794

Reference 765455

ANL REPORT 2343

M.Robson,
Room 510,
Fortress House,
23,Savile Row.

23.7.76

Specifications required by Stephen Green,Director of Bradwell Roman Villa Excavation (MK105,1976) regarding further investigation of the iron-bound ~~lead(?)~~ casket.

1) Opinion of Dr. W.H.Manning about object:

THOUGHT to be unique, no complete type known,possibly completely filled with padlock/coin hoard/human bones.

2) Dimensions:

ALSO unique, important therefore possible reconstruction (in perspex)(?) reqd.

3) Further investigations required by Dr.W.H.Manning immediately for report to be published. Dr.Manning requests notification of possible finds during excavation of contents.

4) Stephen Green's requirements:

CONTENTS of iron-bound lead (?) casket may provide additional information related to the vicinity in which the object was found.

5) Laboratory Specifications:

i)Full examination: (X-ray of casket in polyurethane mould)
(X-ray of contents)
(Working drawings of all stages of excavations)
(Measurements and accurate plotting of contents)
(Dimensions of casket)
(Photographic record)
(Final drawing)

ii)Conservation of casket and contents/stabilisation etc.

iii)Reconstruction of casket/support.

iv)Full report of work carried out on casket.

M. A. ROBSON.

CODE 18-77

ANCIENT MONUMENTS LABORATORY

MATERIAL ~~LEAD (?)~~ & IRON

SITE: BRADWELL ROMAN VILLA (DATE: 22.7.76)

SHEET: ONE

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655			**Working Report of the Lifting of the Iron-Bound ~~Lead (?)~~ Casket at Bradwell Roman Villa, Bucks.**	

Stage 1: Examination.

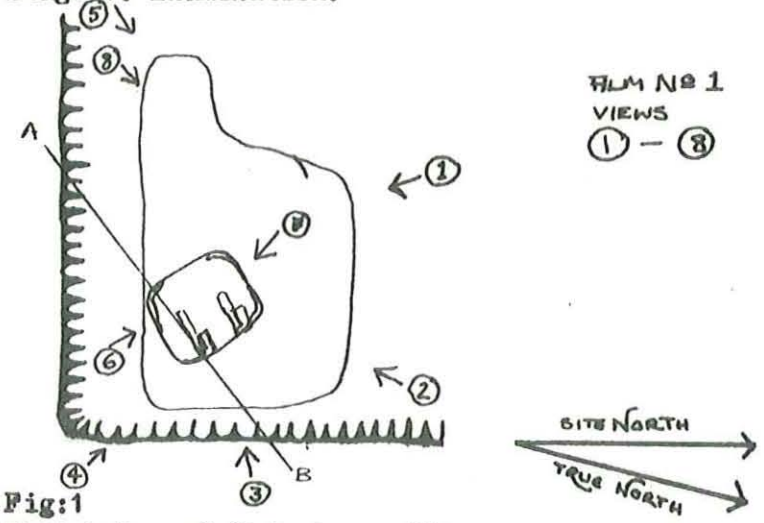


Fig:1
Sketchplan of Object on site.

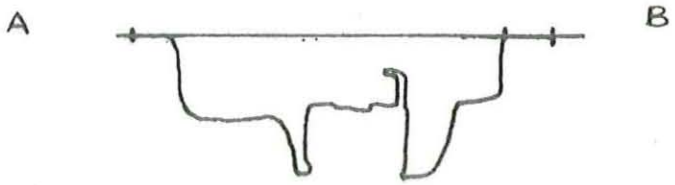


Fig:2
Section through AB to show position of Object.

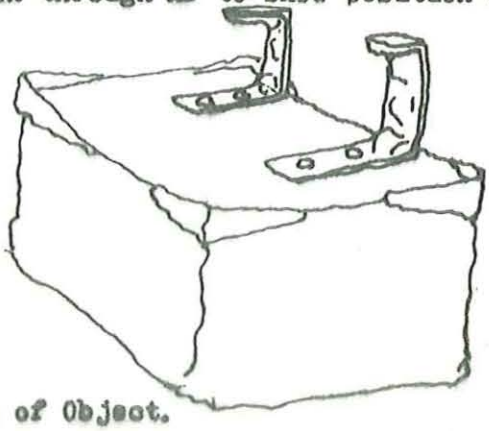


Fig:3
Sketch of Object.

ANCIENT MONUMENTS LABORATORY

MATERIAL IRON AND LEAD(?)

SITE: ..BRADWELL.ROMAN.VILLA..... (DATE: 22.7.76)

SHEET: ..2.....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655			The object is a small casket with iron banding. Two projecting iron bands on top may indicate the presence of an organic lid, now missing. For the most part it is coated with a clay soil which has dried hard and cracked. Several of these cracks run along the edges of the iron bands and weaken the structure. Points to note: 1) The surface is fragile, and some areas require consolidation, especially the bolts and corner pieces which are almost entirely detached. 2) The spaces between the corner pieces and the upper surface of the casket, and the overhangs formed by the two projecting bands on top will require special attention during packing.	

ANCIENT MONUMENTS LABORATORY

MATERIAL LEAD(?) & IRON

SITE: BRADWELL·ROMAN·VILLA····· (DATE: 22.7.76)

SHEET: .3.....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655				

Stage TWO: Consolidation and Packing of Fragile Areas.

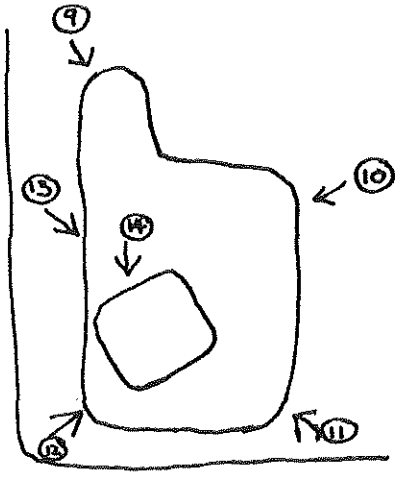


Fig:4

The consolidant chosen was HMG diluted in Acetone. It was chosen partly for its convenience but mainly because it is simpler to remove in the laboratory. The soln was squirted down the major cracks with a pipette. Loose or fragile areas were then faced with small pieces of acid-free tissue and bound with masking tape.

Stage THREE: Filling the Overhangs.

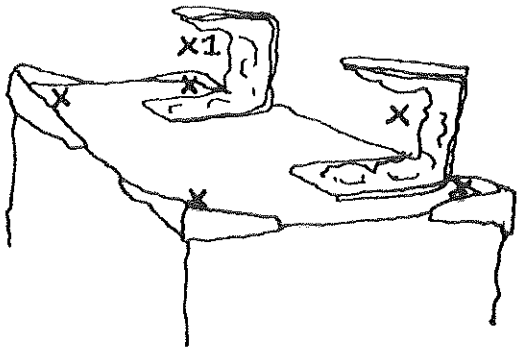


Fig:5

Overhangs and corners (x) were stuffed with crumpled acid-free tissue bound in place with masking tape. The largest overhang (x1) was then reinforced with a sealed plastic bag filled with soil.

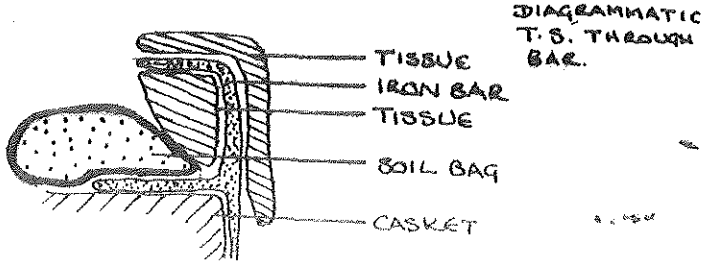


Fig:6

MATERIAL IRON & LEAD(?)

SITE: BRADWELL.ROMAN.VILLA..... (DATE:22.7.76)

SHEET: ..4.....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655				

Stage FOUR: Facing.

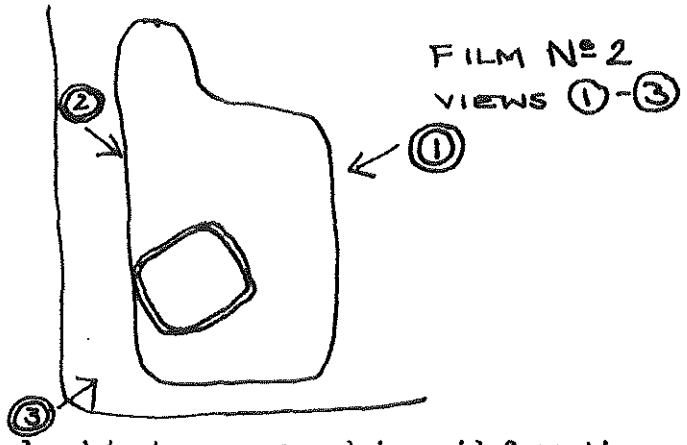


Fig:6

The whole object was encased in acid-free tissue bound with masking tape. Three pieces of scrim were stretched round the object and any gaps filled with crumpled absorbent tissue. The whole was then bound round with more masking tape.

Stage Five: Application of Release Agent.

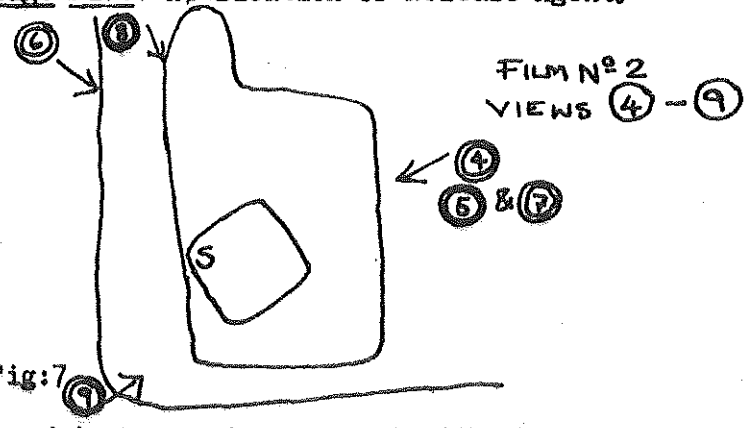


Fig:7

The object was then covered with sheets of tin foil pressed firmly onto the surface and held with masking tape.

Stage Six: Consolidation of the South Corner.

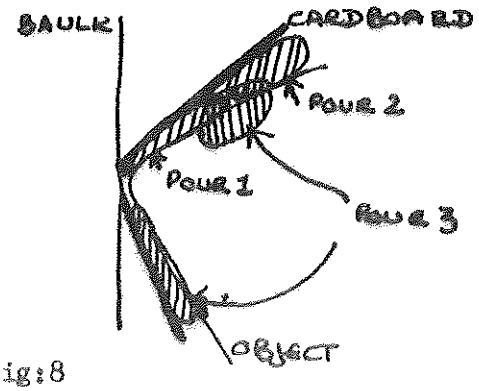


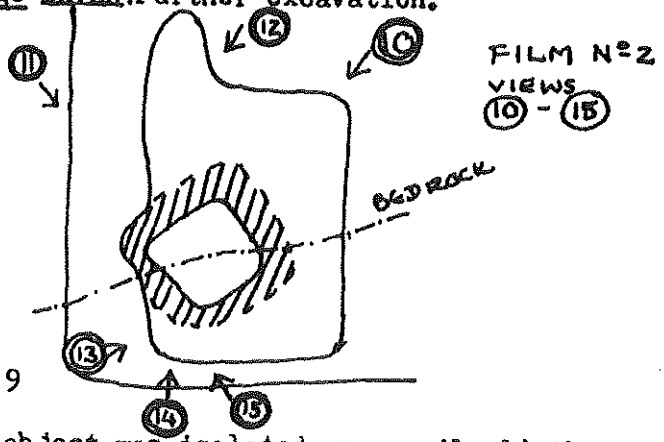
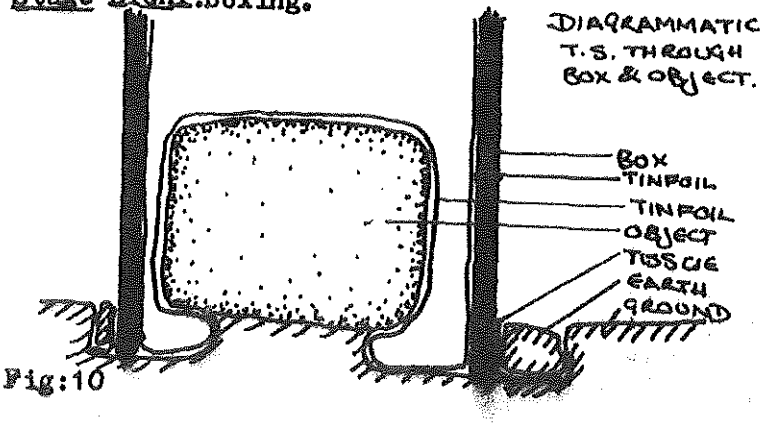
Fig:8

ANCIENT MONUMENTS LABORATORY

MATERIAL IRON & LEAD(?)

SITE: BRADWELL ROMAN VILLA ..... (DATE: 22.7.76)

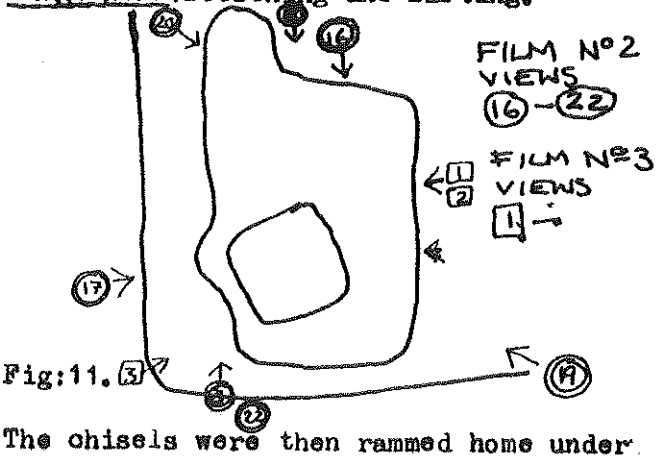
SHEET: 5 .....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655			It was judged necessary to remove part of the baulk close to the South corner of the object to facilitate lifting. In order to protect this corner (S) two sheets of cardboard were positioned beside it and a small amount of polyurethane foam poured in. The reaction took 60 secs before the foam began to expand. Stage SEVEN: Further excavation.  Fig:9 The object was isolated on a soil plinth about two inches high. Further excavation downwards was ruled out by the presence of limestone bedrock under the western edge. The plinth was then undercut slightly using trowels, a saw and a cold chisel. Two three-foot cold chisels were then driven part-way under the object to loosen it slightly and provide a key after boxing. Stage EIGHT: Boxing.  Fig:10 The plywood box was lined with tin-foil as a release agent and was placed over the object.	

MATERIAL IRON & LEAD(?)

SITE BRADWELL ROMAN VILLA ..... (DATE: 22.7.76

SHEET 6.....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655			The edges of the box were sealed along the base with tissue and earth. Polyurethane foam was then poured into the space between the object and the box and over the top of the object. The lid was crammed on before the foam had finished expanding to make sure that the contents were under pressure, and to allow for shrinkage. Unfortunately the 1" nails holding the three-ply sides together were unable to withstand the pressure with the result that one corner bulged open. The box was bound with three lengths of doubled rope to prevent further collapse. Stage NINE: Loosening and Lifting.  Fig: 11. The chisels were then rammed home under the object and rotated in a horizontal plane to free the object from its plinth. The box was rolled onto one side and lifted manually out of the trench. It was placed bottom side up, the excess earth and foam trimmed off and the base nailed on. The box was then turned right way up and carried to the car in a wheelbarrow. The above work was carried out under the direction of Maureen Robson and Colin Slack (Conservation staff at the Ancient Monuments Laboratory) and assisted by Helena F. Farrell (student in Conservation at Cardiff University. signed: H. F. Farrell (temp. A.E.O. Ancient Monuments Laboratory) date: 22.7.76	

ANCIENT MONUMENTS LABORATORY

REMAINS OF A WOODEN
TERIAL
EST WITH IRON FITTINGS

SITE: BRADWELL ROMAN VILLA ..... (DATE: 10.8.76)

SHEET: ONE .....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655		2.	Method of isolating the iron-bound chest from its protective polyurethane mould. Stage 1: Dismantling of the plywood box. Nails were removed from all corners of the plywood box initially forming the frame encasing the polyurethane foam mould. The box sides were dismantled - ease of removal facilitated by the placement of alluminium foil used as a separator.	
		BL 26	Stage 2: Removal of the polyurethane foam and subsequent layers. The polyurethane foam was then cut away in gradual stages until all the features of one end of the chest ie. the back face were located. Again the alluminium foil separator moulded over the chest acted as a guide. See photo no BL 26.	

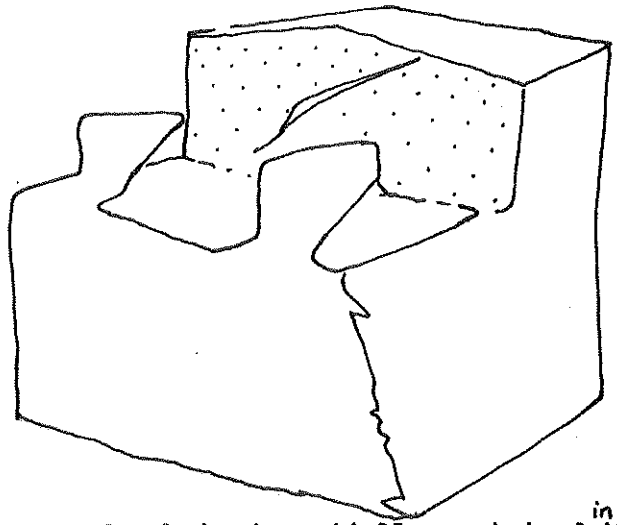


Fig 1 Sketch of chest partially contained in the polyurethane foam mould.

Having located the chest, large areas of excess foam were easily cut away with a hacksaw blade until approximately one inch of supporting foam remained.

Care was taken throughout the next stage not to disturb the soil block and small slices of foam were cut away to reveal the layer of alluminium foil.

TERIAL

SITE: BRADWELL ROMAN VILLA ..... (DATE:)

SHEET: 2.....

AM No	X-Ray No	Photo No	Description and Report	Ref No

The cardboard support used for the corner banking was removed together with the excess soil placed initially around the base to prevent 'run out' during the pouring of the foam.

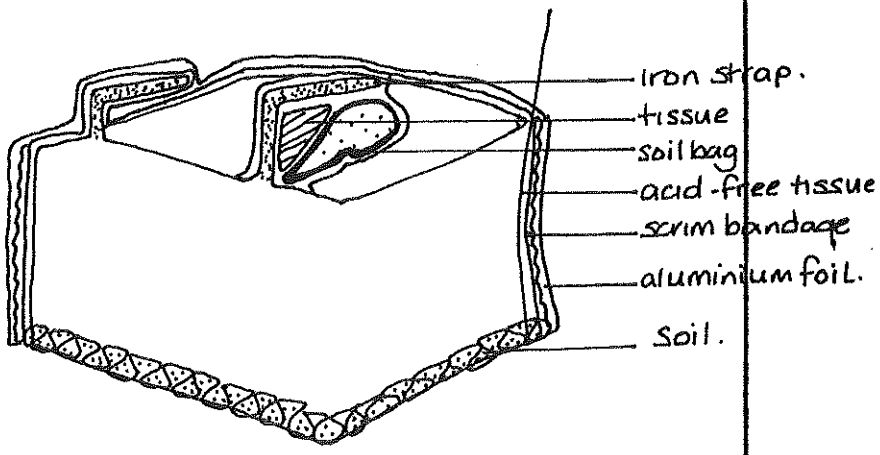


Fig 2. Diagram of chest showing the packing layers.

The aluminium foil, blue tissue paper, scrim bandages, and soil bag supporting the iron top strap were then removed exposing the final layer of acid free tissue paper.

The final stage of unwrapping this layer was more delicate as protuding iron brackets, although held by a mixture of H MG (cellulose nitrate adhesive) in acetone were now not fully supported.

Wax blobs ie. Dental wax heated with an industrial hot air blower and worked into a putty-like consistency, were placed at the base of all the overhanging points eg corner brackets. This prevented any likely subsidence as the soil block had shrunk considerably on one side ie. the side that was nearest the baulk wall on site, and the metal fittings were left suspended by very little support. Also large fissures within the soil block were bridged with a polymethacrylate ester ie. Bedacryl 122X. This consolidant has a viscous consistency and a rapid solvent evaporation point which permitted little wetting of the soil and thus prevented the likelihood of substantial

ANCIENT MONUMENTS LABORATORY

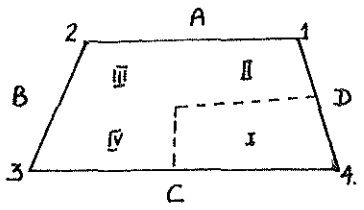
TERIAL

SITE: BRADWELL ROMAN VILLA ..... (DATE:)

SHEET: 3 .....

AM No	X-Ray No	Photo No	Description and Report	Ref No
			weakening with resultant subsidence on application. All the metal fitting were thus supported and permitted transport of block to the photographic studio without further collapse. Signed. M.A.Rdason.	

GENERAL DESCRIPTION AND MICRO-EXCAVATION OF THE SOIL BLOCK

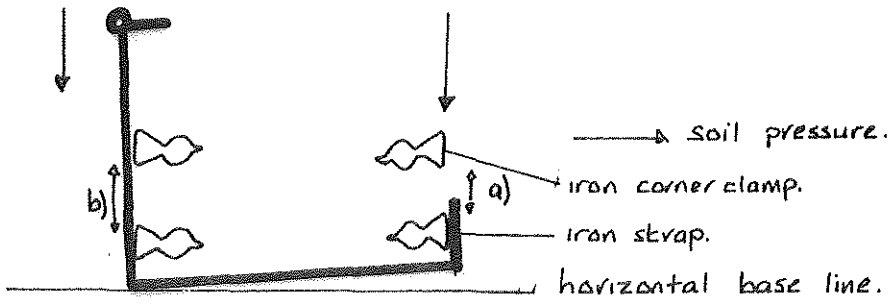


View A: Bv. 1 and 2 mark the front of the chest.
View C: Bv. 3 and 4 mark the back of the chest.
View B and View D mark the sides of the chest.
I, II, III, IV mark the quartre sections of the micro-excavation.

General description

The rectangular block of soil defining the chest dimentions was found in situ to be distorted. The chest measured approximately 45cm wide x 37cm deep x 34cm high. There were eight decorative iron corner clamps and the chest had been partially bound with two parallel iron straps which were hinged at the top to permit lifting of the lid.

Visual inspection of the block suggested that the fittings had undergone slight movement after burial. The front straps were positioned above the level of the horizontal base line. Both front strap and back strap tilted backwards and the vertical distance between each pair of corner clamps was less on the front a) than that on the back b) of the chest. This suggests that the chest was slightly crushed downwards and inwards.



This was confirmed by the subsequent micro-excavation which revealed that the base straps sloped downwards towards the back of the chest. In addition the base strap 10 was found at a slightly lower depth to base strap 9 which presumably

attributed to the slight lean of the chest to the right. Both base straps had fractured towards their back ends and along the line of stress at the corners. Evidently there had been some downward movement of the back straps but there was no evidence to suggest that the back corner clamps had moved relative to each other. The iron straps supporting the lid had broken and were uncovered in their correct relative positions approximately one third of the way down the chest.

Micro-excavation of the soil block

The soil block had been exposed on site for some length of time and consequently the soil had dried out and had become hard and compact. The use of acetone was employed to speed up removal of the soil as water would have tended to accelerate corrosion of the iron fittings.

For purposes of sectioning the soil block, divisions were drawn up so that four quartre sections could be excavated in turn. The first quartre section was carried out on the back face of the chest. String lines were used to mark out the position as shown by the dotted line on plan 1.

Distance from corner clamps 3-4 46cm
Distance from corner clamp 4 to corner section on view C - 23cm

Distance from corner clamp 4 to corner of section view D 20cm
Distance from corner clamp 2 to corner of section on top face 28cms.

The top hinge of strap 10 was taken as a fixed point from which the depth of features and 'finds' were measured. Lower case letters were given to 'finds' located in the section and a systematic removal of the soil was then carried out.

Quartre section I (size indicated on plan 1)

- Included corner clamps 4 and 8. The nails used to attach the corner clamps were found hammered over at their ends on the inside at an approximate distance of 2.6cm (about 1"). Considerable amounts of iron-replaced wood had survived on the inner surfaces of the iron fittings but was found in a very delicate state, fragmentary to the touch. Extreme care was taken on their excavation and subsequent removal, and attached soil was left where possible in order to hold the composite material together. This precedure enabled some handling of the fittings for X-radiography, prior to patient cleaning and conservation.

Bone and fired clay fragments, low fired ceramic, tabular carbonate rocks and charcoal flecks were all located, widely dispersed throughout the section and with no apparent relevant arrangement.

Bone b) 1-5 near top

b) 6 mid section

Charcoal c) 1-3 near top

c) 4-6 mid section

Tabular carbonate rock

t) 1 near top

t) 2-5 mid section

t) 6 near bottom

Low fired ceramic

m1) mid section (possibly tile fragment)

m2) near bottom (possibly a fragment of drainage gully)

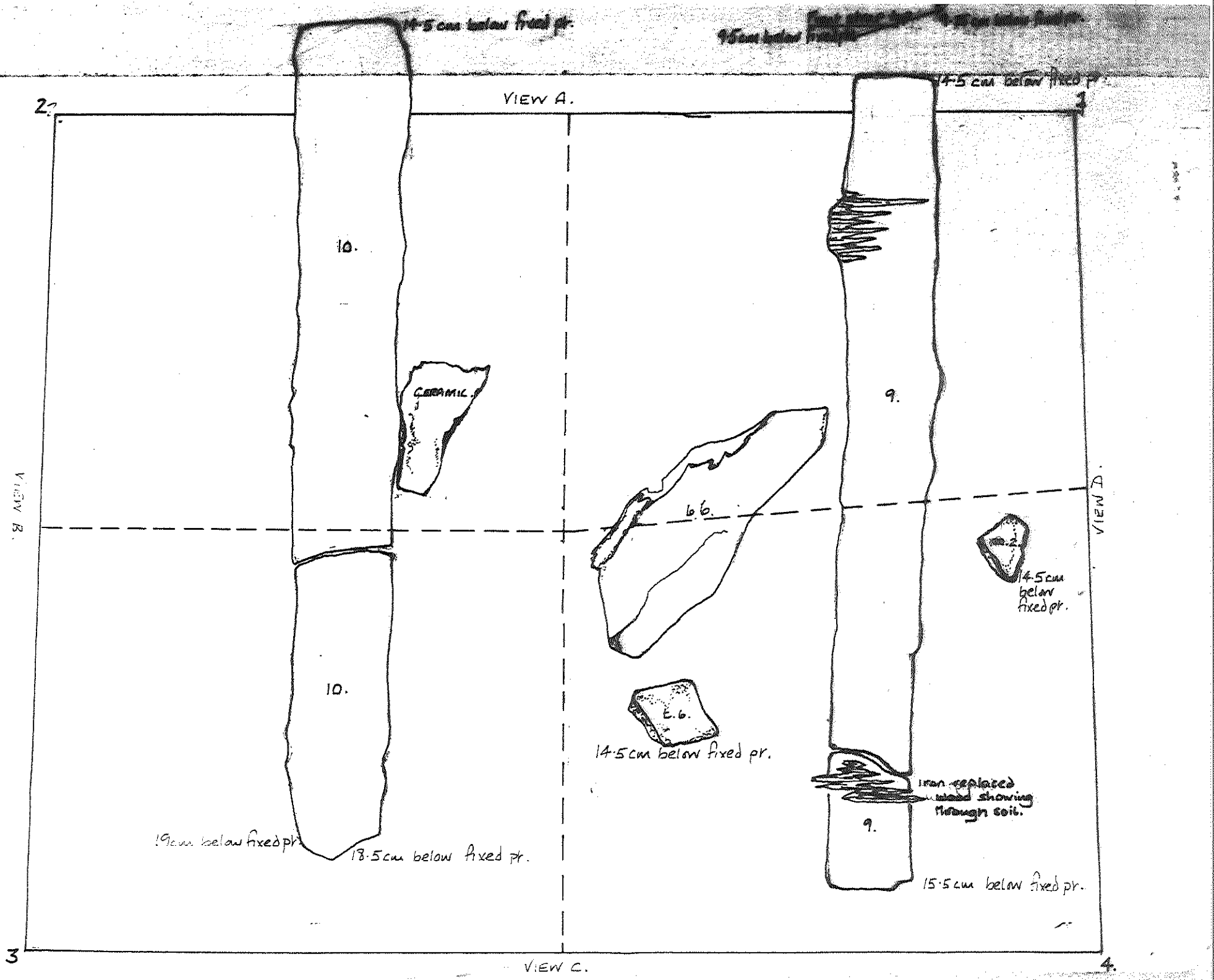
The second third and fourth quartre sectioning proceeded with more speed as the chest seemed likely not to contain any 'find' relevant to its purpose of burial. The remaining portion of bone no 6 was uncovered in quartre section II and identifie as a (?) skull fragment of cattle (domestic) (Bos sp) a similar animal species of the intrusive bone (horn core fragment) found on the side of the chest (view D.) In addition a pottery sherd grey in colour with a heavily reduced section was found near the base of the chest in quartre section III near base strap 10.

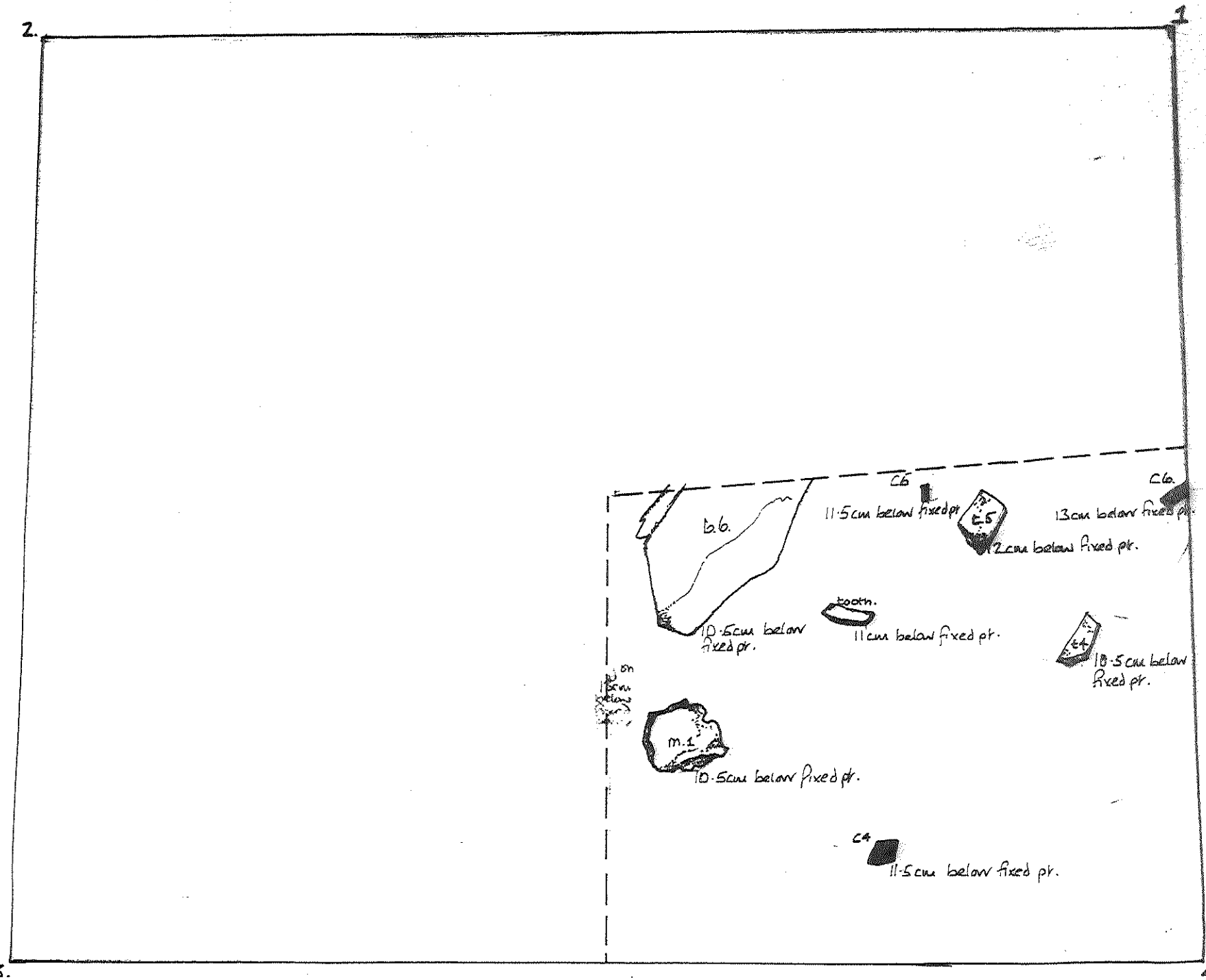
All four sections consisted of soil of a similar type - green/grey in colour and containing an assortment of small stones, calcaveous and bone fragments, specks of charcoal and fired clay all randomly dispersed.

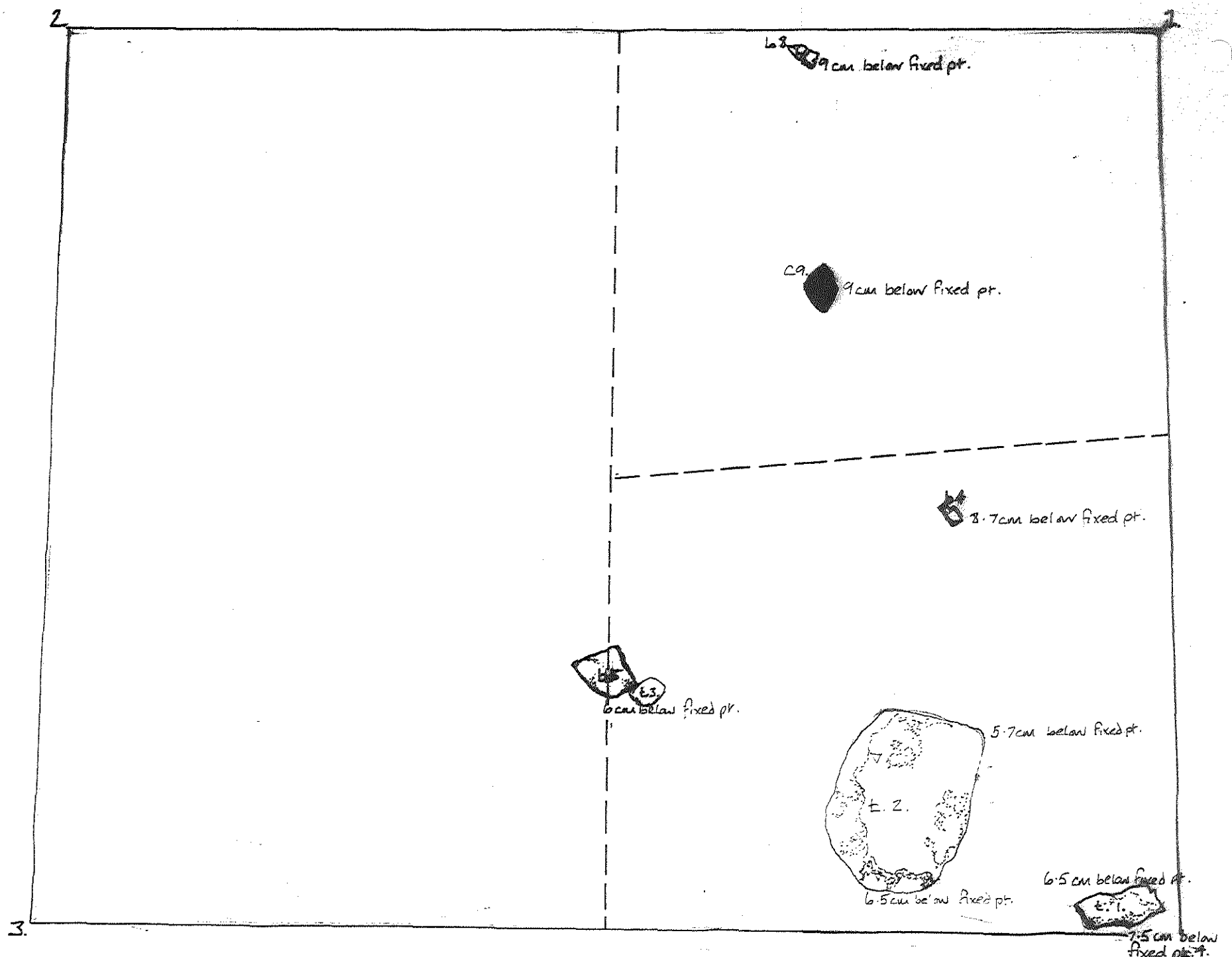
On completion of the micro-excavation the chest was found to be empty.

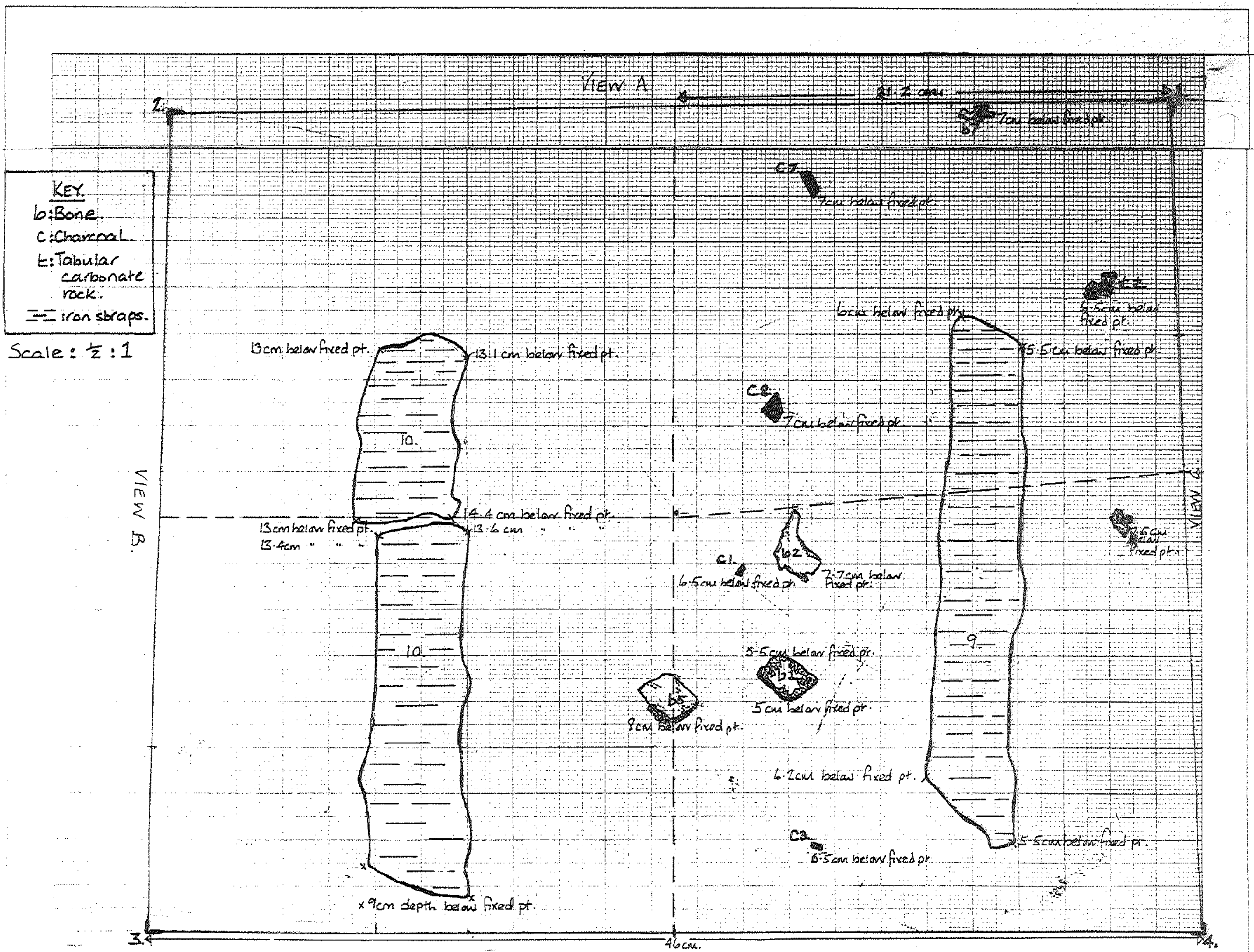
M. A. Robson.

PLAN 1


14·5 cm below fixed pr.
14·5 cm below fixed pr.
2.
VIEW A.
1
10.
CERAMIC.
9.
VIEW B.
6.6.
VIEW D.
14·5cm below fixed pr.
10.
E.6.
14·5 cm below fixed pr.
Iron replaced wood showing Mesaugh coil.
9.
19cm below fixed pr.
18·5cm below fixed pr.
15·5 cm below fixed pr.
3
VIEW C.
4.

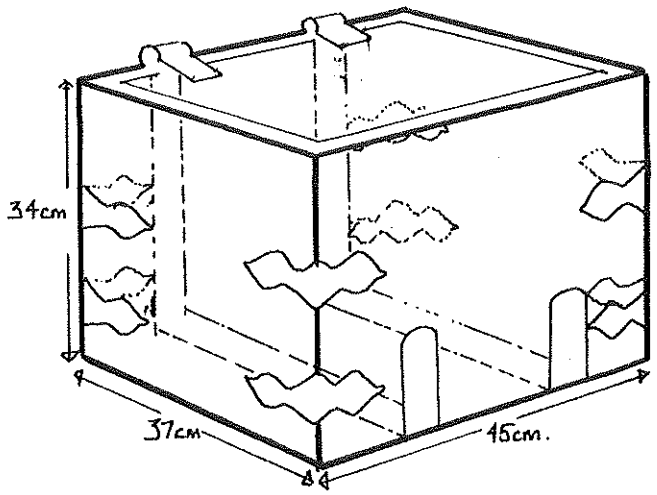

2.
1
C6
C6.
11·5cm below fixed pt.
13cm below fixed pt.
C5
12cm below fixed pt.
b.b.
tooth.
10·5cm below fixed pt.
11cm below fixed pt.
C4
10·5cm below fixed pt.
m.1
10·5cm below fixed pt.
C4
11·5cm below fixed pt.
3.
4.


2
1
3.
L8
9 cm below fixed pt.
C9.
9 cm below fixed pt.
8·7cm below fixed pt.
L3.
6 cm below fixed pt.
5·7cm below fixed pt.
L. 2.
6·5 cm below fixed pt.
L. 1.
7·5 cm below fixed pt.



VIEW A
21.2 cm
7cm below fixed pt.
C7
7cm below fixed pt.
6cm below fixed pt.
6.5cm below fixed pt.
5.5 cm below fixed pt.
13cm below fixed pt.
13.1 cm below fixed pt.
C8
7cm below fixed pt.
10.
14.4 cm below fixed pt.
13cm below fixed pt.
13.6 cm
13.4cm
b2
C1
6.5cm below fixed pt.
7.7cm below fixed pt.
9.
5.5 cm below fixed pt.
5 cm below fixed pt.
8cm below fixed pt.
6.2cm below fixed pt.
C3
6.5cm below fixed pt.
5.5cm below fixed pt.
x 9cm depth below fixed pt.
VIEW B.
46cm.
1.
3.
4.
KEY.
b: Bone.
C: Charcoal.
t: Tabular carbonate rock.
iron straps.
Scale: ½ : 1

Specifications - Approximate dimentions of iron-bound chest from Bradwell Villa



Separate lid 37 x 45 x 2.6cm

(Thickness of original wood - approximately 2.6cm)

Special considerations

1. Fittings.

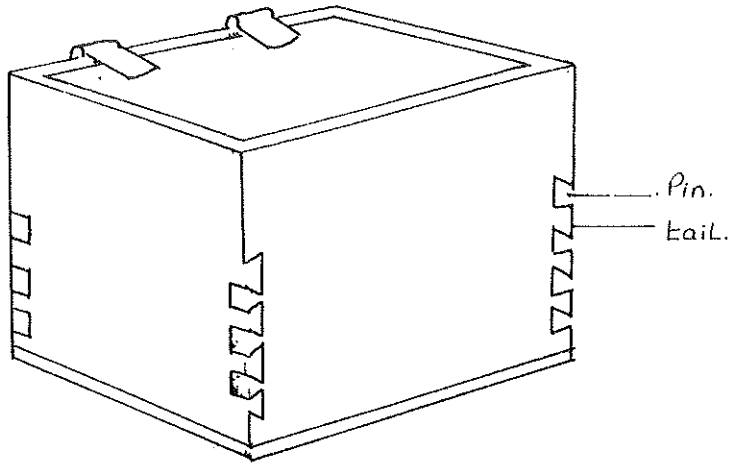
a) Attachement of iron corner clamps which have in many cases attached nails bent over at their ends, and fragments of iron replaced wood.

b) Nails to be slotted in position through 'end grain' section.

c) Attachment of iron straps - base of box must be supported.

M A ROBSON

Position of dovetails

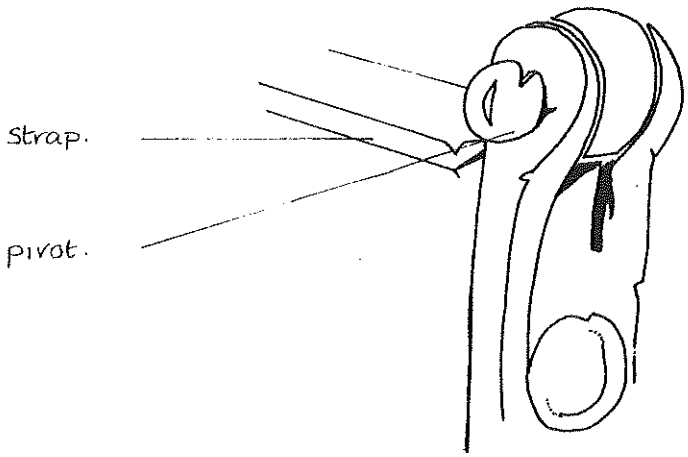


All evidence seem to suggest that there are possibly four dovetails between the corner clamps.

The pins appear on the front and back of chest and the tails on the sides.

The base thickness is approximately 1".

Distance from the base to the first dovetail is approximately 5cm.



Detail of hinge on strap 10.

HINGE DETAIL

The hinges consisted of two plates on one strap, either side of a central plate on the top strap and held in place by a pivot ie. a strap hinge. (Frere, 1972)

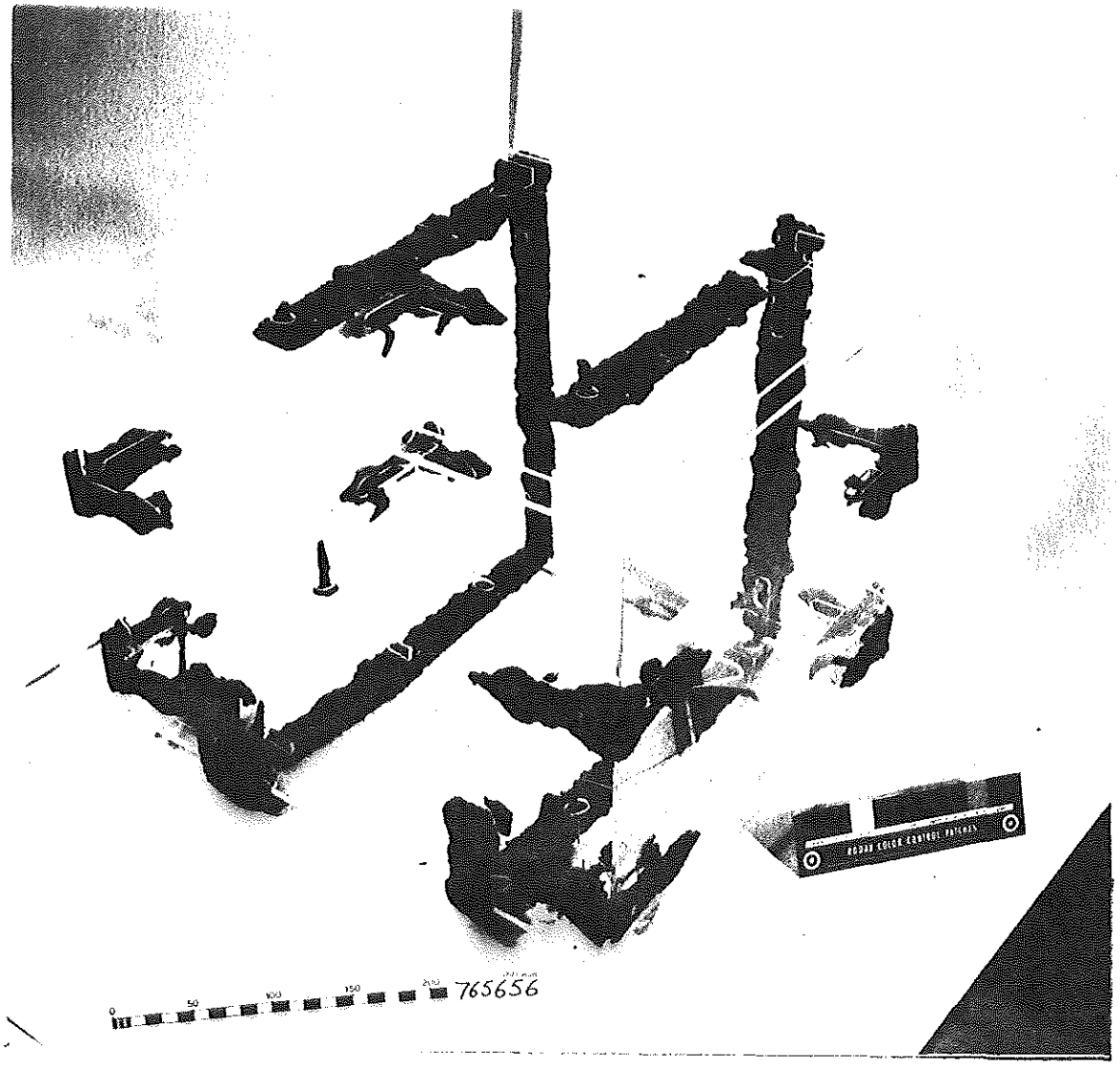
Reference

Frere, S.S. (1972) Verulanium Excavations

SITE. BRADWELL ROMAN VILLA

MATERIAL IRON BOUND CHEST

A RECORD OF THE POSITION OF IRON FITTINGS ON THE RECONSTRUCTED PESPEX BOX



The above photograph BL(c)21 shows the position of all the iron fittings. Each fitting is clearly marked with white cryla colour protected with a methacrylate resin (Bedacryl 1Z2X). The eight brackets are numbered 1-8 and the two parallel straps partially binding the chest are numbered 9 and 10. The long nails used to reinforce the sides, and base nails are marked by Roman numerals I-XVI, All numbers have been transferred to an inconspicuous corner ie on the inner surfaces of the brackets and on the shaft of the nails.

Labels of [illegible] base indicate the position of each iron fitting

Key: B = bracket

N = nail

S = strap

n/t = nylon thread

Fitting No	Comments
Bracket 1	attached by n/t at waist of ends.
Bracket 5	attached by n/t at waist of ends.
Nail I	attached by n/t a small perspex platform on which it rests.
Nail II	attached by n/t to shaft of attached bracket nail (5) (view D) and to side of chest (view D)
Nail V	Nail V slotted in first and rests on perspex platform as attached bracket nail from B2 bends at right angles over it and holds it in position.
Bracket 2	B2 attached by n/t at waist of ends.
Bracket 6	attached at waists and corner (view B) by n/t.
Nail IV	rests on perspex platform attached by n/t.
Nail III	attached by n/t to side (view B).
Nail X	attached to side by n/t (view D).
Bracket 3	attached by n/t at waists of ends.
Nail XI	slotted in first and rests on perspex platform
Bracket 7	attached by n/t at waists of ends
Nail VI	rests on platform and attached by n/t.
Bracket 4	attached by n/t at waists of ends.
Nail IX	slotted in first and rests on perspex platform attached by n/t.
Bracket 8	attached by n/t at waists of ends.
Nail VIII	rests on platform and attached by n/t
Strap 9) Strap 10)	attached by n/t to chest
Nail VII	slotted in first and rests on base strap 10.

M A ROBSON
7/7/77

THE "BRADWELL VILLA" CHEST, EXCAVATION, CONSERVATION AND RECONSTRUCTION

Brief report for the purpose of exhibiting the casket at the May ballot of the Society of Antiquaries of London.

The "Bradwell Villa" casket was discovered in the summer of 1976 as a Roman site at Bradwell Villa. It was carefully excavated initially under the direction of Stephen Green and was found as a deliberate deposit below the floor of a circular or apsidal building of 4th century AD.

Dr V H Manning of Cardiff university was of the opinion that the dimentions of the casket were unique as no complete parallel has been found in this country and he suggested that it may possibly contain a padlock, human bones or a coin hoard. The contents of the casket may also provide additional information related to the vicinity in which the object was found.

It was decided that a full examination and conservation programme of work should be carried out on the casket with view to reconstruction on a perspex mount. Facilities for such work were provided at the Ancient Monuments Laboratory and members of the Conservation staff were called upon to pack and lift the casket from the ground.

The casket on site consisted in the main of a soil block rectangular in shape with eight attached iron brackets and nails. It is partially bound by two parallel iron bands which are hinged to facilitate lifting of the lid. The iron bands supporting the lid had broken (possibly under the pressure of the overlying soil as the organic structure of the casket decayed under burial conditions) and were uncovered in their relative positions approximately within one third of the casket. Remains of wood replaced by iron corrosian products had survived as the upper surfaces of the lid bands, the inner surfaces of the brackets and under the head and along the shaft of the eight nails reinforcing the sides of the casket.

The precedure of work was divided into five main stages.

1. Packing and lifting in the field for transport.
2. Removal of the protective packing material in the laboratory.
3. Full examination of the casket.
4. Cleaning conservation and stabilisation of iron fittings.
5. Reconstruction of casket as a perspex mount.

1. Packing and lifting in the field for transport

Special attention was given to loose or fragile areas. Fissures within the soil block at the sites of the iron fittings and cracks within the iron structure were reinforced with a cellulose nitrate consolidant (HMG diluted in acetone).

All overhangs and corners were filled with a suitable packing material and the whole object encased in acid free tissue paper bound with masking tape.

The sides were further reinforced with bandaged scrim and any gaps padded out with crumpled tissue. Alluminium foil was moulded over the casket to provide a release agent from the subsequent pouring of polyurethane foam.

The casket was isolated on a soil plinth. A plywood box lined with alluminium foil was placed over the object into which was poured the polyurethane foam.

Chisels were rammed home under the object and rotated in a circular plane to free the object from its plinth.

It was then transported to the Ancient Monuments Laboratory.

2. Removal of the protective packing material.

The reversal of the packing precedure was carried out in the Laboratory in gradual stages. The box framework was dismantled and excess foam packing was cut away with a hacksaw blade. The alluminium foil, bandaged scrim and acid free tissue paper were carefully removed and the casket uncovered.

The undercuts and fissures at the sites of the iron fittings were bridged with blobs of dental wax worked into a putty-like consistancy under heat.

A methacrylate ester (Bedacryl in toluene) was used to strengthen the attachment of the iron straps on the back face of the casket.

3. Full examination of the casket.

A scaled plan drawing was made by the Drawing Office of the casket and a photographic record was taken of the soil block with iron fittings in situ. Subsequent photographs were taken throughout the sectioning of the soil block.

On completion of the excavation of the soil block, the casket was found to be empty.

The casket measured approximately 45 cm by 36 cm by 33 cm. Each bracket was attached by two nails hammered over at their ends. The length of the nail shaft between the head and hammered ends represents the thickness of the wood used in the construction of the casket. This measured approximately 2.6 cm. Larger nails, square in section, with a circular head and tapering shaft reinforced the sides of the casket before the attachment of the brackets.

Examination of the iron replaced wood remaining on the inner surfaces of the brackets indicated that the casket was constructed with dove tail joins. The wood was identified as oak.

X radiographs were taken of all the iron fittings, to establish the density of the metal remaining, the shape and the location of nails obscured by iron corrosion products and soil, prior to cleaning.

4. Cleaning, conservation and stabilisation of the iron fittings.

Soil adhering to the iron-replaced wood was carefully removed by particle picking with a sharp needle held in a pin vice. Work was carried out under the microscope.

A Polybutylmethacrylate resin in toluene was used to consolidate the iron replaced wood as each fresh section was cleaned. The strength of the solution depended on the friability of the iron-replaced wood.

Excess corrosion products obscurring the shape of the iron fittings were gradually pared down mechanically with the air abrasive and dental tools.

Both precedures of cleaning were extremely slow.

Conservation and stabilisation (pending)

Stabilisation involves the removal of all soluble salts particularly chlorides. Small pockets of active ferric chloride were observed on the surfaces of the iron fittings.

It is intended to wash the iron fittings free of their contaminants in the cycle of continuous washing treatment. The fittings will then be immersed in molten micro-crystalline wax to prevent further reinfestation.

- Reconstruction of the casket on a perspex mount

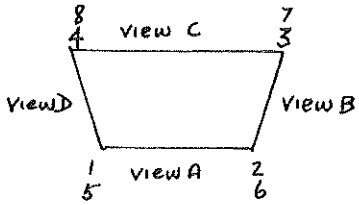
A ½" perspex box was made by Mr D Smith of the model making unit of the DOE to the approximate dimentions of the casket. Slots were cut to receive the bracket fittings and small slips of perspex used to support the protruding nails. All the fittings were attached in their relative positions and held in place by nylon thread.

M. A. Robson. 29.4.77.

THE BRADWELL VILLA CHEST

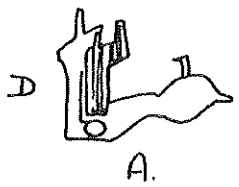
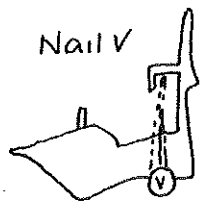
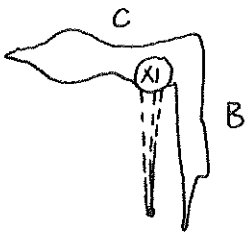
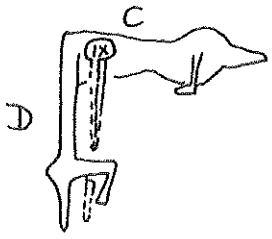
CATALOGUE OF IRON FITTINGS WITH MEASUREMENTS

PLAN VIEW

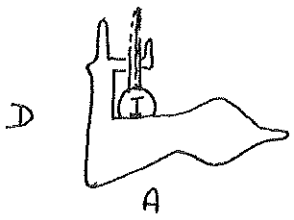
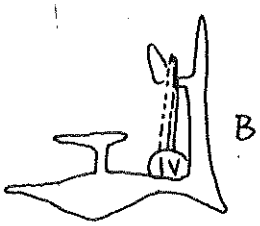
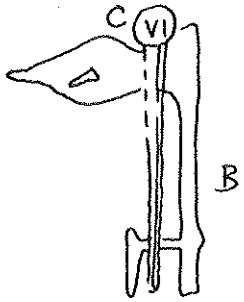
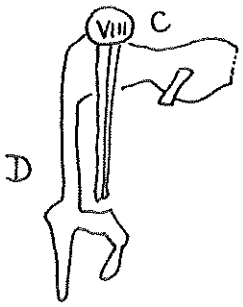


(1-8) - iron bracket (1-4) upper brackets
(5-8) lower brackets

View A - front)
View B & D sides) of chest
View C back)

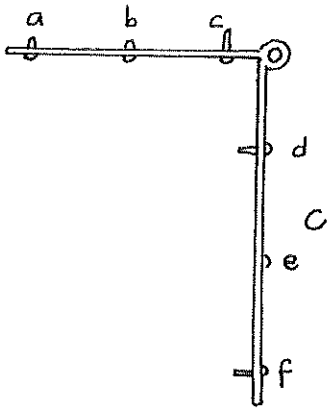
Bracket No.	Bracket Length	Bracket Average Thickness	Long nail length
B 1  	Length (side view D) 10 cms Length (front view A) 10 cms	5mm	Attached long nail by replace Length (view D) 7.6 cm. Head obscured by replaced wood.
B 2. Nail V  	Length (front view A) 10.5 cms Length (side view B) 10 cms	5mm	Nail V Length (view B) 8cm Head D. 2.1 cm
B 3. Nail XI  	Length (back view C) 10 cm Length (side view B) 8 cm (broken tip)	5mm	Nail XI Length (view B) 6.5cm Head D 2 cm
B 4. Nail IX  	Length (back view C) 10 cms Length (side view D) 10 cms	5mm	Nail IX Broken into 2 section by bracket nail (side view D)

M A ROBSON

BRACKET NO	BRACKET LENGTH	BRACKET AVERAGE THICKNESS	LONG NAIL LENGTH
B 5 Nail I  	Length (front view A) 10 cm Length (side view D) 10 cm	3cm	Nail I Length (view D) 6.5 cm Head D 1.5 cm
B 6 Nail IV  	Length (front view A) 10 cm Length (side view B) 10 cm	5mm	Nail IV Length (view B) 7.5 cm Head D 2 cm
BASE NAIL II to bracket 6 (view B)			Length (view B) 6.5 cm (broken en Head D 2cm.
B 7 Nail VI  	Length (back view C) 8.5 cm Length (side view B) 7.6 cm (both broken tips)	4mm	Nail VI Length (view B) 7.5 cm Head D 2 cm
B 8 Nail VIII  	Length (back view C) 8.5 cm (broken tip) Length (side view D) 10 cm	3cm	Nail VIII Length (view D) 7.2cm Head D 2 cm

STR.	STRAP LENGTHS	STRAP AVERAGE THICKNESS
		5mm

TOP STRAP 9 -
BACK STRAP 9 -



Length 27cm
Length (view C) 34cm

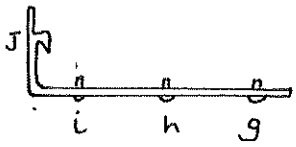
TOP STRAP 9

End of strap - nail a 1.6cm
nail a) - nail b) 10.2cm
nail b) - nail c) 10.2cm
nail c) - end (hinge) 2.5cm

BACK STRAP 9

hinge end - nail d) 4.5cm
nail d) - nail e) 11.5cm
nail e) - nail f 12 cm
nail f) - base 6cm.

BASE STRAP 9
FRONT STRAP 9

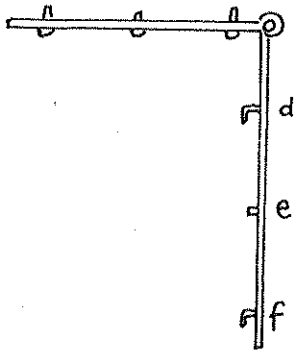


BASE STRAP 9

Bottom back strap 9 - nail g) 7cm
nail g) - nail h 21 cm
nail h) - nail i) 9cm

Bottom front strap - nail j) 5.5 cm

TOP STRAP 10 -
BACK STRAP 10 -



height 27cm
height (view C) 34 cm

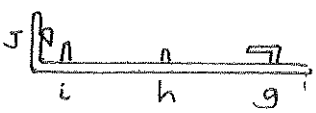
TOP STRAP 10

End of top strap 10 - nail a) 2.5 cm
nail a) - nail b) 10.5 cm
nail b) - nail c) 12.5cm
nail c) - end (hinge) 1cm.

BACK STRAP 10

hinge end - nail d) 3.5 cm
nail d) - nail e) - nail f 13cm
nail f) - base 6.5cm

BASE STRAP 10
FRONT STRAP 10



BASE STRAP 10

Bottom back strap 10 - nail g 6cm
nail g) - nail g) 19cm
nail h) - nail i) 9.5cm

Bottom front strap - nail j) 8cm.

BRADWELL VILLA CHEST

Long nails at sites of brackets

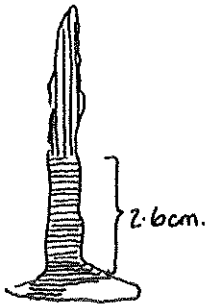
Bracket 1 - attached long nail by replaced wood

From Xray - Length - 7.5cm

Xray No B2049 Head D

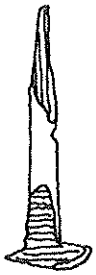
Nail V - Length (View B) tip obscured by replaced wood 8cm

Head D. 2.1cm



Nail X - Length (View B) Tip obscured by replaced wood 7.2cm

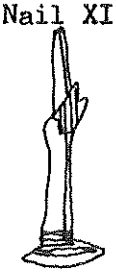
Head D 2cm



Nail XI Complete

Length (View B) 6.5cm

Head D 2cm



Nail I Complete

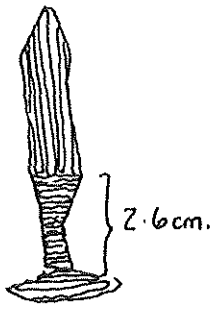
Length (View D) 6.5cm

Head D 1.5cm

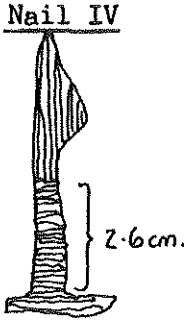
BRADWELL VILLA CHEST

Long nails continued

Nail IV Tip obscured by replaced wood. Length 6.7 cm



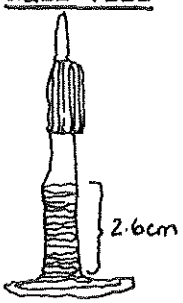
Nail IV Tip obscured by replaced wood



Nail VIII Complete

Length View D. 7.2

Head D 2cm.



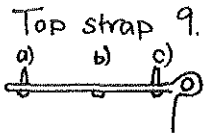
Therefore thickness of sides 2.6cm aprox 1".

Lid Nails

Nail a) uncomplete. Length 2.2 cm

b) Missing.

c) Complete 2.6cm (hammered flat at end).



Top strap 10

Nail a) complete. 2.6cm

b) Missing

c) Complete 2.6cm (hammered flat at end)

Thickness of lid = 2.6cm aprox 1".

Base nails

Base Nail II - incomplete (5·1cm)

site of bracket 5.

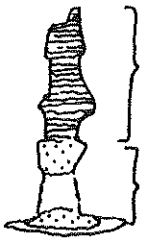
little replaced wood - one deposit under head showing end grain to front of nail.

side view B.

Base Nail III - Substantial evidence of replaced wood of base

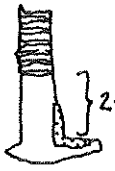
site of bracket 6.

Total length 6.5cm (tip end worn or possibly broken)



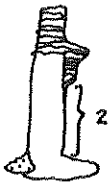
side view D.

Base Nail X - incomplete



side view D.

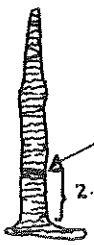
Base Nail XV - incomplete - Found in horizontal position on side but obviously moved in burial and probably base nail comparable to position. Base nail X.



side view B.

Base Nail VII

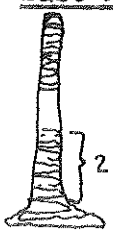
Total length 6.5cm tip end worn or possibly broken



back view C.

Base Nail XVI

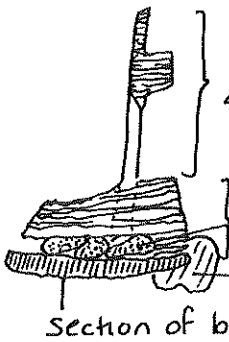
Incomplete



back strap 10 view C.

BRADWELL VILLA CHEST

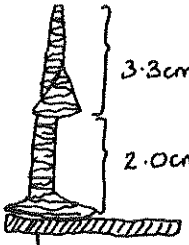
Attached base nail to front of base strap 9



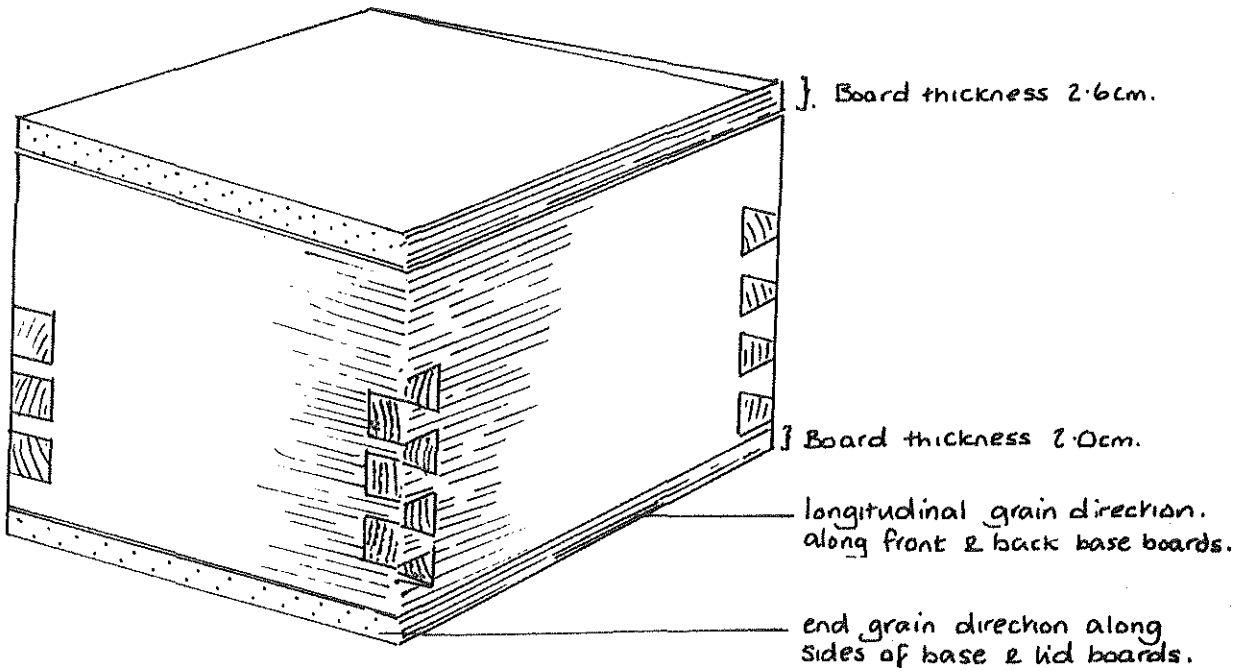
Section of base strap 9.

Complete. Total length of shaft 6.5cm

Attached base nail to front of base strap 10



Section of base strap 10.



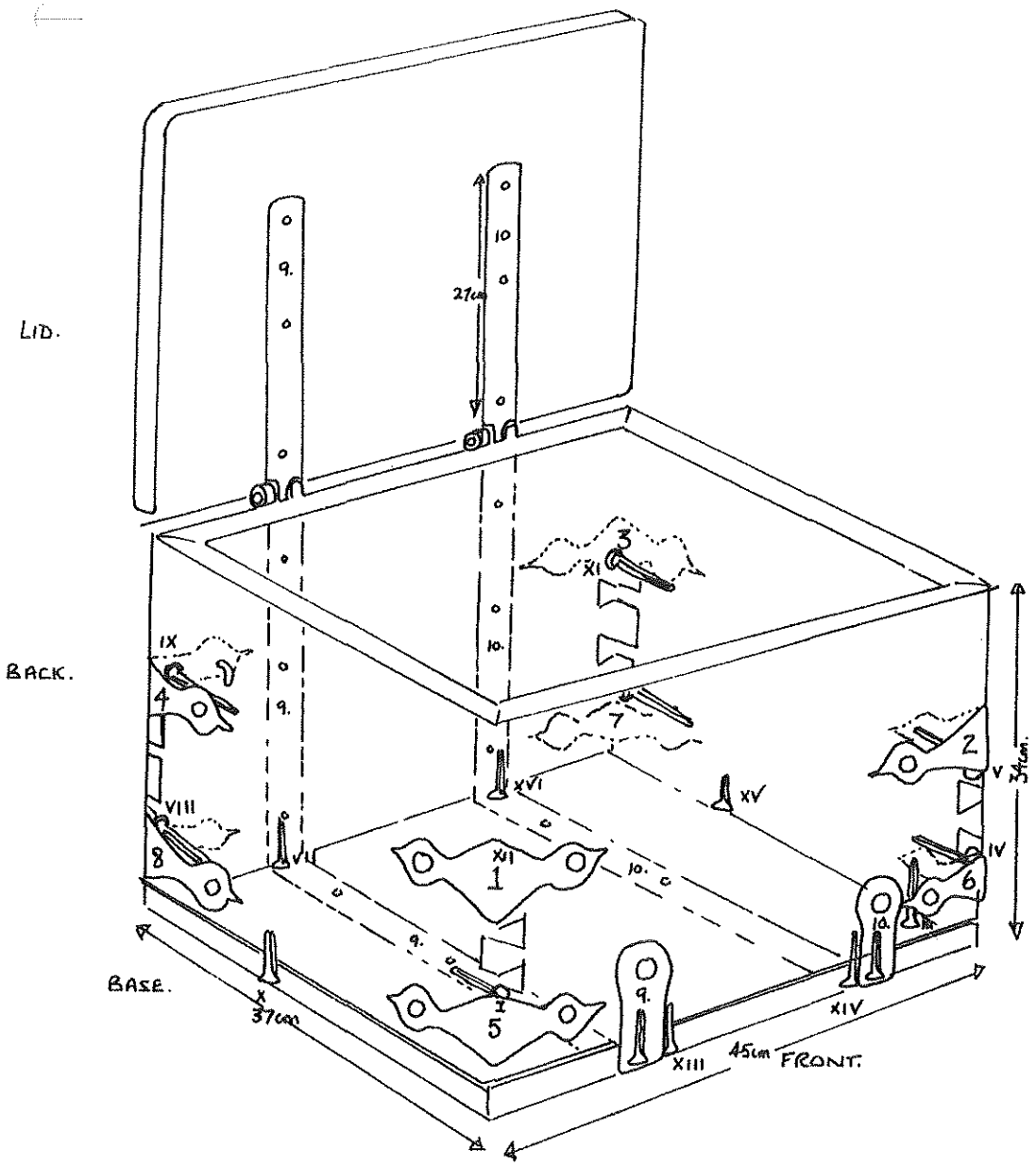
1. Side of chest 2.6cm aproximate thickness (bent straps and bracket nails) horizontal directional grain (base nails, front and back straps)

   Base - 2.0cm aproximate thickness (side base nails (IV) (X) (XV) (III) change in direction of end grain (base) to directional grain (SIDES). Front and back straps - horizontal grain. ∴ end grain at sides and horizontal grain to front/back.

   Lid 2.6cm aproximate thickness (nails a and C) hammered flat at ends) horizontal wood grain across top straps 9 and 10 and lid nails ∴ end grain at sides and horizontal grain to front/back.

M A ROBSON

THE BRADWELL VILLA CHEST



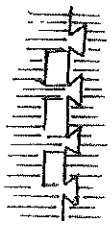
Key

1–8 Iron brackets

9 and 10 Iron straps

XII; V; XI; IX;)
) Long nails at sites of the brackets reinforcing the chest corners (8).
I; IV; VI; VIII;)

XIII ; XIV ; III ; XV ; XVI ; VII ; X ; II ; Base nails.



Evidence of two dove tails on corners of chest at site of brackets and a further two conjectured between the upper and the lower corner brackets. Above and below the dove tails there is evidence of possible mitre joins

M A ROBSON
13 June 1977

THE BRADWELL VILLA CHEST

Average length of bracket 10 cm

Average thickness of metal bracket 5mm.

Bracket nails hammered over at 2.6cm (approximates to 1" wood thickness)

All nails are square in section / tapering staff and with a circular head.

Average length Top strap 27 cm

Average length Back straps 34 cm

Average length Base straps 37 cm

A. Width of chest - 45 cm ie. Distance. B 1-2 top 43.5 cm)
1-2 bottom 45 cm)
Distance B 5-6 top 45.5 cm)
bottom 45.5 cm) Av. 45 cm
Distance B 3-4 top 46 cm)
Distance B 7-8 top 45.3 cm)

The top, back, and base straps are attached to their respective wooden panels by 3 nails some of which are hammered over at their ends.

The shorter front straps (approximate length 10 cm) are each attached by 1 nail.

Width of straps averages 3 cm.

The base is attached by 8 nails, two on each side and one at each end of the base straps.

M A ROBSON

ANCIENT MONUMENTS LABORATORY

MATERIAL: REMAINS OF A WOODEN CHEST WITH IRON FITTINGS

SITE: BRADWELL VILLA ..... (DATE: 10.8.77)

SHEET: ONE .....

AM No	MEASUREMENTS. X-Ray No — Photo No	Description and Report	Ref No
View A	Top Br 1 — Top br 2	43.5 cm	
	Bottom Br 1 — bottom br2	45. cm	
	Top br 5 — top br 8	45.5 cm	
	Bottom br 5 — bottom br 8	45.5 cm	
View B	Top br 2 — top br 3	35.5 cm	
	Bottom br 2 — bottom br 3	35. cm	
	Top br 6 — top br 7	35 cm	
	Bottom br 6 — bottom br 7	35 cm	
View C	Top br 3 — top br 4	46 cm	
	Bottom br 3 — bottom br 4	46 cm	
	Top br 7 — top br 8	47 cm	
	Bottom br 7 — bottom br 8	47 cm	
View D	Top br 4 — top br 1	36 cm	
	Bottom br 4 — bottom br 1	36 cm	
	Top br 8 — top br 5	36 cm	
	Bottom br 8 — bottom br 5	36.5 cm	
	Distance between br 1-5	7.5 cm	
	Distance between br 2-6	9 cm	
	Distance between br 3-7	10.5 cm	
	Distance between br 4-8	10 cm	
Top View	Top strap 9 — top strap 10 (near hinge)	25 cm	
	Top strap 9 — top strap 10 (towards View A)	28 cm	

ANCIENT MONUMENTS LABORATORY

MATERIAL REMAINS OF WOODEN CHEST WITH IRON FITTINGS

SITE:..... (DATE:)

SHEET: TWO

AM No	MEASUREMENTS X-Ray No ~~Photo No~~	Description and Report	Ref No
	Height strap 9 to hinge	34 cm	
	Height strap 10 to hinge	34 cm	
	Length base strap 9	37 cm	
	Length base strap 10	37 cm	
	Height front strap 9	9.8cm	
	Height front strap 10	10 cm	

M A ROBSON 10 August 1977

CE

ANCIENT MONUMENTS LABORATORY

MATERIAL Remains of wooden chest with iron fittings

SITE: BRADWELL ROMAN VILLA..... (DATE: 10.8.77)

SHEET: ONE.....

(C) INDICATES COLOUR PRINT

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655		BL 1	Top face of chest showing broken iron straps 9 and 10, top four corner brackets with attached nails.	Aug 1976
		B6(c)5	Top face of chest	Aug 1976
		BL(m)2	View D.Z showing detail location of brackets (1) and (5) nails II and X.	" "
		BL(m)3	View CZ showing detail location of brackets 4 and 8, iron strap 9, nails IX and VIII the latter located behind bracket 4.	" "
		BL(m)4	View BZ showing detail location of brackets 3 and 7, nails XI and VI the latter located behind bracket 7.	August 1976
		BL(m)5	View AZ showing detail location of brackets 2 and 6, nails V and IV and front strap 10	Aug 1976
		BL(m)6	View B1 showing detail location of brackets 2 and 6 nails V, IV, III and XV.	" "
		BL(m)7	View CI showing detail location of brackets 3 and 7, nails XI, VI and iron strap 10.	" "
		BL(c)6	View C1 - bracket 3 removed, location of nail XI, iron strap 10 removed to expose replaced wood stains.	Oct 1976
		BL(m)8	View D1 showing detail location of brackets 4 and 8 nails IX, VIII and X	Aug 1976
		BL(m)9	View AI showing detail location of brackets 1 and 5, nail I and front strap 9.	Aug 1976
		BL(m)10	View B showing brackets 2, 3, 6, 7 and nails XI, VI, VI, V, and III	
		BL(c)4	View B	
		BL(m)11	View C showing brackets 3, 4, 7, ~~8~~, nails XI, IX, VI, VIII.	Aug 1976
		BL(c)3	View C	Aug 1976
		BL(m)12	View D showing brackets 4, 1, 8, 5, nails IX, I, VIII, X, II.	Aug 1976

ANCIENT MONUMENTS LABORATORY

MATERIAL Remains of wooden chest with iron fittings

SITE: BRADWELL ROMAN VILLA (DATE:)

SHEET: 2

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655		BL(c)2	View D	Aug 1976
		BL(m)13	View A showing brackets 1, 2, 5, 6 nails V, I, IV and front straps 9 and 10.	Aug 1976
		BL(c)1	View A	Aug 1976
		BL 14	Corner view C/D	Sept 1976
		BL(c)8	Corner view C/D brackets 3 and 4 removed nail IX located behind bracket 4, iron strap IO removed exposing iron replaced wood stains.	Oct 1976
		BL(c)12	Detail bracket 4 showing nail IX and bracket nail clenched downwards.	
		BL16	Corner view A/B	Sept 1976
		~~(c)~~ "	Corner view AB	Sept 1976
		BL 16	Corner view D/A	Sept 1976
		BL(c)7	Corner view D/A brackets 3 and 4 removed nail IX located behind bracket 4, iron strap 10 removed	Oct 1976
		BL(c)9	Detail nail IX evidence of replaced wood indicating board thickness	Oct 1976
		BL 17	Corner view B/C	Sept 1976
		BL 18	Use of Geoelectronic metal detector to establish degree of mineralisation of iron	Sept 1976
		BL 19	Corner view B/C nail VII realigned	Oct 1976
		BL(c)11	Corner view B/C nail VII realigned	Oct 1976
		BL 20	Corner view A/B nail VII realigned	Oct 1976
		BL(c)10	Corner view AB nail VII realigned	Oct 1976
		BL 21	Corner view CD showing quarter section 1 of microexcavation	Nov 1976
		BL 22	View CD showing quarter section 1 and bracket 10 (fixed point from which depth of features were measured)	Nov 1976
		BL 23	View D showing quarter section 1 of microexcavation	Nov 1976

ANCIENT MONUMENTS LABORATORY

MATERIAL Remains of wooden chest with iron fittings

SITE: BRADWELL ROMAN VILLA ..... (DATE:)

SHEET: 3.....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655		BL 24	Oblique view of brackets 1 and 5	Nov 1976
		BL (C)14	Detail bracket 1 nail attached with replaced wood	Nov 1976
		BL 25	Corner view D/A, nail 1 in relation to bracket 5	Nov 1976
		BL(c)15	Corner view D/A	Dec 1976
		BL 26	Enlarged copy from pollaroid print of polyurethane foam mould	Jan 1977
		BL(c)13	Bracket 5 (Uncleaned) Bracket 1 cleaned showing replaced wood.	Feb 1977
		BL 27	Same as BL 26	Jan 1977
		BL 28	View A/B Detail of bracket 2 in situ prior to removal from soil block	Jan 1977
		BL(c)17	View A/B Detail of bracket 2.	Jan 1977
		BL 29	Corner view D/A showing half section of microexcavation - base strap 9 and extension of strap 9 on view A.	Jan 1977
		BL(c)16	Corner view D/A	Jan 1977
		BL 30	Corner view A/B. Detail of bracket 6 with base nail III and front strap 10.	Mar 1977
		BL 31	Corner bracket 3 showing location of nail XI.	Mar 1977
		BL 32	View B/C Brackets 3 and 7, nail V.	Mar 1977
		BL 33	View A/B Reconstruction of wooden chest on perspex mount.	May 1977
		BL 34	View D/A Reconstruction of wooden chest on perspex mount.	May 1977
		BL 35	View C/D Reconstruction of wooden chest on perspex Mount	May 1977
		BL 36	View B/C Reconstruction of wooden chest on perspex mount	May 1977
		BL(c)18	Use of airabrasure unit to remove unwanted corrosion products from iron surfaces	May 1977

ANCIENT MONUMENTS LABORATORY

MATERIAL Remains of wooden chest with iron fittings

SITE: BRADWELL ROMAN VILLA ..... (DATE:)

SHEET: 4 .....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655		BL(c)19	Use of sharpened needle held in pin vice to clean fragile replaced wood identified as oak.	
		BL(c)20	Reconstruction of wooden chest as perpex mount	

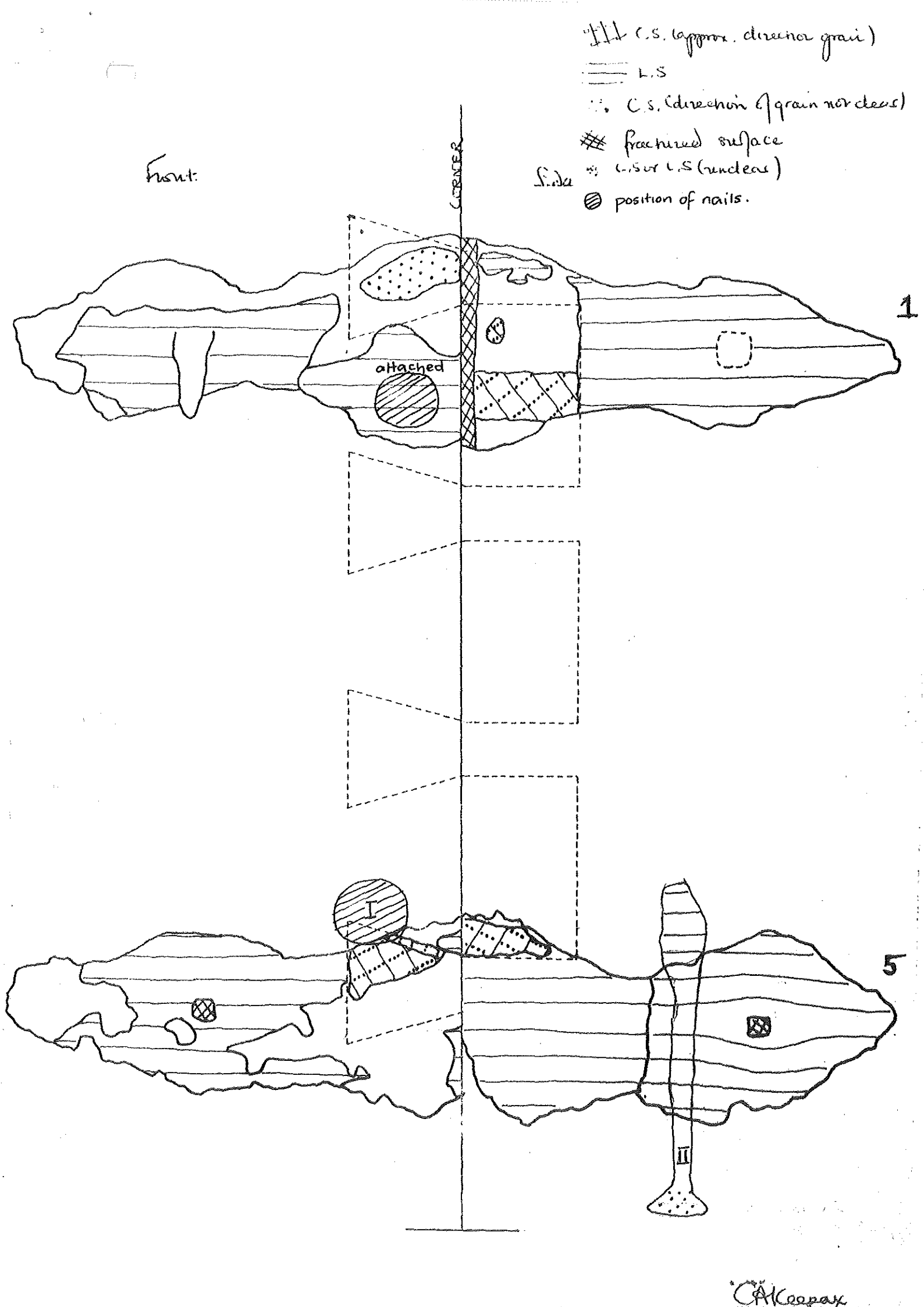
ANCIENT MONUMENTS LABORATORY

MATERIAL: Remains of wooden chest with iron fittings

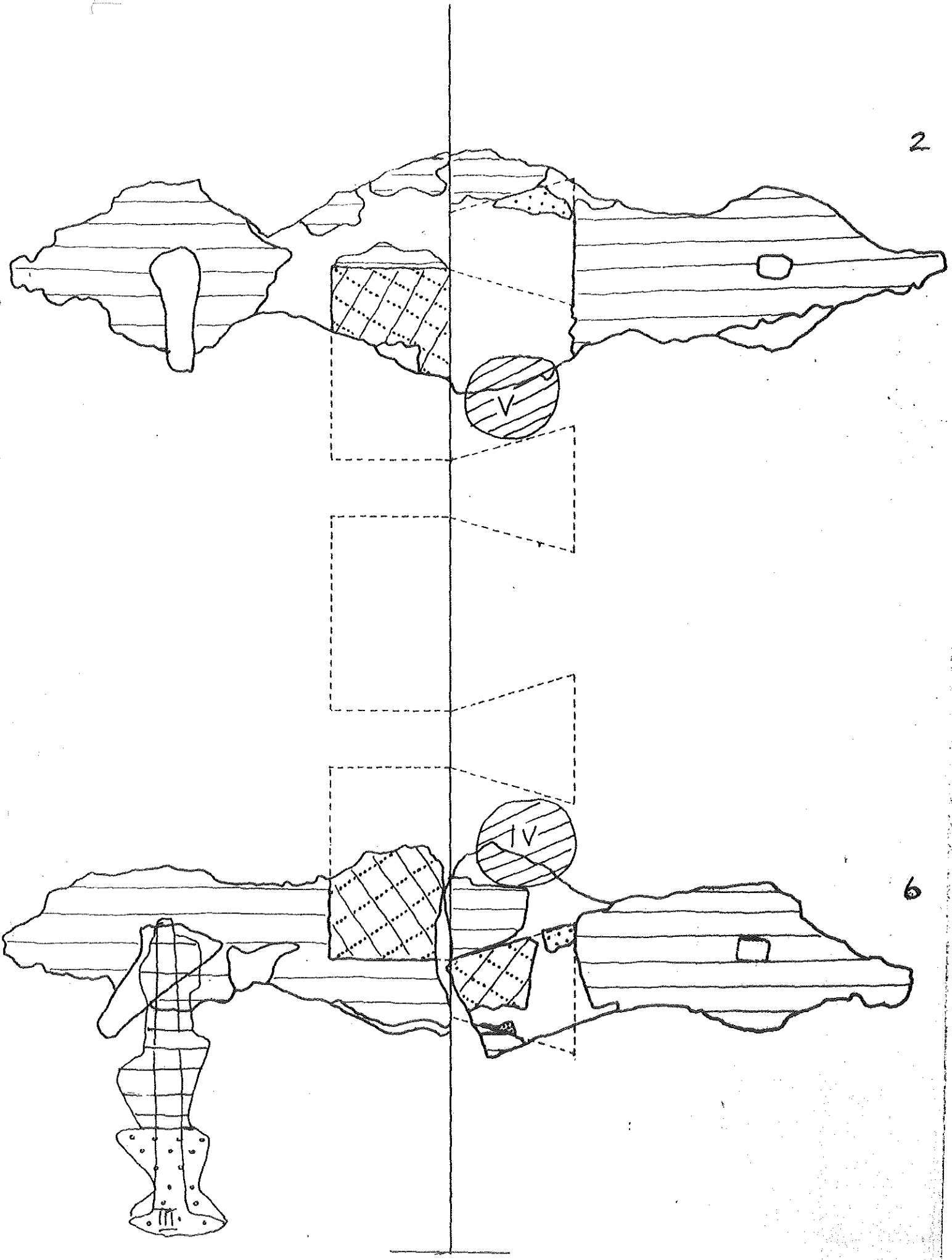
SITE: Bradwell Roman Villa..... (DATE: 10.8.71)

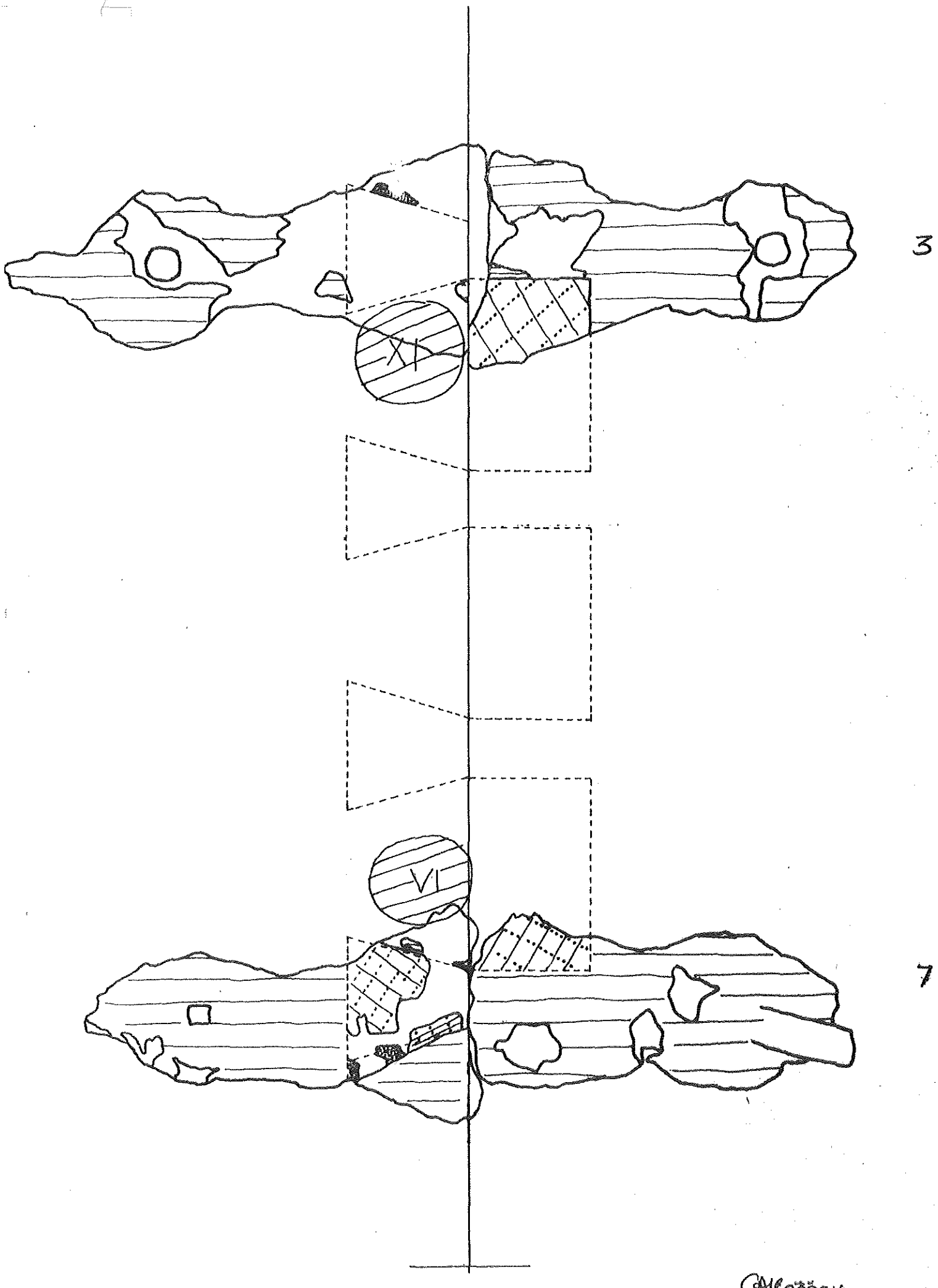
SHEET: 1.....

AM No	X-Ray No	Photo No	Description and Report	Ref No
765655	B2043 B2049		Bracket 1	
	B2178		Bracket 2	
	B2230		Nail V	
	B2232		Bracket 3 and nail XI	
	B2038		Bracket 4, nail IX	
	B2182		Bracket 5 nail II	
	B2231		Nail I	
	B2234		Bracket 6, nail IV nail III	
	B2233		Bracket 7, nail VI	
	B2040		Bracket 8, nail VIII, nail X	
	B2239		Nails XV ; X	
	B2240		Front strap 10	
	B2235 B2238		Base strap 10	
	B2228 B2229		Back strap 10	
	B2235		Top strap 10	
	B2181		Front strap 9	
	B2179 B2180		Base strap 9	
	B2050 B2045		Back strap 9	
	B2051		Huge detail of back strap 9	
	B2042 B2048		Top strap 9	


C.S. (approx. direction of grain)
L.S
C.S. (direction of grain not clear)
fractured surface
C.S or L.S (unclear)
position of nails.
Front:
Side
CORNER
attached
1
5
I
II

CA Cooper


2
V
IV
6


XI
VI
3
7