APPENDIX I-B

- Description of ORACLE tables
<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>CLASSCODE</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>CLASSCOM</td>
<td></td>
<td>CHAR(20)</td>
</tr>
<tr>
<td>STATUS</td>
<td></td>
<td>CHAR(7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>LOCATION</td>
<td>NOT NULL</td>
<td>CHAR(12)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>PARTOF</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>ABOVE</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>BELOW</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASSCODE</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>CLASS</td>
<td>NOT NULL</td>
<td>CHAR(40)</td>
</tr>
</tbody>
</table>
### TABLE GRAVE

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAVE</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>TYPE</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>TNUMBER</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>NUMCAPS</td>
<td></td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>TNUMCHAMB</td>
<td></td>
<td>NUMBER(1)</td>
</tr>
<tr>
<td>APERTURE</td>
<td></td>
<td>CHAR(20)</td>
</tr>
<tr>
<td>SHLENG</td>
<td></td>
<td>NUMBER(4,2)</td>
</tr>
<tr>
<td>SHWIDTH</td>
<td></td>
<td>NUMBER(4,2)</td>
</tr>
<tr>
<td>SHDEPTH</td>
<td></td>
<td>NUMBER(4,2)</td>
</tr>
<tr>
<td>REM1</td>
<td></td>
<td>CHAR(250)</td>
</tr>
<tr>
<td>REM4</td>
<td></td>
<td>CHAR(250)</td>
</tr>
</tbody>
</table>

### TABLE CHAMBER

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAMBER</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>CHNUMBUR</td>
<td>NOT NULL</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>NUMBLOCK</td>
<td></td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>CHLENG</td>
<td></td>
<td>NUMBER(4,2)</td>
</tr>
<tr>
<td>CHWIDTH</td>
<td></td>
<td>NUMBER(4,2)</td>
</tr>
<tr>
<td>CHHEIGHT</td>
<td></td>
<td>NUMBER(4,2)</td>
</tr>
<tr>
<td>ROOFSTATUS</td>
<td></td>
<td>CHAR(2)</td>
</tr>
<tr>
<td>REM3</td>
<td></td>
<td>CHAR(250)</td>
</tr>
</tbody>
</table>

### TABLE BURIAL

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>BURNUM</td>
<td>NOT NULL</td>
<td>NUMBER(6,2)</td>
</tr>
<tr>
<td>POSITION</td>
<td>NOT NULL</td>
<td>CHAR(15)</td>
</tr>
<tr>
<td>FACING</td>
<td></td>
<td>CHAR(1)</td>
</tr>
<tr>
<td>ALIGNMENT</td>
<td></td>
<td>CHAR(5)</td>
</tr>
<tr>
<td>BURSTATUS</td>
<td>NOT NULL</td>
<td>CHAR(2)</td>
</tr>
<tr>
<td>TYPE</td>
<td>NOT NULL</td>
<td>CHAR(10)</td>
</tr>
<tr>
<td>MINAGE</td>
<td></td>
<td>NUMBER(3,1)</td>
</tr>
<tr>
<td>MAXAGE</td>
<td></td>
<td>NUMBER(3,1)</td>
</tr>
<tr>
<td>SEX</td>
<td></td>
<td>CHAR(1)</td>
</tr>
<tr>
<td>PATHOLOGY</td>
<td></td>
<td>CHAR(15)</td>
</tr>
<tr>
<td>REM2</td>
<td></td>
<td>CHAR(250)</td>
</tr>
</tbody>
</table>

### TABLE GRAVE TYPE

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>NOT NULL</td>
<td>CHAR(250)</td>
</tr>
<tr>
<td>Table</td>
<td>Name</td>
<td>Null?</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>CHAMBUR</strong></td>
<td>CHAMBER</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>BURNUM</td>
<td>NOT NULL</td>
</tr>
<tr>
<td><strong>GRBUR</strong></td>
<td>GRAVE</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>BURNUM</td>
<td>NOT NULL</td>
</tr>
<tr>
<td><strong>UFLOT</strong></td>
<td>SAMPLE</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>UNIT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KM</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>LITRES</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>PERAREA</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>FLOTYPE</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>PEREXAM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VOLHF</td>
<td></td>
</tr>
<tr>
<td><strong>SFFLOT</strong></td>
<td>SFNUMBER</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>SAMPLE</td>
<td>NOT NULL</td>
</tr>
<tr>
<td><strong>FLOTATION</strong></td>
<td>SAMPLE</td>
<td>NOT NULL</td>
</tr>
<tr>
<td></td>
<td>ITEM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ITEMCODE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ITSAMPNUM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ITCOUNT</td>
<td>NOT NULL</td>
</tr>
</tbody>
</table>

333
**TABLE FLOTYPE CODE**

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLOTYPE</td>
<td>NOT NULL</td>
<td>CHAR(1)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>NOT NULL</td>
<td>CHAR(15)</td>
</tr>
</tbody>
</table>

**TABLE SMALL**

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFNUMBER</td>
<td>NOT NULL</td>
<td>NUMBER(5,1)</td>
</tr>
<tr>
<td>CLASS</td>
<td>NOT NULL</td>
<td>CHAR(25)</td>
</tr>
<tr>
<td>CLASSCOM</td>
<td>NOT NULL</td>
<td>CHAR(30)</td>
</tr>
<tr>
<td>TYPE</td>
<td></td>
<td>CHAR(5)</td>
</tr>
<tr>
<td>MATERIAL</td>
<td></td>
<td>CHAR(26)</td>
</tr>
<tr>
<td>MATERIALCOM</td>
<td></td>
<td>CHAR(60)</td>
</tr>
<tr>
<td>FRAG</td>
<td></td>
<td>CHAR(8)</td>
</tr>
<tr>
<td>LENG</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>WIDTH</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>THICKNESS</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>HEIGHT</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAMETER</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>BASAL</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
</tbody>
</table>

**TABLE SFUNIT**

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFNUMBER</td>
<td></td>
<td>NUMBER(5,1)</td>
</tr>
<tr>
<td>UNIT</td>
<td></td>
<td>CHAR(7)</td>
</tr>
</tbody>
</table>

**TABLE FRAGCODE**

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRAG</td>
<td>NOT NULL</td>
<td>CHAR(4)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>NOT NULL</td>
<td>CHAR(9)</td>
</tr>
</tbody>
</table>

**TABLE SFDRAWINGS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRNUMBER</td>
<td></td>
<td>NUMBER(4)</td>
</tr>
<tr>
<td>SCALE</td>
<td></td>
<td>CHAR(4)</td>
</tr>
</tbody>
</table>
### TABLE POT

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS</td>
<td>NOT NULL</td>
<td>CHAR(15)</td>
</tr>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>NUMBER(4)</td>
</tr>
<tr>
<td>KM</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>PROVENANCE</td>
<td></td>
<td>CHAR(18)</td>
</tr>
<tr>
<td>ITCODE</td>
<td></td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>CLCODE</td>
<td></td>
<td>CHAR(3)</td>
</tr>
<tr>
<td>CB</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>PCB</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>RWLN</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>GBW</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>RWEK</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>RMP</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>BTW</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>RWMC</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>RW UNK</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>RBSB</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>SW</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>CPW</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>CW</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>RP</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td></td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>DIAMETER1</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAMETER2</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAMETER3</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAMETER4</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAMETER5</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAMETER6</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAMETER7</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
</tbody>
</table>

### TABLE POTTERY

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>KM</td>
<td></td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>CLASS</td>
<td>NOT NULL</td>
<td>CHAR(15)</td>
</tr>
<tr>
<td>ITCODE</td>
<td>NOT NULL</td>
<td>NUMBER(3)</td>
</tr>
<tr>
<td>CLCODE</td>
<td></td>
<td>CHAR(4)</td>
</tr>
<tr>
<td>TYPE</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>SHERDNUM</td>
<td></td>
<td>NUMBER(5)</td>
</tr>
<tr>
<td>DIAM1</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAM2</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAM3</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
<tr>
<td>DIAM4</td>
<td></td>
<td>NUMBER(5,2)</td>
</tr>
</tbody>
</table>
### TABLE RIMCODE

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIMCODE</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>NOT NULL</td>
<td>CHAR(50)</td>
</tr>
</tbody>
</table>

### TABLE FILM

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILM</td>
<td>NOT NULL</td>
<td>NUMBER(5)</td>
</tr>
<tr>
<td>BRAND</td>
<td></td>
<td>CHAR(15)</td>
</tr>
<tr>
<td>MANUFACTURER</td>
<td></td>
<td>CHAR(12)</td>
</tr>
<tr>
<td>PNUM</td>
<td></td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>TYPE</td>
<td>NOT NULL</td>
<td>CHAR(15)</td>
</tr>
<tr>
<td>ASA</td>
<td></td>
<td>NUMBER(4)</td>
</tr>
</tbody>
</table>

### TABLE SFFILM

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILMNUM</td>
<td>NOT NULL</td>
<td>NUMBER(5)</td>
</tr>
<tr>
<td>STANDNUM</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>SFNUMBER</td>
<td>NOT NULL</td>
<td>NUMBER(5,1)</td>
</tr>
</tbody>
</table>

### TABLE UNITFILM

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILMNUM</td>
<td>NOT NULL</td>
<td>NUMBER(5)</td>
</tr>
<tr>
<td>STANDNUM</td>
<td>NOT NULL</td>
<td>NUMBER(2)</td>
</tr>
<tr>
<td>UNIT</td>
<td>NOT NULL</td>
<td>CHAR(7)</td>
</tr>
</tbody>
</table>

### TABLE PERIOD

---

336
<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERIOD</td>
<td>NOT NULL</td>
<td>CHAR(3)</td>
</tr>
<tr>
<td>REMARKS</td>
<td></td>
<td>CHAR(240)</td>
</tr>
</tbody>
</table>

**TABLE SFPERIOD**

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFNUMBER</td>
<td></td>
<td>NUMBER(5,1)</td>
</tr>
<tr>
<td>PERIOD</td>
<td></td>
<td>CHAR(3)</td>
</tr>
</tbody>
</table>

**TABLE UNITPERIOD**

<table>
<thead>
<tr>
<th>Name</th>
<th>Null?</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT</td>
<td></td>
<td>CHAR(7)</td>
</tr>
<tr>
<td>PERIOD</td>
<td></td>
<td>CHAR(3)</td>
</tr>
</tbody>
</table>
APPENDIX II

- Test queries for the mortuary database
A. QUERY 1

CLEAR SCREEN
SET LINESIZE 132
SPOOL LOOK1
PROMPT This is the long type of query which actually
PROMPT cancels tables GRBUR and CHAMBUR. It appears
PROMPT to be heavy on machine resources and it requires
PROMPT a rather complex query to run but on the other
PROMPT hand it diminishes redundancy in data recording
PROMPT to a great extent especially when dealing with
PROMPT an extensive amount of information
PROMPT
PROMPT
SELECT A.UNIT, B.PARTOF, C.TNUMBUR, A.CHNUMBUR,
A.ROOFSTATUS,
D.BURNUM, F.MATERIAL
FROM CHAMBER A, PART OF B, GRAVE C,
BURIAL D, SFUNIT E, SMALL F
WHERE (A.UNIT = B.UNIT AND
C.UNIT = B.PARTOF) AND (D.BURNUM = E.SFNUMBER
AND A.UNIT = E.UNIT AND F.SFNUMBER = E.SFNUMBER)
AND A.UNIT = '505.2'
/
SPOOL OFF

B. OUTPUT 1

This is the long type of query which actually
cancels tables GRBUR and CHAMBUR. It appears
to be heavy on machine resources and it requires
a rather complex query to run but on the other
hand it diminishes redundancy in data recording
to a great extent especially when dealing with
an extensive amount of information

<table>
<thead>
<tr>
<th>UNIT</th>
<th>PARTOF</th>
<th>TNUMBUR</th>
<th>CHNUMBUR</th>
<th>RO</th>
<th>BURNUM</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>505.2</td>
<td>505</td>
<td>3</td>
<td>2 OK</td>
<td>553.02HUMAN BONE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>505.2</td>
<td>505</td>
<td>3</td>
<td>2 OK</td>
<td>553.03HUMAN BONE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C. QUERY 2

CLEAR SCREEN
SET LINESIZE 132
SPOOL LOOK2
PROMPT This is the short type query which makes use
PROMPT of tables GRBUR and CHAMBUR. It is not heavy
PROMPT on machine resources and it does not require
PROMPT the construction of complex queries to run.
PROMPT Contrary to the previous example however this
PROMPT type of query imposes some sort of redundancy
PROMPT on data recording.
PROMPT
SELECT A.UNIT,B.PARTOF,C.TNUMBUR,A.CHNUMBUR,
A.ROOFSTATUS,
D.BURNUM,F.MATERIAL
FROM CHAMBER A,PART_OF B,GRAVE C,
BURIAL D,CHAMBUR E, SMALL F
WHERE (A.UNIT=B.UNIT AND
C.UNIT=B.PARTOF) AND (D.BURNUM=E.BURNUM
AND A.UNIT=E.CHAMBER AND F.SFNUMBER=E.BURNUM)
AND A.UNIT='505.2'
/
SPOOL OFF

D. OUTPUT 2

This is the short type query which makes use
of tables GRBUR and CHAMBUR. It is not heavy
on machine resources and it does not require
the construction of complex queries to run.
Contrary to the previous example however this
type of query imposes some sort of redundancy
on data recording.

UNIT PARTOF TNUMBUR CHNUMBUR RO BURNUM MATERIAL
----- ----- ------ ------ ---- --------
505.2 505 3 2 OK 553.02 HUMAN BONE
505.2 505 3 2 OK 553.03 HUMAN BONE
E. QUERY 3

CLEAR SCREEN
SET LINESIZE 132
SPOOL LOOK3
PROMPT This is a revised version of the first query
PROMPT using CONNECT BY.
PROMPT
PROMPT
SELECT UNIT, PARTOF FROM UNIT LOG
CONNECT BY PRIOR UNIT = PARTOF
START WITH UNIT='505.2'
/
SELECT A.UNIT, C.TNUMBUR, A.CHNUMBUR, A.ROOFSTATUS,
D.BURNUM, F.MATERIAL
FROM CHAMBER A, GRAVE C,
BURIAL D, SFUNIT E, SMALL F
WHERE
(D.BURNUM=E.SFNUMBER
AND A.UNIT=E.UNIT AND F.SFNUMBER=E.SFNUMBER)
AND A.UNIT='505.2'
/
SPOOL OFF

F. OUTPUT 3

This is a revised version of the first query using CONNECT BY.

<table>
<thead>
<tr>
<th>UNIT</th>
<th>PARTOF</th>
</tr>
</thead>
<tbody>
<tr>
<td>505.2</td>
<td>505</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UNIT</th>
<th>TNUMBUR</th>
<th>CHNUMBUR</th>
<th>RO</th>
<th>BURNUM</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>505.2</td>
<td>3</td>
<td>2</td>
<td>OK</td>
<td>553.02</td>
<td>HUMAN BONE</td>
</tr>
<tr>
<td>505.2</td>
<td>3</td>
<td>2</td>
<td>OK</td>
<td>553.03</td>
<td>HUMAN BONE</td>
</tr>
</tbody>
</table>
APPENDIX III

- Customized ORACLE queries
SFPHOTO.SQL

SET PAGESIZE 66
SET LINESIZE 132
SPOOL SFPHOTO
SELECT SFNUMBER,FRAMENUM,FILMNUM,TYPE FROM SFFILM
WHERE SFNUMBER=&SFNUMBER
ORDER BY 3,2,4
/
SPOOL OFF

SFDRAW.SQL

SET PAGESIZE 66
SPOOL SFDRAWINGS
SELECT SFNUMBER,DRNUMBER FROM SFDRAWINGS
WHERE SFNUMBER=&SFNUMBER
ORDER BY 2
/
SPOOL OFF

UNITPOT.SQL

SET PAGESIZE 66
SET LINESIZE 132
SPOOL UNITPOT
SELECT A.UNIT,C.CLASS,A.PERIOD,
B.CLASS,B.RIMCODE,B.CLCODE,
B.WARE,B.SHERDNUM
FROM UNIT_LOG A,POTTERY B,
UNIT_CLASS_CODE C
WHERE
A.UNIT=B.UNIT AND
A.CLASSCODE=C.CLASSCODE AND
(A.PERIOD='&PERIOD_A' OR A.PERIOD='&PERIOD_B' OR
A.PERIOD='&PERIOD_C' OR A.PERIOD='&PERIOD_D' OR
A.PERIOD='&PERIOD_E' OR A.PERIOD='&PERIOD_F' OR
A.PERIOD='&PERIOD_G' OR A.PERIOD='&PERIOD_H' OR
A.PERIOD='&PERIOD_I' OR A.PERIOD='&PERIOD_J') AND
(B.WARE='&WARE_1' OR B.WARE='&WARE_2'
 OR B.WARE='&WARE_3'
 OR B.WARE='&WARE_4' OR B.WARE='&WARE_5'
 OR B.WARE='&WARE_6'
 OR B.WARE='&WARE_7' OR B.WARE='&WARE_8'
 OR B.WARE='&WARE_9'
 OR B.WARE='&WARE_10' OR B.WARE='&WARE_11'
 OR B.WARE='&WARE_12'
 OR B.WARE='&WARE_13' OR B.WARE='&WARE_14'
 OR B.WARE='&WARE_15'

343
OR B.WARE='&WARE_16')
ORDER BY 1,3,7
/
SPOOL OFF

UNITPHOTO.SQL

SET PAGESIZE 66
SET LINESIZE 132
SPOOL UNITPHOTO
SELECT UNIT,FRAMENUM,FILMNUM,TYPE FROM UNITFILM
WHERE UNIT='&UNIT'
ORDER BY 3,2,4
/
SPOOL OFF

POTUNIT.SQL

SET PAGESIZE 66
SET LINESIZE 132
SPOOL POTUNIT
SELECT A.UNIT,C.CLASS,A.PERIOD,
B.CLASS,B.RIMCODE,B.CLCODE,
B.WARE,B.SHERDNUM
FROM UNIT_LOG A,POTTERY B,
UNIT_CLASS_CODE C
WHERE
A.UNIT=B.UNIT AND
A.CLASSCODE=C.CLASSCODE AND
(A.UNIT='&UNIT_1' OR A.UNIT='&UNIT_2'
OR A.UNIT='&UNIT_3' OR A.UNIT='&UNIT_4'
OR A.UNIT='&UNIT_5')
ORDER BY 1,4,7
/
SPOOL OFF
APPENDIX IV

- ORACLE queries used in analysis
RP and RPV pottery list

```
SET LINESIZE 132
SET PAGESIZE 66
SPOOL RPVPOT
SELECT A.UNIT,C.CLASS,B.CLASS,
    B.RIMCODE,B.CLCODE,B.WARE,
    B.SHERDNUM FROM
UNIT_LOG A, POTTERY B,
UNIT_CLASS_CODE C
WHERE
A.CLASSCODE=C.CLASSCODE AND
A.UNIT=B.UNIT AND
(B.WARE='RP' OR
B.WARE='RPV' OR
B.WARE='RP?')
ORDER BY 1,6
/
SPOOL OFF
```

Contents of 1015

```
SET PAGESIZE 66
SET LINESIZE 132
SPOOL U1015
SELECT A.UNIT,C.CLASS,B.SFNUMBER,B.CLASS,
    B.TYPE,B.MATERIAL FROM
UNIT_LOG A,SMALL B,
UNIT_CLASS_CODE C,
SFUNIT D
WHERE
A.CLASSCODE=C.CLASSCODE AND
B.SFNUMBER=D.SFNUMBER AND
A.UNIT=D.UNIT AND
A.UNIT='1015'
ORDER BY 1,3,4,5
/
SPOOL OFF
```

Contents of building 206

```
SET PAGESIZE 66
SET LINESIZE 132
SPOOL U206
SELECT A.UNIT,C.CLASS,B.SFNUMBER,B.CLASS,
    B.TYPE,B.MATERIAL FROM
UNIT_LOG A,SMALL B,
```
Contents of building 206 (cont'd)

UNIT CLASS_CODE C,
SFUNIT D
WHERE
A.CLASSCODE=C.CLASSCODE AND
B.SFNUMBER=D.SFNUMBER AND
A.UNIT=D.UNIT AND
A.UNIT='206'
ORDER BY 1,3,4,5
/
SPOOL OFF

Contents of building 994

SET PAGESIZE 66
SET LINESIZE 132
SPOOL U994
SELECT A.UNIT,C.CLASS,B.SFNUMBER,B.CLASS,
B.TYPE,B.MATERIAL FROM
UNIT_LOG A,SMALL B,
UNIT_CLASS_CODE C,
SFUNIT D
WHERE
A.CLASSCODE=C.CLASSCODE AND
B.SFNUMBER=D.SFNUMBER AND
A.UNIT=D.UNIT AND
A.UNIT='994'
ORDER BY 1,3,4,5
/
SPOOL OFF

Contents of building 2

SET PAGESIZE 66
SET LINESIZE 132
SPOOL UNIT2
SELECT A.UNIT,C.CLASS,B.SFNUMBER,B.CLASS,
B.TYPE,B.MATERIAL FROM
UNIT_LOG A,SMALL B,
UNIT_CLASS_CODE C,
SFUNIT D
WHERE
A.CLASSCODE=C.CLASSCODE AND
B.SFNUMBER=D.SFNUMBER AND
A.UNIT=D.UNIT AND
A.UNIT='2'

347
Contents of building 2 (cont'd)

UNION
SELECT A.UNIT, C.CLASS, B.SFNUMBER, B.CLASS,
B.TYPE, B.MATERIAL FROM
UNIT_LOG A, SMALL B,
UNIT_CLASS_CODE C,
SFUNIT D, PART OF E
WHERE A.CLASSCODE=C.CLASSCODE AND
B.SFNUMBER=D.SFNUMBER AND
A.UNIT=D.UNIT AND
A.UNIT=E.UNIT AND
E.PARTOF='2'
ORDER BY 1, 3, 4, 5
/
SPOOL OFF

Contents of building 3

SET PAGESIZE 66
SET LINESIZE 132
SPOOL UNIT3
SELECT A.UNIT, C.CLASS, B.SFNUMBER, B.CLASS,
B.TYPE, B.MATERIAL FROM
UNIT_LOG A, SMALL B,
UNIT_CLASS_CODE C,
SFUNIT D
WHERE
A.CLASSCODE=C.CLASSCODE AND
B.SFNUMBER=D.SFNUMBER AND
A.UNIT='3'
UNION
SELECT A.UNIT, C.CLASS, B.SFNUMBER, B.CLASS,
B.TYPE, B.MATERIAL FROM
UNIT_LOG A, SMALL B,
UNIT_CLASS_CODE C,
SFUNIT D, PART OF E
WHERE A.CLASSCODE=C.CLASSCODE AND
B.SFNUMBER=D.SFNUMBER AND
A.UNIT=D.UNIT AND
A.UNIT=E.UNIT AND
E.PARTOF='3'
ORDER BY 1, 3, 4, 5
/
SPOOL OFF
Type 1 Conical Stones

SPOOL STONES
SELECT SFNUMBER, CLASS, TYPE, MATERIAL,
LEN, WIDTH, THICKNESS FROM SMALL
WHERE CLASS='CONICAL STONE'
AND TYPE='1'
ORDER BY SFNUMBER
/
SPOOL OFF

Stratigraphy of square buildings, track and building 2

SET PAGESIZE 66
SET LINESIZE 50
SPOOL SQDRB
SELECT * FROM STRATA
WHERE UNIT=2 OR UNIT=1295
OR UNIT=1165 OR UNIT=35 OR
UNIT=1000
ORDER BY STRLEVEL, UNIT
/
SPOOL OFF

Stratigraphy within 994

SET LINESIZE 35
SET PAGESIZE 66
SPOOL STRAT994
SELECT * FROM STRATA
WHERE UNIT=994 OR
UNIT=943 OR
UNIT=983 OR
UNIT=568 OR
UNIT=1201 OR
UNIT=1202 OR
UNIT=1205 OR
UNIT=1225 OR
UNIT=1015
ORDER BY STRLEVEL, UNIT
/
SPOOL OFF
APPENDIX V

- ARC/INFO plotfiles
MAP 1

LEMBAL.COM

$SET DEFAULT [DP.MSC8810.ARC.MOSPHILIA]
$ARC
ARCPLOT
DISP 1039
LEMBAL
PAGESIZE 35 24
MAPEXTENT CYPRUS1
MAPPOSITION LL LL
MAPSCALE 1
LINECOLOR 1
LINESYMBOL 9
LINE 16.55 2.4 19.5 2.4
LINESYMBOL 5
LINE 19.5 2.5 19.5 2.4
LINE 18.9 2.4 18.9 2.3
LINE 18.5 2.4 18.5 2.5
LINE 18.1 2.4 18.1 2.3
LINE 17.5 2.4 17.5 2.5
LINE 17.3 2.4 17.3 2.3
LINE 16.55 2.5 16.55 2.3
LINESYMBOL 1
POLYGONS CYPRUS1
POLYGONSHADES CYPRUS1 SITE-TYPE CYPRUS1.CODE
MAPEXTENT LEMBA1
MAPPOSITION LL LL
MAPSCALE 1
MARKERSIZE 0.005
POINTMARKERS LEMBA1 SITE-TYPE LEMBA1.CODE
LINESYMBOL 13
BOX 0.1 0.1 23.7 15.45
LINESYMBOL 5
BOX 0.2 0.2 23.6 15.35
MOVE 6.5 13.2
TEXTSIZE 0.6
TEXTCOLOR 1
TEXTFONT 1
TEXT 'LEMBAL CLUSTER SITES'
MOVE 0.3 0.3
TEXTFONT 1
TEXTSIZE 0.08
TEXT 'compiled on ARC/INFO by Dimitris Papailiopoulos'
MOVE 21 0.3
TEXT '(c) State Copyright Reserved'
MOVE 0.3 0.51
TEXTSIZE 0.15
TEXT 'MAP 1'
TEXTSIZE 0.07
$SET DEFAULT [DP.MSC8810.ARC.MOSPHILIA]
SARC
ARCPLOT
DISP 1039
SOTIRA1
PAGESIZE 35 24
MAPEXTENT CYPRUS1
MAPPOSITION LL LL
MAPSCALE 1
LINECOLOR 1
LINESYMBOL 9
LINE 16.55 2.4 19.5 2.4
LINESYMBOL 5
LINE 19.5 2.5 19.5 2.4
LINE 18.9 2.4 18.9 2.3
LINE 18.5 2.4 18.5 2.5
LINE 18.1 2.4 18.1 2.3
LINE 17.5 2.4 17.5 2.5
LINE 17.3 2.4 17.3 2.3
LINE 16.55 2.5 16.55 2.3
LINESYMBOL 1
POLYGONS CYPRUS1
POLYGONSHADES CYPRUS1 SITE-TYPE CYPRUS1.CODE
MAPEXTENT SOTIRA1
MAPPOSITION LL LL
MAPSCALE 1
MARKERSIZE 0.001
POINTMARKERS SOTIRA1 SITE-TYPE SOTIRA1.CODE
LINESYMBOL 13
BOX 0.1 0.1 23.7 15.45
LINESYMBOL 5
BOX 0.2 0.2 23.6 15.35
MOVE 5.95 13.2
TEXTSIZE 0.6
TEXTCOLOR 1
TEXTFONT 1
TEXT 'SOTIRA CULTURE SITES'
MOVE 0.3 0.3
TEXTFONT 1
TEXTSIZE 0.08
MAP 3

ERIM1.COM

SSET DEFAULT [DP.MSC8810.ARC.MOSPHILIA]
$ARC
ARCPLOT
DISP 1039
ERIM1
PAGESIZE 35 24
MAPEXTENT CYPRUS1
MAPPOSITION LL LL
MAPSCALE 1
LINECOLOR 1
LINESYMBOL 9
LINE 16.55 2.4 19.5 2.4
LINESYMBOL 5
LINE 19.5 2.5 19.5 2.4
LINE 18.9 2.4 18.9 2.3
LINE 18.5 2.4 18.5 2.5
LINE 18.1 2.4 18.1 2.3
LINE 17.5 2.4 17.5 2.5
LINE 17.3 2.4 17.3 2.3
LINE 16.55 2.5 16.55 2.3
LINESYMBOL 1
POLYGONS CYPRUS1
POLYGONSHADES CYPRUS1 SITE-TYPE CYPRUS1.CODE
MAPEXTENT ERIM1
MAPPOSITION LL LL
MAPSCALE 1
MARKERSIZE 0.005
POINTMARKERS ERIM1 SITE-TYPE ERIM1.CODE
LINESYMBOL 13
BOX 0.1 0.1 23.7 15.45
LINESYMBOL 5
BOX 0.2 0.2 23.6 15.35
MOVE 7.3 13.2
TEXTSIZE 0.6
TEXTCOLOR 1
TEXTFONT 1
TEXT 'ERIMI GROUP SITES'
MAP 4

EBAL.COM

$SET DEFAULT [DP.MSC8810.ARC.MOSPHILIA]
SARC
ARCPLOT
DISP 1039
EBAL
PAGESIZE 35 24
MAPEXTENT CYPRUS1
MAPPOSITION LL LL
MAPSCALE 1
LINECOLOR 1
LINESYMBOL 9
LINE 16.55 2.4 19.5 2.4
LINESYMBOL 5
LINE 19.5 2.5 19.5 2.4
LINE 18.9 2.4 18.9 2.3
LINE 18.5 2.4 18.5 2.5
LINE 18.1 2.4 18.1 2.3
LINE 17.5 2.4 17.5 2.5
LINE 17.3 2.4 17.3 2.3
LINE 16.55 2.5 16.55 2.3
LINESYMBOL 1
POLYGONS CYPRUS1
MAPEXTENT EBAL
MAPPOSITION LL LL
MAPSCALE 1
MARKERSIZE 0.005
POINTMARKERS EBAL SITE-TYPE EBAL.CODE
LINESYMBOL 13
BOX 0.1 0.1 23.7 15.45
LINESYMBOL 5
BOX 0.2 0.2 23.6 15.35
MOVE 7.5 13.2
TEXTSIZE 0.6
TEXTCOLOR 1
TEXTFONT 1
TEXT 'BRONZE AGE SITES'
MOVE 0.3 0.3
TEXTFONT 1
TEXTSIZE 0.08
TEXT 'compiled on ARC/INFO by Dimitris Papailiopoulos'
MOVE 21 0.3
TEXT '(c) State Copyright Reserved'
MOVE 0.3 0.51
TEXTSIZE 0.15
TEXT 'MAP 4'
TEXTSIZE 0.07
MOVE 16.54 2.55
TEXT '0'
MOVE 16.54 2.2
TEXT '0'
MOVE 19.45 2.55
TEXT '30'
MOVE 18.85 2.2
TEXT '15'
MOVE 18.45 2.55
TEXT '20'
MOVE 18.05 2.2
TEXT '10'
MOVE 17.45 2.55
TEXT '10'
MOVE 17.29 2.2
TEXT '5'
MOVE 19.7 2.55
TEXT 'Kilometres'
MOVE 19.05 2.2
TEXT 'Miles'
TEXTSIZE 0.07
MOVE 2 5.8
TEXT 'Lara'
MOVE 2.45 4.7
TEXT 'Maa-Palaeokastron'
MOVE 4.5 3.1
TEXT 'Palaepaphos'
MOVE 5.78 3.42
TEXT 'Anogyra'
MOVE 5.25 3
TEXT 'Avdhimou'
MOVE 6.65 2.7
TEXT 'Kourion'
MOVE 7.1 2.41
TEXT 'Episkopi-Phaneromeni'
MOVE 8.5 2.8
TEXT 'Limassol'
MOVE 10.9 3.1
TEXT 'Vasiliko'
MOVE 10.4 3.42
TEXT 'Mari'
MOVE 11.35 3.6
TEXT 'Maroni'
MOVE 9.9 3.8
TEXT 'Kalavassos'
MOVE 12.66 4.8
TEXT 'Arpera'
MOVE 13.4 4.85
TEXT 'Dromolaxia'
MOVE 12.15 5.13
TEXT 'Hala Soultan Tekke'
MOVE 13.2 5.4
TEXT 'Kition'
DISP 1039
P4
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID4
POLYGONS P4
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 6.05 13.85
TEXT 'PERIOD 4'
TEXTSIZE 0.5
MOVE 14.95 14.5
TEXT 'GENERAL PLAN'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 2'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 6.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 5.25 4.7 7.35 4.7
TEXTSIZE 0.15
MOVE 6 4.85
TEXT 'scale'
MOVE 6.05 4.40
TEXT '10 m'
TEXTSIZE 0.15
MOVE 8 1.7
MAP 8

P3GR.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARC P3GR
Q

P3GR.AML

DISP 1039
P3GR
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID3
POLYGONS P3
POLYGONS P3
POLYGONSHADES P3 TYPE GRAVE CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 4 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 5.05 13.85
TEXT 'PERIOD 3'
TEXTSIZE 0.5
MOVE 15.05 14.5
TEXT 'GRAVE TYPES'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 4'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1

567
MAP 10

PUPGR.COM

$ SET DEFAULT DUA2:[DP.ARC.PRI]
$ ARC50
$ ARC ARC PLOT PUPGR
Q

PUPGR.AML

DISP 1039
PUPGR
PAGESIZE 25 16
MAPEX GRIDUP
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRIDUP
POLYGONS P34UP
POLYGONSHADES P34UP TYPE GRAVE.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 15.35 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 15.6 13.85
TEXT 'UPPER FIELD'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 6'
TEXTSIZE 0.4
MOVE 16.1 12
TEXT 'GRAVE TYPES'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 3 6.5 4
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES1
DISP 1039
P3GR1
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P3
LINESYMBOL 1
POLYGONS GRID3
RESELECT P3 POLY *GRAVES1 WHERE TYPE=1
POLYGONS P3
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 3.6 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 4.65 13.85
TEXT 'PERIOD 3'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 11'
TEXTSIZE 0.5
MOVE 15.3 14.5
TEXT 'GRAVE TYPE 1'
MOVE 14.95 13.5
TEXT 'GRID LOCATION'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTTANGLE 315
MOVE 6.36 6.93
TEXT 'N'
LINESYMBOL 45
TEXTTANGLE 0
LINE 5.25 4.7 7.35 4.7
TEXTSIZE 0.15
MOVE 6 4.85
TEXT 'scale'
MOVE 6.05 4.40
TEXT '10 m'
TEXTSIZE 0.15
MOVE 8 1.7
TEXT '18'
MOVE 8 3.9
TEXT '19'
MOVE 8 6
TEXT '20'
MOVE 8 7.9
TEXT '21'
MOVE 8 10.1
TEXT '22'
MOVE 8 12.05
TEXT '23'
MOVE 10.1 14.25
TEXT '24'
MOVE 9.1 0.35
TEXT '25'
MOVE 11.3 0.35
TEXT '22'
MOVE 13.4 0.35
TEXT '23'
MOVE 15.6 0.35
TEXT '24'
TEXTSIZE 0.1
MOVE 15 7.85
TEXT '568'
Q
&RETURN

MAP 12

P3GR2.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLOT P3GR2
Q

P3GR2.AML

574
MAP 13

P3GR3.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLOT P3GR3
Q

P3GR3.AML

576
MAP 14

P4GR0.COM

$ SET_DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLOT P4GR0
Q

P4GR0.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES
DISP 1039
P4GR0

378
MAP 15

P4GR1.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARC PLOT P4GR1
Q

P4GR1.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES
DISP 1039
P4GR1
PAGESIZE 25 16

S80
Q
&RETURN

MAP 16

P4GR2.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLT P4GR2
Q

P4GR2.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES
DISP 1039
P4GR2
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P4
LINESYMBOL 1
POLYGONS GRID4
RESELECT P4 POLY "GRAVES WHERE TYPE=2"
POLYGONS P4
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 6.05 13.85
TEXT 'PERIOD 4'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67

385
MAP

GRAVE TYPE 2

GRID LOCATION

MAP LIMITS 5.5 6 6.5 7

POLYGONS

POLYGON SHADERS

TEXT 'scale'

LINE

TEXT '10 m'

MOVE 6 4.85

TEXT '18'

MOVE 8 1.7

TEXT '19'

MOVE 8 3.9

TEXT '20'

MOVE 8 7.9

TEXT '21'

MOVE 8 10.1

TEXT '22'

MOVE 8 12.05

TEXT '23'

MOVE 12.15 14.25

TEXT '24'

MOVE 9.1 0.35

TEXT '22'

MOVE 11.3 0.35

TEXT '23'

MOVE 13.4 0.35

TEXT '24'

MOVE 15.6 0.35

TEXT '25'

TEXT SIZE 0.1

MOVE 15.55 1.8

TEXT '522'

MOVE 13.4 2.3

TEXT '548'

MOVE 12 5.8
TEXT '544'
MOVE 10.9 6.3
TEXT '529'
MOVE 12.1 9.8
TEXT '517'
MOVE 11.5 9.6
TEXT '516'
MOVE 11.4 9.1
TEXT '519'
MOVE 12.05 10.15
TEXT '518'
MOVE 13.32 9.5
TEXT '509'
MOVE 13.71 3.11
TEXT '510'
MOVE 14 8.8
TEXT '527'
MOVE 14.1 8.65
TEXT '532'
MOVE 13.87 5.3
TEXT '556'
MOVE 13.72 4.95
TEXT '566'
MOVE 13.4 5.3
TEXT '538'
MOVE 12.85 5.1
TEXT '543'
MOVE 13.5 6.2
TEXT '562'
MOVE 12 12.8
TEXT '547'
Q
&RETURN

MAP 17

P4GR3.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLOT P4GR3
Q

P4GR3.AML

CONNECT ORACLE DP DIGS

385
MAP 18

P4GR4.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLT P4GR4
CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES
DISP 1039
P4GR4
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P4
LINESYMBOL 1
POLYGONS GRID4
RESELECT P4 POLY "GRAVES WHERE TYPE=4"
POLYGONS P4
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 6.05 13.85
TEXT 'PERIOD 4'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 14'
TEXTSIZE 0.5
MOVE 15.3 14.5
TEXT 'GRAVE TYPE 4'
MOVE 14.95 13.5
TEXT 'GRID LOCATION'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 6.93
MAP 19

P4GR6.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLOT P4GR6
Q

P4GR6.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES
DISP 1039
P4GR6
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P4
LINESYMBOL 1
POLYGONS GRID4
RESELECT P4 POLY "GRAVES WHERE TYPE=6"
POLYGONS P4
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 6.05 13.85
TEXT 'PERIOD 4'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'

TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 15'

TEXTSIZE 0.5
MOVE 15.3 14.5
TEXT 'GRAVE TYPE 6'
MOVE 14.95 13.5
TEXT 'GRID LOCATION'

LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7

POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE

TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 6.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 5.25 4.7 7.35 4.7

TEXTSIZE 0.15
MOVE 6 4.85
TEXT 'scale'
MOVE 6.05 4.40
TEXT '10 m'

TEXTSIZE 0.15
MOVE 8 1.7
TEXT '18'
MOVE 8 3.9
TEXT '19'
MOVE 8 6
TEXT '20'
MOVE 8 7.9
TEXT '21'
MOVE 8 10.1
TEXT '22'
MOVE 8 12.05
TEXT '23'
MOVE 12.15 14.25
TEXT '24'
MOVE 9.1 0.35
TEXT '22'
MOVE 11.3 0.35
TEXT '23'
MOVE 13.4 0.35
TEXT '24'
MOVE 15.6 0.35
TEXT '25'

TEXTSIZE 0.1
MOVE 12.75 6.7
TEXT '505'
Q
&RETURN

MAP 20

PUPGR1.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLOT PUPGR1
Q

PUPGR1.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES2
DISP 1039
PUPGR1
PAGESIZE 25 16
MAPEX GRIDUP
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P34UP
LINESYMBOL 1
POLYGONS GRIDUP
RESELECT P34UP POLY ^GRAVES2 WHERE TYPE=1
POLYGONS P34UP
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 15.35 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 15.6 13.85
TEXT 'UPPER FIELD'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
MAP 16
TEXT 'GRAVE TYPE 1'
MOVE 15.5 10.3
TEXT 'GRID LOCATION'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 3 6.5 4
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 3.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 8.5 3 12.9 3
TEXTSIZE 0.15
MOVE 10.35 3.15
TEXT 'scale'
MOVE 10.4 2.7
TEXT '10 m'
TEXTSIZE 0.2
MOVE 4.8 3.2
TEXT '23'
MOVE 4.8 8.4
TEXT '24'
MOVE 4.8 12.65
TEXT '25'
MOVE 7.4 0.3
TEXT '29'
MOVE 12.3 0.3
TEXT '30'
MOVE 17.4 0.3
TEXT '31'
TEXTSIZE 0.1
MOVE 17.25 2.05
TEXT '552'
MOVE 16.98 3.4
TEXT '549'
Q
&RETURN

MAP 21

PUPGR2.COM
CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES2
DISP 1039
PUPGR2
PAGESIZE 25 16
MAPEX GRIDUP
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P34UP
LINESYMBOL 1
POLYGONS GRIDUP
RESELECT P34UP POLY "GRAVES2 WHERE TYPE=2"
POLYGONS P34UP
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 15.35 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 15.6 13.85
TEXT 'UPPER FIELD'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 17'
TEXTSIZE 0.4
MOVE 15.6 11
TEXT 'GRAVE TYPE 2'
MOVE 15.5 10.3
TEXT 'GRID LOCATION'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 3 6.5 4
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 3.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 8.5 3 12.9 3
TEXTSIZE 0.15
MOVE 10.35 3.15
TEXT 'scale'
MOVE 10.4 2.7
TEXT '10 m'
TEXTSIZE 0.2
MOVE 4.8 3.2
TEXT '23'
MOVE 4.8 8.4
TEXT '24'
MOVE 4.8 12.65
TEXT '25'
MOVE 7.4 0.3
TEXT '29'
MOVE 12.3 0.3
TEXT '30'
MOVE 17.4 0.3
TEXT '31'
TEXTSIZE 0.1
MOVE 17.05 3
TEXT '535'
MOVE 11.4 6.5
TEXT '553'
MOVE 12.15 9.5
TEXT '551'
Q
&RETURN

MAP 22

PUPGR3.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ORACLE6
$ ARC ARCPLOT PUPGR3
Q
CONNECT ORACLE DP DIGS
RELATE RESTORE GRAVES2
DISP 1039
PUPGR3
PAGESIZE 25 16
MAPEX GRIDUP
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P34UP
LINESYMBOL 1
POLYGONS GRIDUP
RESELECT P34UP POLY 'GRAVES2 WHERE TYPE=3
POLYGONS P34UP
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 15.35 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 15.6 13.85
TEXT 'UPPER FIELD'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 18'
TEXTSIZE 0.4
MOVE 15.6 11
TEXT 'GRAVE TYPE 3'
MOVE 15.5 10.3
TEXT 'GRID LOCATION'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 3 6.5 4
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 3.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 8.5 3 12.9 3
TEXTSIZE 0.15
MOVE 10.35 3.15
TEXT 'scale'
MOVE 10.4 2.7
TEXT '10 m'
TEXTSIZE 0.2
MOVE 4.8 3.2
TEXT '23'
MOVE 4.8 8.4
TEXT '24'
MOVE 4.8 12.65
TEXT '25'
MOVE 7.4 0.3
TEXT '29'
MOVE 12.3 0.3
TEXT '30'
MOVE 17.4 0.3
TEXT '31'
TEXTSIZE 0.1
MOVE 10.95 11.2
TEXT '570'
MOVE 8.5 9.95
TEXT '567'
MOVE 8.25 10.6
TEXT '571'
MOVE 16.05 2.45
TEXT '554'
Q
&RETURN

MAP 23

P34.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLOT P34
Q

P34.AML

DISP 1039
P34
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN

397
MAP 24

P3SQB.COM

S SET DEFAULT DUA2:[DP.ARC.PR1]
S ARC50
S ARC ARCPLOT P3SQB
Q

P3SQB.AML

DISP 1039
P3SQB
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P3
LINESYMBOL 1
POLYGONS GRID3
RESELECT P3 POLY P3-ID IN {1000,1209,1161,1295,1364,2004}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1388,1235,1208,1301,1294}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1293,2005,2089,1034,1109}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1300,1275,1150,1283,1486,1214,289,994,1027,1029}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1193,1028,289}
POLYGONS P3
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 3.6 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 4.65 13.85
TEXT 'PERIOD 3'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 20'
TEXTSIZE 0.4
MOVE 13.8 14.5
TEXT 'DISTRIBUTION OF'
MOVE 12.65 13.5
TEXT 'RECTANGULAR BUILDINGS'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
MAP 25

P3RB.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLOT P3RB
Q

P3RB.AML

DISP 1039
P3RB
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P3
LINESYMBOL 1
POLYGONS GRID3
RESELECT P3 POLY P3-
ID IN {1286,1092,1192,34,388,131,201}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {337,41,1074,171,503,77,389,952, 1243,776,940,952}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {287,290,71,1362,1370,168,882,822}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {197,968,1020,195,744,784,1021,1288, 1119,1205,943}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {1202,1201,983,568,1015,1225,996,29, 313,299,800}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {114,990,291,307,176,281,282,1401, 2031,2010}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1478,1479,831,963,951,1237}
POLYGONS P3
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
DISTRIBUTION OF CIRCULAR BUILDINGS

MAP 21

Compiled on ARCGIS by Dimitris Papailiopoulos

Copyright (c) Lemba Archaeological Project

MAP LIMITS 5.5 6 6.5 7

POLYGONS ARROW1

POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE

TEXT 'scale'

TEXT '10 m'

TEXT 'N'

LINE 5.25 4.7 7.35 4.7

TEXT '18'

TEXT '19'

TEXT '20'

TEXT '21'

TEXT '22'

TEXT '23'

TEXT '24'

TEXT '22'
MOVE 11.3 0.35
TEXT '23'
MOVE 13.4 0.35
TEXT '24'
MOVE 15.6 0.35
TEXT '25'
MOVE 12.95 10.15
TEXT 'B2'
MOVE 12.1 8.55
TEXT 'B206'
MOVE 15.4 8.3
TEXT 'B994'
MOVE 9.78 11.3
TEXT 'B1103'
MOVE 14 6.55
TEXT 'B4'
MOVE 15.1 2.4
TEXT 'B855'
Q
&RETURN

MAP 26

P3SQDRB1.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLOT P3SQDRB1
Q

P3SQDRB1.AML

DISP 1039
P3SQDRB1
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID3
POLYGONS P3
POLYGONSHADES P3 TYPE P3.CODE
LINESYMBOL 13
BOX 3 0.05 22 16

404
MOVE 9.1 0.35
TEXT '22'
MOVE 11.3 0.35
TEXT '23'
MOVE 13.4 0.35
TEXT '24'
MOVE 15.6 0.35
TEXT '25'
MOVE 18.25 4.85
TEXTSIZE 0.3
TEXT 'LEGEND'
MOVE 18.55 4
LINESYMBOL 1
TEXTSIZE 0.12
KEYBOX 0.4 0.4
KEYSHADE P3.LEG
BOX 18.15 3.1 20.1 5.25
LINE 18.15 4.75 20.1 4.75
Q
&RETURN

MAP 27

P3SQDRB.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLLOT P3SQDRB
Q

P3SQDRB.AML

DISP 1039
P3SQDRB
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID3
RESELECT P3 POLY P3-
ID IN {1000,1209,1161,1295,1364,2004}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1388,1235,1208,1301,1294}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1293,2005,2089,1034,1109}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {1300,1275,1150,1283,1486,1214,289,994,1027,1029}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {1193,1028,289,35,1367,1361,337,34}
POLYGONS P3
POLYGONSHADES P3 TYPE P3.CODE
NSELECT P3 POLY
RESELECT P3 POLY P3-
ID IN {131,201,77,388,1074,41,389,290,287,503,171}
POLYGONS P3
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 3.6 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 4.65 13.85
TEXT 'PERIOD 3'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 23'
TEXTSIZE 0.4
MOVE 14.4 14.5
TEXT 'ASSOCIATION OF'
MOVE 12.85 13.5
TEXT 'RECTANGULAR BUILDINGS,'
MOVE 14.65 12.5
TEXT 'TRACK AND CIRCULAR'
MOVE 16.25 11.5
TEXT 'BUILDING 2'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLOT BRB
Q

BRB.AML

DISP 1039
BRB
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID3
RESELECT P3 POLY P3-ID IN {34,131,201,41, 1074,388,389,77}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {287,290,171,503,71,1362}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1370,147,168,195,197,968}
POLYGONS P3
NSELECT P3 POLY
RESELECT P3 POLY P3-ID IN {1020,744,1021,784,1288}
POLYGONS P3
RESELECT P4 POLY P4-ID IN {46,672}
POLYGONS P4
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 3.6 14.75
TEXT 'KISSONERGA'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 24'
TEXTSIZE 0.4
MOVE 13.8 14.5
TEXT 'DISTRIBUTION OF'
MOVE 12.65 13.5
TEXT 'LARGE ROUND BUILDINGS'
LINESYMBOL 1
MAPEX ARROW1

409
TEXT 'DIAMETER: c. 8.8 m'
MOVE 4.3 8.4
TEXT 'USE: Central Storage Area'
MOVE 19.1 8.3
TEXTSIZE 0.2
TEXT 'B2'
MOVE 18.5 8
TEXTSIZE 0.1
TEXT 'PERIOD: 3'
MOVE 18.5 7.8
TEXT 'DIAMETER: c. 9 m'
MOVE 18.5 7.6
TEXT 'USE: Domestic'
MOVE 10.4 3.7
TEXTSIZE 0.2
TEXT 'B206'
TEXTSIZE 0.1
MOVE 9.4 3.4
TEXT 'PERIOD: 3'
MOVE 9.4 3.2
TEXT 'DIAMETER: c. 12-15 m'
MOVE 9.4 3
TEXT 'USE: Possible Storage Area'
BOX 9.25 2.85 12.2 4
BOX 4.15 8.07 6.95 9.45
BOX 18.35 7.45 20.25 8.65
LINE 9.25 3.55 12.2 3.55
LINE 4.15 8.95 6.95 8.95
LINE 18.35 8.15 20.25 8.15
LINE 5.6 9.45 11.19 10.08
LINE 10.79 4 12.35 8.65
LINE 19.3 8.65 13.98 9.75
Q
&RETURN

MAP 29

B994.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLOT B994
Q

B994.AML

DISP 1039
MOVE 8.5 2.9
TEXT '24'
MOVE 16.3 2.9
TEXT '25'
TEXTSIZE 0.1
MOVE 13.1 8.1
TEXT '1015'
MOVE 11.9 8.3
TEXT '1225'
MOVE 14.1 6.95
TEXT '1205'
MOVE 13.55 6.35
TEXT '1201'
MOVE 13.6 5.8
TEXT '1202'
MOVE 13.3 6.8
TEXT '568'
Q
&RETURN

MAP 30

P3SF.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARC P3SF
Q

P3SF.AML

DISP 1039
P3SF
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID3
POLYGONS P3
RESELECT P3SF POINTS TYPE = 97
POINTMARKERS P3SF TYPE P3SF.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 4 14.75
TEXT 'KISSONERGA'

413
PERIOD 3

DISTRIBUTION OF FIGURINES

Copyright (c) Lemba Archaeological Project

Compiled on ARC/INFO by Dimitris Papailiopoulos

MAP 26

scale 10 m

MAP POSITION CEN CEN
MAP LIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE

TEXT SIZE 0.15
TEXT 'N'

LINE 5.25 4.7 7.35 4.7
TEXT SIZE 0.15
MOVE 6 4.85
TEXT 'scale'
MOVE 6.05 4.40
TEXT '10 m'

MOVE 8 1.7
TEXT '18'

MOVE 8 3.9
TEXT '19'

MOVE 8 6
TEXT '20'

MOVE 8 7.9
TEXT '21'

MOVE 8 10.1
TEXT '22'

MOVE 8 12.05
TEXT '23'

MOVE 10.1 14.25
TEXT '24'

MOVE 9.1 0.35
TEXT '22'

MOVE 11.3 0.35
TEXT '23'
MOVE 13.4 0.35
TEXT '24'
MOVE 15.6 0.35
TEXT '25'
MOVE 18.32 4.85
TEXTSIZE 0.3
TEXT 'LEGEND'
MOVE 18.55 4
LINESYMBOL 1
TEXTSIZE 0.1
KEYBOX 0.4 0.4
KEYMARKER P3SF.LEG
BOX 18.15 3.1 20.1 5.25
LINE 18.15 4.61 20.1 4.61
Q
&RETURN

MAP 31

P4SF1.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ORACLE6
$ ARC50
$ ARC ARCPLOT P4SF1
Q

P4SF1.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE P4SF
DISP 1039
P4SF1
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID4
POLYGONS P4
RESELECT P4SF POINTS `P4SF WHERE CLASS LIKE '%CONICAL STONE%' AND TYPE = '2'
POINTMARKERS P4SF TYPE P3SF.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 6.05 13.85
TEXT 'PERIOD 4'
TEXTSIZE 0.5
MOVE 14.75 14.5
TEXT 'CONICAL STONES'
MOVE 17 13.25
TEXT 'TYPE 2'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 27'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 6.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 5.25 4.7 7.35 4.7
TEXTSIZE 0.15
MOVE 6 4.85
TEXT 'scale'
MOVE 6.05 4.40
TEXT '10 m'
TEXTSIZE 0.15
MOVE 8 1.7
TEXT '18'
MOVE 8 3.9
TEXT '19'
MOVE 8 6
TEXT '20'
MOVE 8 7.9
TEXT '21'
MOVE 8 10.1
TEXT '22'
MOVE 8 12.05
TEXT '23'
MOVE 12.15 14.25
TEXT '24'
MOVE 9.1 0.35
TEXT '22'
MOVE 11.3 0.35
TEXT '23'
MOVE 13.4 0.35
TEXT '24'
MOVE 15.6 0.35
TEXT '25'
MOVE 18.25 4.85
TEXTSIZE 0.3
TEXT 'LEGEND'
MOVE 18.55 4
LINESYMBOL 1
TEXTSIZE 0.1
KEYBOX 0.4 0.4
KEYMARKER P4SF1.LEG
BOX 18.15 3.1 20.1 5.25
LINE 18.15 4.61 20.1 4.61
Q
&RETURN

MAP 32

P4SF.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ORACLE6
$ ARC50
$ ARC ARC P4SF
Q

P4SF.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE P4SF
DISP 1039
P4SF
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID4
POLYGONS P4
RESELECT P4SF POINTS P4SF WHERE CLASS='AXE' OR CLASS='AXE FRAG'
POINTMARKERS P4SF TYPE P3SF.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5

41F
Copyright (c) Lemba Archaeological Project

Compiled on ARC/INFO by Dimitris Papailiopoulos

MAP 28

scale 10 m

18 19 20 21 22 23

4-18
MAP 33

B3SF.COM

$ SET DEFAULT DUA2: [DP.ARC.PR1]  
$ ARC50  
$ ARC ARCPLOT B3SF  
Q

B3SF.AML

DISP 1039  
B3SF  
PAGESIZE 25 16  
MAPEX TEMPB3  
MAPLIMITS 1.5 0.7 18.4 13.5  
MAPPOSITION CEN CEN  
MAPSCALE AUTOMATIC  
POLYGONS TEMPB3  
RESELECT P4 POLY P4-ID IN {3,46,672}  
POLYGONS P4  
POINTMARKERS B3SF TYPE B3.CODE  
LINESYMBOL 13  
BOX 3 0.05 22 16  
LINESYMBOL 5
MAP 29
BUILDING 3 AND ITS SMALL FINDS

BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 9.7 14.75
TEXT 'KISSONERGA'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 29'
TEXTSIZE 0.4
MOVE 6.65 13.7
TEXT 'BUILDING 3 AND ITS SMALL FINDS'

LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 19.8 2.5 20.8 3.5
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 20.66 3.43
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 15.9 1.3 21.7 1.3
TEXTSIZE 0.2
MOVE 18.35 1.45
TEXT 'scale'
MOVE 18.4 0.95
TEXT '10 m'
TEXTSIZE 0.2
MOVE 3.75 4.1
TEXT '22'
MOVE 3.75 9.9
TEXT '23'
MOVE 6.9 0.89
TEXT '22'
MOVE 12.71 0.89
TEXT '23'
MOVE 17.6 12.5
TEXTSIZE 0.3
LINESYMBOL 1
TEXT 'LEGEND'
MOVE 17.41 12.15
KEYBOX 0.3 0.3
TEXTSIZE 0.08
KEYMARKER B3.LEG
LINE 17.31 12.4 19.61 12.4
BOX 17.31 3.33 19.61 13
$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ORACLE6
$ ARC50
$ ARC ARCPLT P3FAI
Q

CONNECT ORACLE DP DIGS
RELATE RESTORE FAI3
DISP 1039
P3FAI
PAGESIZE 25 16
MAPEX GRID3
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P3
LINESYMBOL 1
POLYGONS GRID3
RESELECT P3 POLY 'FAI3 WHERE MATERIAL LIKE '%FAIENCE%''
POLYGONS P3
RELATE RESTORE SFAI3
RESELECT P3SF POINTS 'SFAI3 WHERE MATERIAL LIKE '
'FAIENCE%'
POINTMARKERS P3SF TYPE P3SF.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 4 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 5.05 13.85
TEXT 'PERIOD 3'
TEXTSIZE 0.4
MOVE 15.2 14.5
TEXT 'UNITS CONTAINING'
TEXT 'LEGEND'
MOVE 18.55 4
LINESYMBOL 1
TEXTSIZE 0.09
KEYBOX 0.4 0.4
KEYMARKER PFAI.LEG
BOX 18.15 3.1 20.1 5.25
LINE 18.15 4.61 20.1 4.61
Q
&RETURN

MAP 35

P4FAI.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ORACLE6
$ ARC50
$ ARC ARCPLT P4FAI
Q

P4FAI.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE FAI4
DISP 1039
P4FAI
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
LINESYMBOL 3
POLYGONS P4
LINESYMBOL 1
POLYGONS GRID4
RESELECT P4 POLY 'FAI4 WHERE MATERIAL LIKE '%$FAIENCE$'
POLYGONS P4
NSELECT P4 POLY
RESELECT P4 POLY P4-ID = 541
POLYGONS P4
RELATE RESTORE SFAI4
RESELECT P4SF POINTS 'SFAI4 WHERE MATERIAL LIKE ' ^$FAIENCE$
POINTMARKERS P4SF TYPE P3SF.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9

TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 6.05 13.85
TEXT 'PERIOD 4'
TEXTSIZE 0.4
MOVE 15.2 14.5
TEXT 'UNITS CONTAINING'
MOVE 15.4 13.25
TEXT 'FAIENCE OBJECTS'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
TEXT 'MAP 31'
LINESYMBOL 1
MAPEX ARROW1
MAPPANGEL 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 6.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 5.25 4.7 7.35 4.7
TEXTSIZE 0.15
MOVE 6 4.85
TEXT 'scale'
MOVE 6.05 4.40
TEXT '10 m'
TEXTSIZE 0.15
MOVE 8 1.7
TEXT '18'
MOVE 8 3.9
TEXT '19'
MOVE 8 6
TEXT '20'
MOVE 8 7.9
TEXT '21'
MOVE 8 10.1
TEXT '22'
MOVE 8 12.05
TEXT '23'
MOVE 12.15 14.25
MAP 36

RID.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLOT RID
Q

RID.AML

DISP 1039
RID
PAGESIZE 25 16
MAPEX TEMPB3
MAPLIMITS 0 0.7 11 13.5
MAPPOSITION CEN CEN CEN
MAPSCALE AUTOMATIC
POLYGONS TEMPB3
MAP 37

RPV.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ORACLE6
$ ARC50
$ ARC ARC PLOT RPV
Q

RPV.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE RPV
DISP 1039
RPV
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID4
RESELECT P4 POLY 'RPV WHERE WARE='RPV' OR WARE='RP' OR 
WARE='RP?'
POLYGONS P4
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.4
MOVE 15.1 14.5
TEXT 'UNITS CONTAINING'
MOVE 15.1 13.25
TEXT 'RP & RPV POTTERY'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 33'
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYGONS ARROW1
POLYGONSHADES ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 6.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 5.25 4.7 7.35 4.7
TEXTSIZE 0.15
MOVE 6 4.85
TEXT 'scale'
MOVE 6.05 4.40
TEXT '10 m'
TEXTSIZE 0.15
MOVE 8 1.7
TEXT '18'
MOVE 8 3.9
TEXT '19'
MOVE 8 6
TEXT '20'
MOVE 8 7.9
TEXT '21'
MOVE 8 10.1
TEXT '22'
MOVE 8 12.05
TEXT '23'
MOVE 12.15 14.25
TEXT '24'
MOVE 9.1 0.35
TEXT '22'
MOVE 11.3 0.35
TEXT '23'
MOVE 13.4 0.35
TEXT '24'
MOVE 15.6 0.35
TEXT '25'
TEXTSIZE 0.1
MOVE 13.15 2.5
TEXT '796'
MOVE 12.1 2.85
TEXT '796'
MOVE 12.25 3.7
TEXT '796'
MOVE 13.8 3.4
TEXT '796'
MOVE 13.45 5.2
TEXT '566'
MOVE 14.7 6.4
TEXT '18'
MOVE 13.1 6.8
TEXT '124'
MOVE 11.1 9.3
TEXT '315'
MOVE 10.3 11.3
TEXT '2052'
MOVE 14.1 6.2
TEXT '18'
Q
&RETURN

MAP 38

P4SF2.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ORACLE6
$ ARC50
$ ARC ARCPLOT P4SF2
Q
CONNECT ORACLE DP DIGS
RELATE RESTORE P4SF
DISP 1039
P4SF2
PAGESIZE 25 16
MAPEX GRID4
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRID4
POLYgons P4
RESELECT P4SF POINTS "P4SF WHERE CLASS LIKE "'\%CONICAL STONE\%'
POINTMARKERS P4SF TYPE P3SF.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 5 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 6.05 13.85
TEXT 'PERIOD 4'
TEXTSIZE 0.5
MOVE 14.75 14.5
TEXT 'CONICAL STONES'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
TEXT 'Compiled on ARC/INFO by Dimitris Papailiopoulos'
TEXTSIZE 0.15
MOVE 3.2 0.67
TEXT 'MAP 34'
LINESYMBOL 1
MAPEX ARROW1
MAPANGLE 315
MAPPOSITION CEN CEN
MAPLIMITS 5.5 6 6.5 7
POLYgons ARROW1
POLYGONShades ARROW1 AREA-TYPE ARROW1.CODE
TEXTSIZE 0.15
TEXTANGLE 315
MOVE 6.36 6.93
TEXT 'N'
LINESYMBOL 45
TEXTANGLE 0
LINE 5.25 4.7 7.35 4.7
MAP 39

P34GEN.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ARC50
$ ARC ARCPLOT P34GEN
Q

431
TEXTCOLOR 1
TEXTSIZE 0.2
MOVE 18 9
TEXT 'UNITS'
MOVE 18 7.5
TEXT 'FINDS'
Q
&RETURN

MAP 40

PSFUP.COM

$ SET DEFAULT DUA2:[DP.ARC.PR1]
$ ORACLE6
$ ARC50
$ ARC ARCPLOT PSFUP
Q

PSFUP.AML

CONNECT ORACLE DP DIGS
RELATE RESTORE P34SF
DISP 1039
PSFUP
PAGESIZE 25 16
MAPEX GRIDUP
MAPPOSITION CEN CEN
MAPSCALE AUTOMATIC
POLYGONS GRIDUP
POLYGONS P34UP
POINTMARKERS P34UPSF TYPE P3SF.CODE
LINESYMBOL 13
BOX 3 0.05 22 16
LINESYMBOL 5
BOX 3.1 0.15 21.9 15.9
TEXTFONT 18
TEXTSIZE 0.6
MOVE 15.35 14.75
TEXT 'KISSONERGA'
TEXTSIZE 0.5
MOVE 15.6 13.85
TEXT 'UPPER FIELD'
MOVE 3.2 0.25
TEXTSIZE 0.08
TEXT 'Copyright (c) Lemba Archaeological Project'
MOVE 3.2 0.46
APPENDIX VI

- Corrections to the Boast and Chapman queries
Original

```
INSERT INTO CONTEXT_MER
    (ID,OVERLAYS)
    SELECT ID, OVERLAYS
        FROM CONTEXT_OV
UNION
    SELECT UNDERLIES, ID
        FROM CONTEXT_UN
WHERE NOT IN
    (SELECT ID, OVERLAYS
        FROM CONTEXT_OV);
```

**Corrected**

```
INSERT INTO CONTEXT_MER
    (ID,OVERLAYS)
    SELECT ID, OVERLAYS
        FROM CONTEXT_OV
UNION
    SELECT UNDERLIES, ID
        FROM CONTEXT_UN
WHERE ID NOT IN
    (SELECT OVERLAYS
        FROM CONTEXT_OV);
```

**p. 49 (correction applies to the whole series of queries)**

Original

```
SQL> UPDATE CONTEXT_MER SET TREELEVEL=1
    WHERE ID IN
    (SELECT OVERLAYS
        FROM CONTEXT_MER
    WHERE TREELEVEL=1-1)

7 RECORDS UPDATED

SQL> SELECT * FROM CONTEXT_MER
    WHERE TREELEVEL>NULL;
```

**Corrected**

```
SQL> UPDATE CONTEXT_MER
    SET TREELEVEL=1
    WHERE ID IN
    (SELECT OVERLAYS
        FROM CONTEXT_MER
    WHERE TREELEVEL=1-1);

7 RECORDS UPDATED

SQL> SELECT * FROM CONTEXT_MER
    WHERE TREELEVEL IS NOT NULL;
```
APPENDIX VII

- Publications
KAIS: An Integrated GIS System for Archaeology

It is sixteen years now that the village of Lemba, in West Cyprus, approximately four kms North of Paphos, has been the host of the Lemba Archaeological Project's (LAP) field station.

LAP was founded in 1976 by Dr. E. Peltenburg of the University of Glasgow (now Edinburgh), with the intention of examining the Chalcolithic period of prehistoric Cyprus by excavating three sites, Lemba-Lakkous, Kissonerga-Mylouthkia and Kissonerga-Mosphilia and by conducting intensive surveys at the area covered by the Ktima Lowlands and the western slopes of the Troodos mountain range (see map below).

Map reproduced courtesy of LAP
The purpose of the station is to provide accommodation and working facilities to several teams of archaeologists throughout the year, to examine and analyse the excavated material and conduct experimental work at a location as near to the relevant site as possible. Twelve specialists have been directly associated with the project and since 1989 the author has been occupied in an effort to computerize the project's archives. It was in this context that the Kissonerga Archaeological Information System (KAIS) was born.

Kissonerga Archaeological Information System (KAIS)

GIS is a very recent discipline in the world of science. They consist of two types of data bases. One that stores and manipulates tabulated data and one dedicated to the processing and analysis of digital information, such as maps and graphics. Their applications in archaeological research is an even more recent event, spanning over the last five or six years.

KAIS started as an MSc thesis to test the ability of Geographic Information Systems (GIS) to cope with archaeological data. Once this pilot study was successfully completed, a site was sought for a full scale application. The site chosen was Kissonerga-Mosphilia.
Kissonerga-Mosphilia is the largest prehistoric site of Cyprus excavated to-date. Occupying an area of approximately 1,000 m² (actual surveyed area 12,000 m²) it comprises five periods ranging from the Neolithic to the Early Bronze Age (c. 4,000-2,300 BC). It is a complex multi-period settlement but above all a very sensitive one due to its compactness -2,000 years roughly in duration condensed in a two and a half meters archaeological deposit!

KAIS is a fully integrated GIS system designed for supporting an excavation from the initial survey of the site to its final publication. Such a large scale application has not been considered before and studies were (and still are) concentrated on limited but very specialized aspects of archaeology.

It was developed based on three principles: a) That an essential concern in the field of Archaeology is to process and publish the excavated data in an organized and coherent manner. Any form of specialized study follows after this aim has been achieved. b) The majority of excavations are running on a very tight budget and any excess spending on a particular research area immediately deprives the others from valuable economic resources. c) Any system developed should be fully comprehensive to and readily accessible by the archaeologists (with the minimum of training) who under
no circumstances should lose control of their data.

Therefore, in developing our system, we took the following steps:

1) First of all, it was decided that only well established and thoroughly tested commercial software should be employed. During our research we noticed that there was a tendency among projects and institutions to develop their own software to fully serve their needs. Although we share their feelings, up to a point, we maintained the stand that for the sake of data transferrability and compatibility among the majority of hardware available to-day, we should be ready to make limited compromises on the recording format of our material. Wherever that was impossible, we made limited modifications which by no means drastically affected the performance of our system.

2) Although we have the security of the support of the Department of Geography's mainframe computer, we are trying to become solely based on micro-processors. This gives us a feeling of mobility and independence, left alone the flexibility to conduct our research when we want, wherever we want. Moreover, we do not have to worry about upgrading our software since this is dully done by the companies who produce these programmes. Compatibility between software and hardware, gives us the advantage of having the ability to chose the type
of hardware we will use according to the cheapest leasing price offered at the market wherever we are stationed, as well as that qualified technical support is always readily at hand.

3) A powerful relational data base system (RDBMS) was employed to process the total of the data retrieved during the nine years of excavation. This process ensured that all experts involved with the project would receive, on request, not only lists of their finds in a tabulated form, but also a report on any relations they bear with other types of finds and/or features. To give an example, the person responsible for publishing the graves can examine whether a particular ceramic ware is exclusively associated with graves or it is also encountered elsewhere, e.g. in the settlement. Without the use of computers such experimental queries would often be impractical because of the time factor involved.

4) During the creation of the data base tables we ensured that all codes in the fields involved were familiar to the specialists. About 90% of the time we employed keywords already in use by the researchers and where new ones should be introduced, we asked them to propose the term to be initiated for a particular entity. Test runs were carried out to ensure the functionality of the data base structure and when that
was achieved each specialist had a demonstration on how to use his/her table(s). Moreover, the director of the dig became the recipient of a full report on the design of the data base structure and the architecture of each particular table followed by seminars on handling the full data base.

With this process we secured full access, on the part of the archaeologists, to the bulk of their information. For reasons of data security though, only the director was given access to the whole range of tables; the others maintained access only to their own tables.

5) While mapping the site, we made every effort to use as standardized archaeological symbols as possible. Most of those symbols were not provided by the program and thus they had to be created by utilizing the special facilities provided.

6) Our system is designed to be an "open-ended" one. This means that its components are capable of handling a variety of information ranging from the simplest to the most complex ones. Should our research requirements also change and additional hardware and software are requested, these can easily be added to the existing system. This advantage is greatly enhanced by the effort made by the GIS software producing corporations.
to build interfaces between their programmes in an attempt to cover the extensive range of potential GIS applications.

**Software Used by KAIS**

The programmes of which KAIS consists are the following:

1) **ORACLE**: A powerful relational data base management system (RDBMS).

2) **ORACLE PC**: The micro-processor version of ORACLE.

3) **ORACLE CALC**: ORACLE's spreadsheet.

4) **ARC/INFO**: A GIS program used to create most of maps and diagrams related to *Mosphilia* and other LAP activities.

5) **TIN**: A facility offered by ARC/INFO capable of producing three dimensional images.

6) **GIMMS**: A geocartographic processing system also suitable for the production of thematic maps.

7) **QUATTRO PRO**: A spreadsheet. Also suitable for basic statistical analyses.

8) **SPSS**: A complete statistical package suitable for complex analyses.

9) **MINITAB**: Another statistical package.
10) WORD: Word processing program.

11) WORD PERFECT: Another word processing program.

The reason for using two types of word processing and another two statistical programmes is that we are making an effort to make available a variety of compatible software to meet the individual needs of our researchers. It is also in our intention to test and eventually adopt the use of GIMMS PC and ARC/INFO PC.

Levels of Operation

Currently, KAIS is operating on three levels. The first is our micro-computer based laboratory operating at LAP's field centre. This application involves an IBM AT compatible computer with 40 MB hard disk, 2 MB extended memory and a VGA screen, running ORACLE PC, WORD PERFECT, WORD, QUATTRO, SPSS and MINITAB. A fast printer is also used for the production of lists, documents and graphics. The potential expansion of this application would also involve GIMMS PC, ARC/INFO PC, and TIN in conjunction with a digitizer and a drum plotter. A high quality graphics terminal (such as a TEKTRONIX) would also be required.

The second level involves a portable computer with the same characteristics as in level one, running only ORACLE PC and supported by a set of batteries which
supply power for three hours and require the same time to be recharged. This method is ideal for the rapid processing of finds during rescue excavations and it could be tried this spring at the proposed excavation at the Chalcolithic cemetery of Souskiou-Vathykarkas, a joint project between LAP and the Department of Antiquities, Cyprus, under the directorship of Dr Demos Christou. The opportunity will arise there to test a patent we developed which uses a car battery to power the portable computer for even longer energy supply than conventional batteries could provide.

The third level involves the facilities provided at the Department of Geography of the University of Edinburgh. These consist of a VAX/VMS 6340 "super-mini" computer running mainframe ORACLE, ARC/INFO, TIN, GIMMS, SAS and in addition offers PLOTTOR, the ARC/INFO-ORACLE interface developed by the Department.

For the time being, KAIS is concerned with the collection and analysis of the minimum of the archaeological data that would be required for a well published excavation. By accelerating basic operations we are hoping to manage to economize on financial resources and research time with the aim to dedicate them later to more experimental work. We also would like to believe that our computer archives, which eventually will be handed in to the Department of
Antiquities in Cyprus, will form the basis for an invaluable and accurate national record of Cypriot antiquities.

FROM KAIS TO NARC

Given that there is adequate financial and political will, KAIS could easily evolve to NARC (National Archaeological Record of Cyprus). Our vision of NARC is that it will be a centralized unit dedicated to the collection and further analysis of information gathered from various excavations on the island. Mobile stations (such as KAIS) will operate directly in the field and a mainframe will be dedicated for the storage of the information accumulated. This method, apart that from the fact that it would facilitate intra-site comparison studies at a local and general scale, could also be put to use for educational purposes. It would be desirable to include a satellite and air-photo image enhancing and analysing station (such as a GEMS35), a photogrammetry laboratory furnished with equipment such as stereoplotters and a photogrammetric digitizing computer station. In addition, NARC would provide electronic theodolites and a theodolite data analyzer and would also offer the possibility of clickboard supported surveys and clickboard data analysing facilities. Moreover, if such a system is linked with the computers of the governmental
departments of Land Surveying and Geology, the range of its potential becomes not only large but enormous.

As ambitious as it might sound, methods and equipment such as those described above would place Cypriot archaeology at the leading edge of the advance scientific research in the field.

Dimitris Papailiopoulos

Department of Geography
University of Edinburgh

* KAIS is being developed with the kind assistance of the members of LAP and with the generous contributions of the A.G. Leventis Foundation, the Lemba Archaeological Project and the Department of Geography of the University of Edinburgh.

(submitted by permission of the co-author)
INTRODUCTION
The purpose of the following study is to present a new approach to the manipulation of archaeological data from large scale excavations. This approach regards archaeological fieldwork as a vast laboratory of human labour that aims to the production of scientific publications of the excavated material, under efficient management.

By applying Geographic Information System (GIS) techniques in prehistoric Cypriot archaeology we hope to demonstrate an alternative way of "mining" the archaeological record in order to extract information by means of a computer, instead of uneconomically time-consuming methods.

In the following pages, the reader is presented with an overview of the Kissonerga Archaeological Information System (KAIS) and an archaeological discussion of the preliminary results it has produced, with reference to the mortuary record as an example of the way in which the application of GIS in archaeology can facilitate research.
PART I:
INTRODUCTION TO THE KAIS SYSTEM

In 1989, the well established Lemba Archaeological Project, Cyprus (LAP) embarked on an effort to computerise its archives of the Kissonerga excavation with a twofold aim; first, to improve the organisation of the collected data and second, to enhance the scope and quality of its analytical processes.

A relational database structure was designed (fig.1), based on the efficient data collection sheets that had been developed by the Project during the early stages of the excavation, prior to computerisation. Design priority was given to those researchers who already had made considerable progress in collecting information and who were, more or less, ready to commence preliminary data analyses. Eventually, the number of tables incorporated in the structure was increased, and additional software and hardware was put to use as the analytical requirements increased.

Hence, we ended up with a fully integrated Geographic Information System (GIS) which we named KAIS (i.e Kissonerga Archaeological Information System).

KISSONERGA ARCHAEOLOGICAL INFORMATION SYSTEM (KAIS)
GIS consist of two types of databases. One stores and manipulates tabulated data and one is dedicated to the processing and analysing of digital
Fig. 1: KAIS Data Structure
information, such as maps and graphics. The major difference, however, between GIS and other graphic packages is that GIS not only store and manipulate graphical information but they are also capable of creating new sets of data out of the ones already inserted to the system.

KAIS has been designed to support an excavation from the initial survey of the site to its final publication. Such a large scale application has not been undertaken before and GIS applications were (and still are) concentrated on limited but rather specialised aspects of archaeology (Allen, Green and Zubrow 1990).

The development of the System

Our system was developed on the basis of three principles:

a) That an essential concern in the discipline of archaeology is to process and publish the basic data from the excavation in an organised and coherent manner. Specialised studies of aspects of the material depend on the achievement of this basic responsibility.

b) The majority of excavations are running on a very tight budget and any excess spending on a particular research area immediately deprives the others from valuable economic resources.

c) Any system developed should be fully comprehensive and readily accessible to the archaeologists themselves, with the minimum of training. Under no circumstances should they lose control of their data.
Therefore, in developing our system, we took the following steps:

i) It was decided that only well established and thoroughly tested commercial software should be employed. During our research we noticed that there was a tendency among projects and institutions to develop their own software, in attempt to fully serve their needs. Although we share their feelings, up to a point, we maintained the stand that for the sake of data transferrability and compatibility among the majority of hardware available today, we should be ready to make limited compromises on the recording format of our material.

ii) Although we have the security of the support of the University of Edinburgh, Department of Geography’s mainframe computer, an effort was made to become based solely on micro-processors. This gives us mobility and independence with the flexibility to conduct our research when we want, wherever we want. Moreover, we do not have to worry about upgrading our software since this is duly done by the companies who produce these programmes. Compatibility between standard commercial software and hardware, gives us the advantage of having the ability to choose the type of hardware we will use according to the cheapest leasing price offered in the market wherever we are stationed, as well as ensuring that qualified technical support is always
iii) Besides the main software that we employ, which is presented further on in this article, we also make use of a number of alternatives in software packages such as statistical programmes and word processors. Although this strategy has sometimes led to minor confusion, we thought that it was essential to employ a number of similar programmes to satisfy the variety of people who might not be familiar with a particular package and would not have the time to learn how to use it. We were very systematic however, in selecting software which could share the data produced by means of outputting ASCII\textsuperscript{1} format files.

iv) During the operation of the database programme and the process of mapping the site we ensured that all codes and symbols involved were familiar to the specialists. About 90% of the time we employed keywords already in use by the researchers and where new ones had to be introduced we asked them to propose the term to be initiated for a particular entity. The standardised archaeological symbols appearing on maps and diagrams were either already provided by the software (this was so in a few cases) or they were created (in the majority of cases) by utilising the special facilities offered by the programme.

v) Training was provided during the digging seasons on the use of the system, either in part or as a whole.
Each specialist had a demonstration on how to use the part of the system associated with his/her type of work and the director of the excavation became the recipient of a full report on the system's various components as well as on the logic behind each process.

Following this method we secured full access on the part of the archaeologists to the bulk of their information. For reasons of data security however, only the director was given interactive access to the whole range of data and applications available; the others received access only to their own set of information.

vi) The final step we took was to ensure the design of a system that was as "open-ended" as possible. This implies that its components are capable of handling a variety of information, ranging from the simplest to the most complex ones. Should our research requirements also change in the future and additional software and hardware be required, these could easily be added to the existing system. This advantage is considerably enhanced by the efforts made by the GIS software producing corporations to build interfaces between their programmes in an attempt to cover the extensive range of potential GIS applications.

Levels of operation

KAIS operates on three levels (Fig. 2). The first is with
between their programmes in an attempt to cover the extensive range of potential GIS applications.

Levels of operation

KAIS operates on three levels (Fig. 2). The first is rescue excavations or very limited excavation seasons where speed of data processing is most essential. The second level is at LAP’s field centre where more detailed information processing can take place and research can be conducted up to pre-arranged extents. The third, and final, level involves the installations available at the University’s GIS laboratory where technological support can meet almost any requirement.

![Diagram](image)

*Fig. 2: KAIS Levels of Operation*

Software used by KAIS

The programmes of which KAIS consists are the following:

1) **ORACLE**: A powerful relational database management system (RDBMS).

2) **ORACLE PC**: The micro-processor version of ORACLE.
a fully portable unit, on rescue excavations or very limited excavation seasons where speed of data processing is most essential. The second level is at LAP's field centre where more detailed information processing can take place and research can be conducted up to pre-arranged extents. The third, and final, level involves the installations available at the University's GIS laboratory where technological support can meet almost any requirement.

**Software used by KAIS**

The programmes of which KAIS consists are the following:

1) **ORACLE**: A powerful relational database management system (RDBMS).
2) **ORACLE PC**: The micro-processor version of ORACLE.
3) **ORACLE CALC**: ORACLE's spreadsheet.
4) **ARC/INFO**: A GIS program used to create most of the maps and diagrams related to Kissonerga and other LAP activities.

460
5) **RDBI-ORACLE**: A special software interface between ARC/INFO and ORACLE tables.

6) **TIN**: A module incorporated in ARC/INFO capable of producing three dimensional images.

6) **GIMMS**: A geocartographic processing system also suitable for the production of thematic maps.

7) **QUATTRO PRO**: A spreadsheet. Also suitable for basic statistical analyses.

8) **SPSS**: A complete statistical package suitable for complex analyses.

9) **MINITAB**: Another efficient statistical package, but with graphics facilities inferior to QUATTRO PRO.

10) **WORD** and **WORD PERFECT**: Word processing programmes.

The flow of information within the system is shown in Fig. 3. It is also our intention to test and eventually adopt the use of GIMMS PC and ARC/INFO PC.

**Aims of the System**

For the time being KAIS is concerned with the collection and analysis of the essential archaeological data required for a well published excavation. By accelerating basic analytical operations we hope to manage to economise on financial resources and research time, with the aim of providing for more experimental work. Moreover, by handing in our computerised archives to the Department of Antiquities in Cyprus, firstly we make ourselves accountable for the methods we followed and results we produced,
Fig. 3: KAIS Data Flow Chart
secondly we provide for the potential continuation of research on the site of Kissonerga, and thirdly we hope that we set a good example for the creation of a national archive of archaeological information.

PART II:
COMPUTERISING THE MORTUARY DATABASE
One of the most important aspects of an excavation is often the collection, analysis and publication of mortuary data. That is mainly because unlike the material present in a settlement, which is exposed to many forms of destructive processes and/or intentional and deliberate removal, the objects contained in graves are, in generic terms, "sealed". That is, they have usually been deposited with the intention that they should remain buried forever, and special care has been taken towards this end.

It is not surprising, therefore, that theories on human social behaviour, explanation of culture change and religious practices to a large extent have been developed on the basis of the study of funerary deposits (Saxe 1970; Tainter 1978; Chapman, Kinnes and Randsborg 1981; Pader 1982;).

Up to this point, the design of the database structure provided for a general recording of raw data with no intention of incorporating in-depth studies in any particular area of specialisation. The nature of mortuary deposits, however, calls for
a special treatment of that subject. Although not as detailed as it possibly could be\textsuperscript{2} this does incorporate a greater degree of detail than the rest of the areas of study so far catered for by the database.

The Mortuary Section of the Database Structure

The information on the attributes of the mortuary data has been collected from three sets of excavation recording sheets, namely the Unit Sheet (Fig. 4), the Mortuary Data Recording Sheet (Fig. 5) and the Grave Sheet (Fig. 6).

From the point of view of the grave specialist the information gathered should deal with:

a) general information regarding the grave as an entity,

b) architectural features of all types of graves present,

c) data associated with the burials themselves (e.g. ageing and sexing of the skeletons) and in relation to the tomb (e.g. position and/or alignment),

d) Information regarding grave goods,

e) Location of the grave units on the site.

Three entity tables, two relational ones and one look-up table are dedicated to the recording of mortuary information (Fig. 7).
<table>
<thead>
<tr>
<th>A</th>
<th>Unit</th>
<th>Period/Phase</th>
<th>Contam</th>
<th>Location</th>
<th>as.l.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>Class</th>
<th>General</th>
<th>Surface (unpaved)</th>
<th>Foot (unpaved)</th>
<th>Basin</th>
<th>Building</th>
<th>Entrance</th>
<th>Hearth</th>
<th>Grave</th>
<th>Post Hole</th>
<th>Wall</th>
<th>Plaster</th>
<th>Filling</th>
<th>Stone Setting</th>
<th>Stake Setting</th>
<th>Channel Groove</th>
<th>Pot Spread</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General</td>
<td>1</td>
<td>Surface (unpaved)</td>
<td>Foot (unpaved)</td>
<td>Basin</td>
<td>Building</td>
<td>Entrance</td>
<td>Hearth</td>
<td>Grave</td>
<td>Post Hole</td>
<td>Wall</td>
<td>Plaster</td>
<td>Filling</td>
<td>Stone Setting</td>
<td>Stake Setting</td>
<td>Channel Groove</td>
<td>Pot Spread</td>
</tr>
<tr>
<td>2</td>
<td>Location</td>
<td>as.l.</td>
<td>Y/N/M</td>
<td>t</td>
<td>b</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| C | Dimensions | I | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

<table>
<thead>
<tr>
<th>D</th>
<th>Relationships</th>
<th>above</th>
<th>below</th>
<th>contemporary</th>
<th>adjacent</th>
<th>part of</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>E</th>
<th>Composition</th>
<th>Type</th>
<th>ash</th>
<th>pse</th>
<th>ash</th>
<th>pse</th>
<th>wash</th>
<th>plaster</th>
<th>sand</th>
<th>silt</th>
<th>clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>white</td>
<td>black</td>
<td>brown</td>
<td>reddish</td>
<td>grey</td>
<td>yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td>crumbly</td>
<td>cloddy</td>
<td>blocky</td>
<td>prismatic</td>
<td>laminated</td>
<td>ash fine</td>
<td>medium coarse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consistency</td>
<td>loose</td>
<td>friable</td>
<td>compact</td>
<td>hard</td>
<td>sticky</td>
<td>soft</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organics</td>
<td>charcoal</td>
<td>shell</td>
<td>bone</td>
<td>roots</td>
<td>dense</td>
<td>medium sparse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity of horizon</td>
<td>top</td>
<td>sharp</td>
<td>layer merging</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Particle Type</td>
<td>stone</td>
<td>cobble</td>
<td>pebble</td>
<td>gravel</td>
<td>grit</td>
<td>sand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F</th>
<th>Artefacts</th>
<th>Sherd concentration</th>
<th>dense</th>
<th>medium sparse</th>
<th>none</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>G</th>
<th>Samples</th>
<th>F fibre</th>
<th>bone &amp; antler</th>
<th>S soapstone</th>
<th>C carbonized seed</th>
<th>B C assay</th>
<th>M mollusca</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>H</th>
<th>Plan</th>
<th>Section</th>
<th>Photo</th>
<th>BW</th>
<th>Col</th>
<th>Description (on back)</th>
</tr>
</thead>
</table>

**Fig. 4: LAP Unit Sheet**
MORTUARY DATA RECORDING SHEET

1. SITE REFERENCE UNIT PERIOD TIE NUMBER

2. INITIALS

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
<th>TIE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>POSITION</th>
<th>AGE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FACIAL</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ALIGNMENT</th>
<th>PATHOLOGY</th>
</tr>
</thead>
</table>

3. ARCHAEOLOGICAL - CHAMBER TUNES

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>ROOM</th>
<th>CHAMBER SIZE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TUNNEL LENGTH</th>
<th>SHAFT LENGTH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SHAFT WIDTH</th>
<th>TUNNEL WIDTH</th>
</tr>
</thead>
</table>

4. ARCHAEOLOGICAL - PIT/SHAFT GRAVES

<table>
<thead>
<tr>
<th>GRAVE</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FIT DEPTH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>FIT WIDTH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>APER TUBE</th>
</tr>
</thead>
</table>

5. ARCHAEOLOGICAL - THOLEI

<table>
<thead>
<tr>
<th>THOLEI LENGTH</th>
<th>DRONE LENGTH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>THOLEI WIDTH</th>
<th>DRONE WIDTH</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DRONE DIAMETER</th>
</tr>
</thead>
</table>

Fig. 5 : LAP : Mortuary Data Recording Sheet
Fig. 6: LAP Grave Sheet

AGT
Table GRAVE (Fig. 7)

Table GRAVE contains the following attributes:

a) Grave : the unit number addressing the grave,

b) Type : the type of the grave, for example pit or chamber tomb and any sub-variations that there might be,

c) Tnumbur : the total number of burials located in the grave,

d) Tnumchamb : the number of chambers in a chamber tomb,

e) Numcaps : the number of capstones in a pit grave,

f) Shleng, Shwidth, Shdepth : the dimensions of the grave’s shaft,

g) Rem1, Rem4 : remarks on the grave as a whole and remarks regarding the pit/shaft grave category.

Table CHAMBER (Fig. 7)

Table CHAMBER incorporates the following attributes:

a) Chamber : the address number of the individual chamber,

b) Chnumbur : the number of burials in the particular chamber,

c) Numblock : the number of blocking stones sealing the chamber,

d) Chleng, Chwidth, Chheight : the dimensions of the chamber,

e) Roof status : comments regarding the condition of the chamber’s roof,
f) Rem3 : remarks on the individual chamber.

Table BURIAL (Fig. 7)

Table BURIAL contains the entries listed below:

a) Burnum : the address number of the individual burial,
b) Position : the position in which the skeleton was found, e.g. "contracted",
c) Facing : the orientation of the skull,
d) Alignment : the geographical alignment of the skeleton, e.g. NW - SE,
e) Status : the condition of the deposit, e.g. "disturbed",
f) Type : the type of burial, e.g. "pithos burial",
g) Minage : the minimum estimated age of the deceased,
h) Maxage : the maximum estimated age of the deceased,
i) Sex : the sex of the deceased,
j) Pathology : recording any evident indication of disease, e.g. dental diseases,
k) Rem2 : any remarks related to the particular burial.

Table GRAVE-TYPE (Fig. 7)

The look-up table called GRAVE_TYPE associated with table GRAVE contains attributes such as Type and Description.
Relational Tables

According to the rules governing the design of a relational database structure (Howe 1983) three relational tables should exist, one relating GRAVE to BURIAL (i.e. GRBUR), another relating GRAVE to CHAMBER (i.e. GRCHAM) and the third relating CHAMBER to BURIAL (i.e. CHAMBUR). In that instance however table GRCHAM can be replaced by table PART_OF (a chamber is part of a grave) which already contains the necessary information to make the connection and tables GRBUR and CHAMBUR can be replaced by table SFUNIT since the burial number is a "small find number" and the grave and the chamber in question both carry a distinct unit number. However, this is a problem to be addressed at a later stage of our research.

With the addition of yet another column, SITE\(^3\), to the tables described above, the database becomes a "global" one. This means that data from a number of archaeological sites can be incorporated in the same tables, offering the possibility of inter-site comparisons and analyses.
PART III:
ARCHAEOLOGICAL DISCUSSION OF THE MORTUARY RECORD

In Kissonerga, the mortuary sample offers the potential for gaining significant insights into the social structure of a Chalcolithic community. The social structure entails both ritual and cultural aspects, since we cannot easily separate these components, or isolate them in the archaeological record (Keswani 1989). Given as a principle that funerary practices constitute a purposeful and conscious action on behalf of the living towards the dead (Goring 1989), the burial tradition of a society comprises a stimulating field which calls for detailed analysis and interpretation.

The nature of information we can obtain from the graves is, therefore, multi-dimensional - social, economic, ritual, cultural - and must be treated as such.

The standardisation of our system of recording the evidence allowed us to insert the data in a short time and to produce preliminary results with regard to the following aspects of mortuary variability:

a) Chronology of the Graves.
b) Burial architecture and Grave typology.
c) Population statistics.
d) Methods of disposal of the dead.
e) Grave goods: character, distribution.
Chronology of the Graves

The tentative chronology of the graves, indicates that the overwhelming majority belong to Kissonerga Period 4, i.e. the Late Chalcolithic c. 2800-2300 B.C. (E. Peltenburg et al. LAP II.1, forthcoming, for find chronology). Only four graves date to the early and middle phases of the Middle Chalcolithic c. 3500-2800 B.C. In addition, a number of Period 4 graves may have been cut at a later date, during the so called "Philia Stage" (Peltenburg 1988).

Clearly, the whole character of the site undergoes a major transformation in the transition from the Middle to the Late Chalcolithic, prior to the erection of new habitation units on the site (Peltenburg 1985; 1988).

Burial architecture and Grave typology

Funerary architecture is seemingly quite consistent throughout these periods, although the chamber tomb evolves in the Late Chalcolithic. While working on the grave typology in the database six grave categories (A, B, C, D, E and 0) were distinguished, for ease of reference (Table I). LL Types I and II refer to the grave typology established for the site of Lemba-Lakkous (Niklasson 1985). The production of KAIS lists correlating different grave types to different chronological periods helped us establish a sequence in burial architecture.
<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DESCRIPTION</th>
<th>CHRONOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Double Chamber Tomb</td>
<td>Period 4</td>
</tr>
<tr>
<td>B</td>
<td>Single Chamber Tomb</td>
<td>Period 4</td>
</tr>
<tr>
<td>C</td>
<td>Pit Grave LL Type II</td>
<td>Period 3 - 4</td>
</tr>
<tr>
<td>D</td>
<td>Pit Grave LL Type I</td>
<td>Period 3 - 4</td>
</tr>
<tr>
<td>E</td>
<td>Shallow Pit Grave</td>
<td>Period 3 - 4</td>
</tr>
<tr>
<td>0</td>
<td>Pithos Burial</td>
<td>Period 4 - 5</td>
</tr>
</tbody>
</table>

Table I: Grave categories and tentative chronology

Category A contains the single example of a double chamber tomb on the site. In Category B twelve single chamber tombs are included. Category C contains about eleven graves of Lemba type II (Niklasson 1985), whereas Category D consists of about twenty-four graves of Lemba type I (Niklasson 1985).

All the shallow ill-defined pit graves and scoops comprise Category E with nineteen graves in total. Pithos burials - two examples in Kissonerga - are recorded as burial type 0.

When attributed to chronological periods the majority of the Category C graves conform to the Late Chalcolithic, although there are representative examples from the Middle Chalcolithic as well. This demonstrates the continuity of burial architecture on the site, accompanied by innovative elements, such as the chamber tomb and the pithos burial in the Late Chalcolithic.
The Category C grave comprises the most elaborate version of a pit grave - in fact a shaft grave - with a stomion and capstones covering the shaft, like the well known examples from Souskiou-Vathyrkakas (Christou 1989). It might be possible to trace the initial attempts towards the construction of a chamber tomb in these types of shaft graves; some of the Kissonerga examples seem to "bell out" at the bottom, like the Souskiou "bottled" shafts (Christou 1989). It is this "belling out" that may constitute a first step towards the creation of a "chamber", to accommodate more burials (Karageorghis 1982).

Population statistics
Preliminary statistics produced by KAIS indicate that less than half the deceased individuals in Kissonerga were interred in chamber tombs and Category C graves. The majority, were buried in Category D graves and - mainly - in irregular pits and shallow scoops of Category E (Fig. 8).

Initial population statistics have shown that the highest percentage of the deceased were children 1 - 10 years old and infants 0 - 12 months old. The rest of the mortuary population consisted of six adolescents ageing from 10 - 19 years, seven young adults 20 - 25 years old, five adults ageing from 25 - 35 years and two elder individuals 35 - 45 years old (Fig. 9). The elder individuals were buried without any accompanying goods. However, there is a great degree of variability regarding
KISSONERGA GRAVES
No. of graves per grave category

Fig. 8
KISSONERGA GRAVES
Ageing of Individuals

Fig. 9
children. They are either placed in the tombs without any burial equipment, or with artefacts which apparently ascribe them some kind of status. It has been suggested, that many children are associated with dentalium shells and picrolite objects such as figurines and pendants (Peltenburg 1990).

Double burials are associated with both adults and children. Pithos burials however, are restricted only to children. Multiple burials were ten in total in Kissonerga, half of which were in chambered graves. Single burials by far outnumber the multiple ones on the site. Only three single burials were found in chamber tombs; the rest, were buried in individual pit graves dug for that purpose.

Unfortunately we do not, as yet, have information on the sexing of the skeletons and therefore no statistics regarding sex associations could be produced by the database.

Alignment of burials did not play a significant role in the funerary custom. Less than half the burials were aligned North-South, whereas the slight majority had an East-West alignment. It might be noteworthy though, that most of the burials in chamber tombs and Category C graves followed the East West alignment (Fig.10).

Methods of disposal
If we now look at methods of disposal of the dead, there is evidence that skeletal remains were completely removed from graves in order to re-use the space for new
KISSONERGA GRAVES
Alignment of Burials

Fig. 10
interments (Peltenburg 1990).

Sometimes graves were found empty with only a few, - if any, - fragmentary bones and/or a couple of pottery pieces. In Grave 563 for instance, as Peltenburg has reconstructed (1990) the remains of two children recovered during excavation and flotation of the fill of the grave showed that these interments were at some stage removed, in order to place two new burials at the bottom of the shaft6.

Secondary burials must have also taken place, since small pits containing a fragmented skull and perhaps a few bones were excavated. It is not clear though whether there was any purposeful selection of bones, or if indeed, these were partial interments; in fact the nature of such deposits was quite confusing.

Other aspects of burial treatment included skeletal position and layout of the burial. The majority of the individuals were placed in the grave in a flexed position, lying on their right side. Some individuals, mainly children were found in crouched positions, so as to fit into the small size pit graves made for them. Only two skeletons were in dorsal position; also, a very small part of the sample - six burials - were lying on their left side.

Most of the single burials were in pit/shaft graves of the relevant categories C, D and E (Table I). Five burials conforming to these grave categories were multiple interments. In the chamber tombs, however, the slight majority were double and multiple burials.
Some of the skeletons had both hands raised near the face, but the sample was not well enough preserved, to establish whether this was a general pattern.

It should be noted that the chamber tombs contained almost exclusively adult individuals. In one case, Grave 505, remnants of a child 10 - 12 years old were recovered along with two adult inhumations, a male and a female, possibly its parents (Peltenburg 1985). Adults were also interred in simple pit graves, but there is not a single example of an adult individual in a Category C grave. Children on the contrary, were buried in all types of pit/shaft graves.

The relation of age to grave type is quite revealing, particularly the association of certain adult interments with chamber tombs in the Late Chalcolithic, when the majority of inhumations occur in pit graves. Furthermore, the same is apparent in the Middle Chalcolithic, i.e. the association of certain children this time, with the Category C grave, when again the majority are interred in simple pits. This changing pattern of mortuary ritual from one period to another, re-appears in the artefactual evidence.

Grave goods
The small finds record of the site includes a wide variety of objects and the same level of art and craftsmanship is demonstrated in the tombs. A number of graves were furnished with pottery, stone tools and vessels, objects of exotic origin such as faience beads
(Peltenburg 1989; 1990) and obsidian, picrolite figurines and pendants, dentalia, flints, a toilet shell with malachite and even a copper spiral hair ring - the earliest occurrence of a metal artefact in a funerary context in Cyprus. Other burials contained no goods.

Two classes of small finds, picrolite objects and dentalia seem to occur repeatedly in mortuary contexts and pits - where shell-working activities might have taken place (Peltenburg 1987). Preliminary information extracted from KAIS indicates that only fifteen such objects were recovered from contexts other than graves and pits (Fig.11).

Artefact distribution shows that Category C and D graves present the widest variety of grave goods and contain almost the whole range of small finds on the site. They most certainly comprise the "richest" graves in terms of quality and quantity of mortuary equipment.

Category C graves demonstrate the highest occurrences of picrolite objects and dentalium shells (Fig.12). When such graves are as richly furnished, they usually belong to the Middle Chalcolithic. The toilet shell was also found in a Category C grave dating from the early Middle Chalcolithic period. The faience beads were found in such a grave type, which nevertheless dated to the Late Chalcolithic.

The artefactual evidence from the chamber tombs on the site clearly does not display the same system of mortuary ritual. The Kissosnerga chambered graves present the highest occurrences in pottery, stone vessels and
KISSONERGA GRAVES
Dentalium Shell & Picrolite Occurrences

Fig. 11
KISSONERGA GRAVES
Category C Find Occurrences

Fig. 12
hereditary property in a small scale communal society and concludes that "one feature of that social organization is the preferential treatment of selected children and adults who were supplied with these exotica" (Peltenburg 1989:16).

It will take detailed intra-site and inter-regional analysis to illuminate the subject. However, it is apparent that our notion of a "communal" society must not necessarily be restricted to egalitarian standards. Despite its "communal" character Kissonerga shows evidence of ranking in its burials, i.e. of social and economic differentiation expressed by unequal access to material and social resources, such as picrolites, dentalia or even faience and copper later on (Peltenburg 1989).

If in fact, the acquisition of such luxury items helped to define different sub-groups in the society (Peltenburg 1989), then heterogeneity as referring to a number of distinctive social parts or components (Tainter 1988), might have been present at Kissonerga.

It was evident then, that a small scale society such as Kissonerga had developed a complex pattern of social organisation, which revealed itself in the archaeological record through the relation of the material culture to the mortuary population.

This type of relation was elucidated by the continuous production of KAIS relational lists containing associations between different classes of mortuary evidence from the site.
chalk beads. There were a couple of dentalia excavated in a chamber tomb. However, the burial ethic no longer consists of such luxury items (Fig.13).

Assessment of the Mortuary Record
Along with the evolution of the chamber tomb in Late Chalcolithic Kissonerga a whole series of changes in the burial ritual seems to take place. Only certain adults are interred in the new tomb type, along with objects of different manufacture and character to those of the earlier period. Pottery features predominantly in the new era. These changes seem to herald characteristic forms of the Early Bronze Age burial archaeology in Cyprus.

Keswani (1989), after a thorough study of the 2nd millenium B.C. burials on the island, suggested that any changes in the mortuary ritual must be seen as a medium for expressing developments in social structure and, furthermore, that the use of funerary ritual is subject to social manipulation (also Hodder 1990). If so, then the change in the ritual expression of the community in the Late Chalcolithic, reflects changes in the social structure at Kissonerga during this period.

Already in the Middle Chalcolithic the record of the site poses some challenging problems to the archaeologist. For instance, there is the notion of ascribed status (Pader 1987) in children's burials in a communal society, as the artefactual and the architectural evidence indicate. Peltenburg (1990), attempts to address the problem of
KISSONERGA GRAVES
Categories A & B Find Occurrences

Fig. 13
Continuous assessment of the record has disclosed a challenging aspect of a Middle/Late Chalcolithic community, perhaps previously underestimated: the fact that Kissonerga was a ranked society which had achieved a certain degree of social complexity as early as 3400B.C.

CONCLUSION

The purpose of this paper has been to present only a sample of results which have been derived in a short time by the application of a GIS system (KAIS) in the field of archaeology. It also demonstrates how the analysis of large amounts of archaeological data can be facilitated by the use of such information systems.

Our use of KAIS on the preliminary treatment of the burial record has enabled us to improve our techniques of information retrieval, recording and analysis of the collected material.

The organised and coherent manner in which data were captured by the computer has limited the possibilities of errors and facilitated accurate data updating procedures. In addition, data recording redundancy - one of the most common features of archaeological recording methods - has been successfully avoided.

Despite the fact that archaeological information always encompasses a certain degree of bias, we hope that we have managed to limit its effect on the analysis of data by preventing its perpetration through our records.

KAIS has also provided for general data associations
by allowing for an integrated study of the material. For instance, information retrieved from the mortuary record can be combined with that from the pottery and the small find record to test the hypothesis of certain items being used exclusively for funerary purposes. Moreover, preliminary results released on the spot have formulated new field strategies, which in turn have fostered excavation and publication.

The prospect of spatial analysis, advanced by the use of a GIS, is another fascinating aspect of our current work. However, since our spatial data are still incomplete and a discussion on the spatial analysis of the site would be beyond the scope of this paper, we reserve the initiative to present such a study as part of the general working up of the LAP material.

Our assessment is that KAIS has reached the point by which it can free the archaeologist from his/her usual monotonous assignment of searching through the data and allow him/her to concentrate on publishing studies.

Evi Baxevani
Department of Archaeology
University of Edinburgh

Dimitris Papailiopoulos
Department of Geography
University of Edinburgh
Acknowledgements

The authors wish to acknowledge the kind and generous contributions of the A.G. Leventis Foundation, the Lemba Archaeological Project and the Departments of Geography and Archaeology of the University of Edinburgh. Special thanks are due to Dr Ian Morrison for coping with the hideous task of editing the final version of this paper.

Endnotes


2 The study of mortuary data may involve a series of specialists, such as a dentician, an anthropologist and a paleopathologist who although they will be working with the same set of data their information requirements and methods of recording will vary considerably.

3 SITE : This column will comprise the site codes as they have been established by the Department of Antiquities in Cyprus (e.g. LL = Lemba Lakkous).

4 Full details of ground plans of all periods represented will appear in the final publication in E. Peltenburg et. al., Lemba Archaeological Project Vol. II.II (in preparation).

5 Reference to the sexing of certain skeletons within the text is based on preliminary excavation reports.

6 A reconstruction of the use of Grave 563 and its implications has been made by the Director of the LAP E. Peltenburg in Karageorghis Festschrift (forthcoming).


KISSONERGA
PERIOD 4

GRAVE TYPES

LEGEND
- GRAVE TYPE 0
- GRAVE TYPE 1
- GRAVE TYPE 2
- GRAVE TYPE 3
- GRAVE TYPE 4
- GRAVE TYPE 5

scale
10 m

Copyright (c) Lebka Archaeological Project
KISSONERGA
PERIOD 4

GRAVE TYPE 2
GRID LOCATION
KISSONERGA
PERIOD 3

DISTRIBUTION OF
RECTANGULAR BUILDINGS

MAP

Scale: 10 m

Copyright (c) Leake Archaeological Project

Compiled by Dimitris Papiliopoulos

KEFALLINOUS D.C.
KISSONERGA
PERIOD 3

ASSOCIATION OF
RECTANGULAR BUILDINGS,
TRACK AND CIRCULAR
BUILDING 2

LEGEND

TRACK
KISSONERGA

DISTRIBUTION OF
LARGE ROUND BUILDINGS

PERIOD: 3
DIAMETER: c. 9 m
USE: Domestic

PERIOD: 3
DIAMETER: c. 8.8 m
USE: Central Storage Area

PERIOD: 3
DIAMETER: c. 12-15 m
USE: Possible Storage Area

MAP 23
Compiled on AUTOCAD by Dimitris Papalopoulos
Copyright (c) Leake Archaeological Project
KISSONERGA
BUILDING 994 AND ITS ASSOCIATED PITS
KISSONERGA
PERIOD 4

DISTRIBUTION
OF AXES

LEGEND

MAP
Compiled on ARC/INFO by Dimitris Papailiopoulos
Copyright (c) Lemb Archaeological Project
KISSONERGA
BUILDING 3 AND ITS SMALL FINDS

LEGEND

- SOCKETED STONE
- COFFIN STONE
- BOWL, JAR, CUP, BASKET, MOSAIC
- POSTES
- DENTALIAIUM SHELL
- RUDDER
- CART WHEEL, AXE, SLEDGE, SLEDGE ANVIL, WHETSTONE, POLISHED AXE ADZE, AXE SHAPED GINDE, POLISHED AXE ADZE, CHISEL DISC, QUEEN JAHKE, STONE GOOVED STONE, POINT, NEEDLE HAMMERSTONE, CORDAGE STONE, SHEET, HAMMERSTONE GRINDER STONE, THONGING STONE, BEAD PENDANT, CERICAL STONE, FIGURINE

MAP 33
Compiled by DEMETRIOS PAPAILIAPOULOS
Copyright © Lemkos Archeological Project

Scale: 10 m