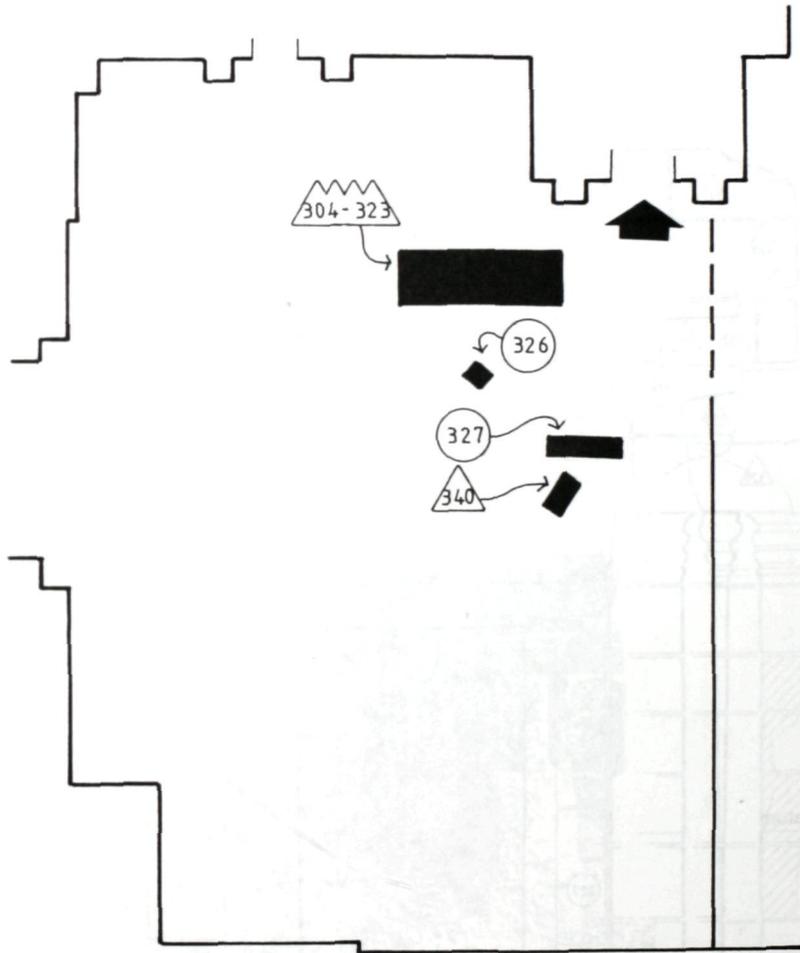
JULY 1973

EMOIS

The Congregation of the Holy Spirit  
St. John's and St. Peter's  
St. John's and St. Peter's  
St. John's and St. Peter's

THE CONGREGATION OF THE HOLY SPIRIT

Preah Khan, Angkor  
VISHNU TEMPLE COMPLEX (WEST)  
Yard B - Door & Fronton 4



0 5 Meters

Fig. 20 Yard B ~ showing the stored locations of stones belonging to Door and Fronton 4.

# THE CONSERVATION PRACTICE

KNOCKHUNDRED HOUSE KNOCKHUNDRED ROW MIDHURST WEST SUSSEX GU29 9DQ  
TELEPHONE 0730 816850 FACSIMILE 0730 816816

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## Preah Khan, Angkor THE DHARMASALA

A Survey Report



*Prepared for the World Monuments Fund*

JULY 1993

Preah Khan, Angkor  
THE DHARMASALA

A Survey Report

*Prepared for the World Monuments Fund  
JULY 1993*

by Fred Aldsworth BA FSA MIFA<sup>1</sup>  
The Conservation Practice International

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<sup>1</sup>The author is grateful to Messrs. Lek Sereth and Var Morin, of the Department of Architecture, University of Beaux Arts, Phnom Penh, for their assistance in the production of this report.

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## FOREWORD

This report was prepared as part of the World Monuments Fund Field Campaign I for the Buddhist Monastic Complex of Preah Khan (November 1992 to April 1993) at Angkor, Cambodia.

It represents one of three surveyed areas of Preah Khan which was documented and analyzed as a basis for conservation action in future phases of work. This report is to read in conjunction with *Report IV: Preah Khan Project Mobilization*, in which the enclosed information and conclusions are summarized.

The conservation recommendations portion of this report will be treated in a separate document at the time when the structure is repaired and conserved.

## INTRODUCTION

The structure depicted in this report is located on the eastern side of Preah Khan along the principal entrance route between the outer enclosure wall and the eastern gopura about midway between the two gopura. (Fig 1).

It was identified by *J. Boisselier (1966)* as the *dharmasala*, or rest house for pilgrims visiting the temple complex, but 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. Since there is some doubt as to its original function, Boisselier's published identification is used throughout this report.

The trees and undergrowth around the structure were removed at the beginning of World Monuments Fund's Field Campaign I (November 1992 to April 1993) and the structure was surveyed and photographed in March 1993 (Plates 1 - 5, Record photographs S1 - S6, N1 - N5, E1 - E3 & W1 - W3, and Figs. 2 & 3).

In view of the unstable structural condition of the building, it was decided that a set of accurate measurements would be essential to establish the deformation of the structure over the centuries. Therefore, using a theodolite, a survey framework was laid out around and within the structure. A plan and three sections have been prepared at 1:50 (Figs 2 & 3) and controlled 35mm photography has been used to provide record photographs from which scaled enlargements at 1:20 have been produced to provide the basis for specifying repairs and, if necessary, to number stones for dismantling and re-erection.

## DESCRIPTION

In the 1950's the Dharmasala was located and identified by members of the Ecole Francaise d'Extreme Orient. However, subsequently the structure was lost to the impenetrable jungle. It was only in December 1992 that the WMF workforce rediscovered the structure and the dense vegetation was cleared from around it.

The pavilion-like Dharmasala, built in a similar fashion to all other stone structures in Preah Khan, is located on the northern side of the formal access between the outer enclosure wall and the grandiose principal east gopura leading into the temple complex. It is surmised that it formed part of the royal complex consisting of the king's palace in the north eastern part of the Preah Khan compound (Fig 1). Like the other temple structures, the Dharmasala is built of large blocks of stone that are laid dry. It has a simple corbelled and vaulted roof with a tower projecting above the roof level at the western end.

The structure, although in a seriously unstable condition, is almost complete, and undamaged apart from a small number of fallen or broken stones (Plates 1 - 5 & record photographs). It is rectangular in plan, measures a little over 14 meters in length and 6 meters in width on an east-west orientation, and comprises three definable sections - a central rectangular space measuring 7.0 meters by 4.5 meters internally, a smaller space at the east end measuring 2.3 meters by 3.5 meters internally, and a space at the west end under the tower measuring 2.7 meters by 5.3 meters internally. The roof rises to a height of 6.2 meters externally at the east end, and 6.6 meters in the center, whilst the tower is about 11.0 meters high.

There are doorways in the east and west walls, five windows at ground level in the south wall, and a series of stone settings for effigies in the west end under the tower. Mirroring the southfacing windows are a similar set of false windows in the north wall at ground level which are only visible on the external elevation. At a higher, clerestory, level in the south wall are two further sets of three openings, thought to be the vents to allow the smoke from the sacred flame to escape. There appears to be an original opening for ventilation in the capstone of the tower.

The walls are constructed on a low plinth or platform of laterite with minimal foundations. It is probable that the laterite was quarried from the pit to the north of the structure. The walls are constructed in stone and laid dry, judging by the construction, and there is no evidence to suggest that the building was constructed in phases.

There are several decorated stones lying on the ground around the building which clearly derive from it. Just outside the south jamb of the east door there is a socket cut in the plinth, possibly to carry a standing stone.

## STRUCTURAL ASSESSMENT

A lack of proper foundations and inadequacies in the original structural bonding of the stonework have led to lateral movement in the side walls and roof and dislocation of substantial sections of wall at the east and west ends.

As with most of the Preah Khan roofs the corbelling method of construction provides little or no lateral constraint, but here the problem is exacerbated by the addition of a clerestory in an uninterrupted section of roof which measures 7 meters in length. In the middle of the central space in the building, the ridge piece and upper two courses have remained in their original position but the corbel stones beneath them on the south slope of the roof have slid northwards and dropped. The roof sections have moved a total of 50 cms (Fig 3 Section BB). As a result of the defective foundations along the north wall, it is tilting about 20 cms inwards.

The same effects can be seen in the roof at the eastern end where the movement is again seen to be greater on the north side than on the south (Fig 3 Section CC). The substantial weight of the walls and roof on what appear to be an inadequate foundations are undoubtedly contributory causes to the problems.

In general, the absence of adequate bonding in the coursed stonework, has resulted in considerable displacement of the stonework along the walls. In particular, the whole of the east wall has separated from the main structure, perhaps by as much as 25 cms at ridge level (Record photograph S1 & N1). At the west end the same problem is evident to the south of the west door (Record photograph W2).

## CONCLUSIONS

It is remarkable that this structure is still standing and 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 almost certainly not the case with the end walls where the structural stability of the masonry should be regarded as critical. Whereas scientific structural analysis is being undertaken to establish the the present condition of the structure, it is likely that inadequate foundations and a lack of bonding between stones are major contributory factors to the failures in this structure.



Fig. 1. The structure from the South West

## RECOMMENDATIONS

The condition and nature of the foundations of the building should, perhaps, be ascertained by means of a trial excavation through the line of the north wall, and action taken accordingly to counteract any further lateral movement in the building.

The east wall needs to be tied back into the main body of the building. One possible course of action might be dismantling and re-erection if an alternative cannot be found.

Action needs to be undertaken at the west end to arrest further movement.

Decorated stones lying around the building need to be collected together, identified and stored for potential replacement.

Preah Khan, Angkor  
THE DHARMASALA

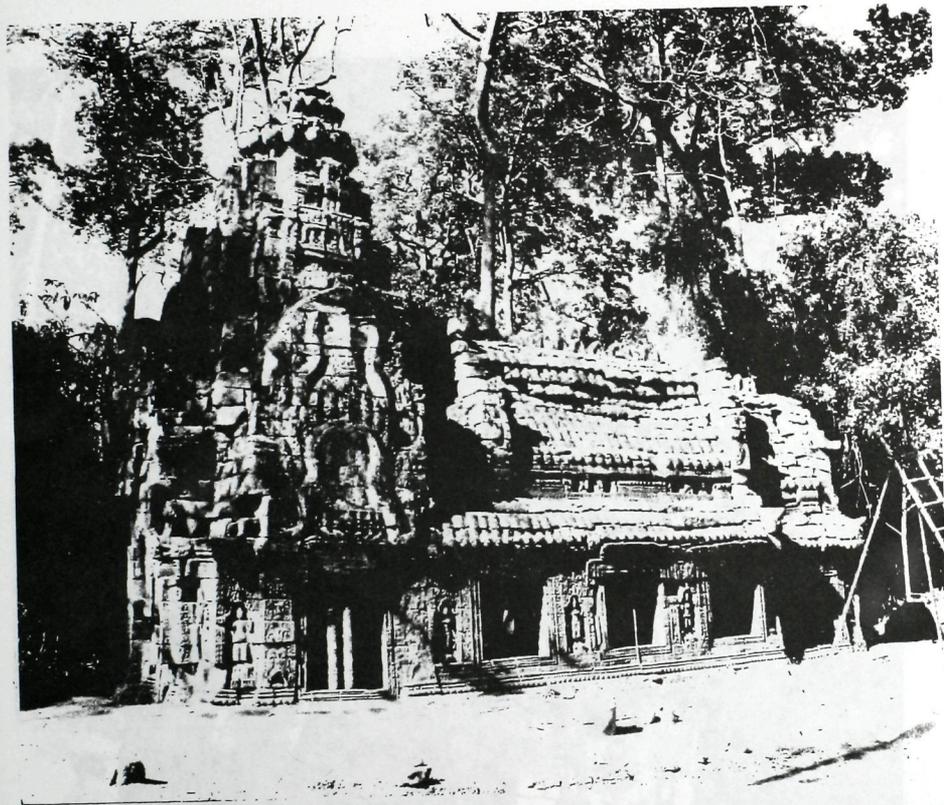


Plate 1 The Dharmasala from the South-West.

Preah Khan, Angkor  
THE DHARMASALA

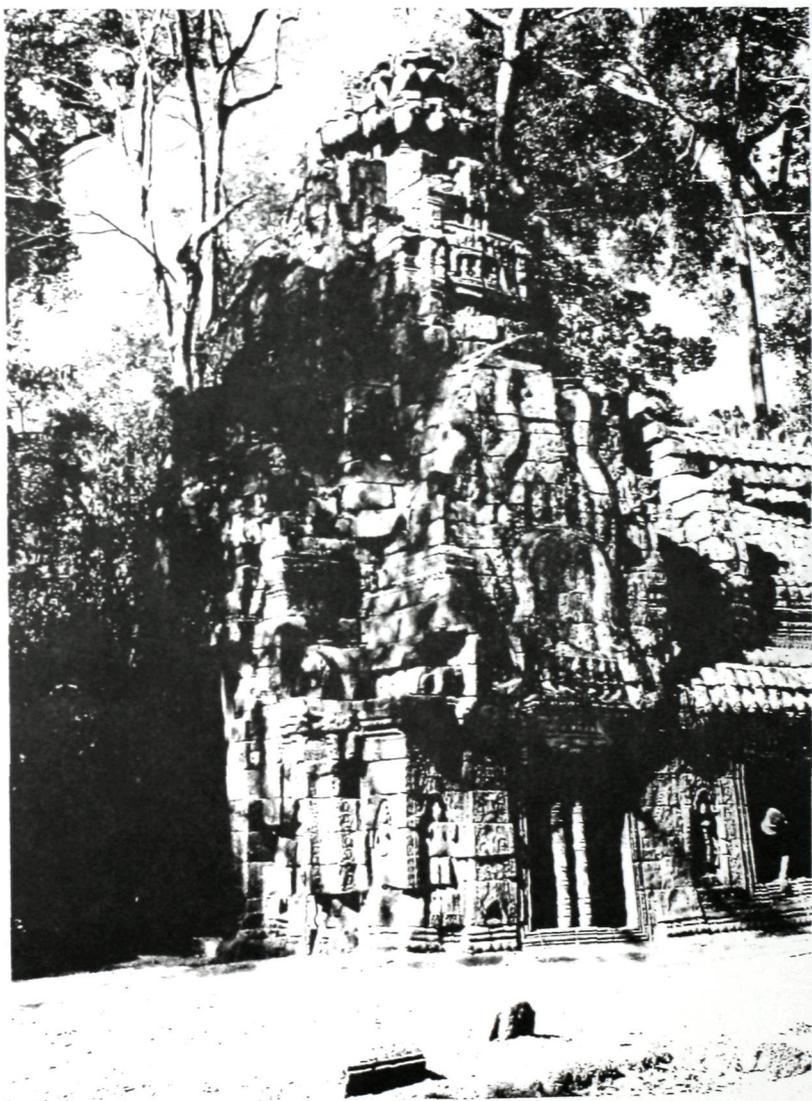


Plate 2 The Dharmasala, west end and tower.

Preah Khan, Angkor  
THE DHARMASALA



Plate 3 The technique for producing scaled photographs.

Preah Khan, Angkor  
THE DHARMASALA

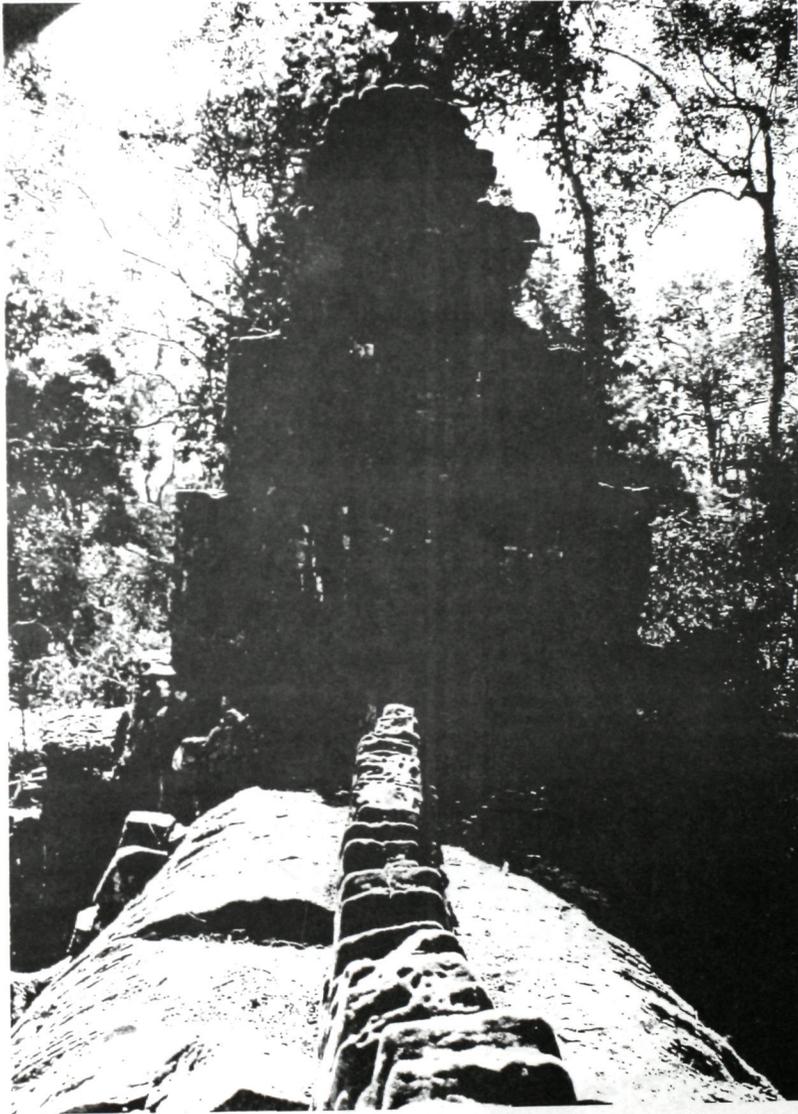


Plate 4 The roof and tower from the east.

Preah Khan, Angkor  
THE DHARMASALA

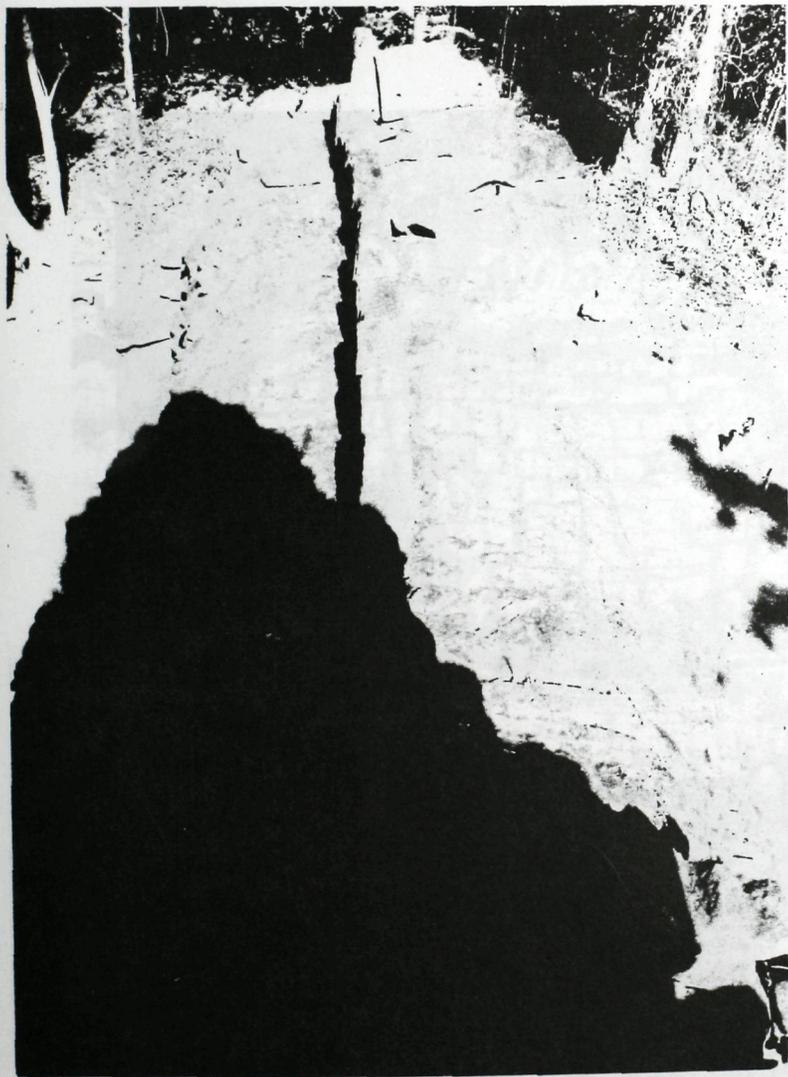


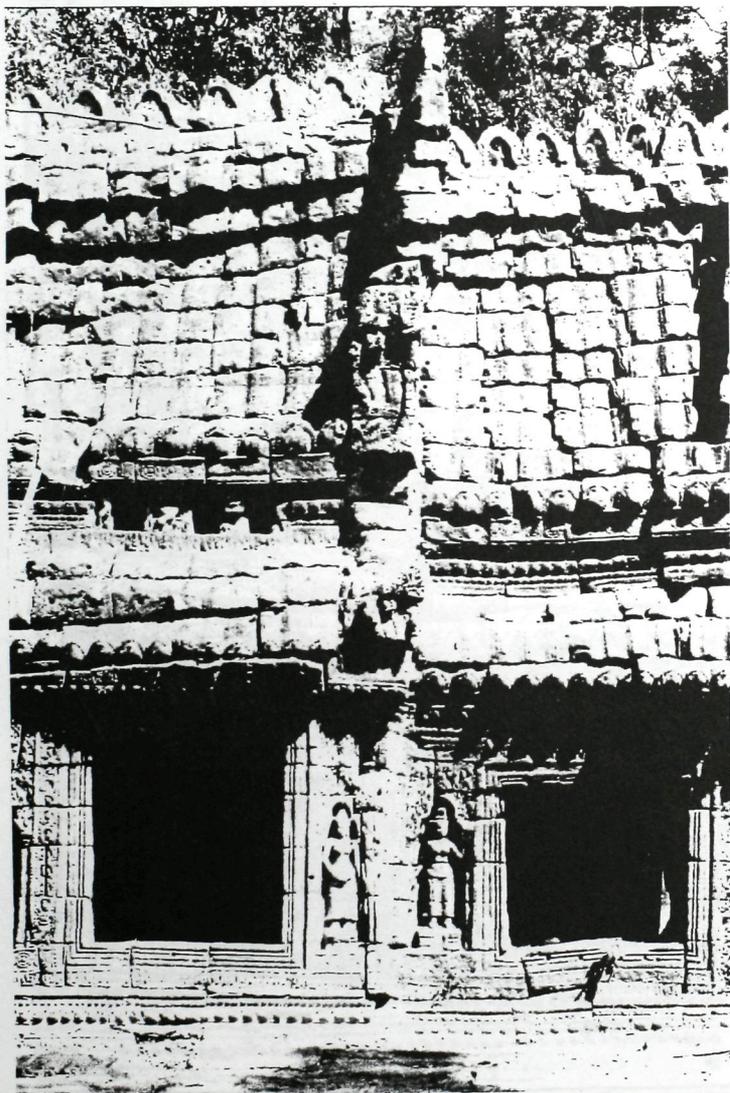
Plate 5 The roof from the west.

Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number S1

Preah Khan, Angkor  
THE DHARMASALA

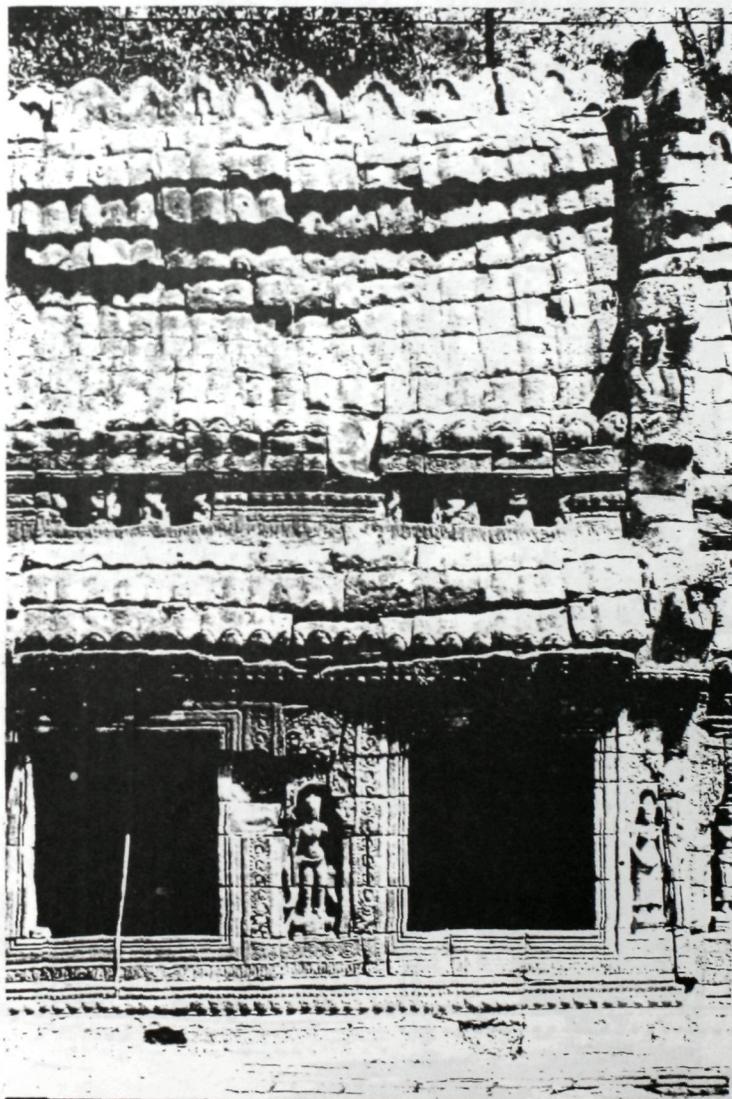


Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number S2



Preah Khan, Angkor  
THE DHARMASALA  
Photograph Number S3

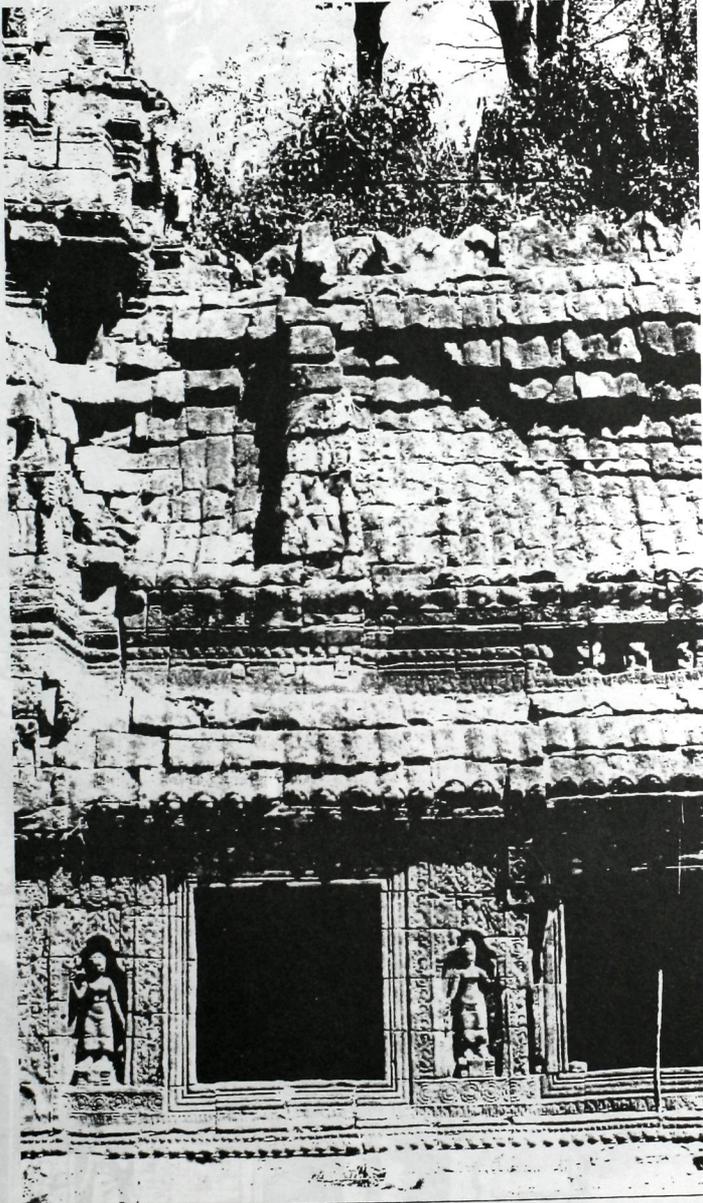
Preah Khan, Angkor  
THE DHARMASALA  
Photograph Number S3



Preah Khan, Angkor

# THE DHARMASALA

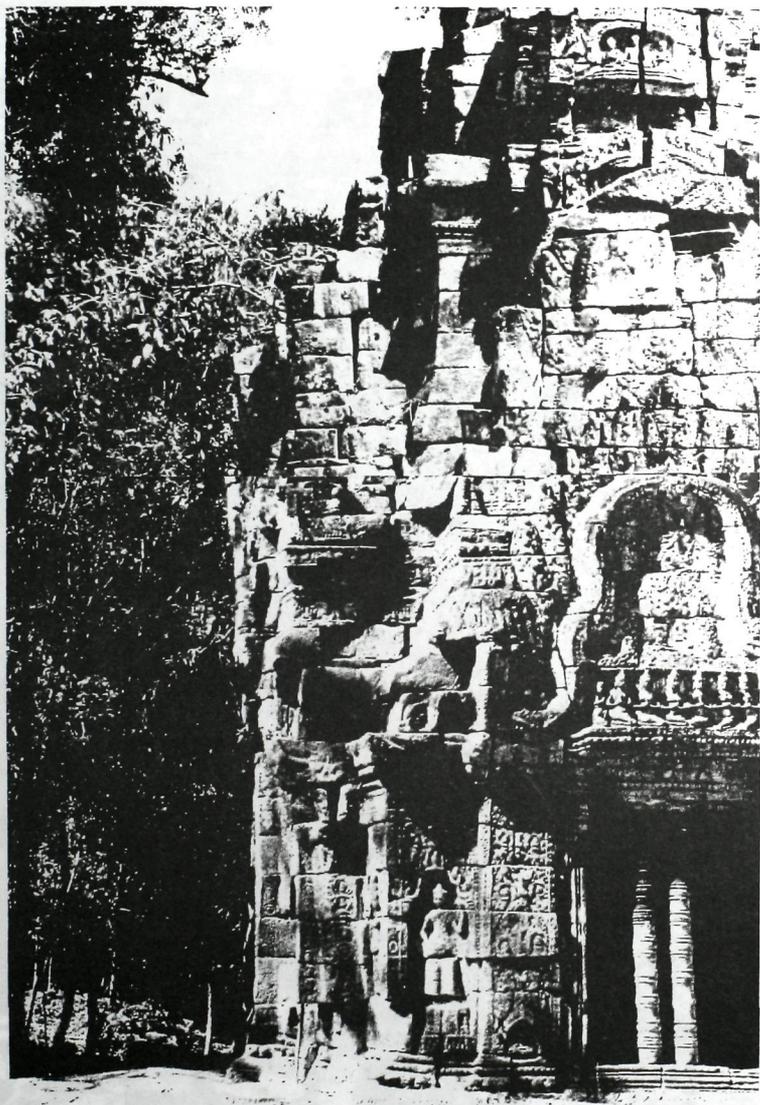
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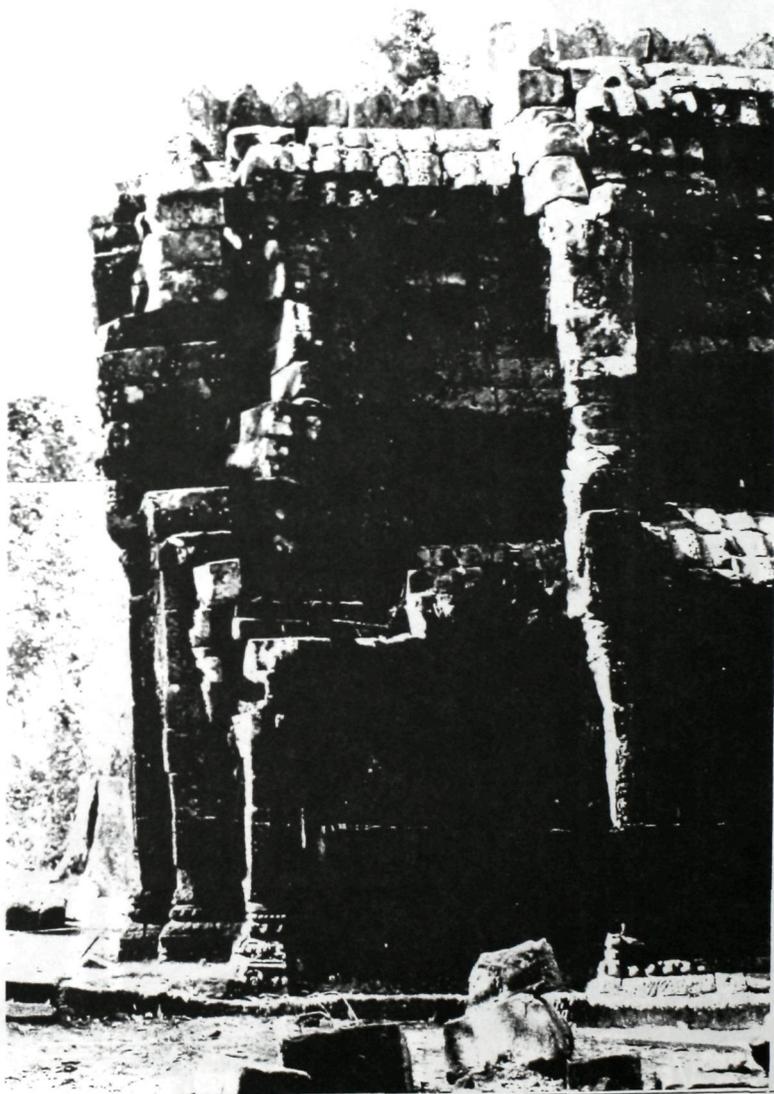
Preah Khan, Angkor  
THE DHARMASALA  
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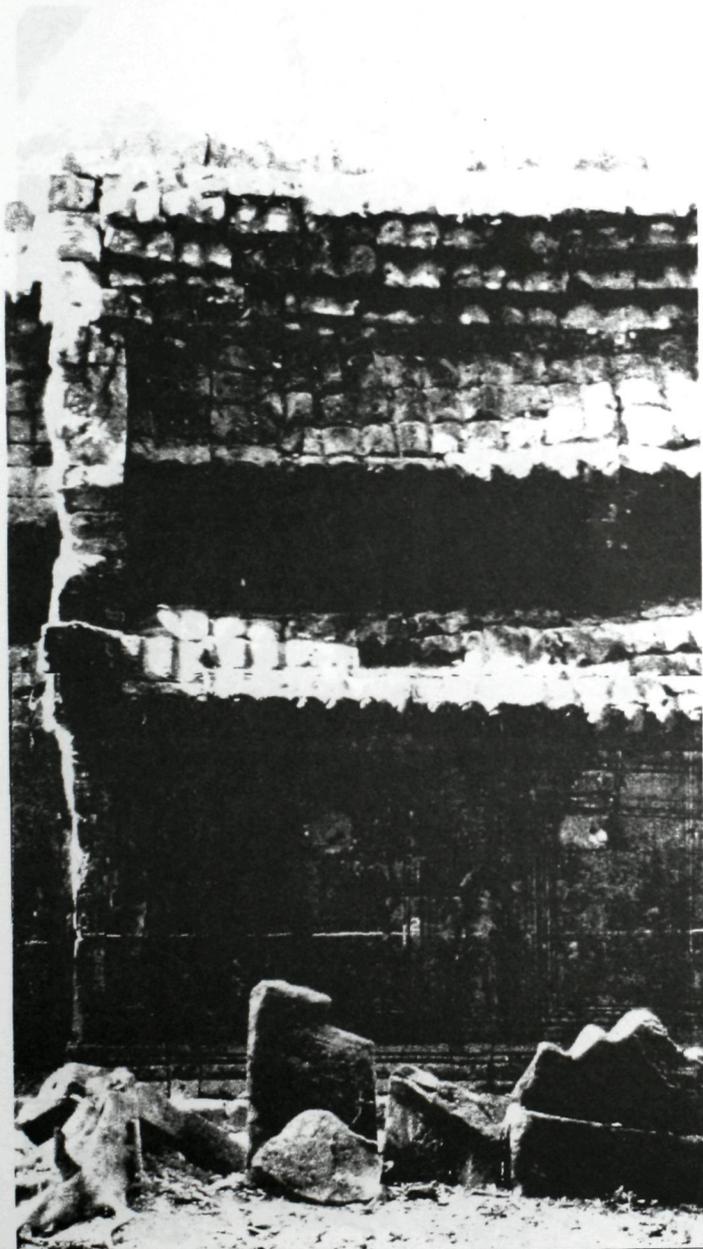
Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number S6



Preah Khan, Angkor  
THE DHARMASALA  
Photograph Number N1

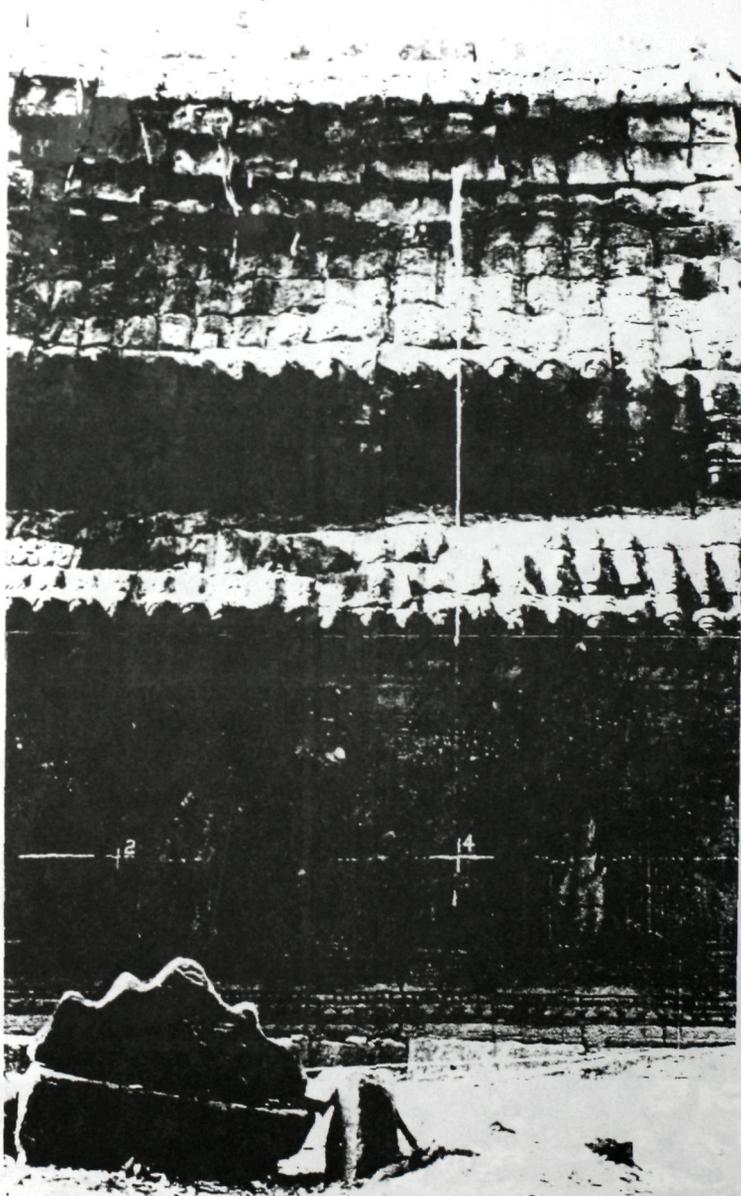


Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number N2



Preah Khan, Angkor  
THE DHARMASALA  
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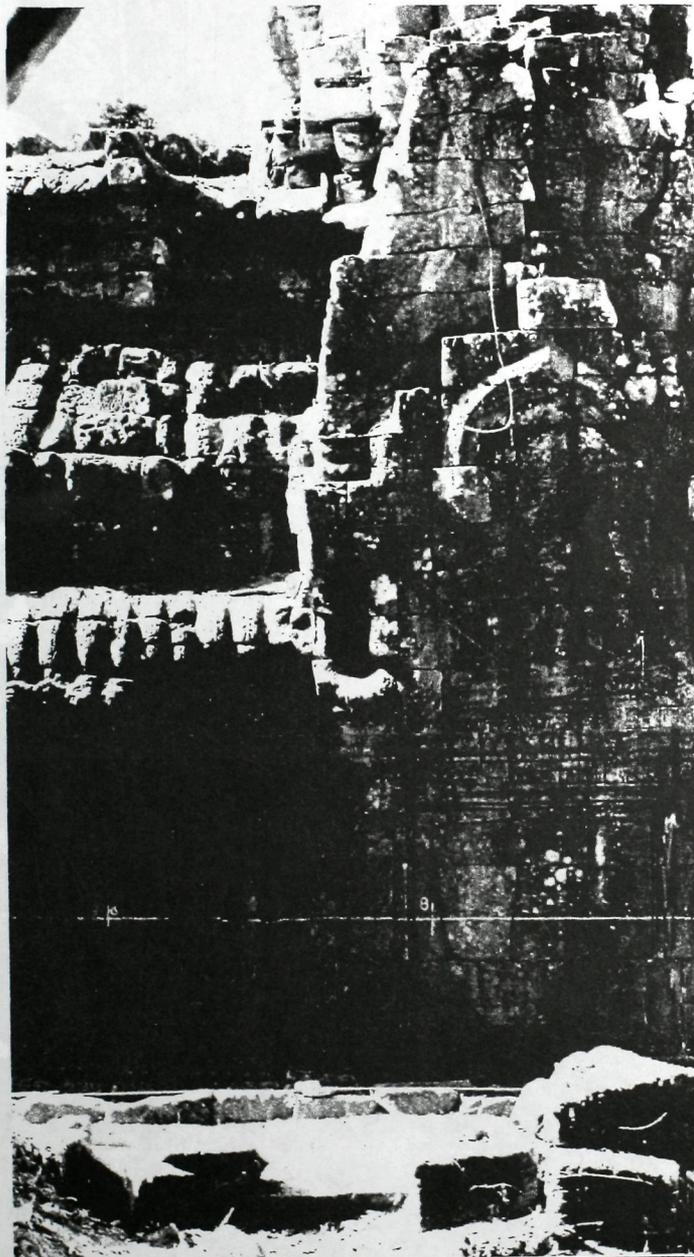
Preah Khan, Angkor  
THE DHARMASALA  
Photograph Number N3



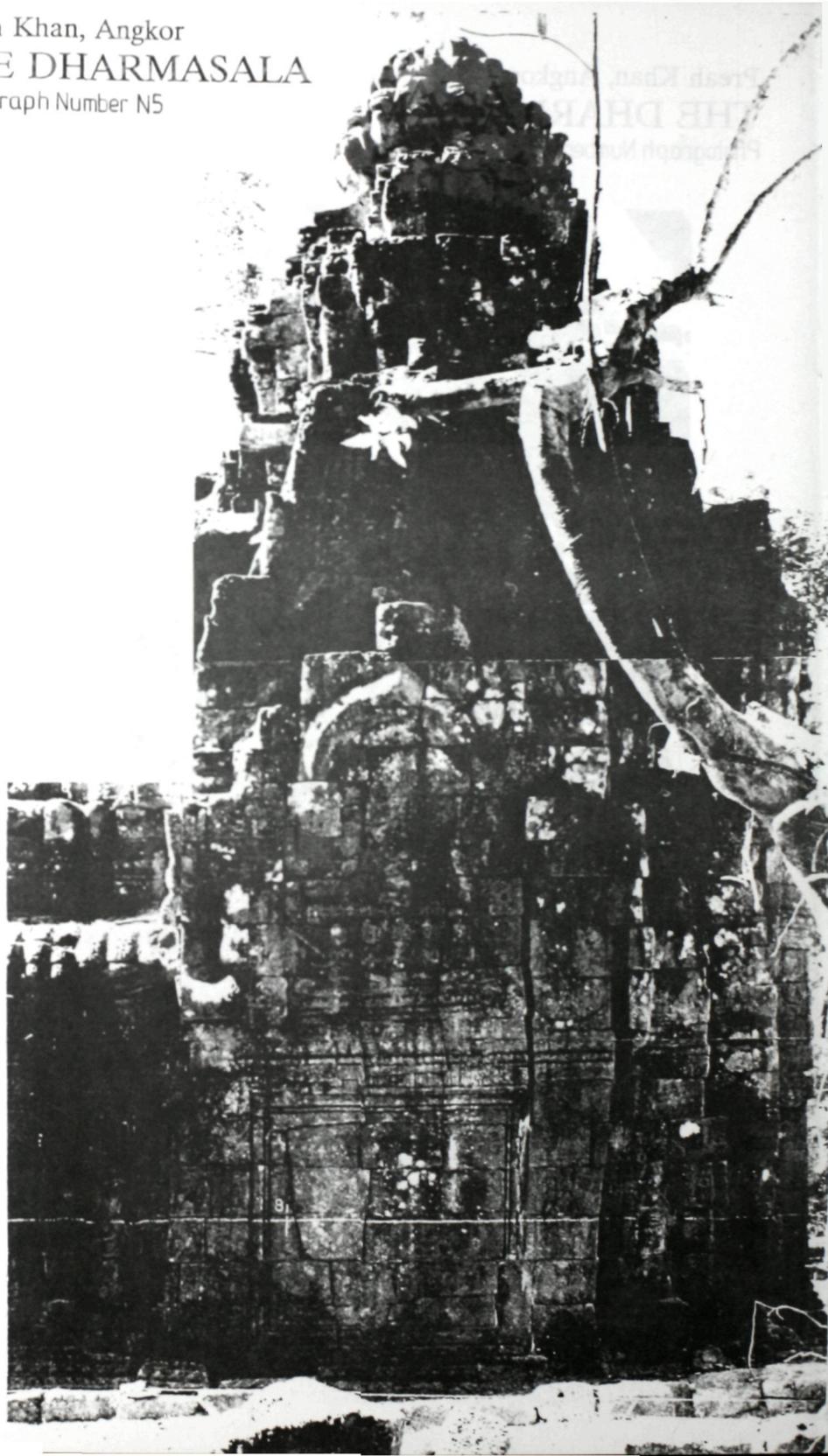
Preah Khan, Angkor

# THE DHARMASALA

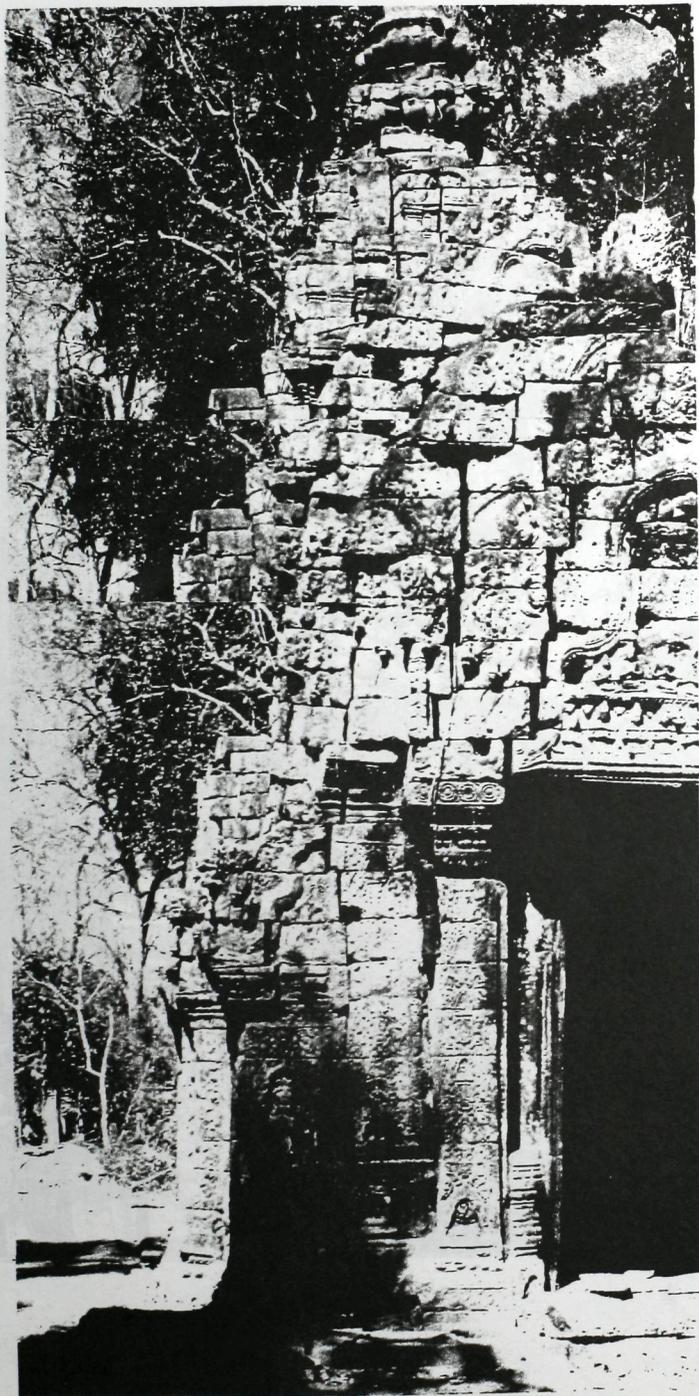
Photograph Number N4



Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number N5



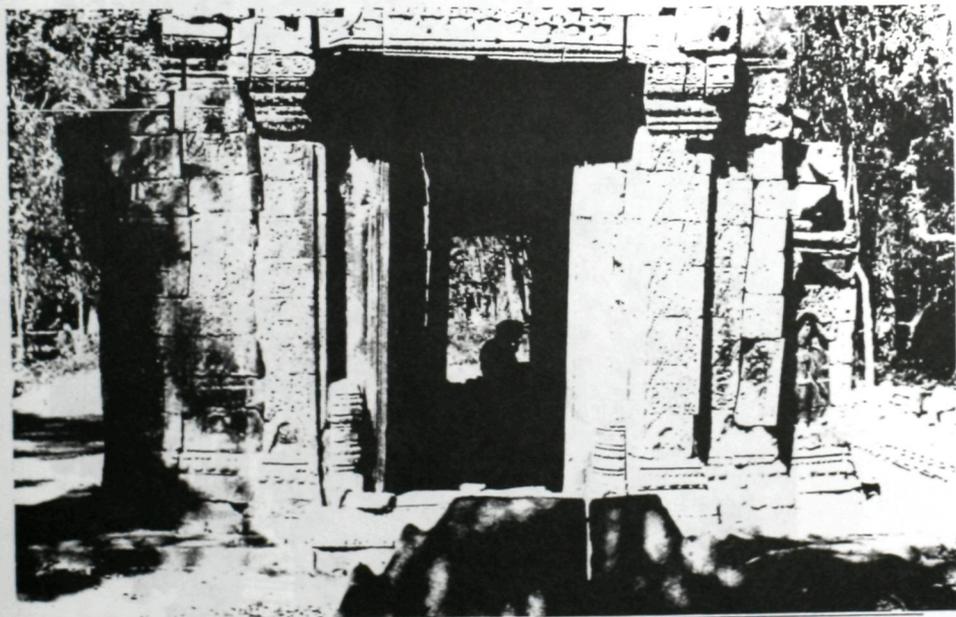
Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number E 1



Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number E 2a

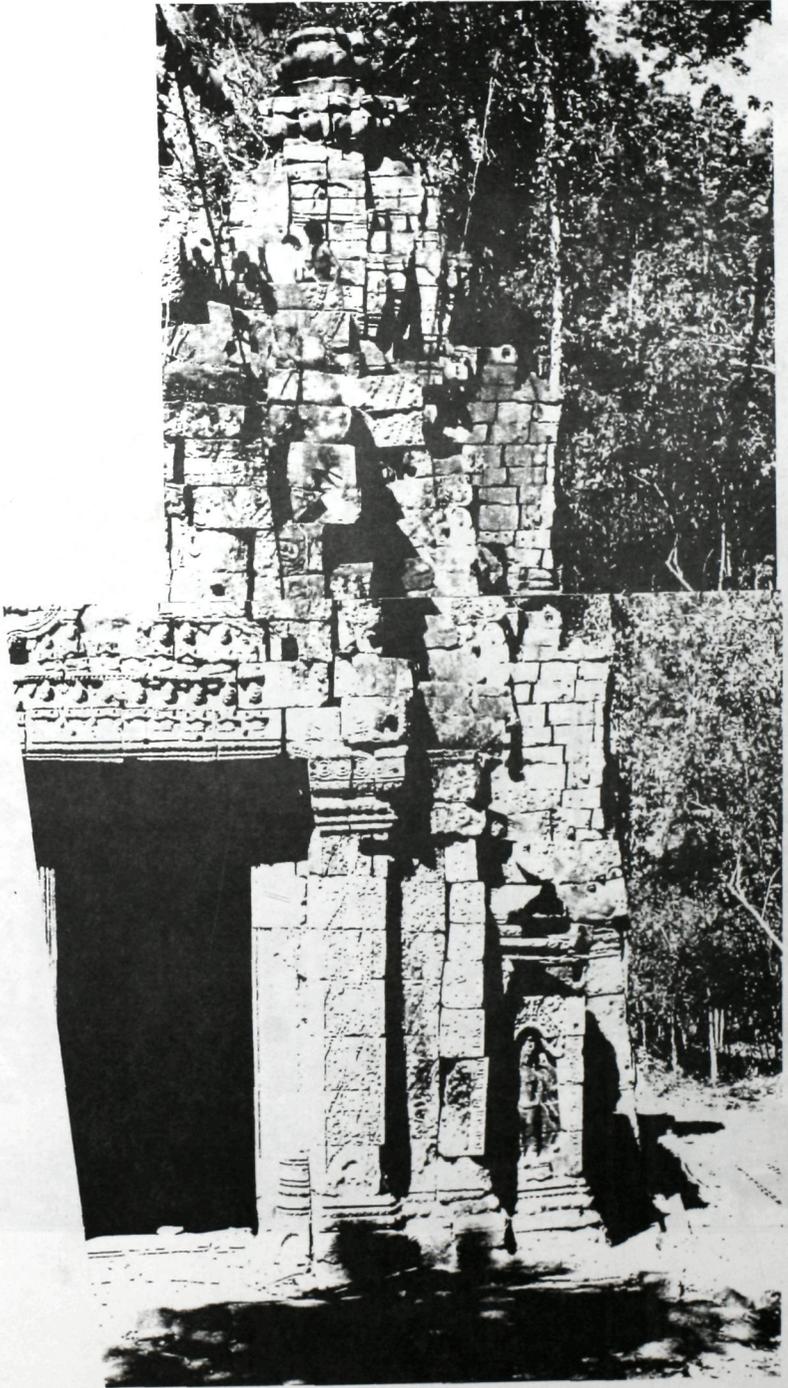


Preah Khan, Angkor  
**THE DHARMASALA**  
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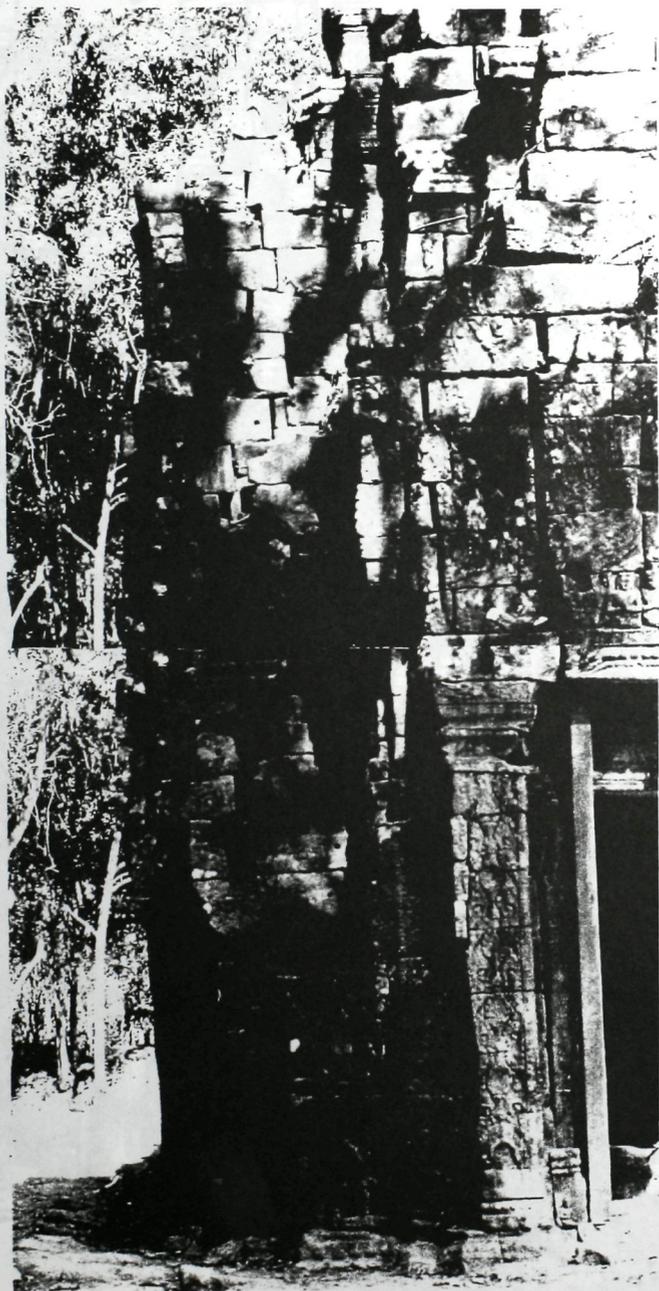


Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number E3

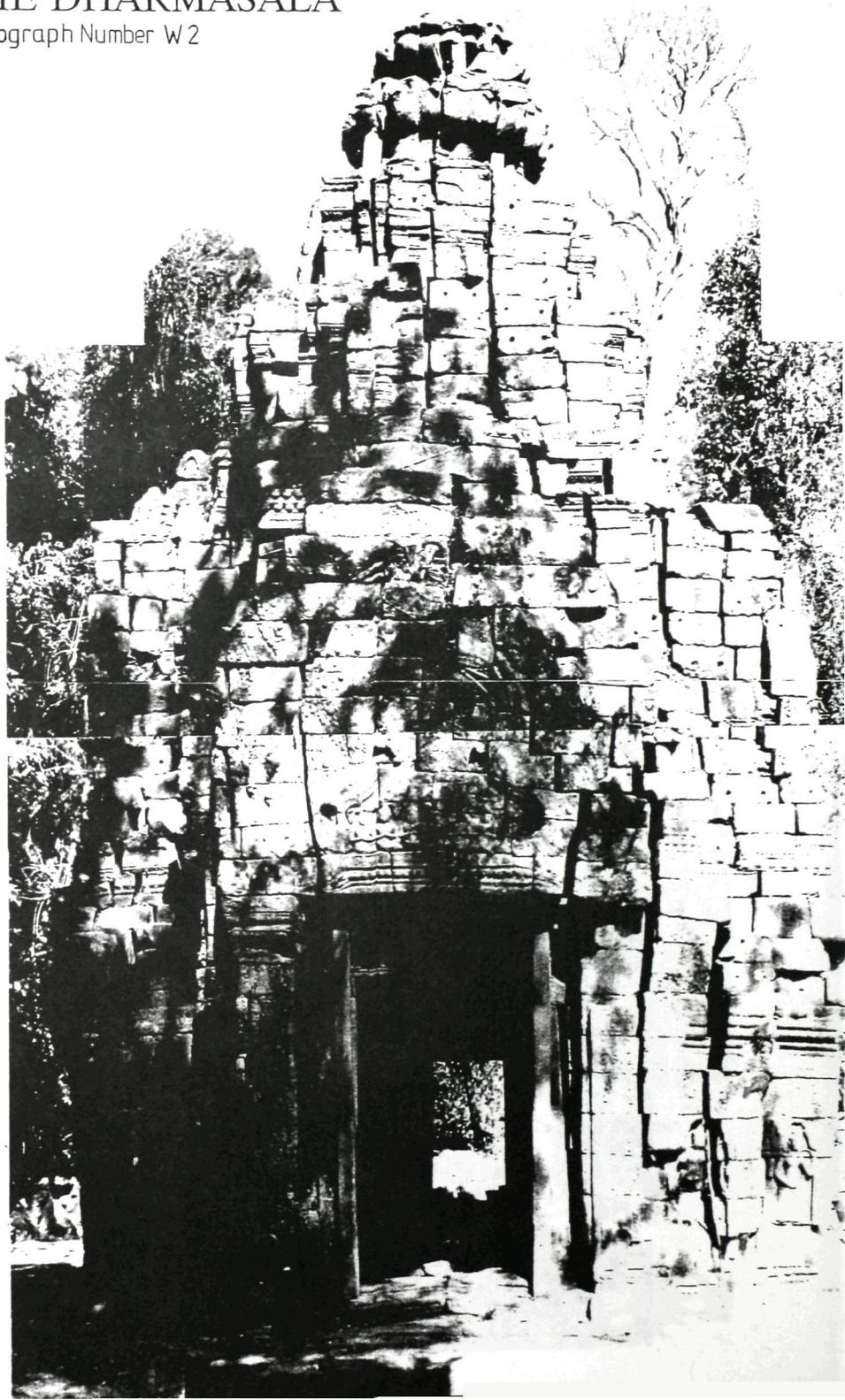
Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number E3



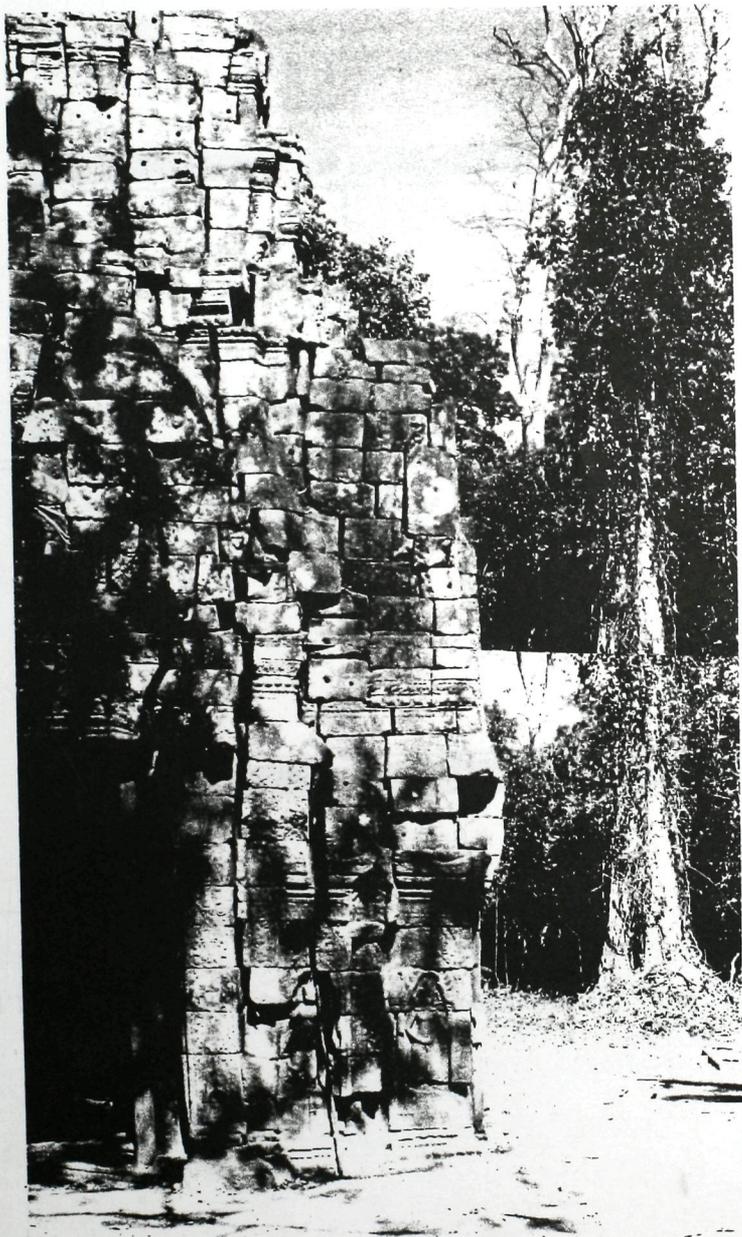
Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number W1



Preah Khan, Angkor  
THE DHARMASALA  
Photograph Number W2



Preah Khan, Angkor  
**THE DHARMASALA**  
Photograph Number W3



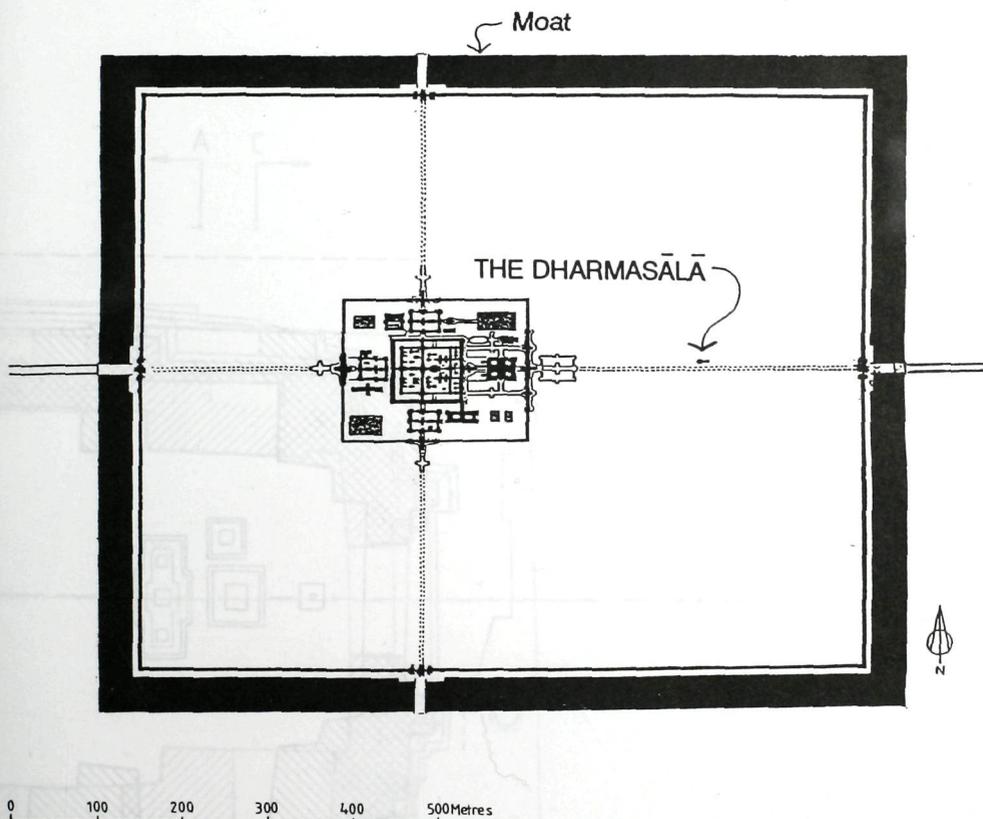
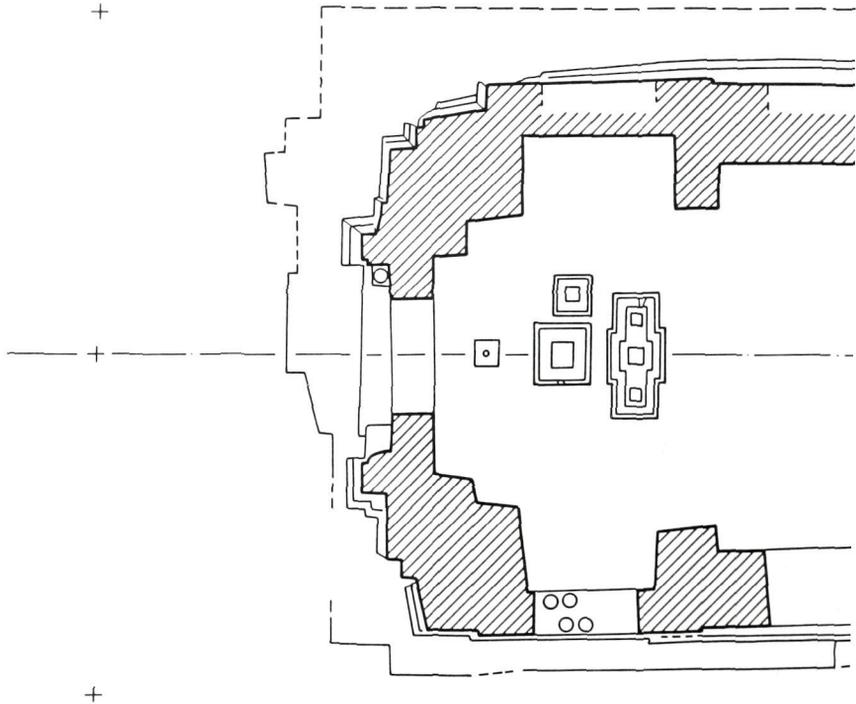


Fig.1 Plan of Preah Khan (after J Boisselier 1966).

Preah Khan, Angkor  
THE DHARMASĀLĀ  
Plan

NORTH



0 1 2 3 Meters



ΑΙΑΣΑΛΑ

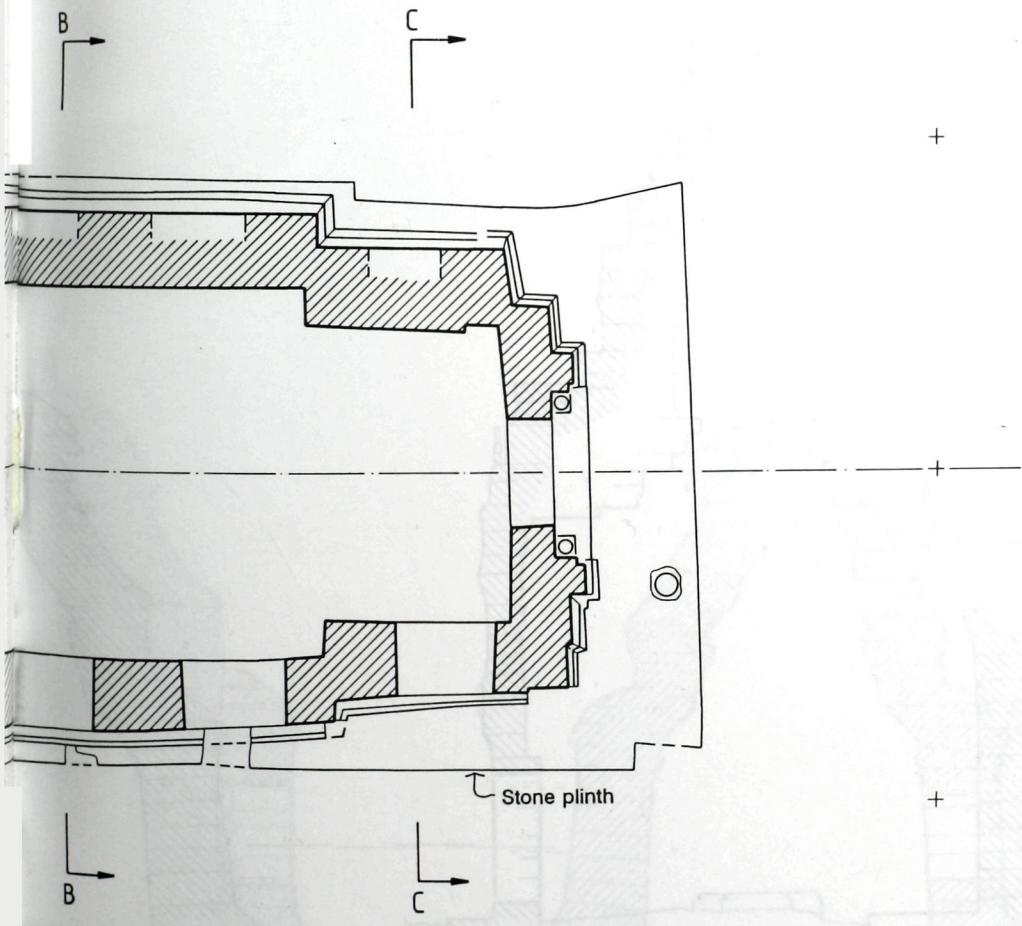
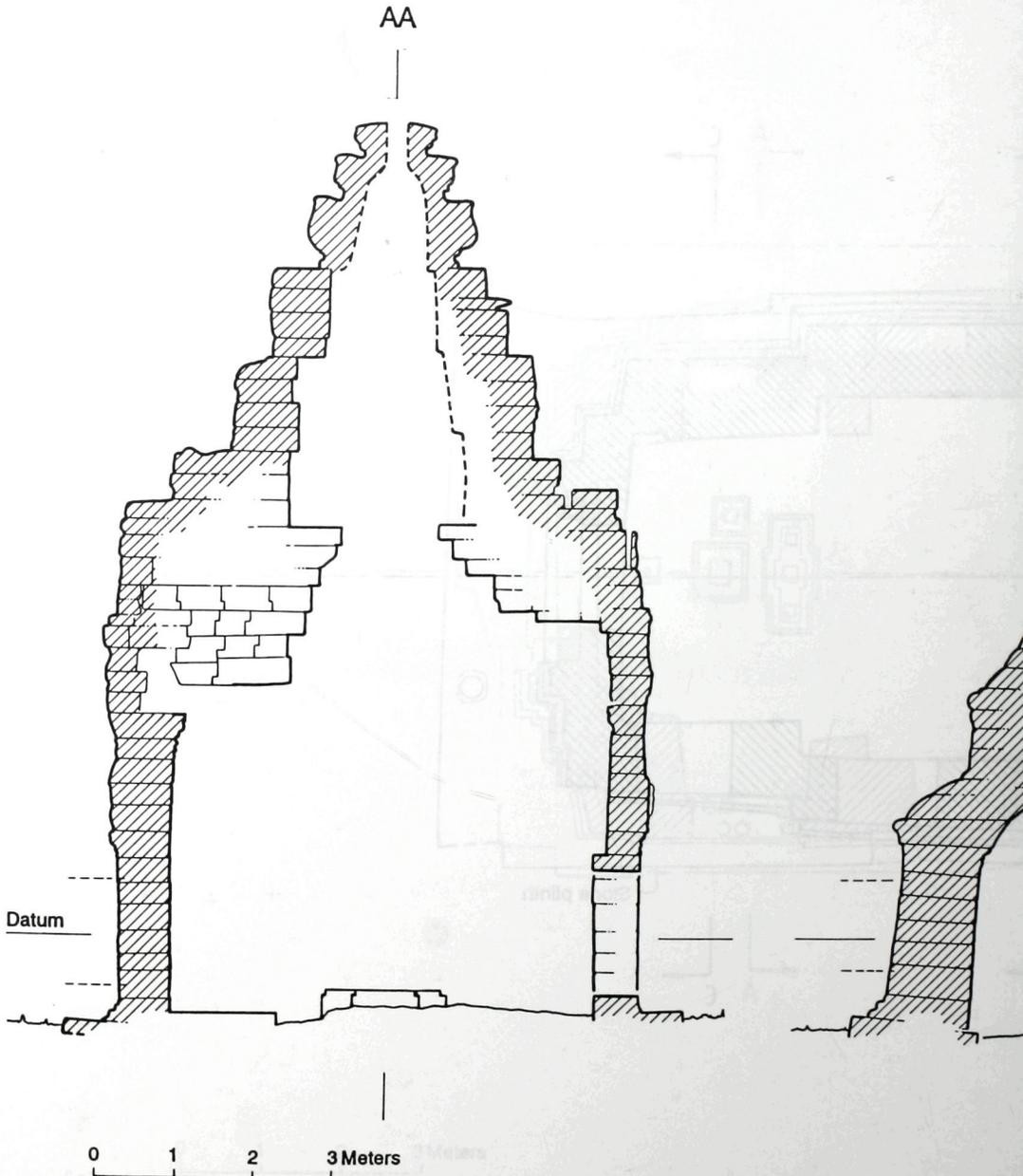


Fig 2

Preah Khan, Angkor  
THE DHARMASĀLĀ  
Sections



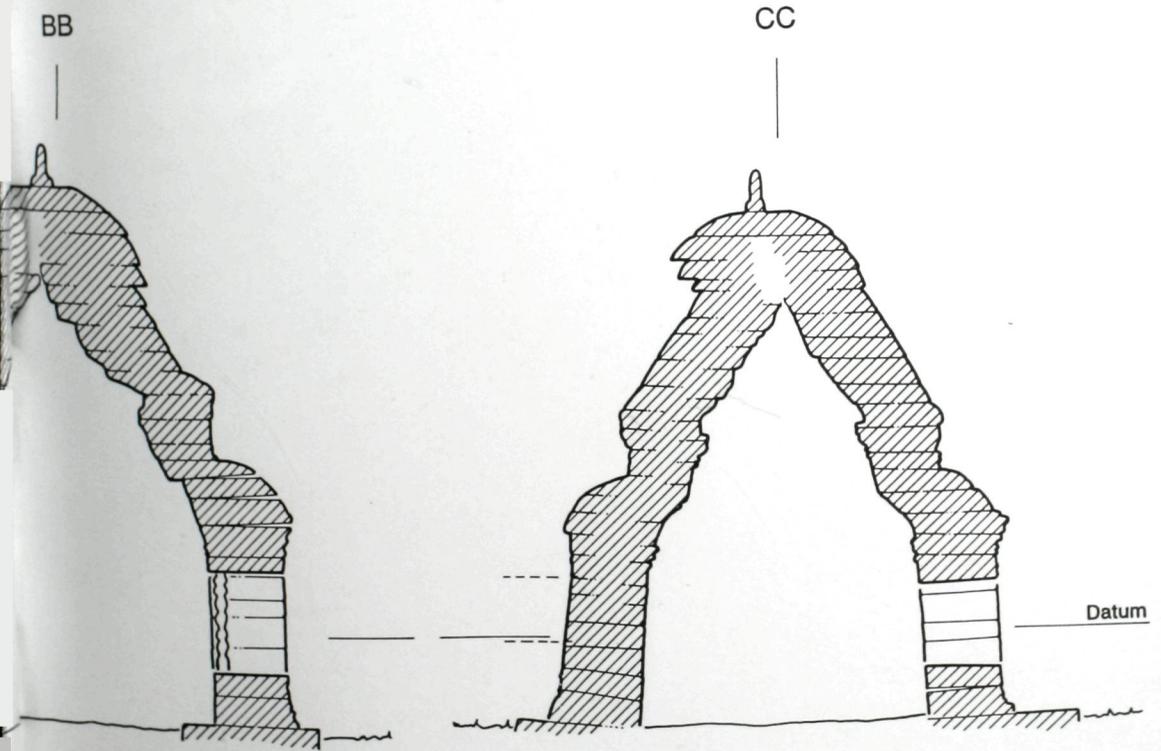


Fig. 3