

58 (C) ✓

Assembly of small pieces

2 high 100 183 (from 10th layer)  
pieces

+ put on floor to gain width  
~~know~~ height

deck beams 48 pieces (similar) to tie together

restored 16 ~~pieces~~ pieces

draw small pieces

dec  
12/1/58

Overall  
Chronology

~~6/10/58 - 1/18/58~~  
10/6/58    nov 11/11/58

assembled single pieces

try put sheer on floor +  
try to locate deckbeams

quick rest to 10 pieces to know their  
shape + their length

more drawings

(2)

request for more \$ to speed work on boat

~~1st recon } Nov 57 - Aug 58  
or 2nd recon }~~

~~59 promotion \$~~ 5/26/59

~~in May~~ dislashing the ship, the recon of pieces  
not final, just to know placement &  
do rests prior to recon in museum  
some final

had put hull & deck together <sup>but</sup> separate  
from each other cause

- ① height of blding
- ② curve adjustment

~~realized deep beams longer than  
ship's beam, 5/59 ~~the~~  
as reconed in~~

More trouble w/ visitors

③

1960

11/6/61

place ~~prepare~~ ship for storage of timbers during <sup>restoration</sup> construction ?

1961

hurry construction of building

~~Nov July~~

1967

ordering materials for 4th recon  
fire dept - danger of fire

10/21/1968

Lundstrom asks permission to photograph  
ship

(5)



see  
to this

23/1/56 request Ali Bahgat on ship project

17/Dec/55 → 23/Jan/56

- ① photoed + lifted 1st layer: # 36-42
- ② all removed to nets skel in 2 Nam + Eskander
- ③ described, treated + picked
- ④ arranged in order w/ fishes

- ① lifted # 36-42
- ② " these pieces, total to date 58
- ③ treated as lifted
- ④ # 31-42 put fishes on
- ⑤ started registering # 12-22 to in logbook

22/Jan/56 More hours requested

1 Jan, 56 - 14/1/56

- ① # 7-35 photoed (1st layer)
- ② 45 total to date
- ③ treated
- ④ described 7-30 for fishes
- ⑤ registered + picked 1-11 logbook
- ⑥ 12-13 Jan photoed 2nd layer for squid
- ⑦ started scale drawings

Overall Chronology

(6)

✓ 1/Jan/56 telephons, 2 typewriters, ~~to~~ car also

1962

Under Dir of Min ~~of~~ visit to pyramid

2/Dec/62, after visit

- ① found essential to do <sup>reinforce</sup> ~~a~~ ceiling ~~of~~ ~~the~~ resto shed ~~of~~ ~~the~~ ~~stones~~ to keep stones out
- ② <sup>request</sup> - replace temp covering of pit stones  
(Dedepe cartouche)
- ③ - cover pit w/ plexiglas or wall around for protection against dirt, etc.
- ④ - clean mastaba's to south

~~Pieces sent to Chem labs at Giza~~

19/9/62

Wants <sup>to keep</sup> key to Resto shed in certain place for serial access

(7)

15/8/62 bought cleaning & writing materials  
upout / autograph

14/8/62 Stopped working for more than 8 mo  
cause wanted to dismantle resto shed  
& move to <sup>new</sup> temp ~~store~~ <sup>storage</sup> so museum  
construction can begin

- pieces are getting damaged - do something

21/7/62 2nd pit: call from Fayoum to go there  
& look at 2nd Moh. Ali boat  
& bring photographer & draftsman to start  
work on 1st boat.

~~Collected in of the Museum~~

Faculty of Marine Science to make visit

21/7/62 Fayoum boats trip - request to go

I already mentioned that I have to disassemble  
ship & move it (for mus. construction) - Started  
disassembly (5/4/62) → & resto shed - 10 days later  
started building new resto shed near old one

22/5/62 stopped working cause of visit  
of this committee

21/6/62 didn't work for last north cause  
initial decision ~~was~~ <sup>was</sup> ~~changed~~ - no new  
decision was made

9:18 AM  
31/3/62

~~Under Die of This~~

1/4/62

→ Some stones fell from pyramid, <sup>over rests shed</sup> so had to  
~~review~~ review decision to bld mass there.

- stone went through rests shed roof of  
asbestos

- some ~~rests~~ timbers were damaged  
just as it had happened 1 year earlier from one  
large stone

- big stone fell near shed & ground  
shook - disturbed some <sup>light</sup> pieces

- maybe we should review plan to locate  
this blding npt to pyramid.

⑧

(13/3/62) <sup>need</sup> floor area  
n 30 x 10 meters for storage of timbers

cause some 23m in length  
& more than 600 pieces

~~the~~ ~~the~~ wanted to put in chem lab in area

① laboratory <sup>rooms are</sup> too small 5 x 12  
& length 7 x (7 or less)

② place is 90° to resto shed & 19 meters  
away, so lots of sand blowing in

③ floor not level, <sup>or flat</sup> even

④ no wood floor

⑤ no place for mats & ropes

⑥ " storage

⑦ have to get Chem head's approval to  
take his <sup>own</sup> space

4 mo's w/out work: 14/11/61 stopped working  
until 24/2/62

5th time written about this:

stopped <sup>is still</sup> dryness & damaging timbers since we



⑦



23/1/62 ?

8/1/62

2 months ago dislashed boat (to bill ~~man~~)

new resto shed <sup>could</sup> be higher so cabin could go on deck. On 26/11/61 requested <sup>sub</sup> resto shed to be built

<sup>now they are</sup>  
& still not working on it, & you  
paying these men to sit & do nothing:

~~At least allow us to raise roof of~~

9/15/83

⑦

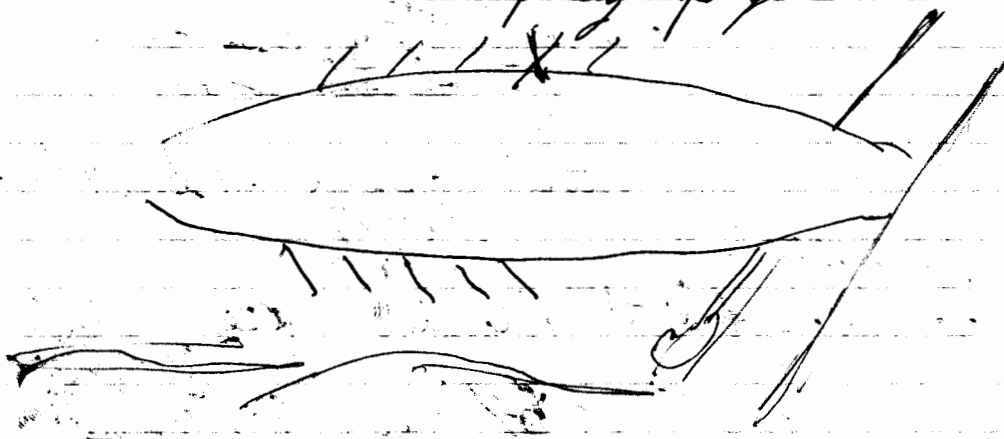
recap of last time: took 1, 2, 3, + 6  
- not working on boat

parts damaged post 54

- lack of climate control
- condition in Kester shed "a joke"  
no air condition

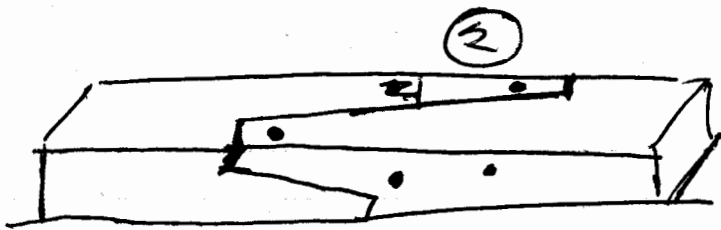
all 12 bars bad by 74

bad wrap  
+ completely fatigued

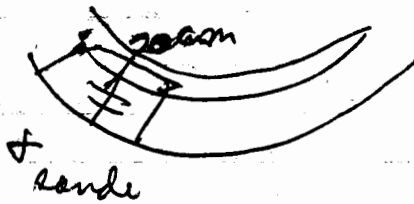


73 deck beams out of 54

- ① temp
- ② shelves not ready
- ③ moving from museum building  
- thrown in storage room



- ③ big cracks
  - ④ 16 ribs all bad - <sup>1st week</sup> & cracked later
- 5 still working on



battens & rope covers

see 3 unused later

cracked ~~the~~ plying garboard  
at ~~with~~ stern

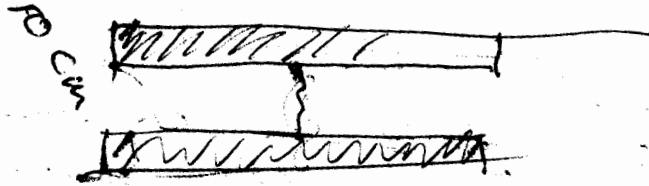
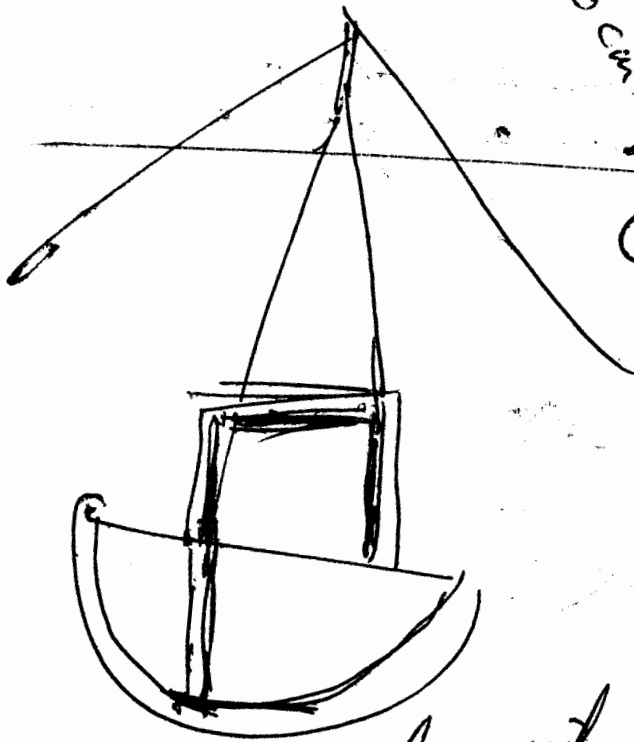
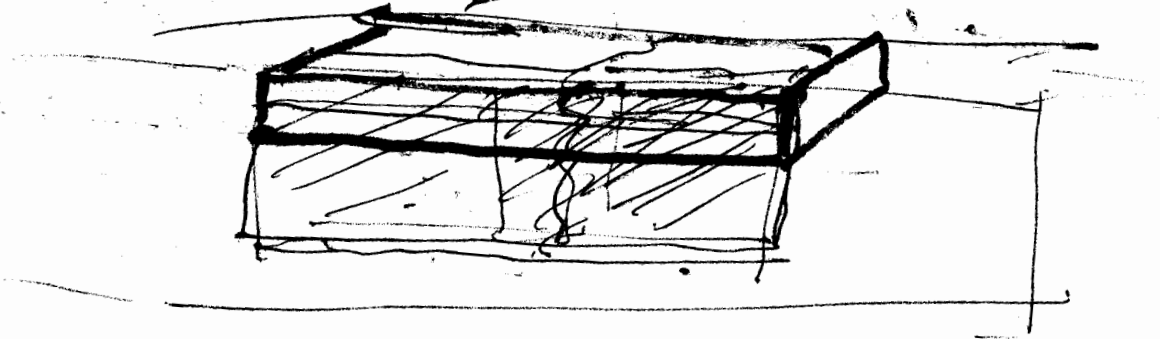
central girder at knot/old meas.  
(74)

brought in  
consultants of <sup>1st</sup> Plunder tees - Italy  
Unsub team  
19 ~~64~~ - hot September  
- revolution

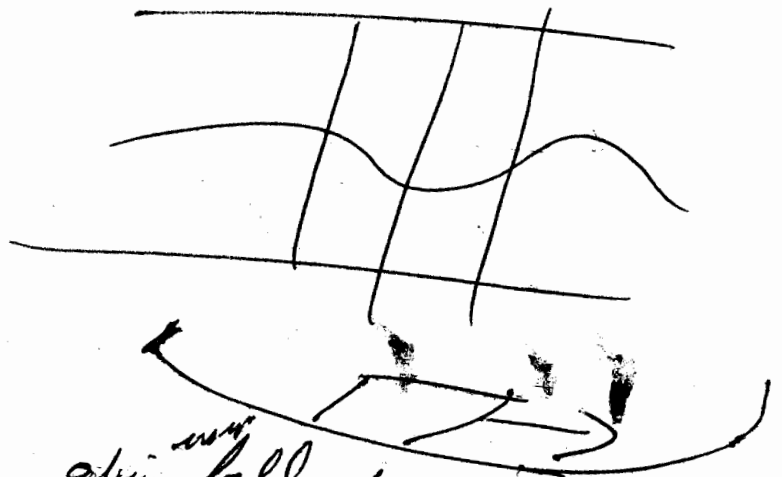
\* wrote a report saying  
listen to Kay  
leave it alone  
" " to Kay

④

64+ problems - battens, planking - everything  
new gutlines



③



discussion of current  
problem!

cabin <sup>now</sup> fall to north.

deck opens up & releases cabin  
side pens

problems w/ machinery -  
saw for 1000, bought

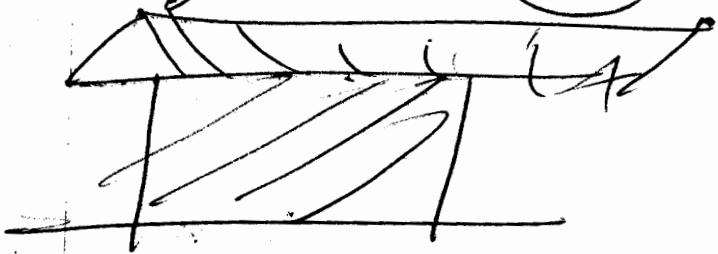
(5)

# of pieces damaged after excavation  
maybe as much as 80%

~~#~~

small cracks that can go

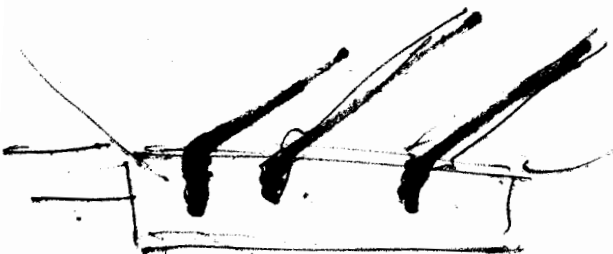
generally (71)



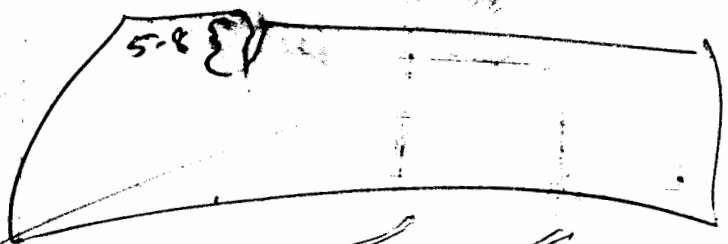
~~5~~

5-8 cm checks filled w/  
flexible paste of glue & sandst

interior



1 week dry before  
2nd layer added



exterior

⑥

7th problem - hardest

- abnormal case

PVA blocked pores  
inside a prob of 10me

- 6 min epoxy  
- Traitef Glycerine (500 grams)

- Acetone -

$(CH_3)_2CO = 58.08$

WT per ml (20°C)

Boil range 56-57°C

Acid

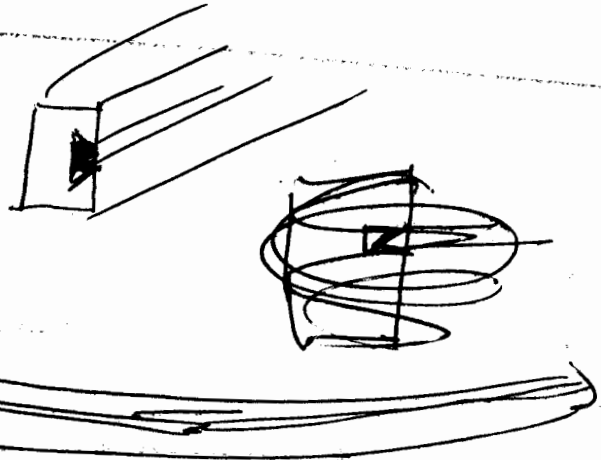
non volatile matter - not more than 0.005%

.790-.7929

55.5°-57°C

0.2 ml N/1%

rib splined

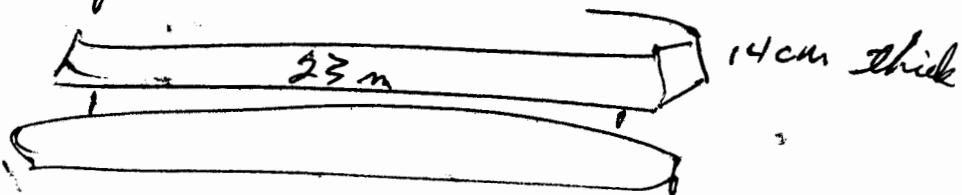


build up layers (of foil'd section end)  
bit try bit of old wood paste

⑤

can tell distortion ~~for~~ when in place in reconstruction

gaps from 5-20 cm & more



warped pit 62-63

all distortion for before excavation

if a body is ugly, what can

- worst parts not photo

door warped - remove PVA  
soak w/ boiling ~~hot~~ water for <sup>every</sup> 5 min

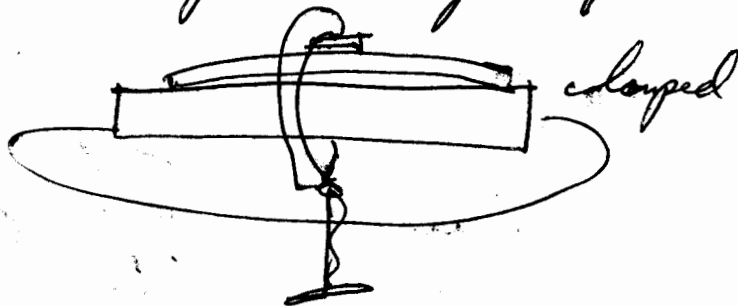
only 3-5 mls at a time

& only parts at a time

clamps of iron & wood

w/ thick pieces, used 3-4 layers of burlap wrapping to hold H<sub>2</sub>O

or much as 3 days<sup>or</sup> 3 weeks for thick pieces, every 5 from 8-5 pm

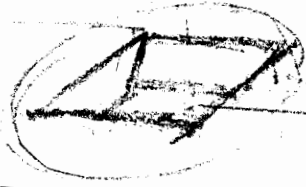
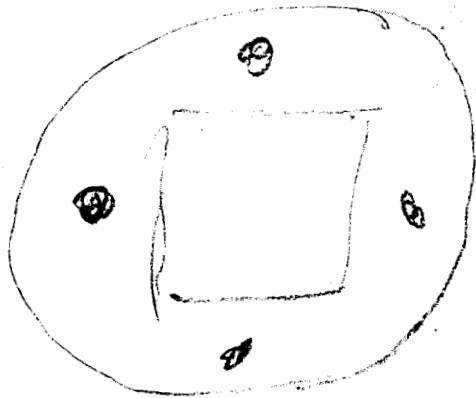
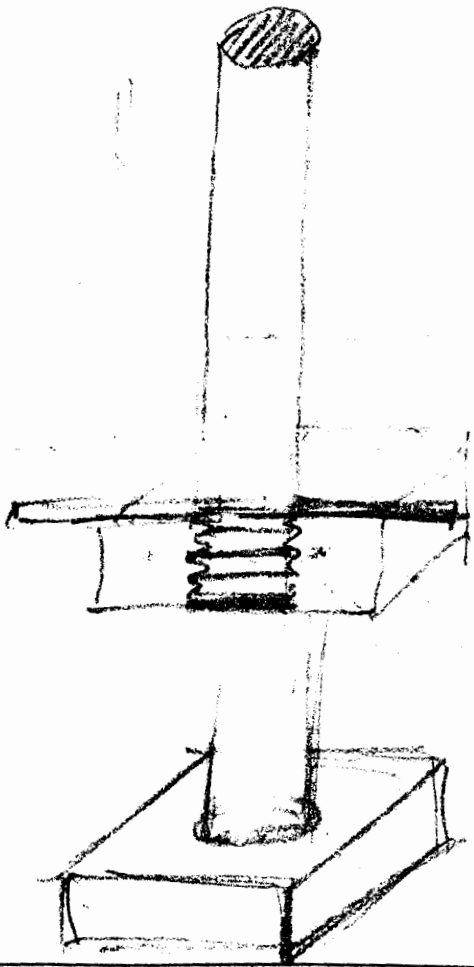


pix

pix

8

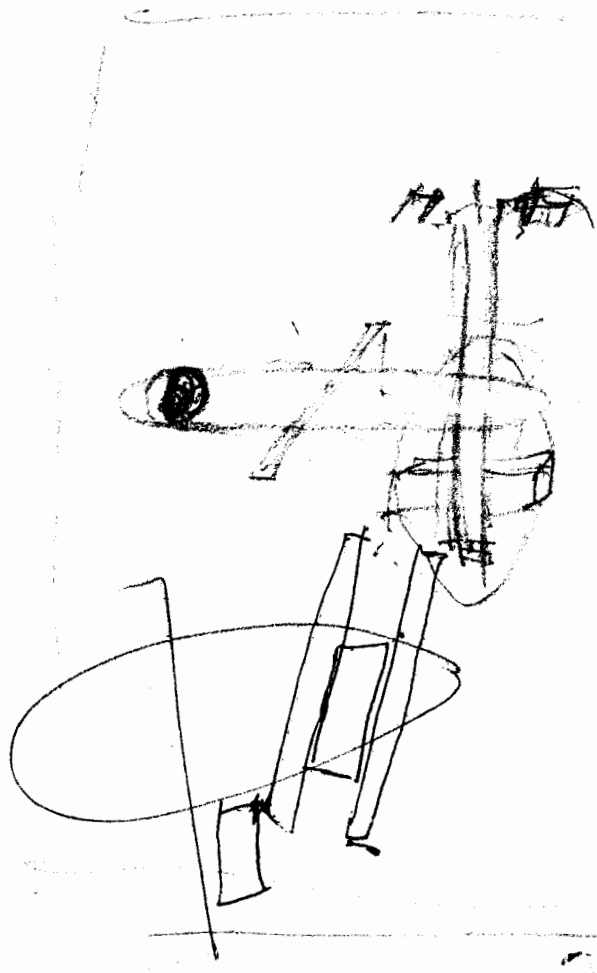
in/ twist & curve, take out twist &  
then correct curve  
            
(no fix)



9 fix cracks first, [checks post 54]  
all but 6  
- checks & cracks occurred after  
reshaping.  
reshaping done after 1st reconstruction



10 X 10 cm  
51 X 51  
15 X 15

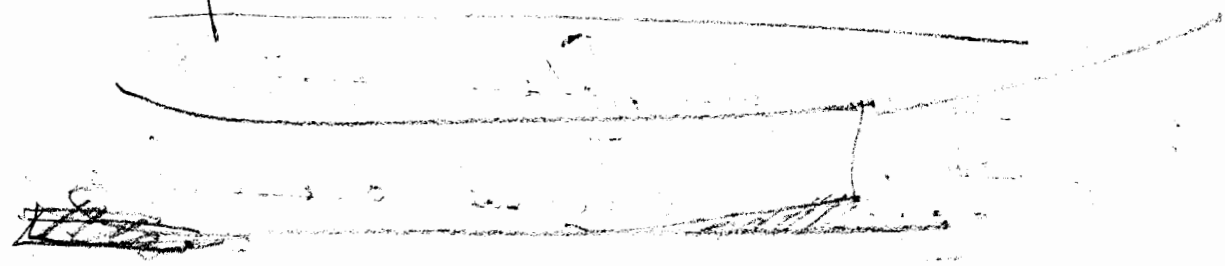
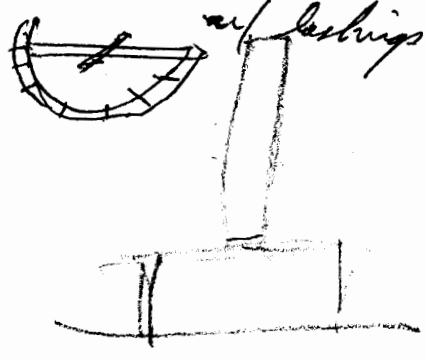


90° occurred in rest shop

lost corrections on ship

1-2 cm

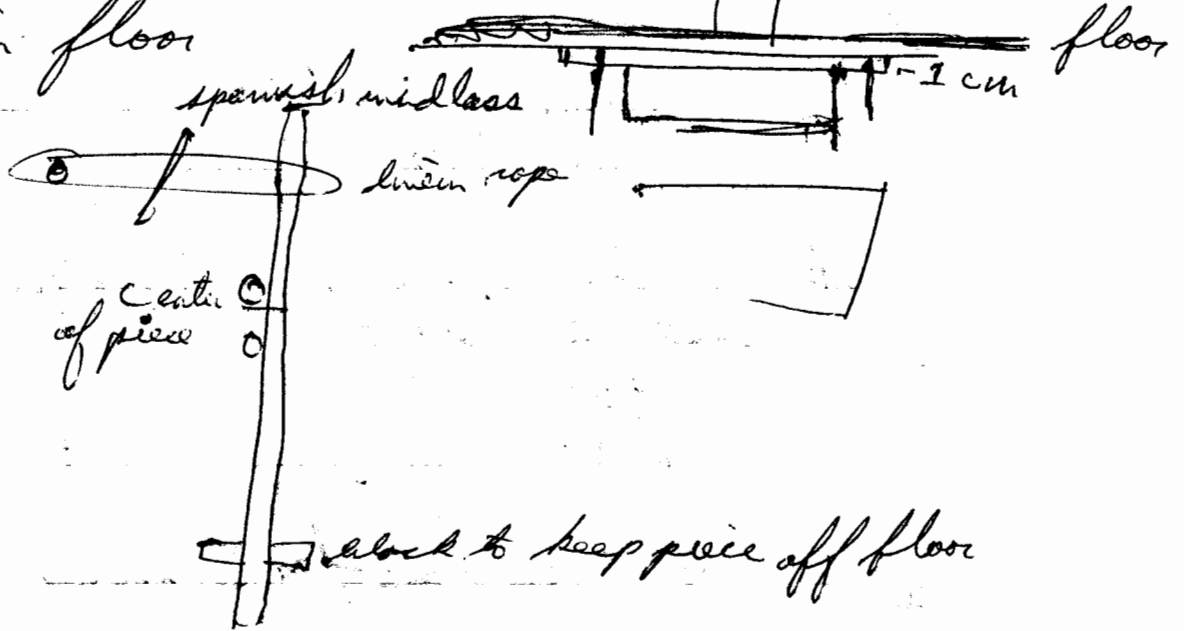
of bearings in place



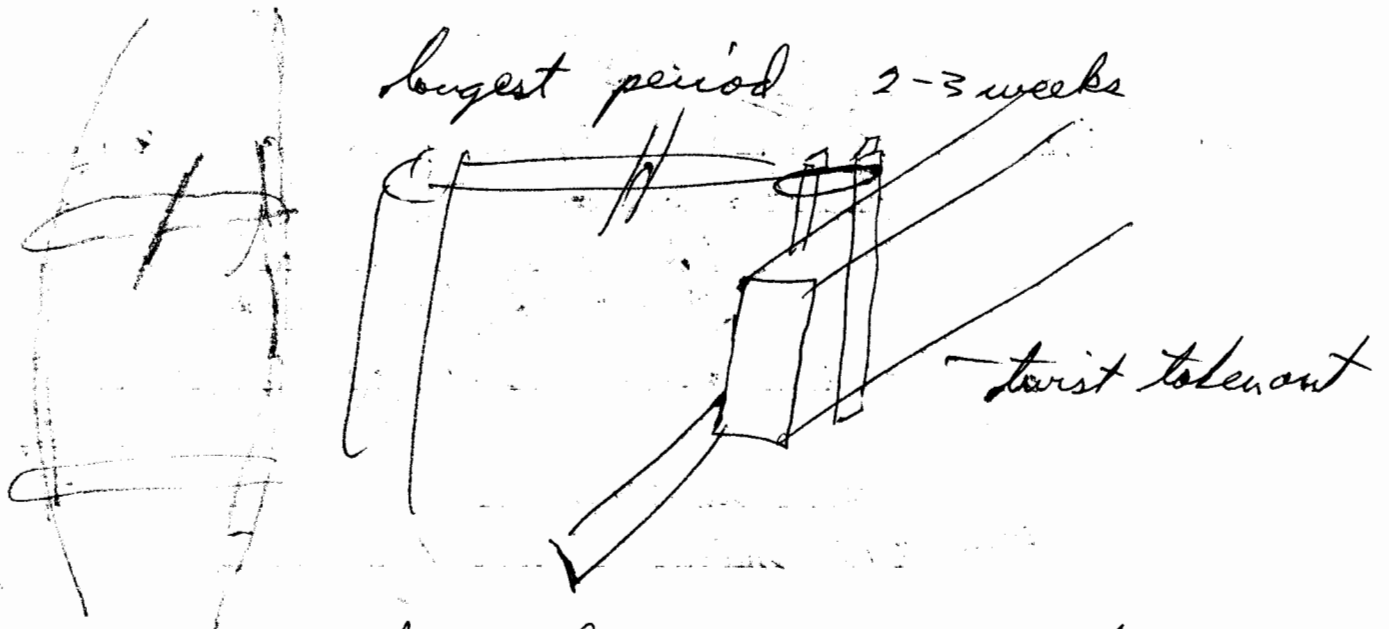
8A

6 filled iron pipes <sup>50-70 cm long</sup> w/ threaded end in an

iron plate 5 cm thick x 20 <sup>sq</sup> inserted  
in floor



corrected from measurements of  
reconstructions



escape first, checks etc left

- gazwadeen - <sup>ifted</sup> egyptian evergreen sand dust or ash  
 1 or 2 drops of glycerine in glue to prevent checking & shrinking

- normally 50-50 glue/water  
 he uses variation as much as 75-25  
 + visa versa

\* dry glue up just enough water to cover <sup>the</sup> <sub>2</sub>  
 wait till soft  
 → taps on & off  
 \* heat over double boiler (not direct)

add to ~~same~~ same amount of water  
 stir till mixed

add a touch of glycerine (for 40 to 50 mls), sample

(total 2TB for 40 mls) <sup>well mixed</sup> ~~the~~  
 1 part gazwadeen to 4 sand dust  
 make a grater

(for orig paste add color)  
 + 1 to 4 sealed / wood dust  
 a little at a time add glue/H<sub>2</sub>O mix well

- dries in 24 hours

5-10 to 15 minutes working time

\* <sup>glue</sup> glueing for carpentry use

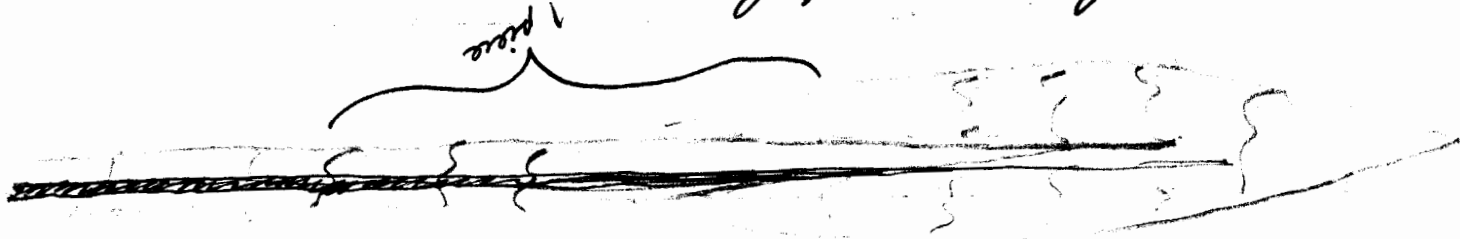
2/17

①

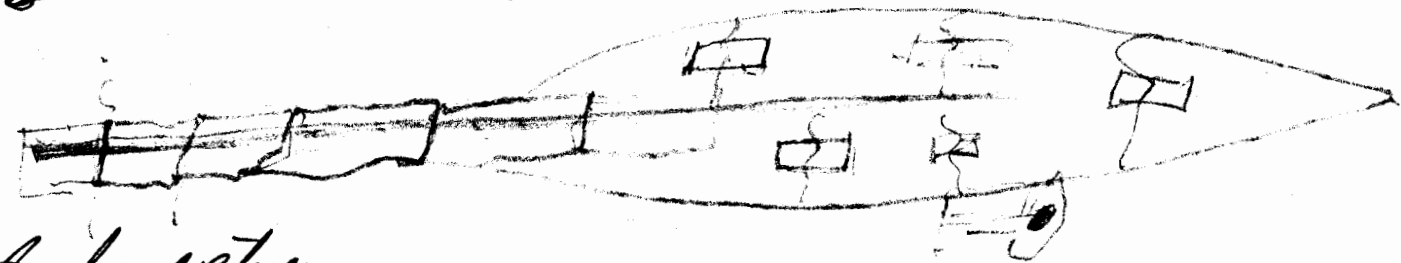
excavation pit photo 230 or 232?  
217 ±

oars:

glue between old + new wood?  
does the glue have any flex when dry

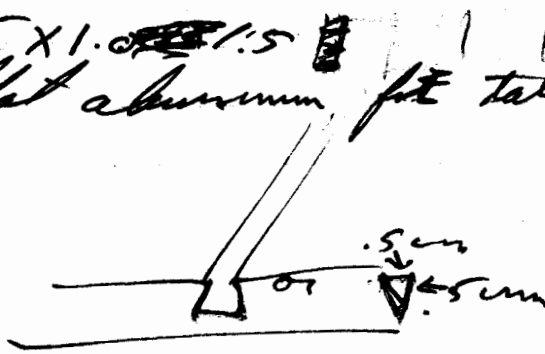


2.5 + 5.9% PVA to harden btw  
- it was cracked but not soft  
aluminum rod 1.2.5 to 1.5 diameter



straight glue between

fit .5 x 1.0 ~~1.5~~ flat aluminum fit tabs w/ glue



gouged out  
of wood over crack

used at least .5 cm for glue to hold

(2)

glue - any flexibility - no  
# - w/ glycerine makes bond between  
wood & glue

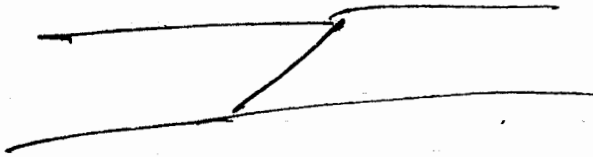
when glue in deep cracks, it settles into  
wood, so repeat application till flush

sometimes he can't find cracks himself  
afterwards.

---

between old + new wood?

- straight glue -



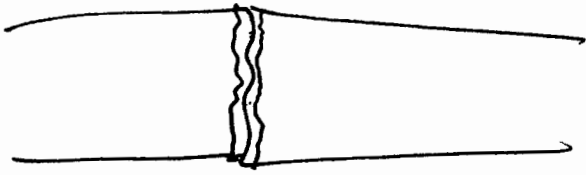
① { ② important of glue to use double boiler, <sup>low heat</sup> ~~heat~~  
& stir - if too hot, it gets too thin  
① ~~let~~ 3 hours of soaking w/ cold water

② strong glue <sup>but</sup> - if it's humid, it will absorb  
moisture & spoil & will smell bad &  
must be discarded

heat will soften

a quick drying resin  
was given Aceldite<sup>n</sup> epoxy but it's too hard

(3)



glue holds, wood fails around it.

discussion of epoxies - doesn't like to

use them cause the ancient  
egyptians had & used animal glue

- glue #1 best - glue of beans  
" 2 or 3 poor - in strip or pieces

- near painting / supply shops / tools shops

will check

encl samples?

at Nixon's visit took down rest of shed  
& took supply shed

storage at "el alla"

under Sultan Hassan Mosque  
is big store room of timbers

Mohdoy has control

Misc Ques section

~~see to the of May~~

(4)

## Reconstruction

a small story - not published

to give you an idea

discov in 54

- he was restor director

they wanted 2 things, wanted rest & reconstruction

in 54 didn't know anything about building

not hard to learn of resto background

② review & study books

(made himself a schedule)

② studied shapes & kinds of A.E. boats  
building all resto throughout Egypt  
every 3 years, and 3 months those

③ left work at Tufor & came back taking  
pix of all boats in towns he  
could find

① ④ large collection (more than 6000 items)

then started reviewing books at Ewiss Center,  
Chicago house & A.E. Museum libraries

asked friends to translate when necessary

Book of Maketa Re - by Winlock

but all this was less than what is  
needed cause it was arch + historical  
not, technique <sup>occasionally chemical</sup>  
construction

even Tomb of TI publication poor

Dr. Peisner, his teacher, did  
book on AE museum books, but its  
not on construction

all this took about 4 years

lets be logical, go step by step

- ① separate record
- ② restore + remant of things to do had
- ③ ~~recon~~ <sup>to face it</sup>  
held meeting (13 people) of ministers + arches  
& Egyptologists etc

right after  
excavation

~~10 Dec 55 to~~  
10 Nov 55

- they asked him what to do

- I see one idea only -  
its like a puzzle but we can't treat it  
that way - too dangerous + difficult



so lets make models - draw 1-10  
scale drawing, so I can play w/ it  
& then if I find two pieces that  
fit, we'll mark the orig accordingly  
& they accepted it. He hired 12 drafters  
for 1 year  
he's doing ests meanwhile

after 1 year (±) a change in director  
old <sup>Director</sup> Mustafa Awja retired  
& made v v Abdel Fatah new director  
his asst

When Abdel Fatah came on Islamic spec  
~~Cgypt~~, not AE

Islamic	1000
AE	3000+

not right to have Islamic now  
recommended someone w/ AE or alternate

a free for all - each for himself

Big friends of both men

Islamic: to prove capable said I'll reconstruct  
ship ~~at~~ in 3 months

(7)

as friends

told Al Brown, not Ray asked  
one of workers saw article  
& asked how come it'll be done in  
3 months?

He came to post asked

Ray started laughing before saying  
hello

Dir asked why

- Ray "someone" wrote

- Dir said "so what?"

- Ray "maybe possible" but laughing

Ray "remembers at meeting you agreed to model  
scheduled program but will take a  
review & look at what remains to be done"

He went around asking each draftsman  
how much done <sup>found</sup> 350 in a year

Ray wanted him to see for himself:

He went to 5 carpenters 90-95 of  
350 drawn

Dir astonished - "How come?!"

Ray "It's in front of you"

Dir we'll both be retired in 10 years & the Dir will be  
unfished

(2)

between (2)nd 59 in storage / damage

(3)nd  $\downarrow$  63 64

location of batteries mostly irregular, uneven working, political mostly

(4)

68

\* director leave, or some other problem  
\* 5 directors & ministers

1930 - 82 official but to 83 still working

(5)

70

- has quarterly reports

orig

Encl timber 3-4 meters X 14cm X ~~14-20~~

$\downarrow$  X 30-35  
20

(9)th paste base (petroleum based resin)  
Alaphonia + wox  
66 % 33

+ sometimes vice versa

when wood very fatigued, 66 wox - Alha  
50-50 50 - 50

pretty good then 33 - 66

putty <sup>knife</sup> must be hot when applying it

\* get demo & samples

(8)

Said <sup>of me</sup> calculated it: 10 years plus

Kag even 30 years is nothing compared to 5,000  
nothing to be ashamed of  
its the logical way -

- We did a schedule but I'm not content  
- we may die but others will come  
& finish it.

Kag Its a problem of pr - what will ministers  
& administrators & public think? they won't  
understand

Dir: ~~See~~ what can we do? (had final responsibility)  
Kag Chad endless bureaucracy that takes 3/4 of  
the time - if you'll get others to do the other  
work - & leave me to technician the boat,  
I'll put drawing etc aside & work on  
ship timbers directly. After 1 year ~~we~~  
~~will~~ ~~can~~ say '1/3 done', [but it'll sound  
strange to insiders] ~~so~~

Dir I'll give a supervisor to handle paperwork  
& we'll see you get \$ needed & leave ~~so~~ you

Kag Will fire the crew (12 + 5) & I'll start  
working myself on the post tomorrow  
~~but~~ not happy but is  
I'm the one responsible -

(9)

He was was not serious (?) but had other ideas

While excavation he was studying &  
during drawing year he'd spent afternoon at boatyard being  
photog & drawing & writing

in this year he'd learned a lot & built  
the 5 models (81) pit

} Taki Wom said put models in museum  
a stone boat  
has them in store room  
rowing boat, golden boat, felucca

built them to practice ~~the~~ boatbuilding, since used to  
be carpenter

when he saw <sup>building</sup> technique, he felt more confident  
he felt like a "clean" boatbuilder.

That's how he came to start on reconstruction

finished drawings & models slowly  
kept 1 draftsman & 2 asst  
& took 4 years to finish drawings

models later also

(10)

Said 1st day

that after PWA used his own method  
- did he mean the que/typing?

central girders suspended keel 2/21  
①

bring back ~~Greenhill~~ of the ceiling

Were going to start directly, w/out sides, etc  
but he wanted till studied...

Kept orientation the same, but separated  
(spread) pieces out in Resto shed

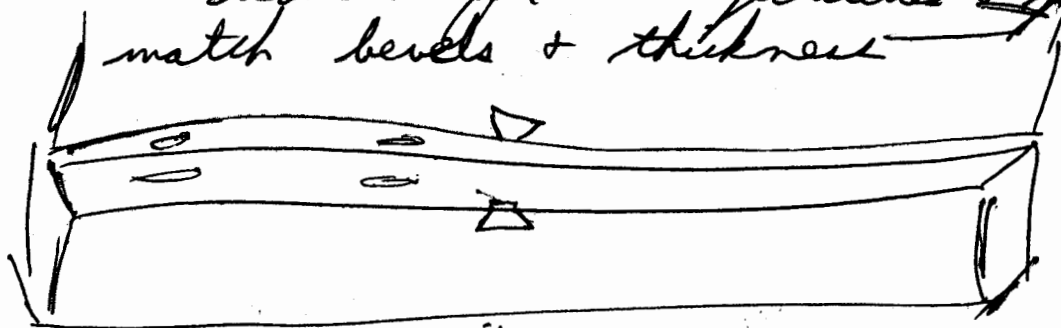
Keel in good condition - the new stbding  
methods, skeleton first.

assumed ship needed "keel" as such

① worked from <sup>planking (left)</sup> ~~the~~ side - 6 months for 1st  
side 1 or 2 for 2nd side

② Very careful in moving pieces, to study  
a lot the pieces first before moving - avoid  
extra work & damage  
it (study thickness)

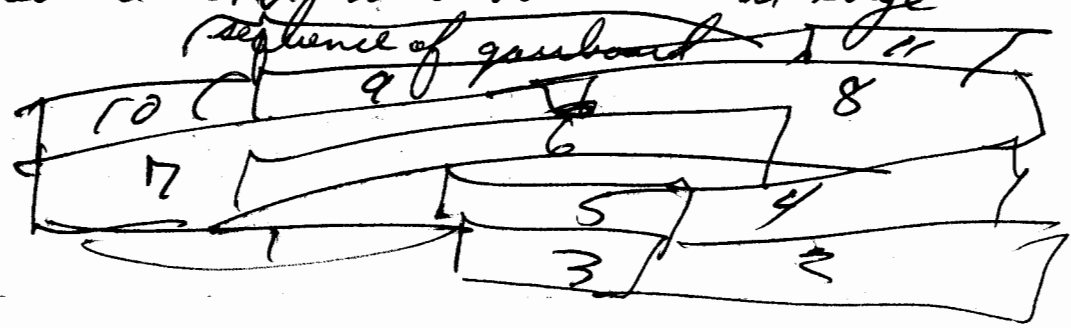
③ Keel first - 3, 12 m sections  
looked for irregularities & tried to  
match bevels & thickness



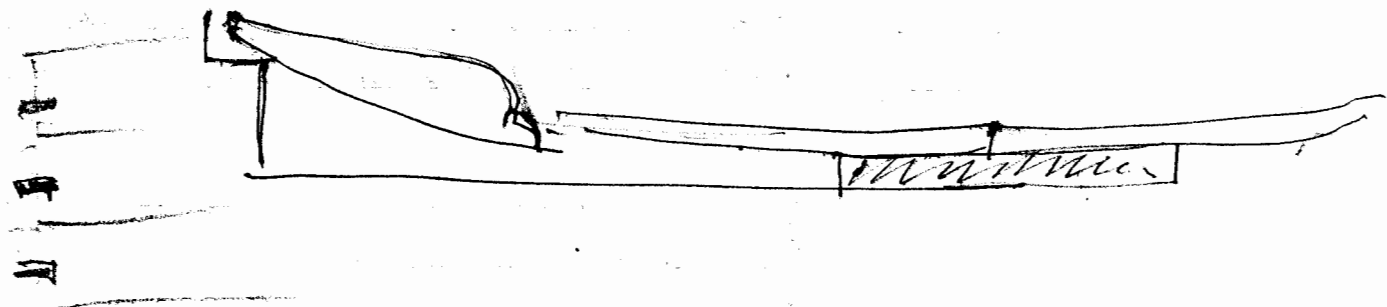
90-95% it worked

(2)

step by step <sup>off, central fore sections,</sup> garboard, 7<sup>th</sup> strike  
could tell from levels at edge



keel sections, then end sleeves, then  
sides - sleeves just under keel ends  
obvious from joint details & placement in pit



~~take~~  
put

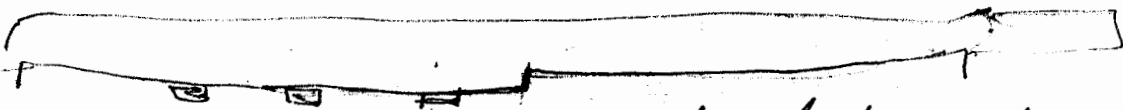
had to let bevel determine rocker  
& then corrected for shape of garboard (3)  
& openings - pit

in end bevel  
open to inside only

(take off) for a mo.



(3)



matched hooks + tabs - 90% easy

from beginning, planking pieces fairly  
lead from size + shape out of 20 or so candidates,  
to left of keel section

Rev - story

Essential



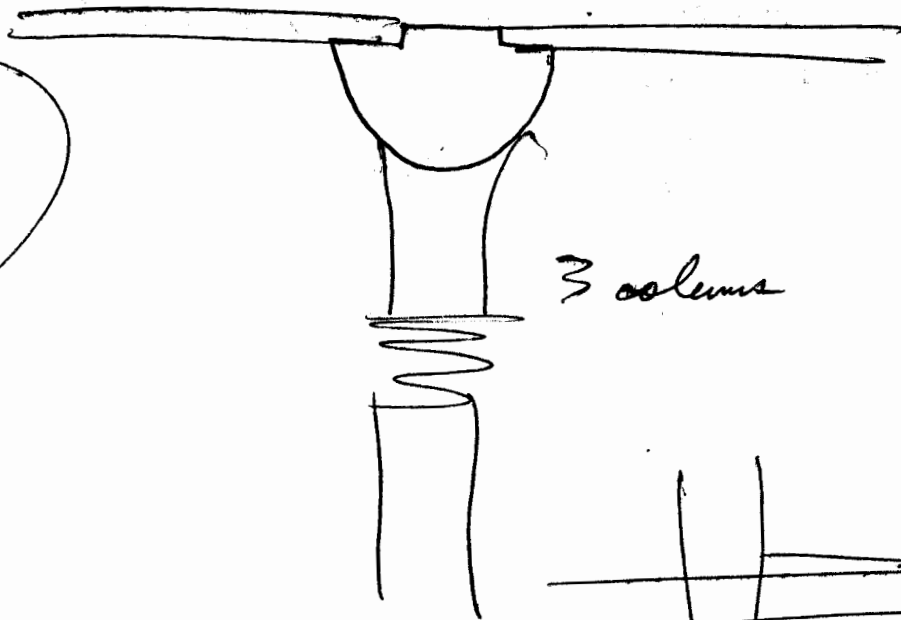
(5)

12 times side panels: smallest <sup>(panels)</sup> ~~step~~ (at stern)  
obviously at ~~ant~~ end, large at other

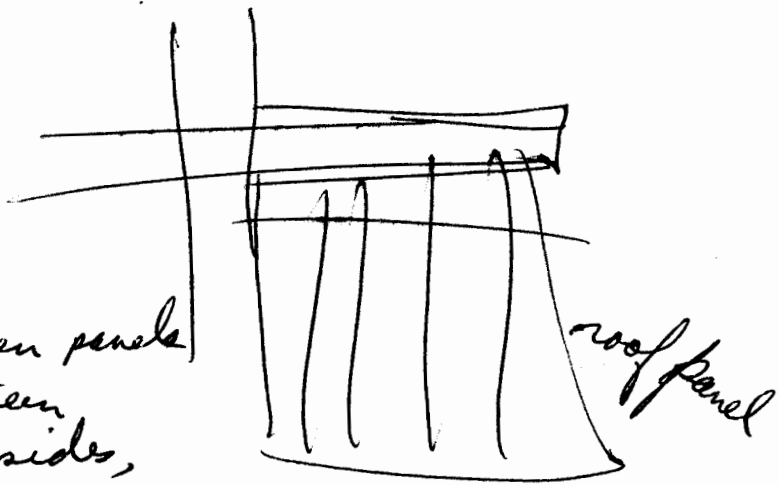
bottom follows line of deck

9m ~~etc~~ roof beam

pit  
of damage



3 columns



roof panel

measured comparisons between panels  
from sides & top, distance between  
cross beams, columns & sides,

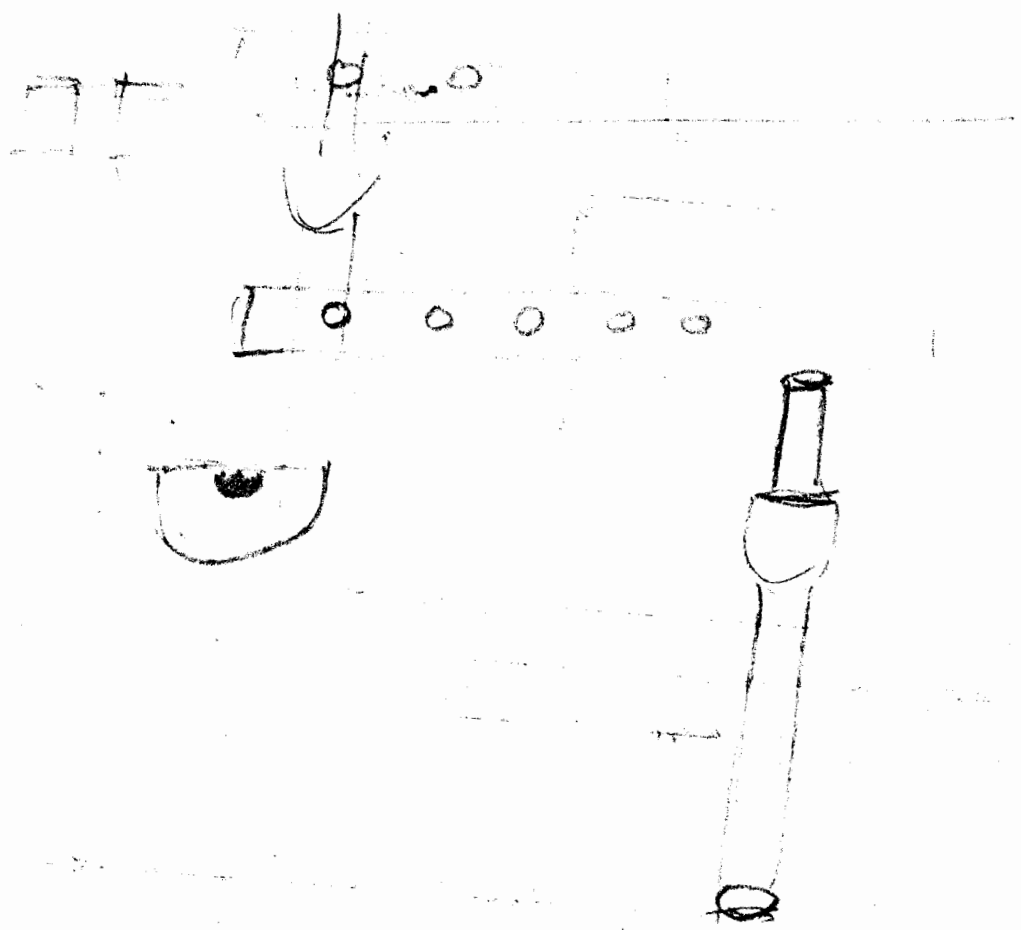
12 times just to lay them out properly, not to  
set up - worked logically, step by step.

- Baldachin <sup>poles</sup> ~~is~~ in pit <sup>(put together)</sup> ~~separate~~ from cabin ones  
(Which were spread over whole pit)

(6)

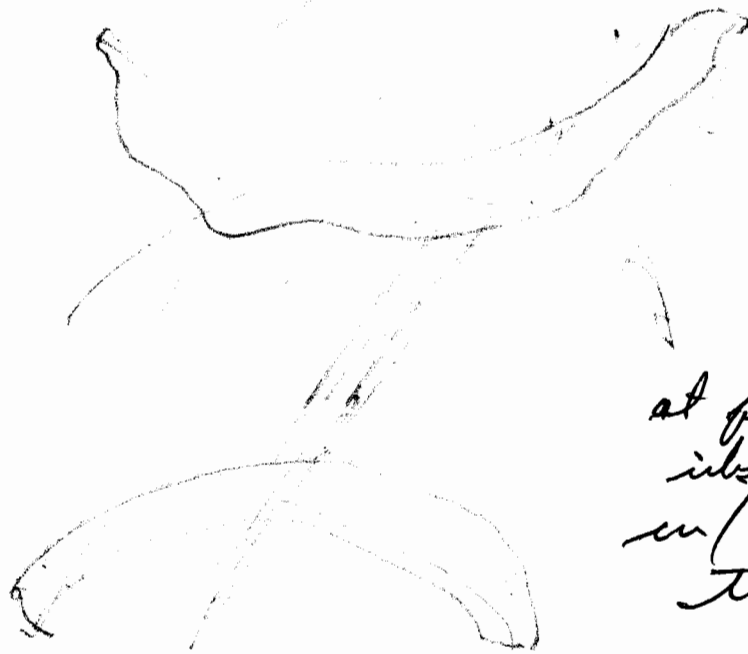
2 strips of Roof of Bald stacked together fab not  
pip assembled, & separate from poles, then  
matched five holes on 5 holes each side

no relation in layers of panels; put in  
to fit space - he was surprised <sup>they were</sup> not  
~~as~~ "averaged" more



9

per top of poles 3 cm, but 5-6 cm (able)  
to place stringer from difference



at first thought  
into upside down  
w/ central girder on  
them

- string of french pamphlet

stat pit of early arrangement  
- didn't work cause no holes in deck

8

2nd month - another schedule of  
subjects, details needed

①

2 | 22

Massing - technique - system used

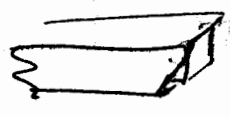
pic from report

Ford section of ~~deck~~ awning area  
knew separate from cabin from  
length diff 4-5 cm

decking - sheer ~~deck~~ plank 33 m long  
36 ~~notches~~ to sheer plank

thought it'd be easy <sup>cause of notches</sup> took longest deck beam  
& put it in middle & still took 3 months

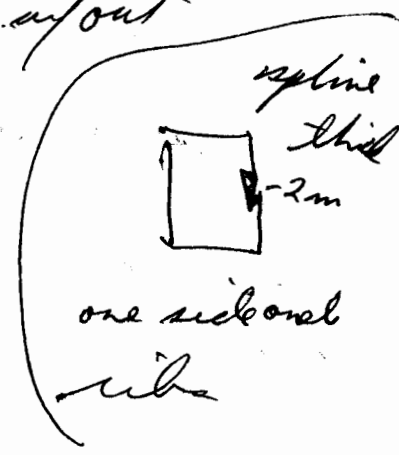
10 cm diff between each  
deck beam



just started trying different arrangements \*  
nothing worked for 3 months  
sometimes only 2 cm off

thought it simple cause he'd see a match of  
notches w/ deck beam during elevation

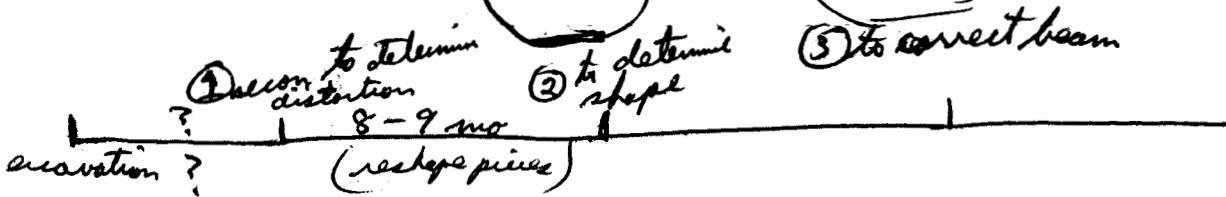
\* <sup>it</sup> trying to biggest at dead center... so w/out  
understanding of system



(4)

if keel not correct, planks wouldn't fit  
- at 2nd side placement, took off  
bow + stem posts for ease & safety

deck beam 60 cm, too long each side  
hull "closed"



how long

Time line tie in

later

problem of beam - leave it (for others, projects)  
to allow sub-conscious to work on it

rearranged  
cabin 2 times

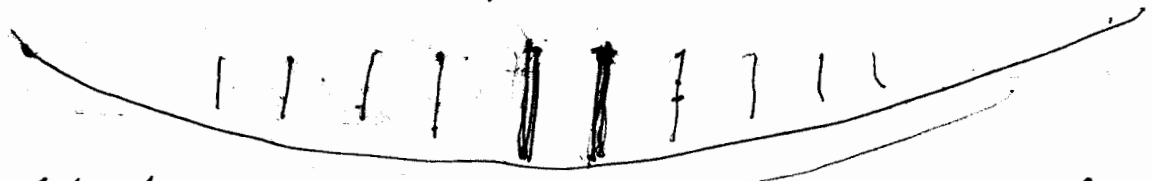
3 doors first - difference of .5 cm between them  
it match rail holes of door laths

pit

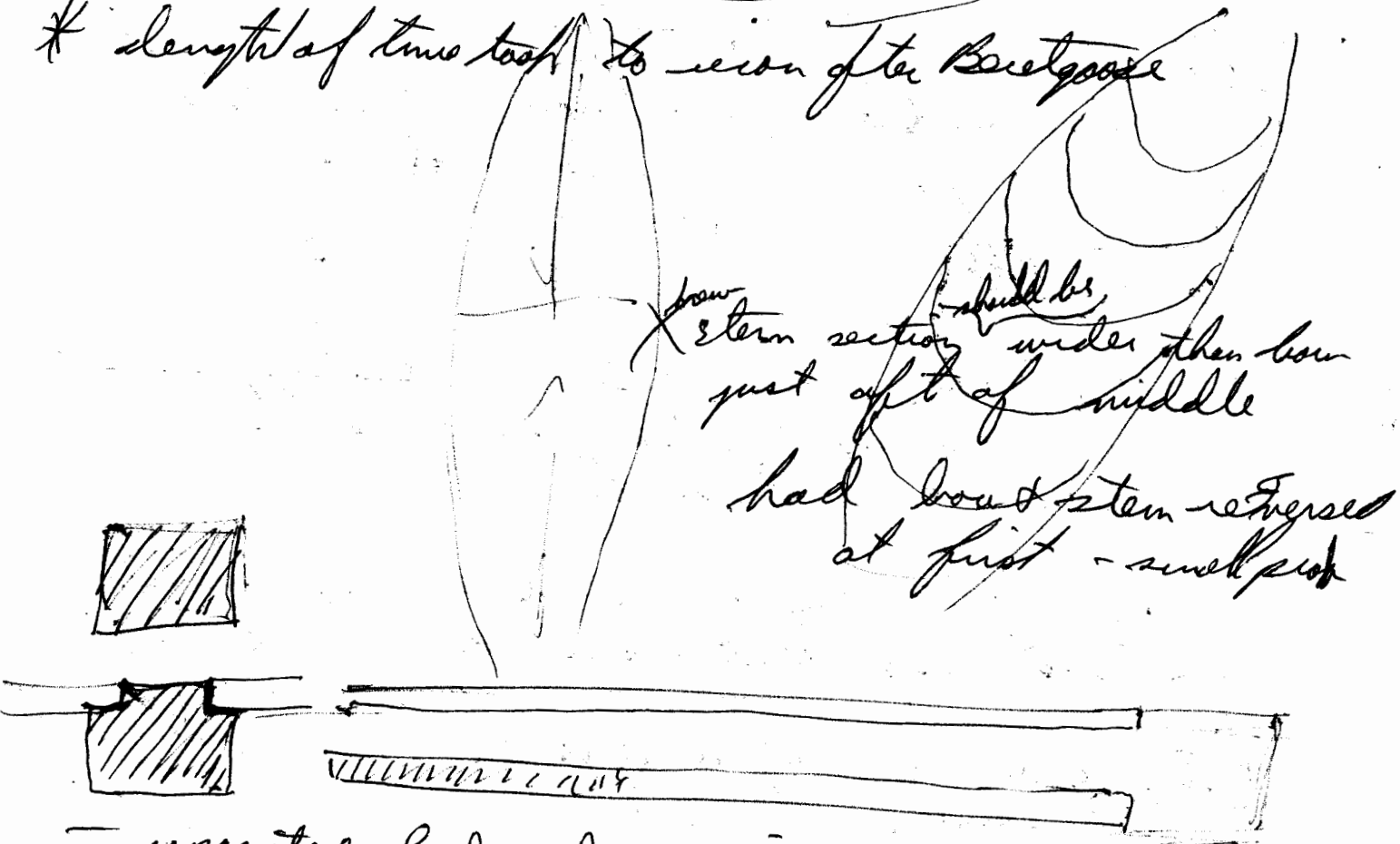
deck prob  
 Before hull too narrow problem - correct deck led to  
 realization of hull prob

(2)

Went to visit boatyard,  
 Betgeose story - house of the pair  
 left deck beams for deck planks, reviewed



\* length of time took to union after Betgeose



separated ledged pieces

front beams all 2cm shorter than stem ones  
 put check clamps & central guide w/d beams

(ref)



(2)

pit

shed too short

# of pit

# of sequence in deck

# of registration (for fish)

3 <sup>stem</sup> deck beams completely gone - new ones up  
eneb

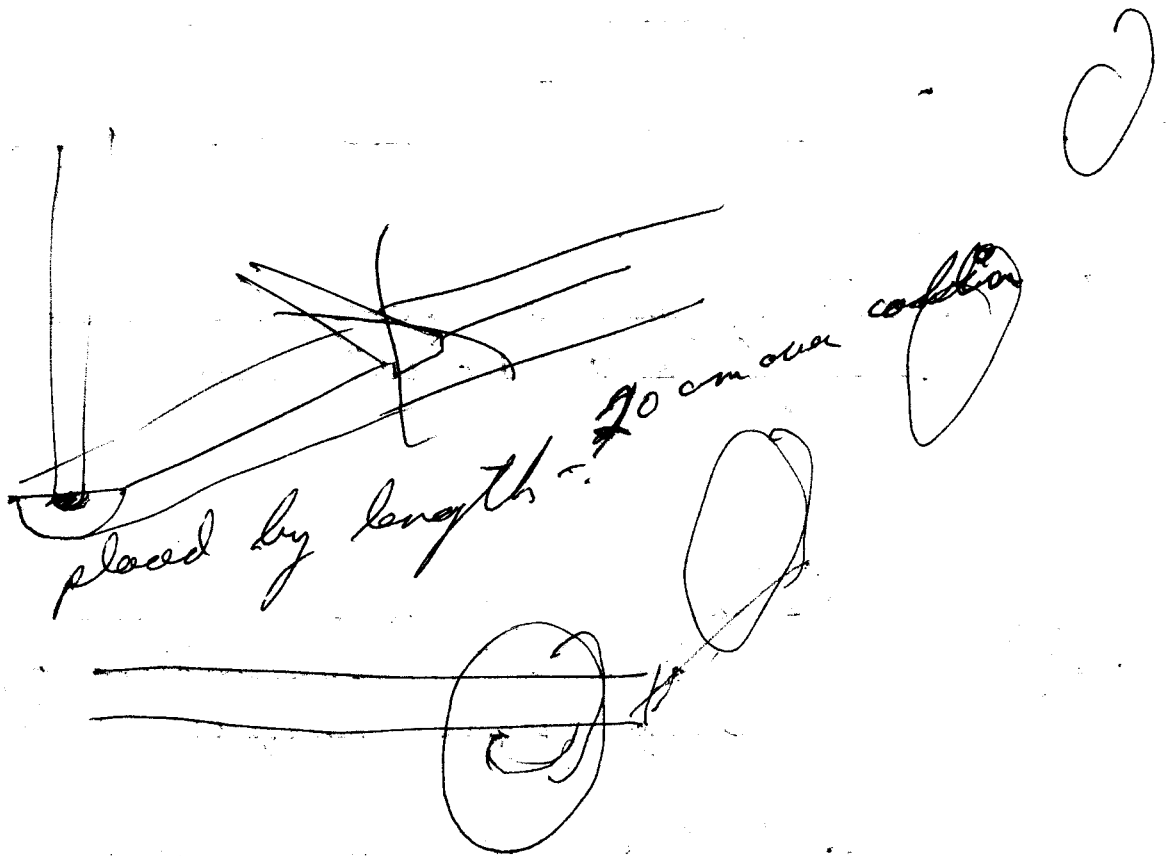
- good Alubaker understands & situation (at all)

\* question: pieces arranged around sheer clamp,  
base for poles & cabin side

\*

Esna - to Aswan - a kind of stone  
"Romlee" translate? <sup>hard</sup> middle soft (grades)  
may have sample  
get it & cut small blocks (hand side)

de



1st deck arrangement

(5)

2nd hull problem

started doing some ~~contact~~ simulations for 6 chamfered deck beams

(prof of drawing)

placed on sbe in location & measured distance off either side & height

knew width of each plank at each "station" & beam plus other bow & stern

built 6 moulds from height, width & length of side at station to locate at beam locations & set up w/ plumb line & chalk

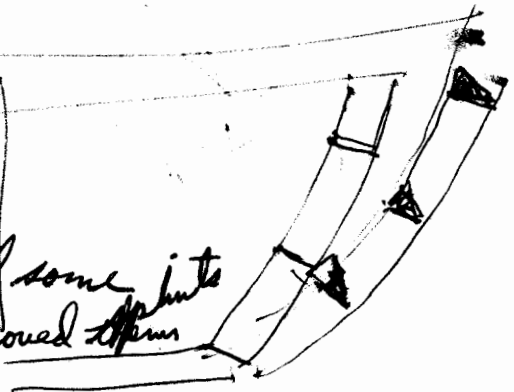
took <sup>sides of</sup> boat apart completely

(lasted) set up moulds on chalk marks on keel

& lashed up planking

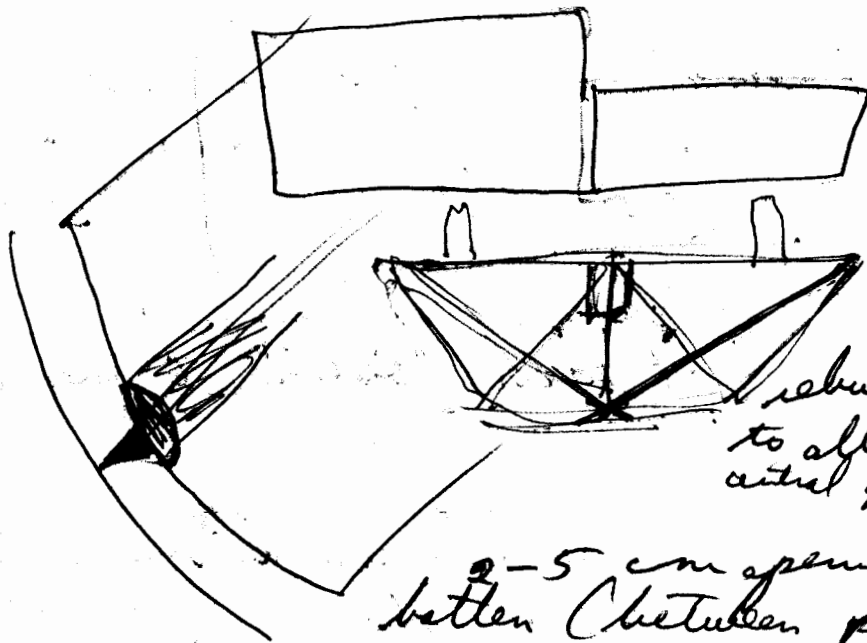
had inner edge ~~open~~ open so put pieces in opening & did some joints lashed, nail to nail, then removed ~~them~~ <sup>joints</sup>

- then deck beams fit



6

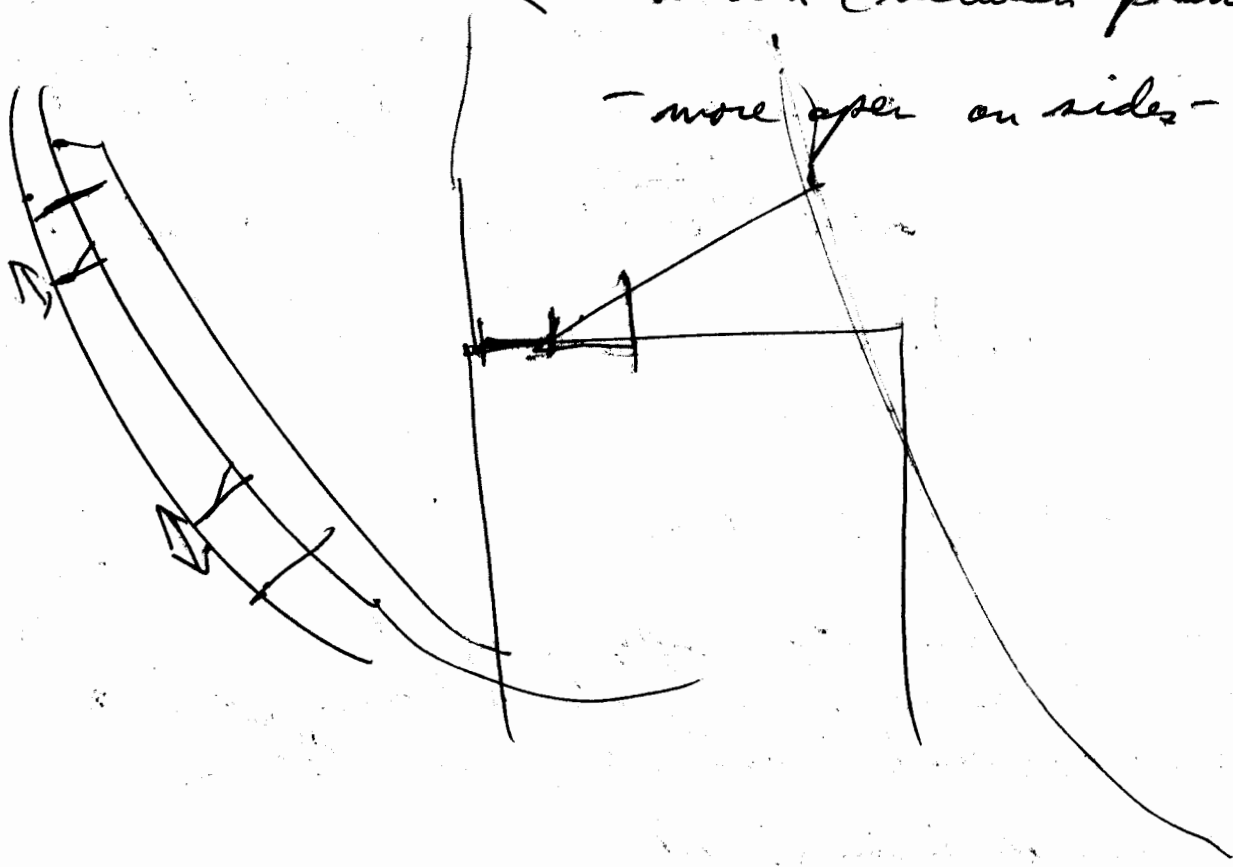
① reason: didn't have enough height in  
net to shed to put cabin on, so had to move  
to ~~new~~ building next door:



robust frame  
to allow for  
central guide & clew

2-5 cm opening under  
batten (between planks)

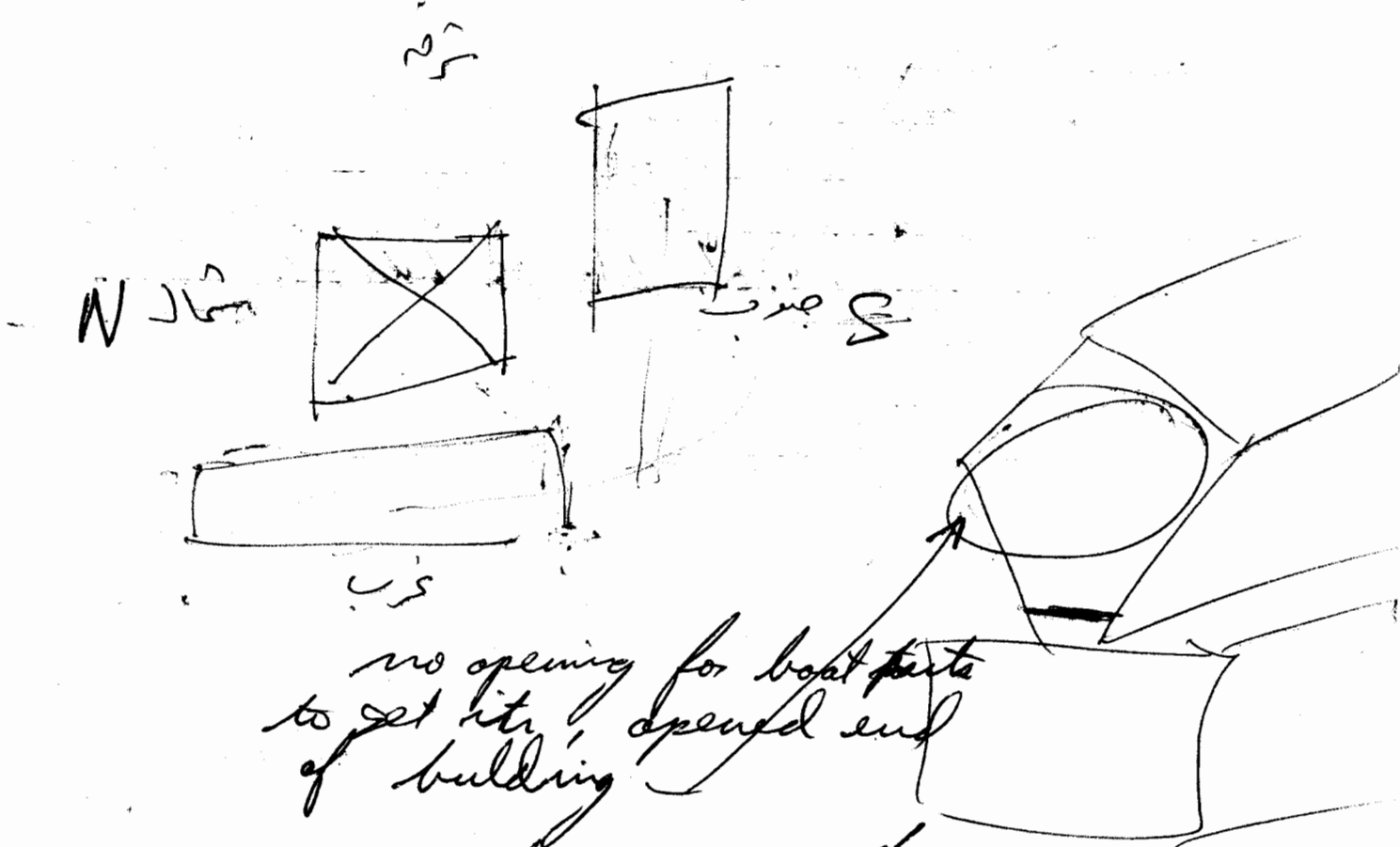
- more open on sides -



(7) (B)

4th: everything in place (minus 9 pieces  
when signs were understood

5th: boat <sup>8.5</sup> m off floor on platform



no opening for boat parts  
to get into, opened end  
of building

"you have to pay \$10,000 to cover  
costs of opening"

- How museum designed, built etc. always in trouble w/  
prob w/ building, not boat - ~~the~~ ministry  
5 or six <sup>redesign</sup> ~~redesign~~ of building

(8)

meeting to discuss where & what

some - place near pit

some - near son at Lumiere theater

" = at base of road (where stables)

" = N of 2nd pyramid

decided<sup>3</sup> near pit so they

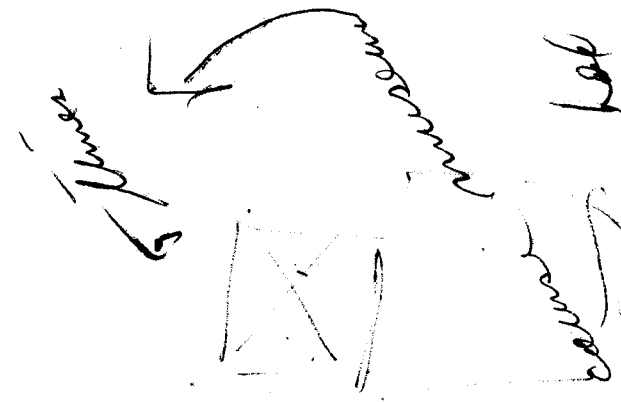
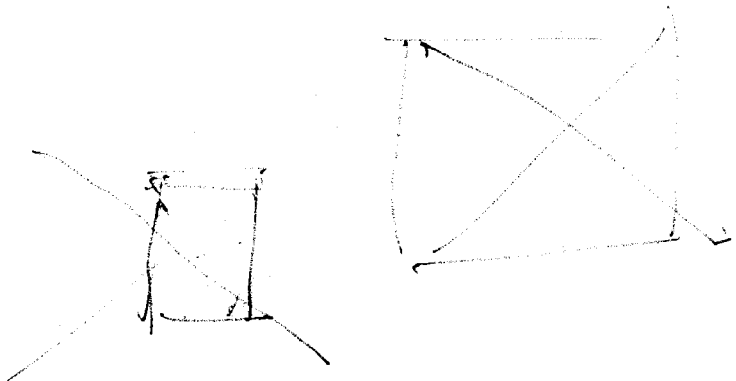
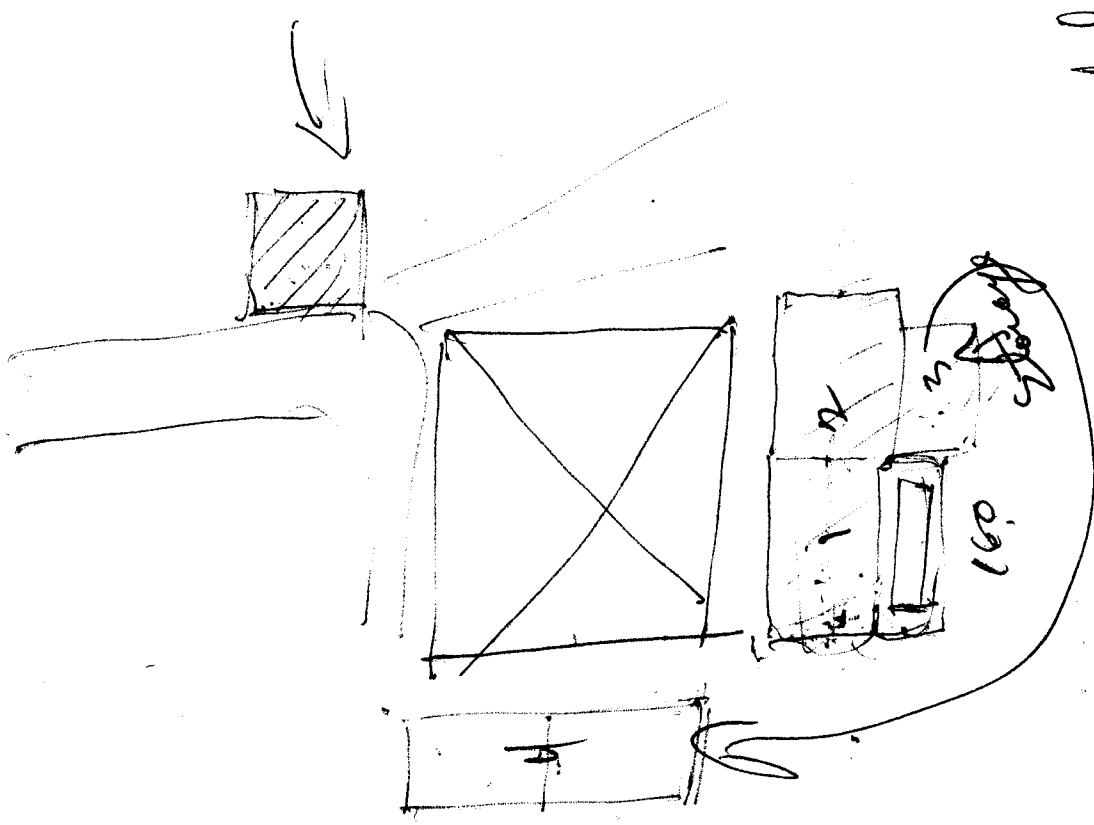
- ~~place~~ dismantled beets shed

in storage - 3 years (caused a lot of

minerals said ~~rebuild~~ ~~again~~ it again in orig. <sup>(damage)</sup> ~~bottom~~

cause we won't be able to hold the museum  
as planned

- started to lay out



come  
 fight  
 after  
 said never of  
 while changed it down  
 they take  
 said





①

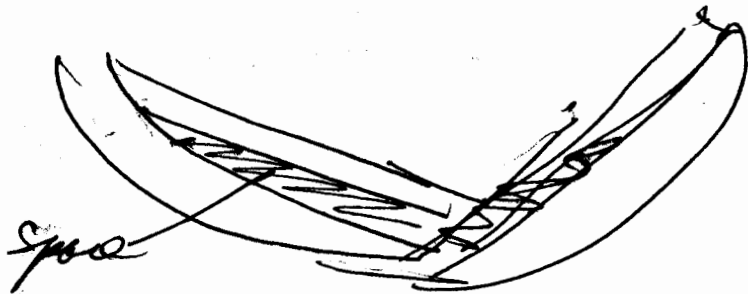
2/26 installed

Betelgooy - closer to bow than stern

Near Othryya

this is where he found bedding -  
followed ~~by~~ construction start to finish

second frame



sketch of 1<sup>st</sup> + 2<sup>nd</sup> resto shed & ideal <sup>Museum</sup> ~~area~~ location

- |                        |   |   |       |          |  |
|------------------------|---|---|-------|----------|--|
| completion<br>of recon | { | ① | recon | aug 58 → | L x W & h only for<br>moving height etc of museum building   |
|                        |   | ② | "     | July 59  | keel & cabin in 1st shed but<br>restoring of planks & <sup>ceiling</sup> separate <del>by</del> out no lashing     |
|                        |   | ③ | "     | Aug 69   | resto in 2nd shed <del>99%</del> <sup>for study, &amp; arrangement</sup> <del>restoration</del> <sup>on ship</sup> |
|                        |   | ④ | "     | July 68  | final in 2nd shed 99%<br>waited till   |
| beginning              |   | ⑤ |       | Sept, 70 | in Museum  |

didn't write down south by north

(2)

(2)nd between 59 in storage/damage

(3)rd <sup>63</sup> 64

location of batteries mostly irregular, uneven working, political mostly  
a director leave, or some other problem  
5 directors & ministers

(4)

68

1930 - 82 official but to 83 still working

(5)

70

- has quarterly reports

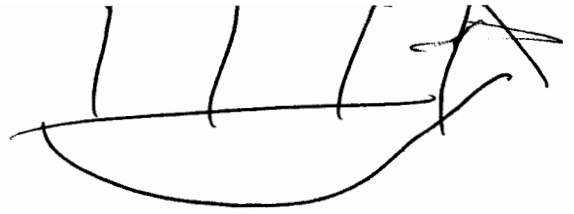
orig  
Euc timber 3-4 meters X 14cm X ~~14-20~~  
↓ X 30-35  
20

(4)th paste base (petroleum based resin)  
Alphonia + wax  
66 % 30

+ sometimes vice versa  
when wood very fatigued, 66 wax - Alfa  
50-50 50-50  
pretty good then 33-66  
putty <sup>pink</sup> must be hot when applying it

\* get demo & samples

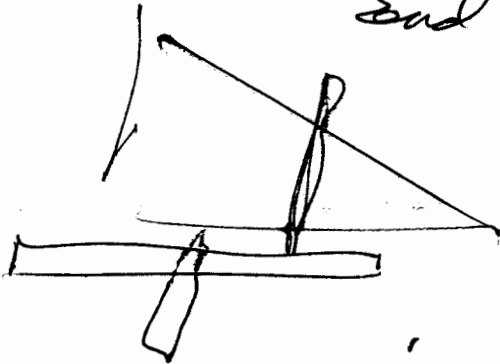
(3)



Greenhill book arrangements

give him mine if long delay

Send to ALTE



Bring Hornell picture & article ...?

More translation for Elhawal

French to Arabic

Questions: size 10 x 6-8cm x 1-1.5 cm

- hard wood

Zaki's very hard

nābā

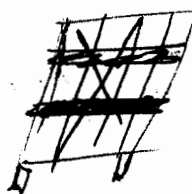
sederē classical arabic

some in ship, some not good enough to save

Zaki 5% nabe, sycamore, acacia

sycamore - small battens

~~acacia~~ acacia - pine, some deck cross bracing



- Mango also?! but it didn't suit in Egypt.

(4)

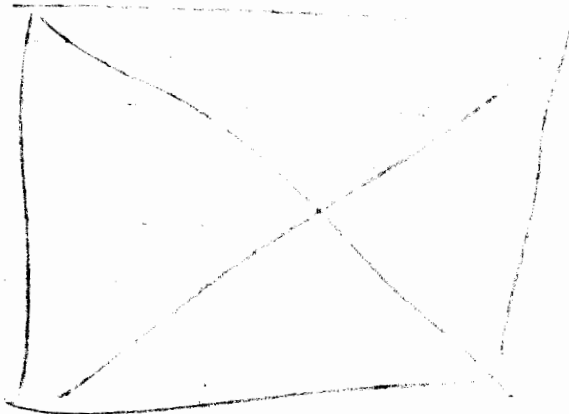
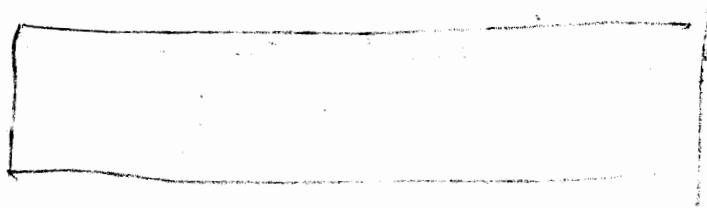
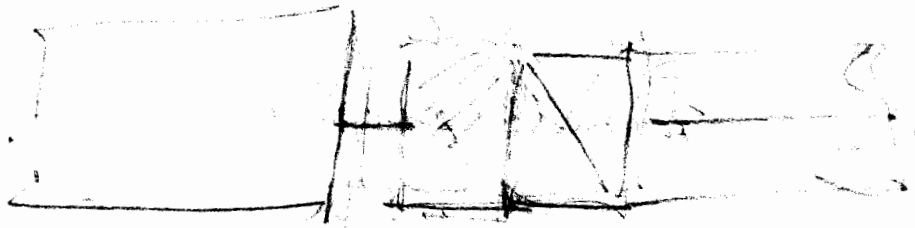
in between  
hardness

Ab.

gracia harder than sycamore  
both softer than Lib. cedar

~~Ab.~~

English fibre in Museum Storage



No study done of scale drawings

70-80 compression piece

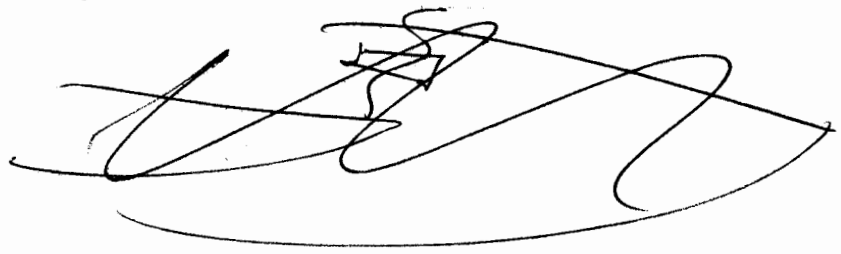
doors ok

central guide + shear clamps

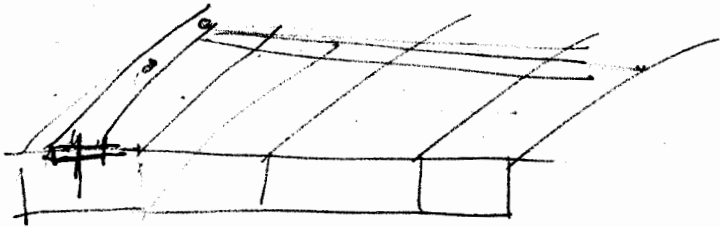
deck + roof of cabin

~~some~~ many battens - some new ones - end -  
some ribs

Aluminum in the deck



6



dunnage runs next to cross bracing &  
had to be reset (over) when they found  
wood had shrank from kind of seasoning.

(5)

no bacterial damage - also too resinous

- deck aft of cabin - deck very weak  
glue & zeebeedakk



epoxy + PVA

olephonia

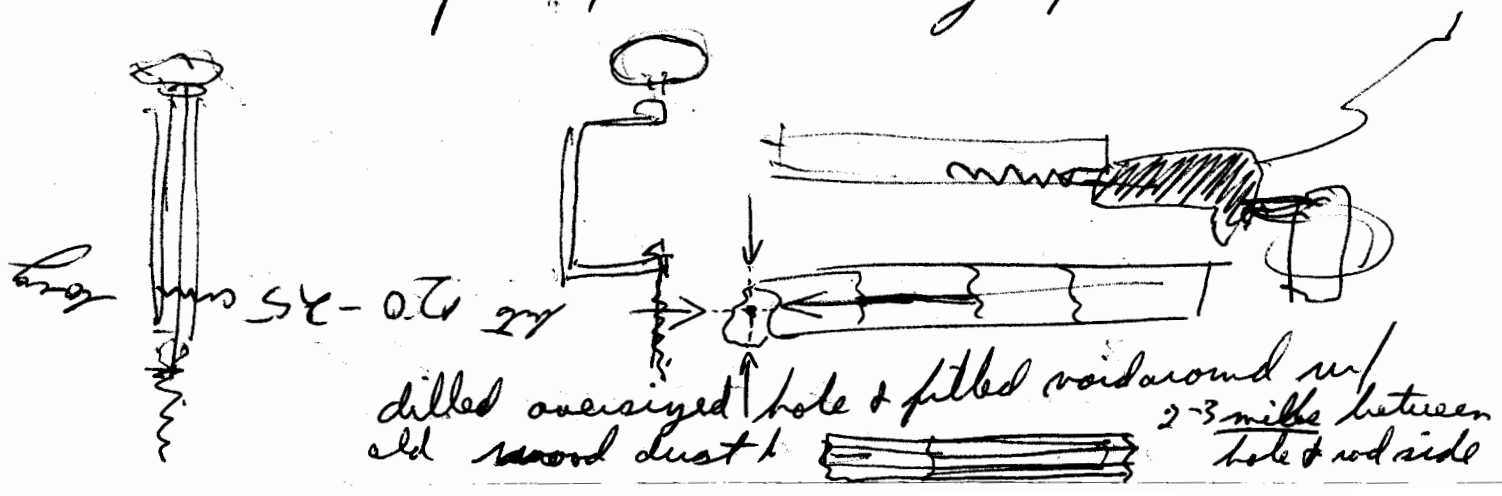
testing for good bond

~~new wood~~

- w/ glue is shrinking/swelling when used  
- w/ sandust in large quantities like on deck

if goes to Lerpou, will bring samples of  
be has ~~spending~~ <sup>spending</sup> stuff - but may

~~Keep~~ saws, wallet, <sup>chisel</sup> ~~pick~~, ~~nut~~ ~~knives~~  
Big double ~~tools~~, pallet knives, bushes  
clamps, nothing special



aluminum support - glued splints around 2-3 mls &  
then glue sections of ans together

---

Record is administrative / routine of wood,  
 no record of restoration / reason

water / glue (glue must be higher than water)  
 25-75

~~25-75~~ if wood strong use a lot of glue  
 if "bad" more water





no problems w/ encl / glue / orig wood joints

Bedacryl - tried but not used much

Maron resin #9 epoxy for stonework  
 paradichlorobenzene



Veneers used mouqavah   
Zhoan, Arch, kind not important,  
thickness is 

Proposal #1

①

3/1

rejected  
"not day by day"

3/1 try to finish list of questions, start w/ model on construction details:

waterline?, how many big holes (where), lashing holes

When were models completed? Did he ever use them as plank

3/3 Construction details + questions. also: the knot study, AE hull construction sequence, Take pit of model heart vs slash, AE tools used, purpose of oars ~~2~~, 2 cm between deck beam mates?, lashing holes

3/5 Review reports: daily, monthly, quarterly. Plan lines drawing approach Photograph all pit not duped (see page 2) - 3 unused pieces?!

3/8 skim + record Cheops Ship bibliography (Roman article)

Study scale drawings ~~partic ribs~~ study best possible pit of ~~3 unused pieces~~ ~~did he~~

3/8 <sup>end of dinner</sup> demonstration of wood treatment + matching: tint, alaphonaya, tint enep to match cedar on outside?

3/10 Study drawings + pit - cover questions

3/15 see + discuss 5 scale models, start measuring 1-20 model

- HagA to Zupor - Paul away -

3/22 continue measuring model, any new or misc. questions

3/24 Complete measuring model (include some construction details)

3/26, 29, 31 create a construction plan: plank diagram (sheet ①)

ribs, <sup>battens</sup> + ends " ②

deck beams + decking " ③

cabin + balddacim ④

cabin shell ⑤

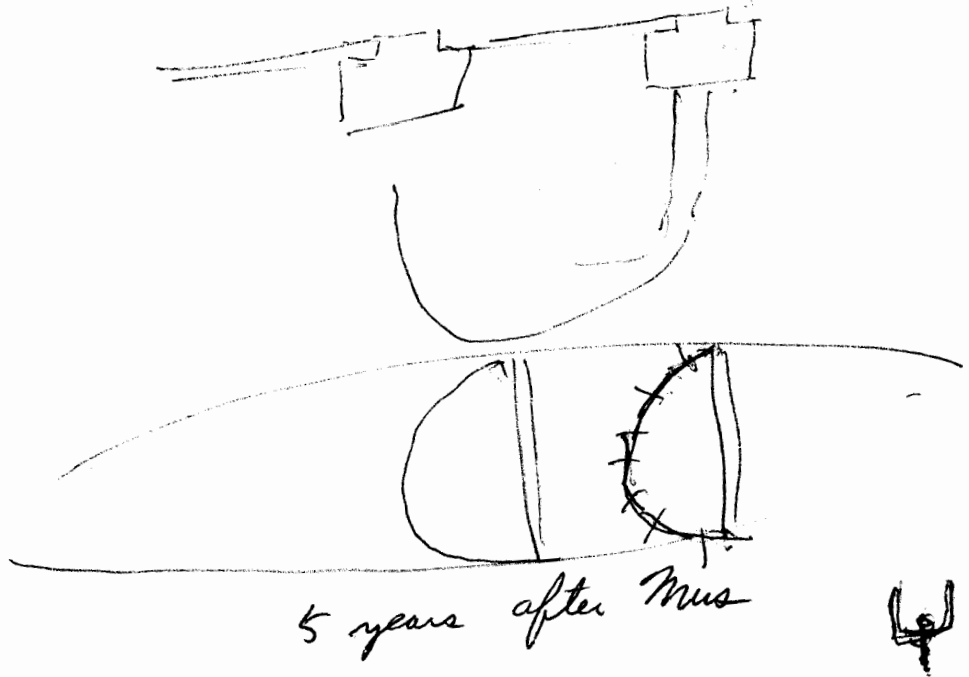
[4/2, 4/5 and 4/7 to be arranged later]

3/1

①

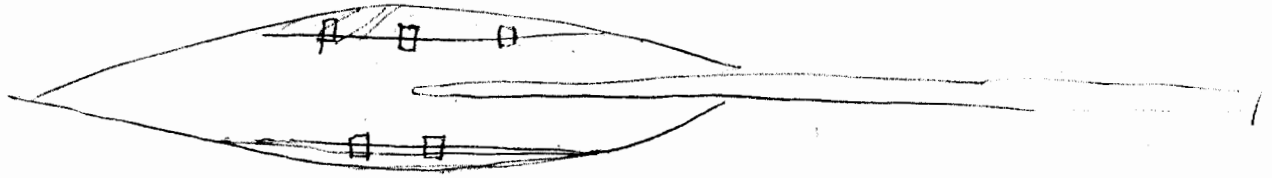
aluminum - glue + ~~br~~ steel screws fastened

9 galv steel rib support system -  
stations under chamfered deck beams



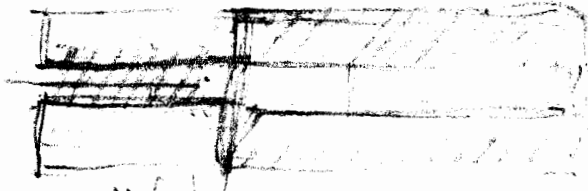
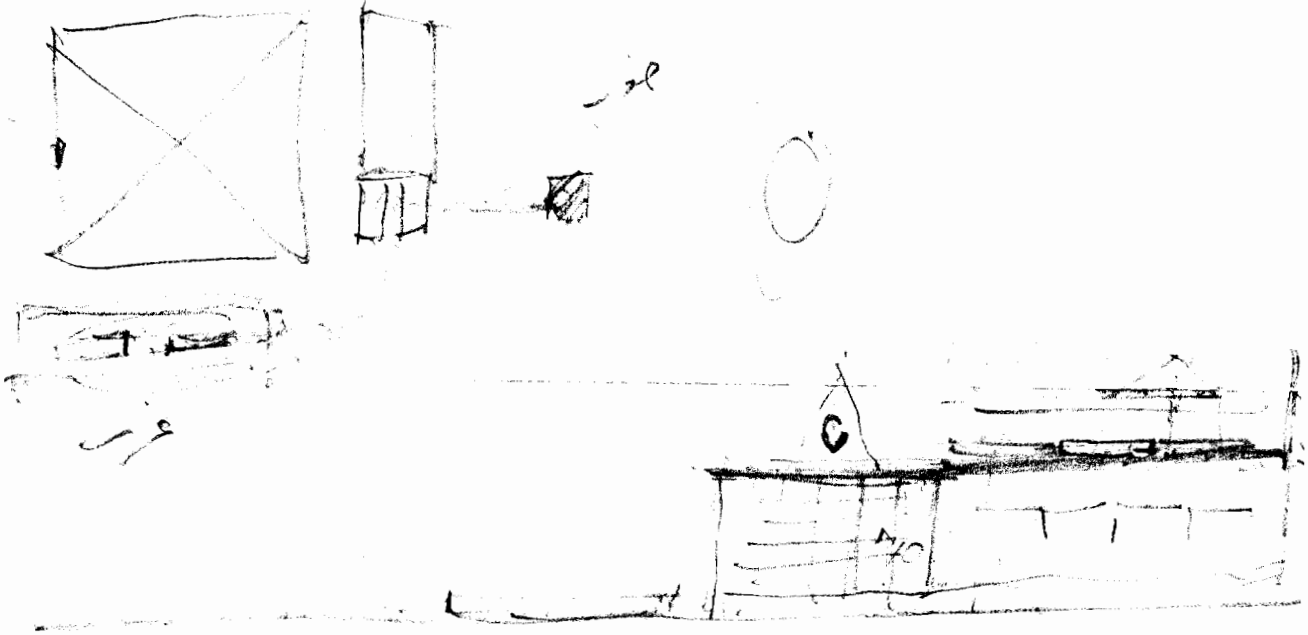
recon in Museum  
1 1/2 years preparation

(2)

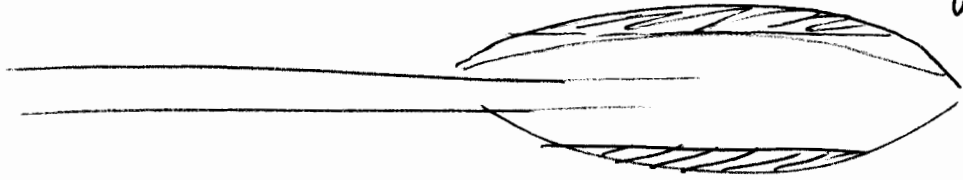


up

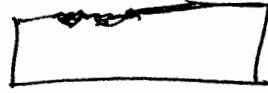
some eneb, some orig  
light color



used bracing to adjust shape, then lashed  
all Eneb pieces  $5 \frac{3}{8} \pm$  besides stantions etc, ends of fore+aft sheave,  
cabin panels



(3)



much variation in each color

he chooses to match piece not to

not striped

took lengths as wanted to match

some have knots or fatigue-leaves those

No AM obscuring problems

some signs painted  
" " carved  
took photo's before, so would not lose  
signs in PMA app

No other problems w/ <sup>patches</sup> scutching, accidents  
etc

treat artifact gently, like a corpse of funeral  
would dismiss women who wish  
ie one who picked up 2 at once

(4)

Change techniques? (Polyethylene glycol)

add PVA after reshaping  
rejected bedacryl, Marcon etc.  
settled on Aephoraya etc after testing

Agg wants Source for Polyethylene glycol in Egypt

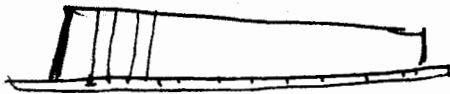
no reason for port planks first

Measuring / comparing system? calipers, dividers, rulers

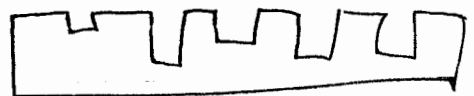
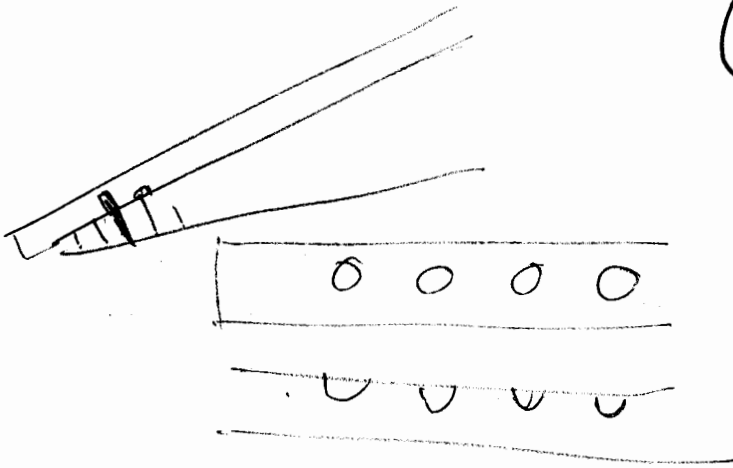
checked w/ drawings + then on piece

146 poles to cabin sides

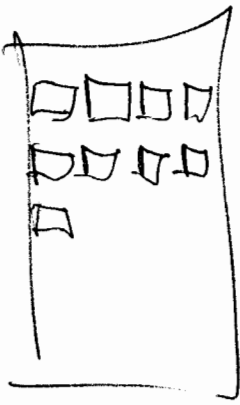
changed 50 times - cause didn't understand  
put on runner, raise, then add ~~cap~~ cap



(for drawing mitered in also) that holders work in series

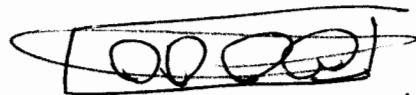
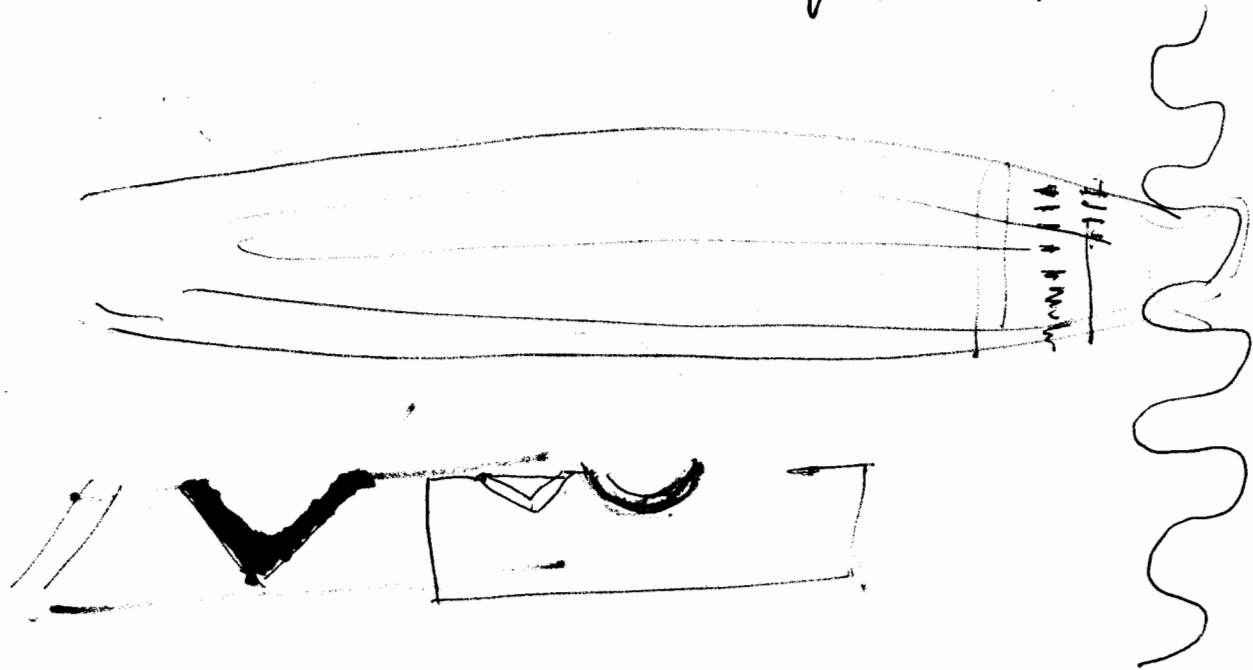


⑤



no only cabin cause it was hard-

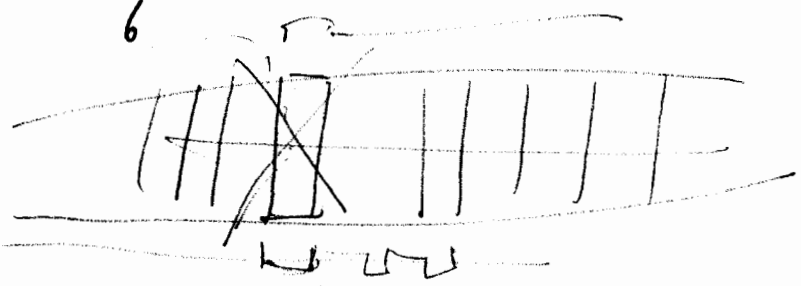
ours in sequence in pit



4-6 sheets  
56 mostly

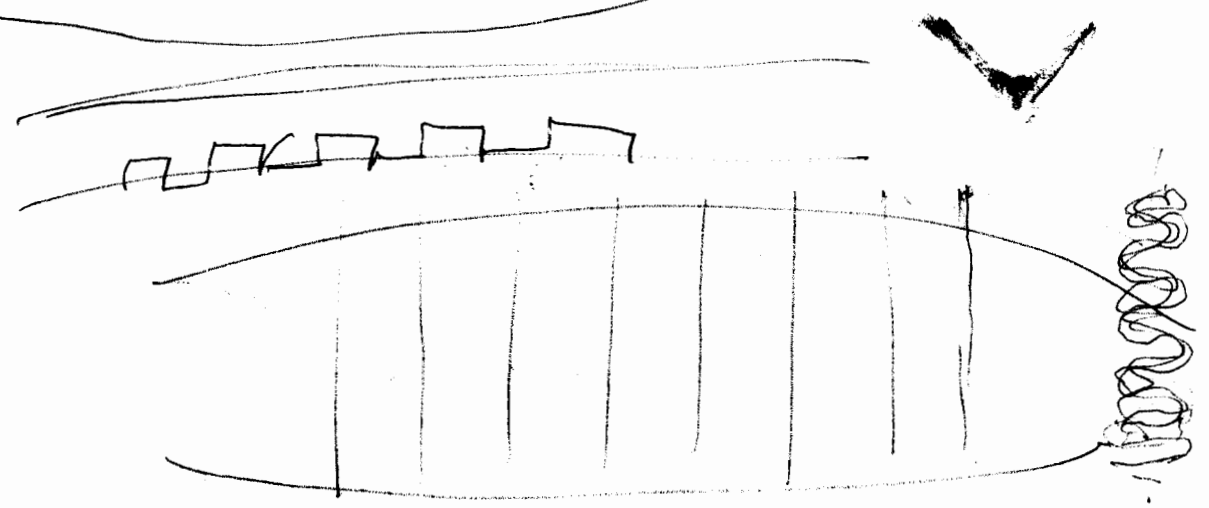
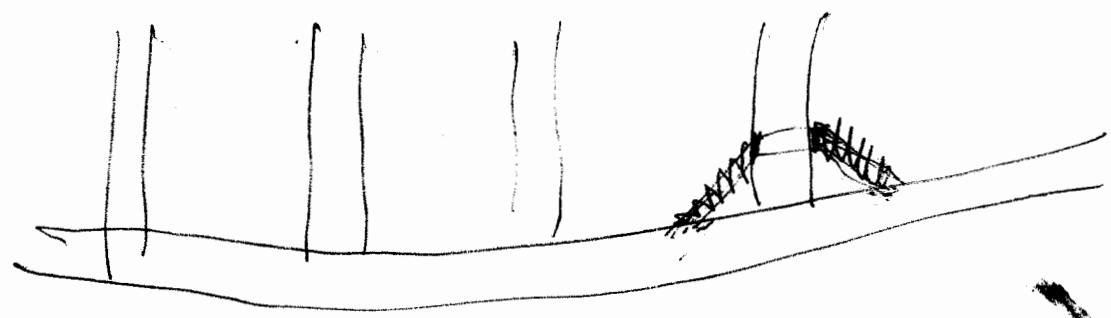
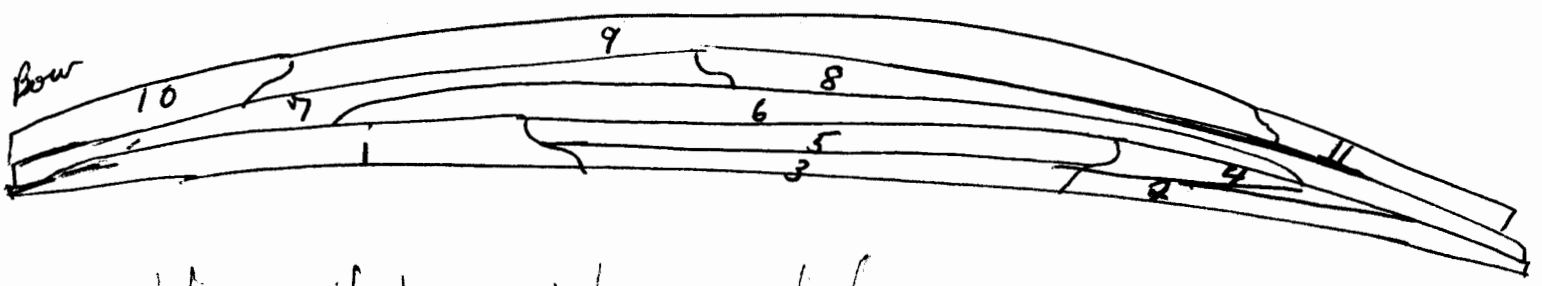
bought 5,000 meters of cotton line for 3rd recon  
lashed ship & after 2-3 months the ropes had stretched  
become loose  
then bought linen line, its ok  
for 4 recon

6

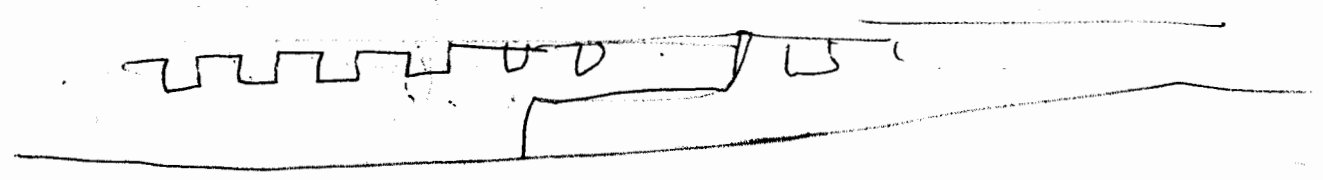


to lash whole ship

3 + 4 th <sup>recon</sup> partial  
 5 th ~~with~~ all 5,000 meters  
 1980 " all



sheer clamps + central guides located in 3rd recon



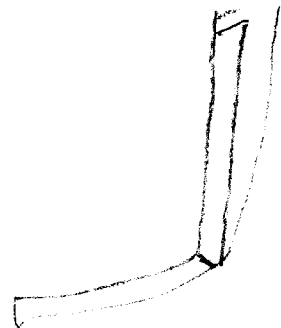


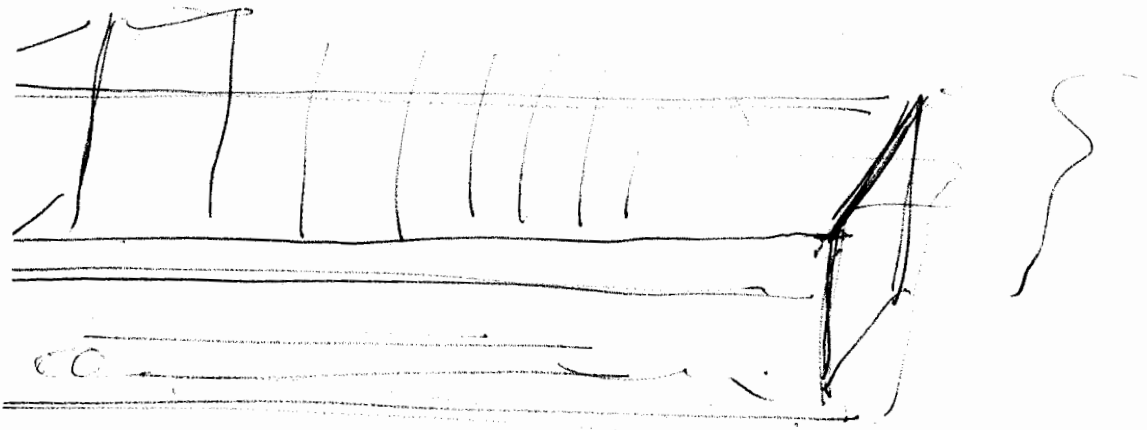
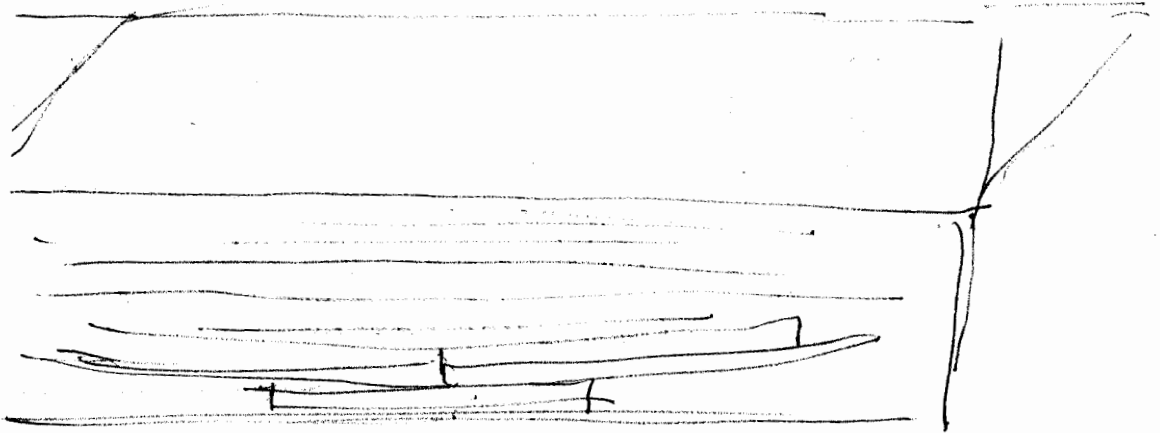
put in  
 ribs ~~in~~ in 4 or 5 rows

planking, central g., deck beams,  
 then raised cg + ~~it~~ slipped  
 in ribs  
 laid at side of pit but arranged  
~~to~~ in order, bow to stern

no special <sup>marker</sup> location for them -  
 slid along til bottomed out.

1-20 model done because





ref 1-20 model

(9)

Nothing missing from my questions

Bibliography later

Photocopy ~~later~~ records?

Wants to give set to museum for archive  
might give to ARCE or French or German  
" have them all in a big fight

- Bring photo of people

discussion of schedule I brought

Proposal #2  
3/5 rejected  
"more specific"

Subject study sequence

3/5 + 3/8 completion of first month's topics.

- Discuss
- ① ~~look at~~, write down titles, + borrow for photocopying all related printed material to ship and its reconstruction, including pamphlets + "studies" completed after ship was reconstructed.
  - ② Photograph all necessary drawings + photographic records that ~~are~~ you have not duplicated for me to date. ~~Be sure to~~
  - ③ Review samples of daily, monthly and quarterly reports.
  - ④ Study scale drawings in detail, answer relevant questions.
  - ⑤ Demonstration of wood color-matching with tinting, demonstration of alafonāya/parafin application on scrap woods.

simultaneous

- ⑥ measure 1-20 model for lines drawing
- ⑦ complete a construction plan for ship.
  - A. <sup>discuss</sup> details of the planking, lashing, profile and deck plans already published (but unexplained) in the 1971 article
  - B. any minor corrections needed for these, i.e.: forward "awning" section needs to be added to profile + plan view
  - C. add crosspalls to a 2nd copy of the cabin plan, other details as missing, i.e. put outer sheen on plank diagram
  - D. photograph, trace or ~~draw~~ (as appropriate) a plan of the ribs in location, section views of each, and battens' details.
- ⑧ see photographs of and discuss the scale models he built in 1957-58.
- ⑨ Miscellaneous questions

Items ①-③: first week, ④-⑥ 2nd week and 1/2 of 3rd week

⑦-⑨ 2nd half of 3rd week, all of fourth week - day to day topics  
schedule to be arranged, schedule to be ~~extended~~ <sup>broken up</sup> as needed for your trip to Suva, etc.

Get battery from camera - after

3/8 questions

Behanne; does Ureuo have library here? <sup>contact?</sup> Mrs Serafin's husband

\* more pic of 5th recon? <sup>look later</sup> 4 pieces not used - pic of <sup>initial</sup> ~~tray~~ ~~holes (294)~~

~~shots where dead ends??~~

\* Check Abu Baker Article: ~~page~~ - ~~take part look~~

\* lugs, # of & locations) <sup>so lugs have even distribution</sup> Keel 291 - "clip" holes  
Steel 875 latching  
Port 1,476  
1,529  
3,900 even?!

\* round "poles" we saw in excavation ~~papers?~~  
lash clamp to deck beams

\* pieces lashed under sheer clamp? see Jenkins 100

\* Waterline marked? "w/ Knechtel"? <sup>maybe at center</sup>

\* arrangement of deckbeams, sheer clamp, cabin & poles? as drawn

\* " " sleeve ends see drawing

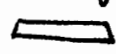
\* " " cabin panels - how tied together (to each other)

\* " " poles for'd of cabin - what holds them up?

↳ lot of leverage if 3 is all.

\* ~~Where is baldachin?~~

- Amendments to proposed schedule - 1 pic of parts <sup>laid out</sup> in resto shed

\* Do plank edges have straight bevel?  rolling level? <sup>at what angles (limits)</sup>

\* questions about Jenkins # 45, 52, page 119, cabin roof <sup>in Museum</sup>  
are visible holes in planking, lag holes? <sup>yes</sup> ~~holes~~ ~~holes~~

\* holes at stern w/ single strands through them <sup>purpose?</sup> (#93)

→ \* How is keel tied to stations? bolts?

See ~~Abubaker~~ for questions

\* Christine Sturken - Jenkins' translator - still in Egypt?

→ Keith Denning, who is he? → address? for tomorrow!

Behanne

①

3/8

16

lugs 10 cm long -

~~four lug~~ nokura - hole for lug

keel section = 72 lugs (internal)  
~~Bow 86~~ Bow 6 lugs

N side = 192  
S " = 191

Stem 6

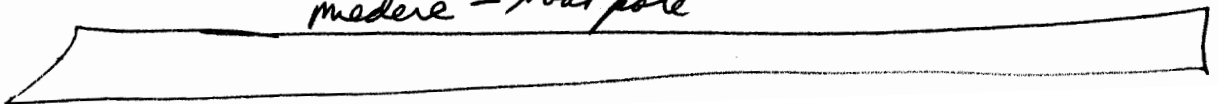
lugs counted always w/ lug on outside

	lashing holes	901	keel	Bow 86
	" "	1856	N side	Stem 96
	" "	1602	S "	<u>slaves</u>
	temp lashing holes	4159		
	keel 59	3900	Ambraks	
		259	diff	
South	122			
North	104			
	<u>285</u>			

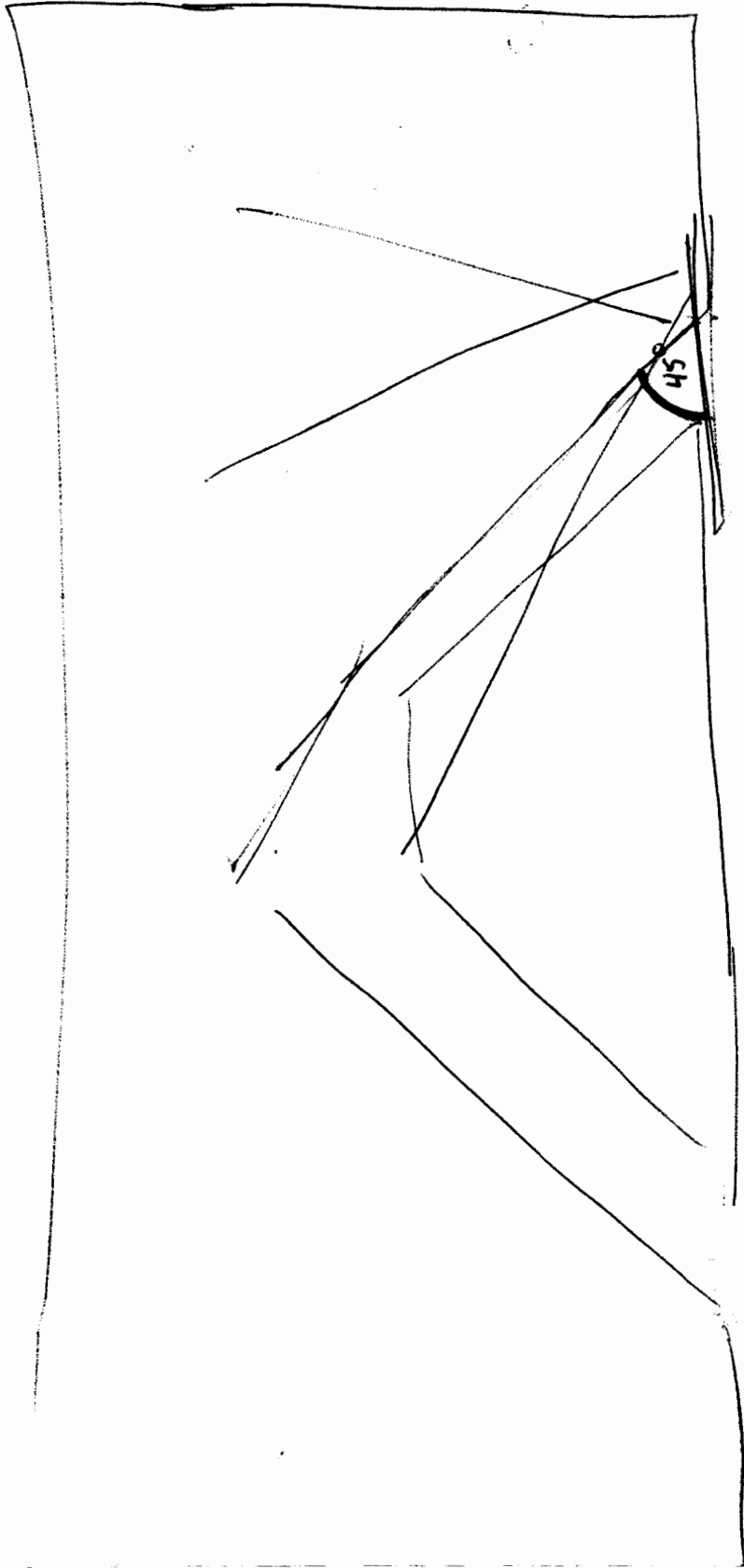


The fork

medere - boat pole

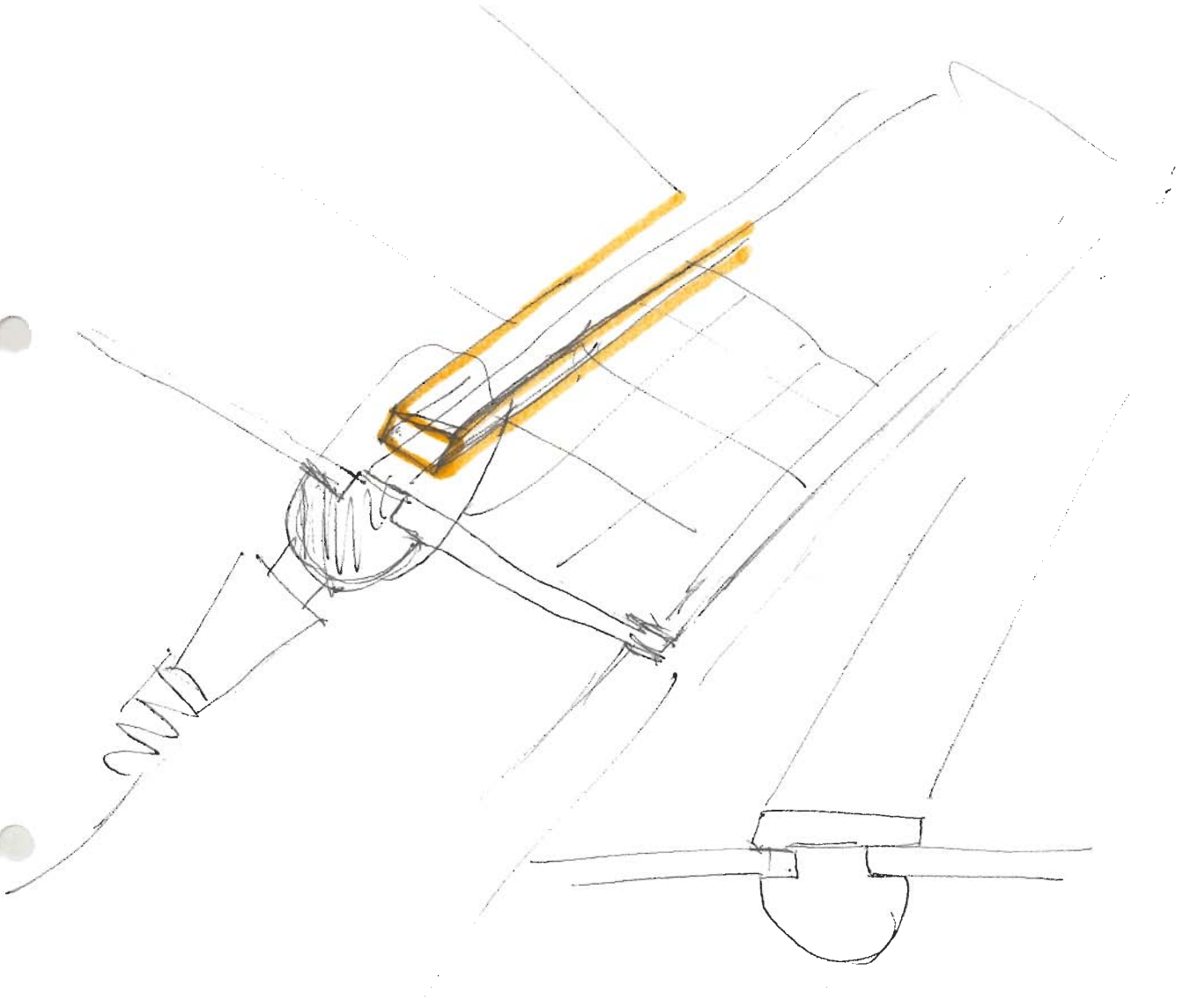


3



6

(5)



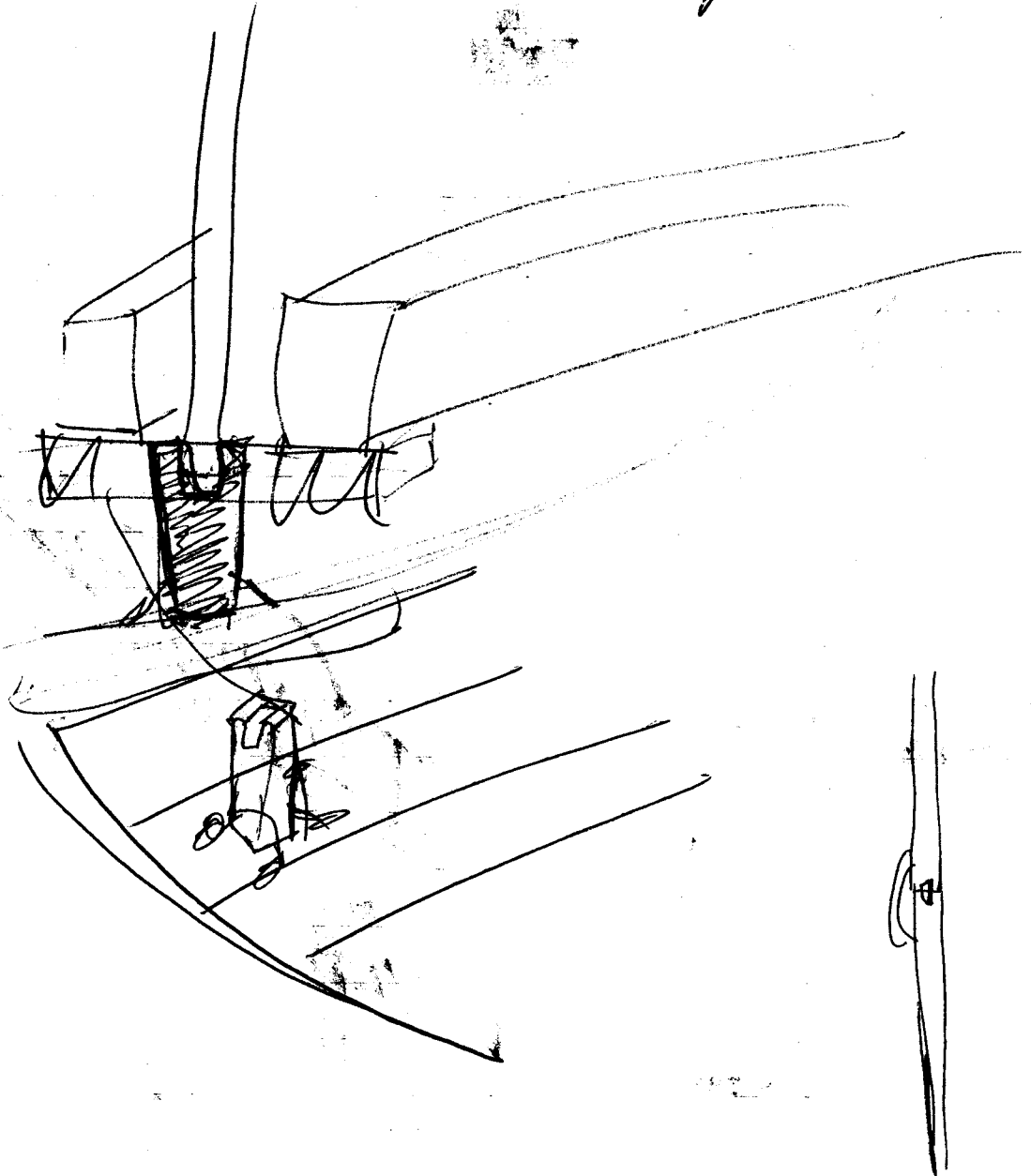


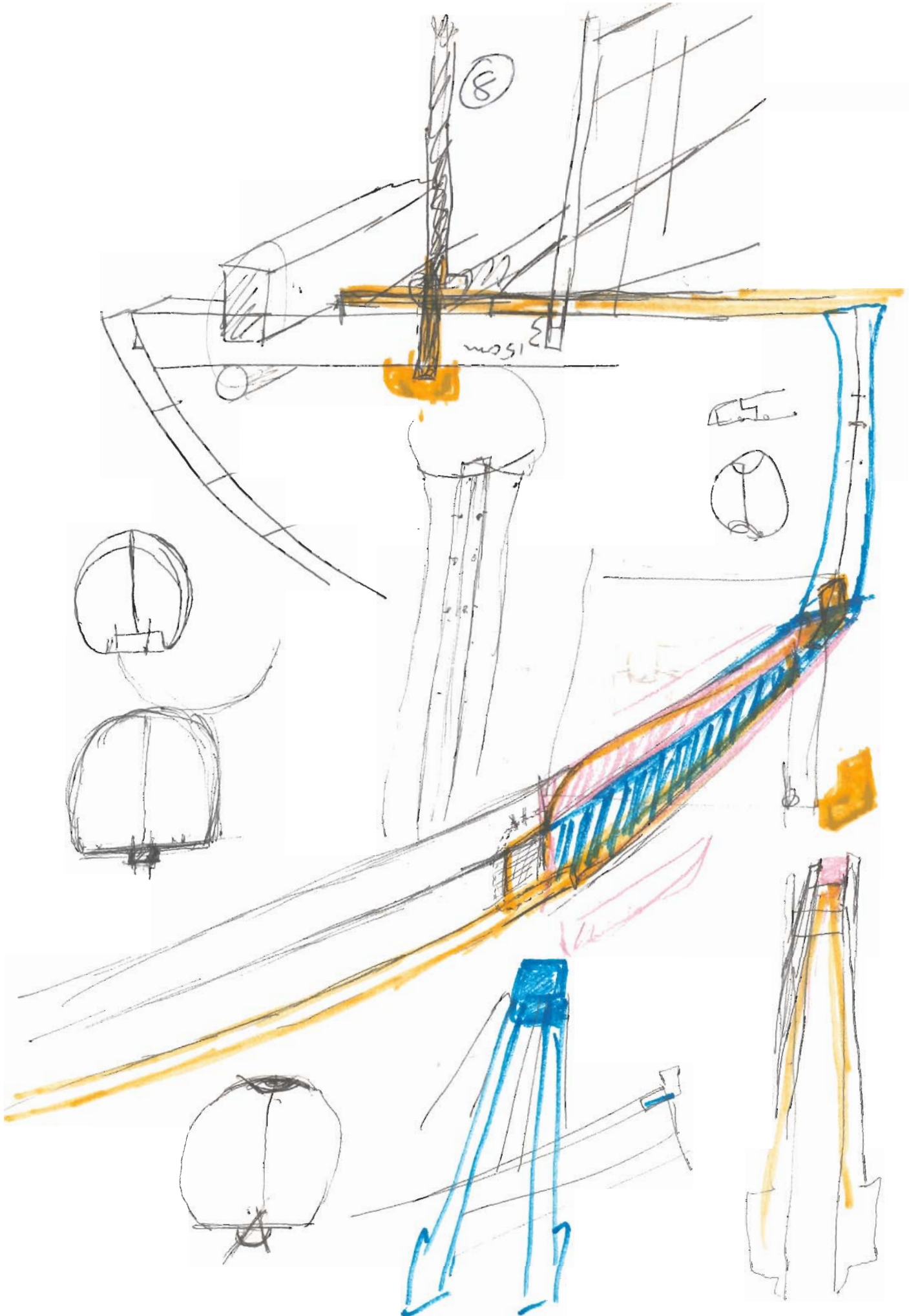
6

1

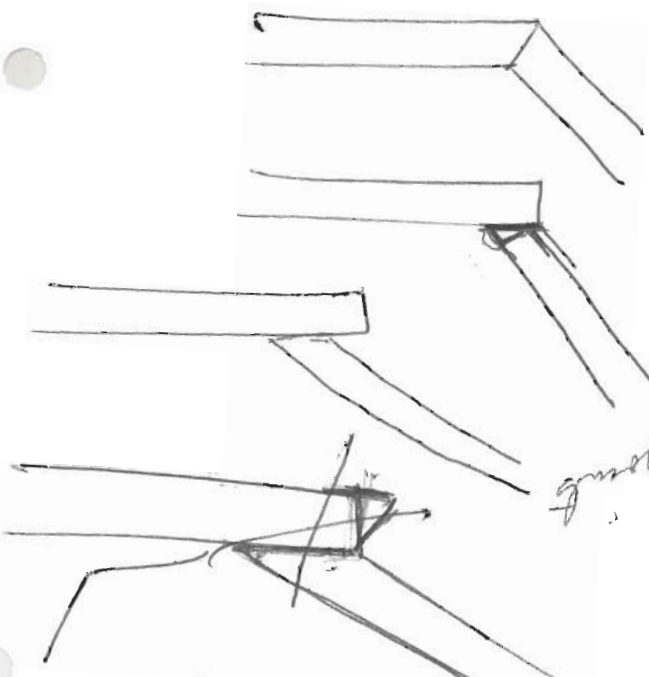
(7)

sea break, no tape



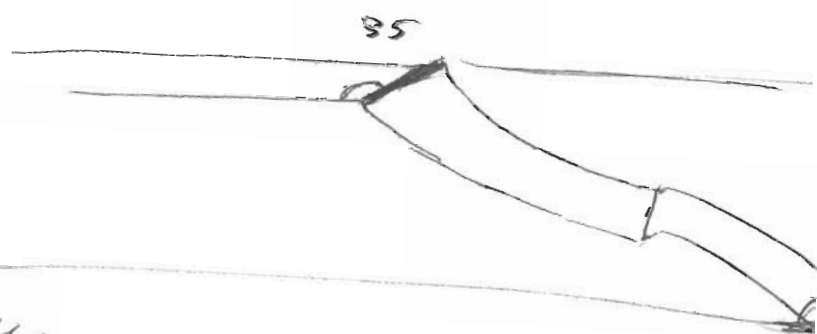
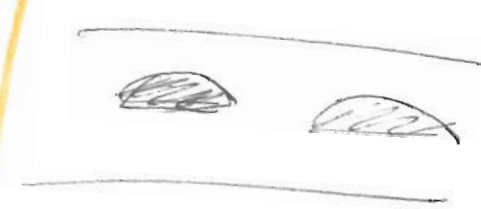
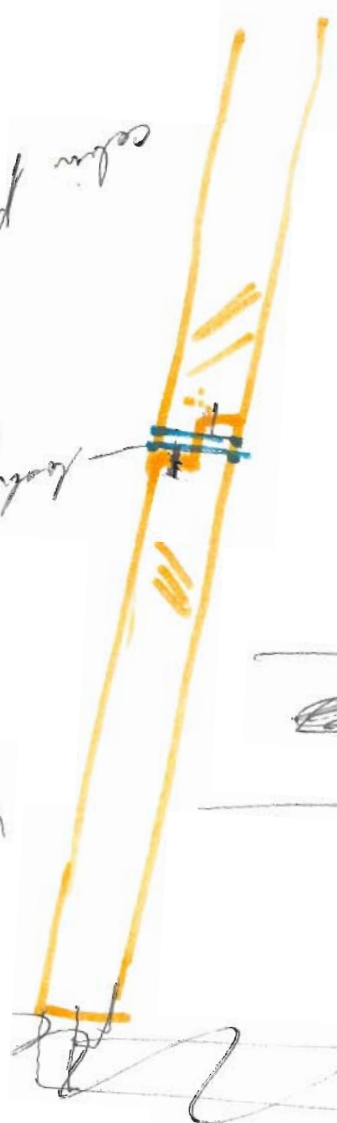


9



column panel joints

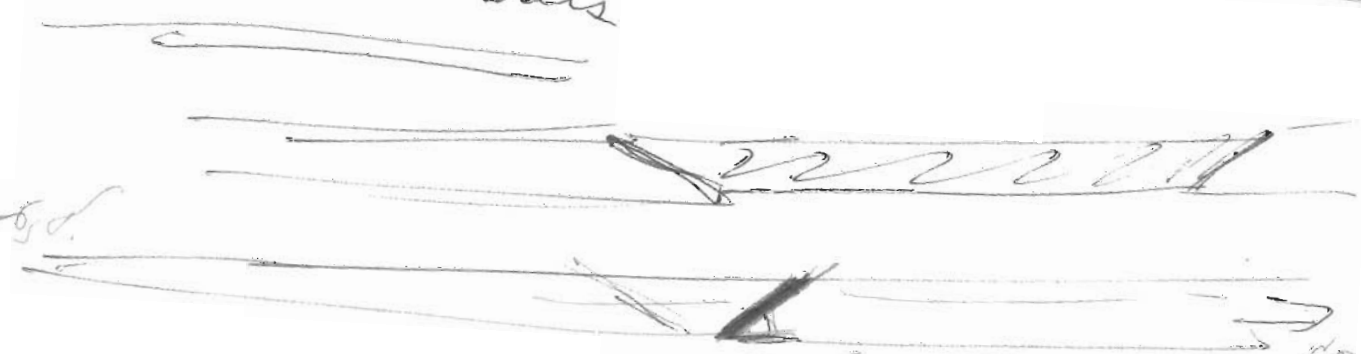
looking



58



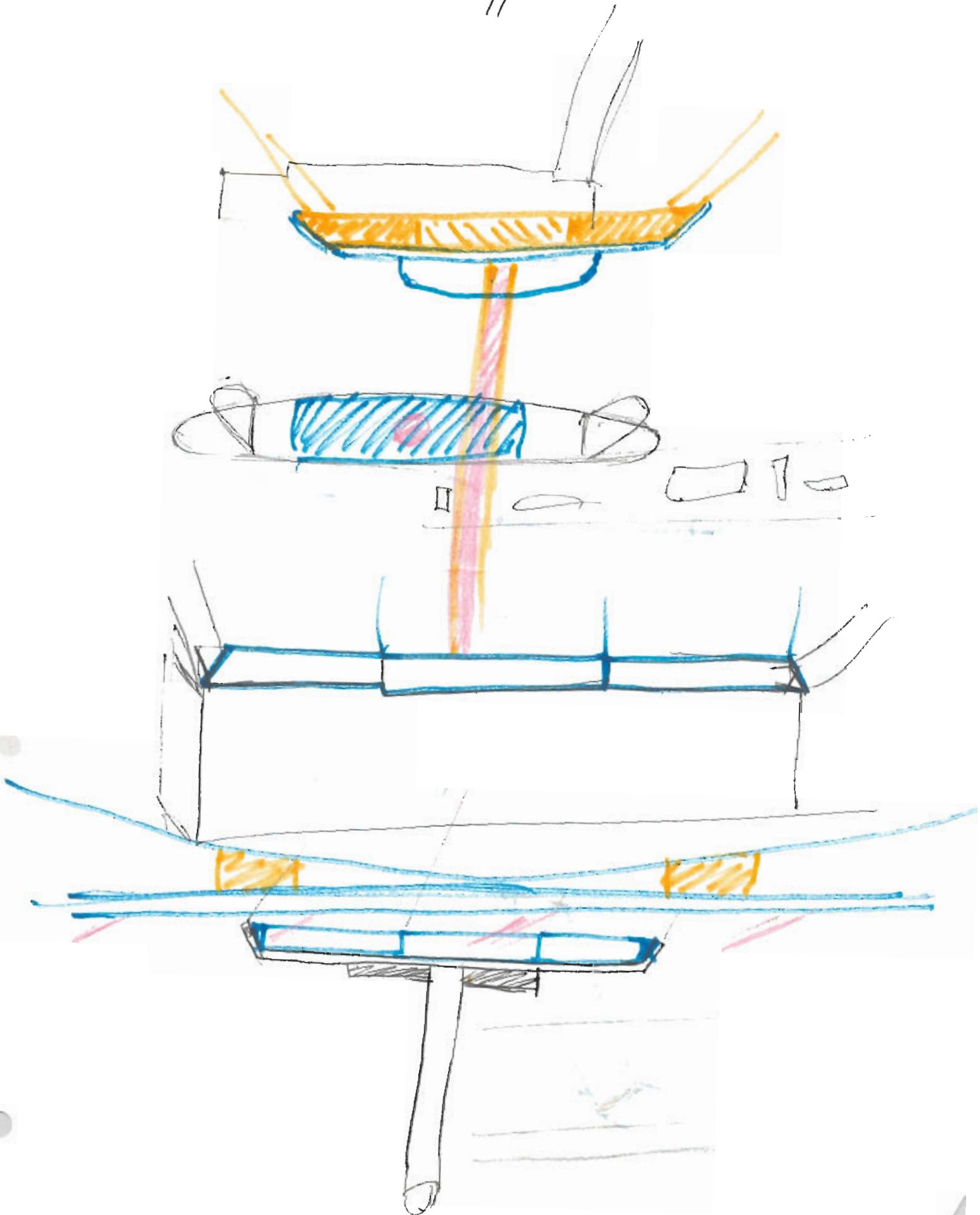
go look at braces



59

10

11



AE construction sequence

1 keel

2 4 end garboards + braced  
2A end supports?



3 either brails or lashings only - don't know

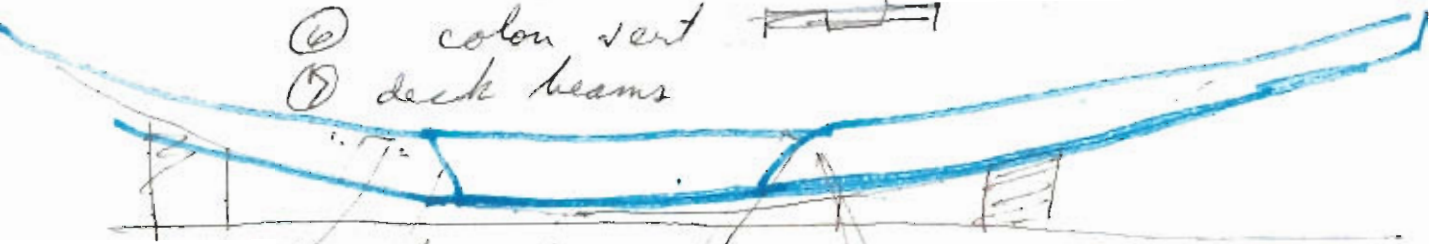
4 ribs -

5 deck beams

6 collar vert

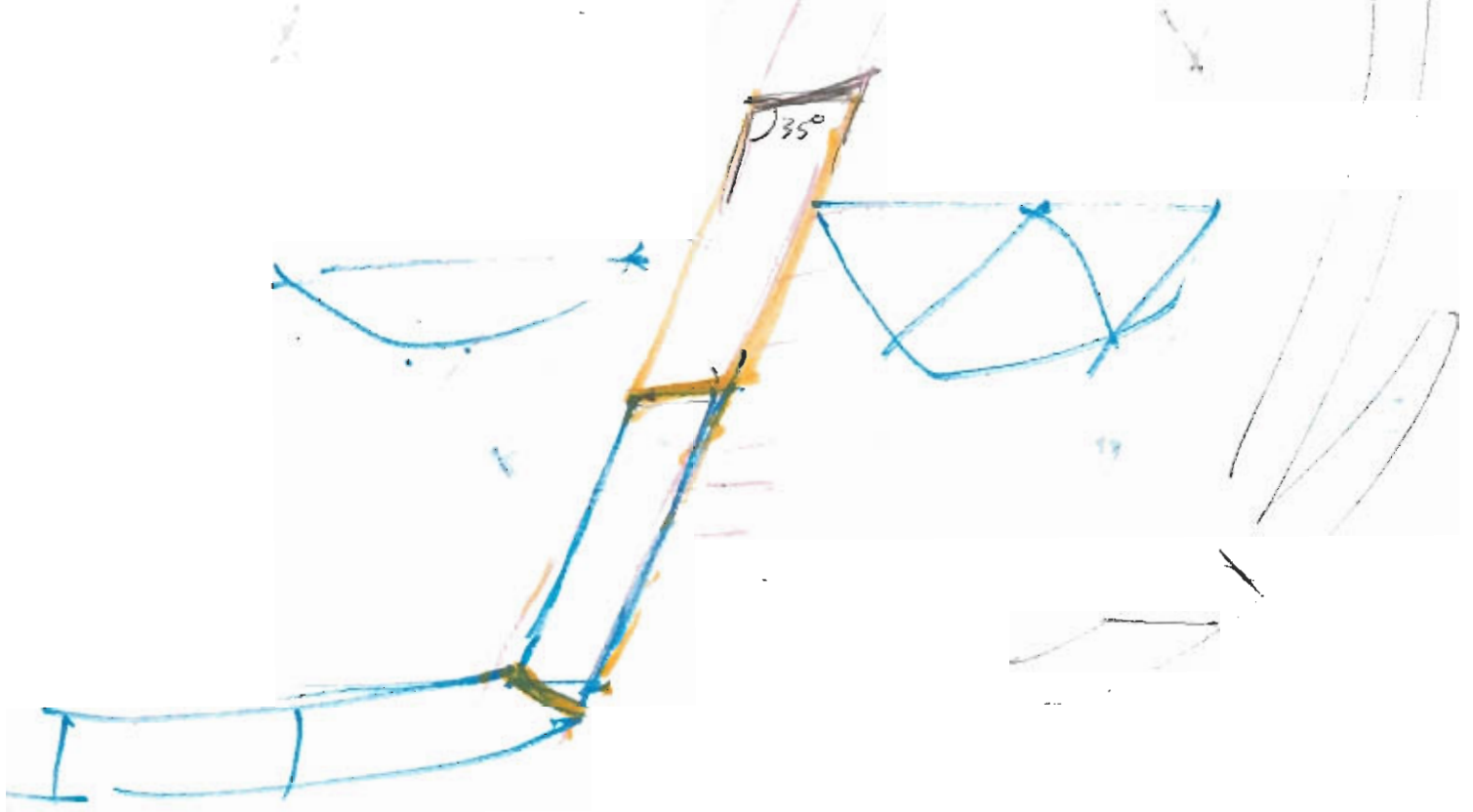
7 deck beams

(maybe stitched)



8 sheer clams

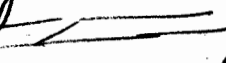
9 round under support



jenkise # <sup>ill</sup> 61 (87 page) what are other "sleeves" ? (bow & stern) check details  
drawing of Medere pit?  
pit of initial lashing holes  
" " 5th recon  
" " battens tying

maximum draft 1.48?? height, etc - correct major figures? <sup>from us 1?</sup>  
starting + completion dates for 5 recon

- check <sup>chip</sup> for waterline -  
# of deck beams / cabin corners / cabin roof  
# of medere under clamps  
top "king plank" over cabin - fastening method?

(what ~~about~~ him in to "medere" positioning under clamps)  
bow & stern construction details  
- plank scarfs - long end aftward  <sup>Bow</sup>  
for dawning pole supports  
garboard / keel bevels  
drawing of "wedge for fixing prow"



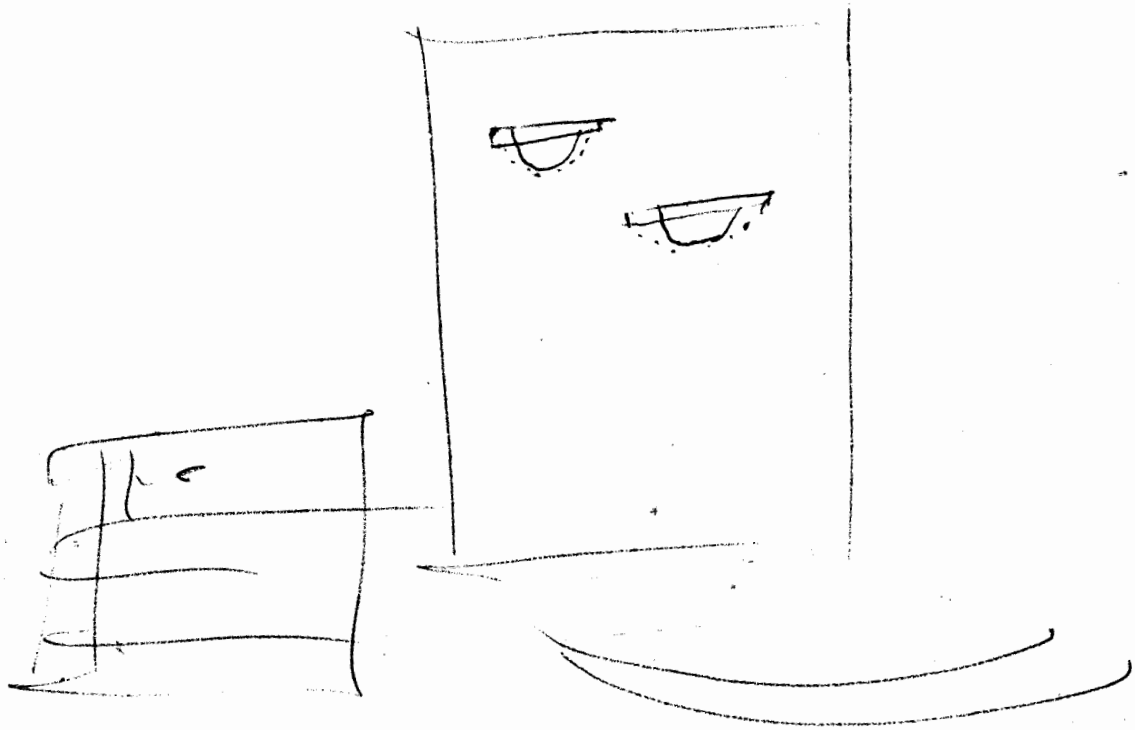
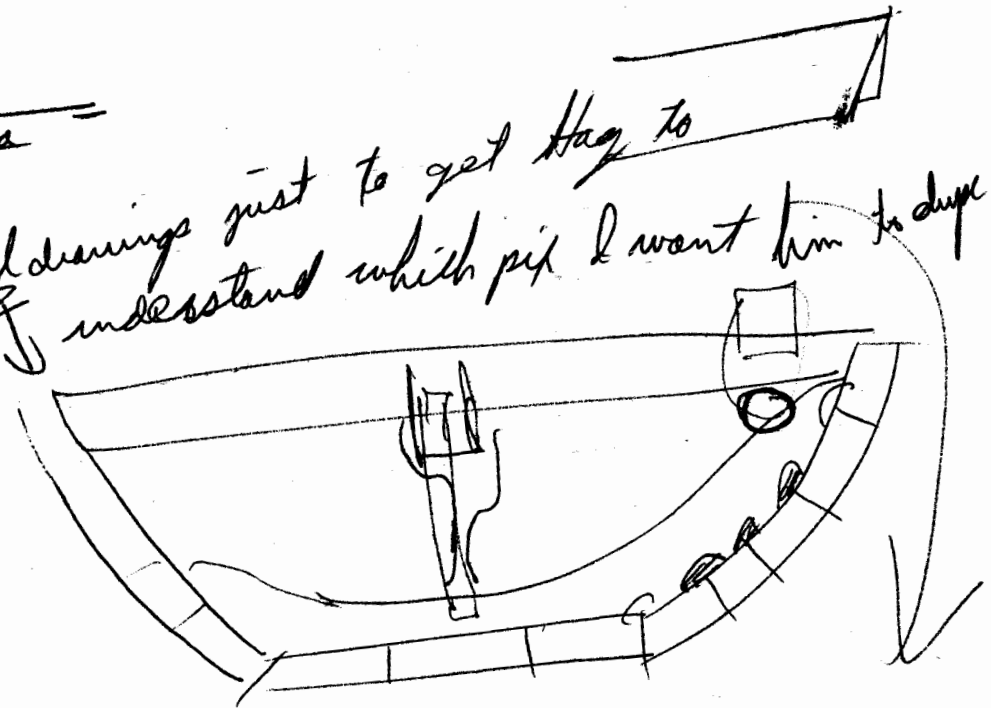
①

3/9

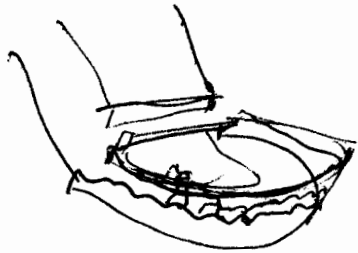
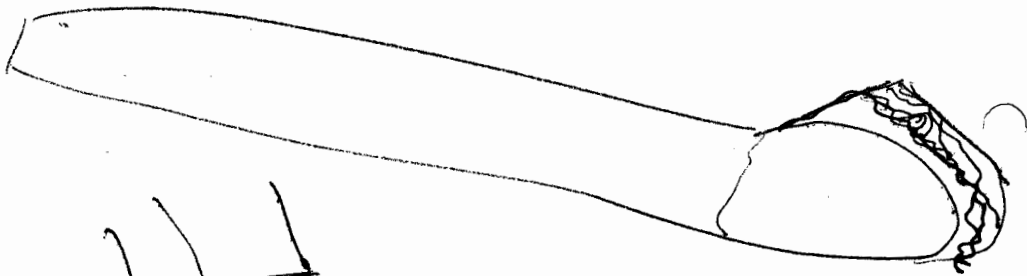
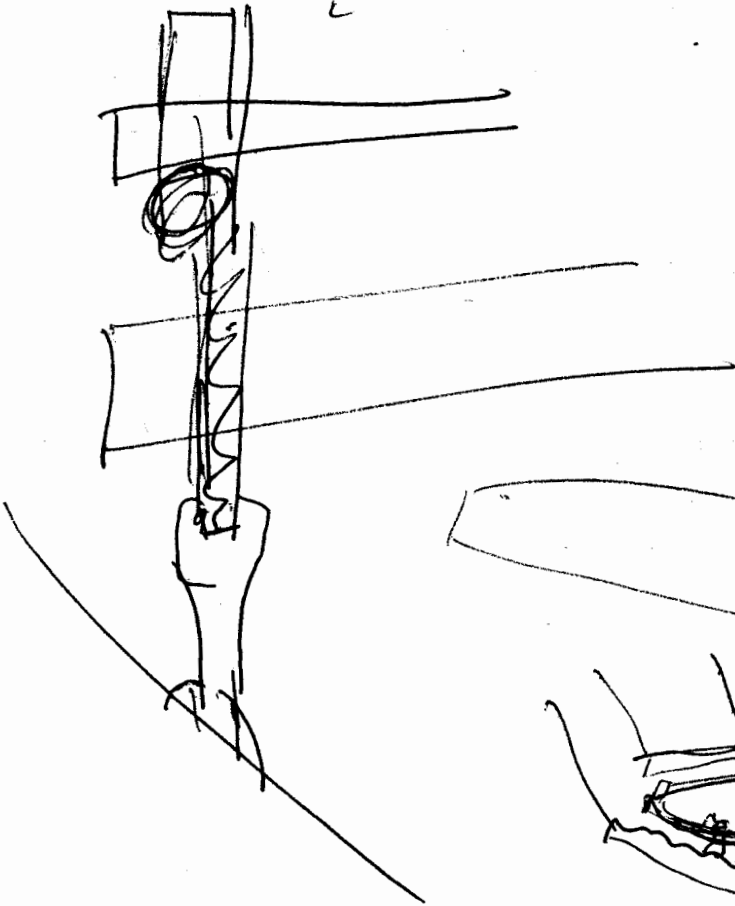
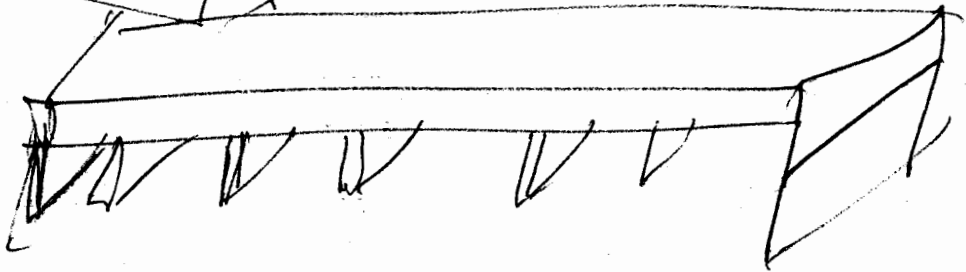
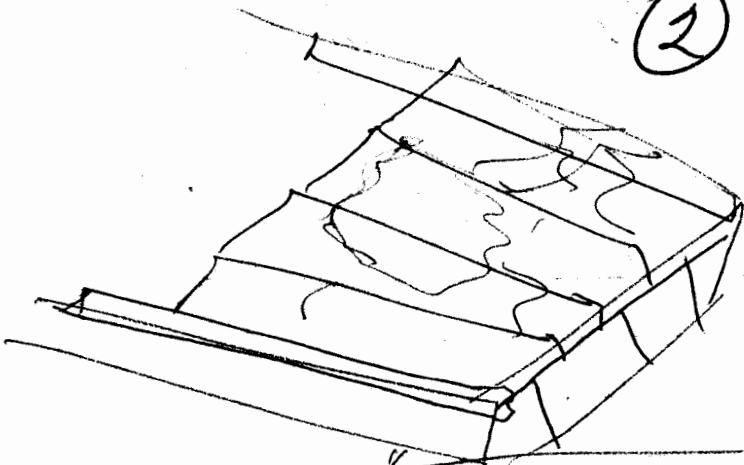
B forsett line

Chaptonia

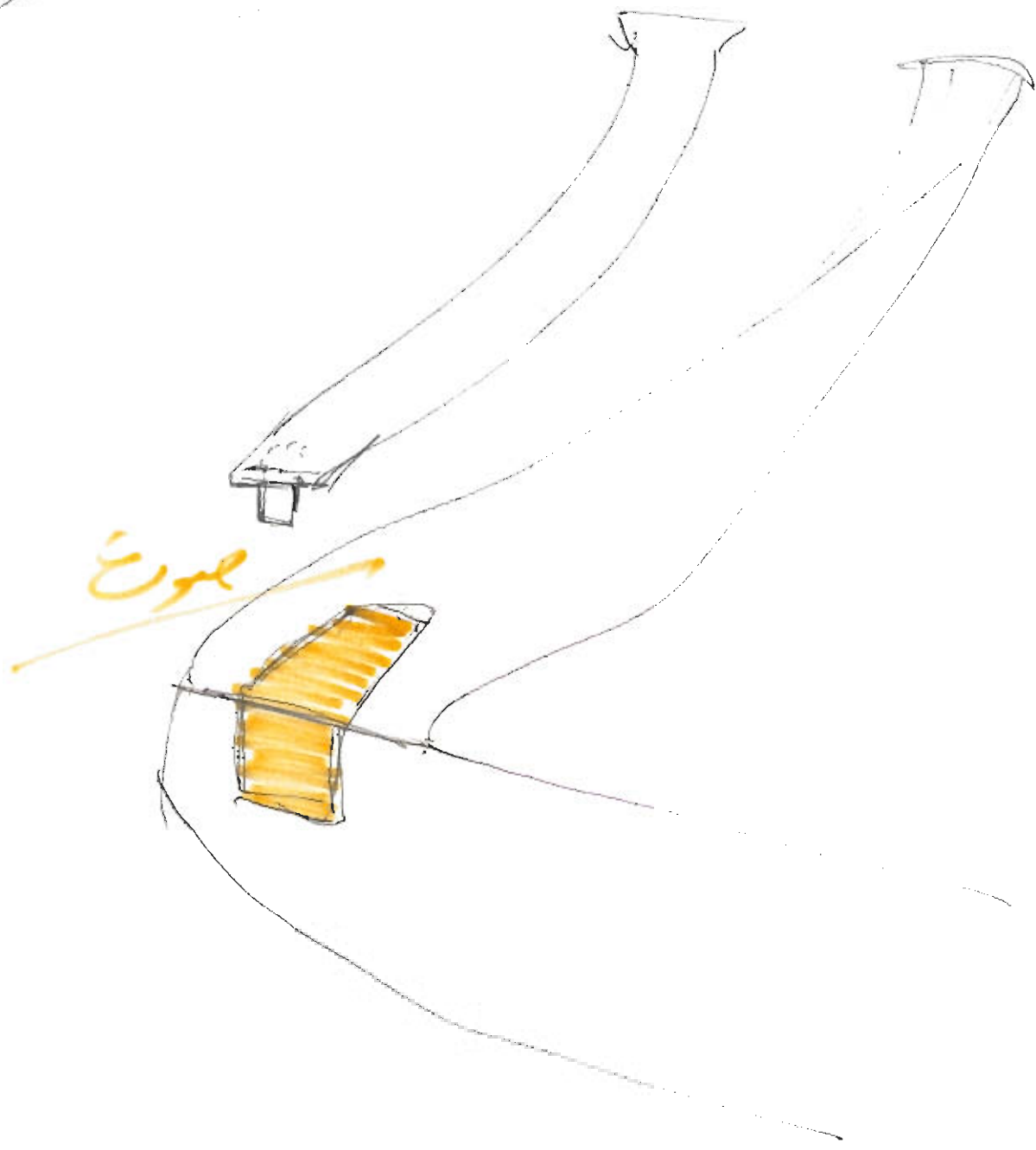
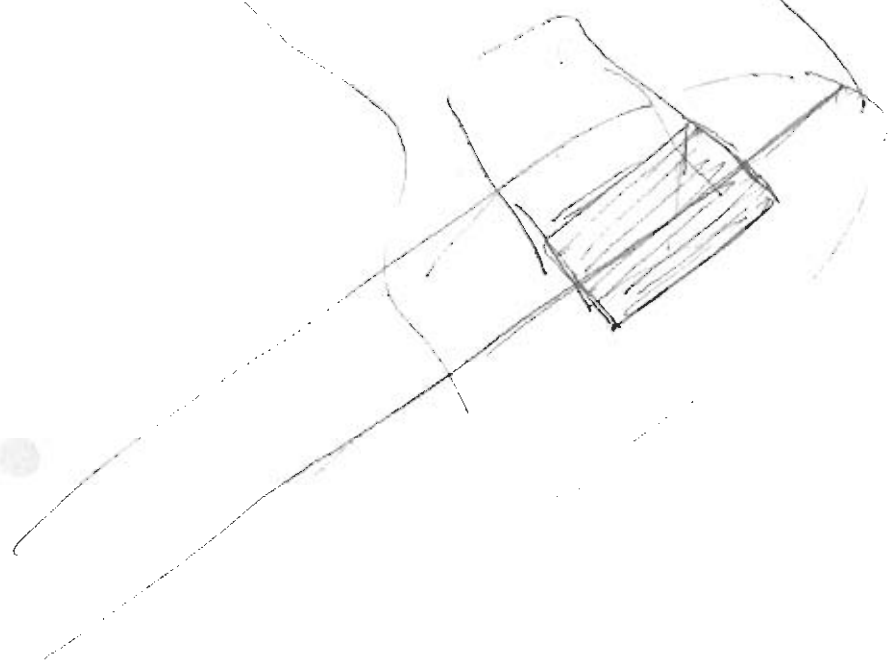
all drawings just to get Hag to understand which pip I want him to dye for me



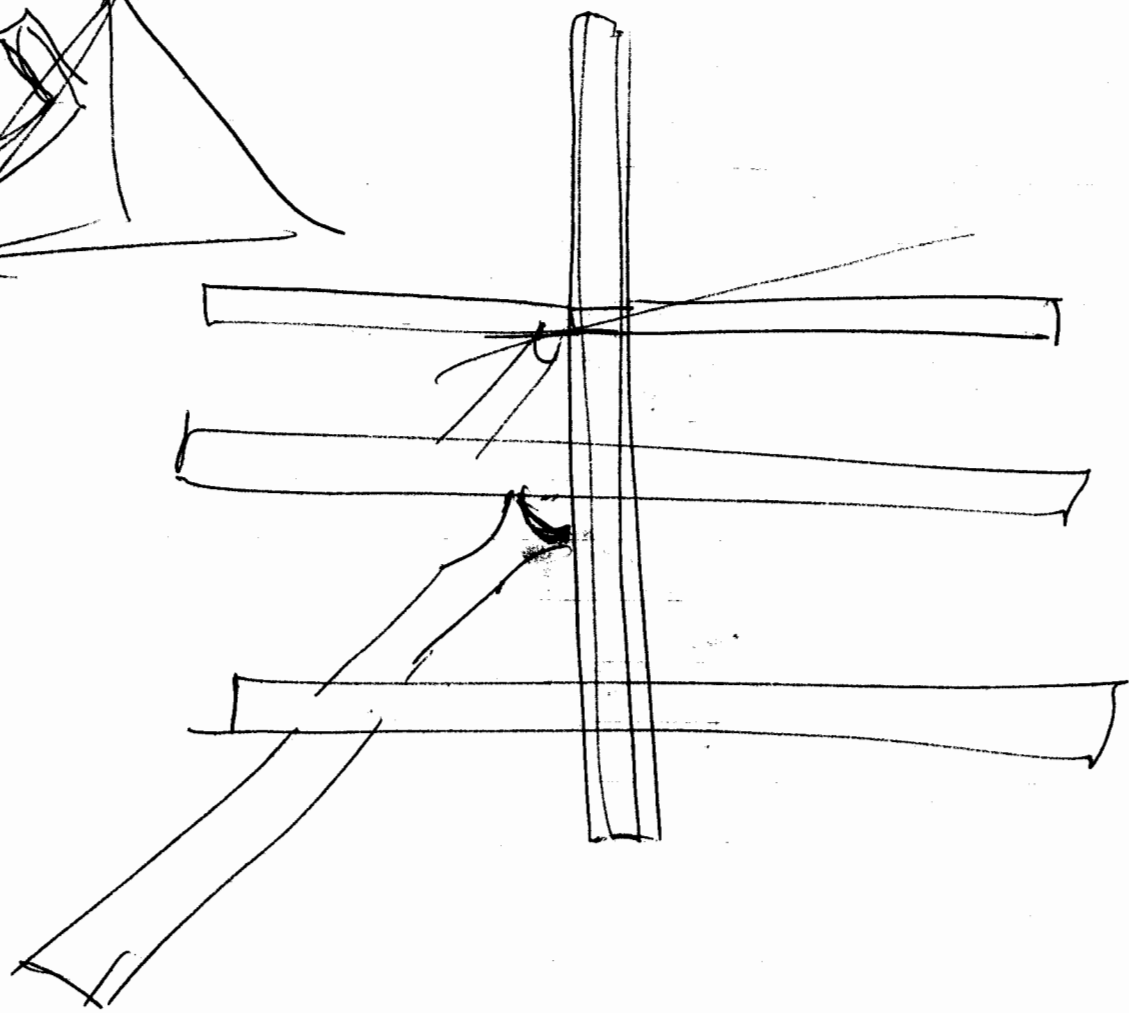
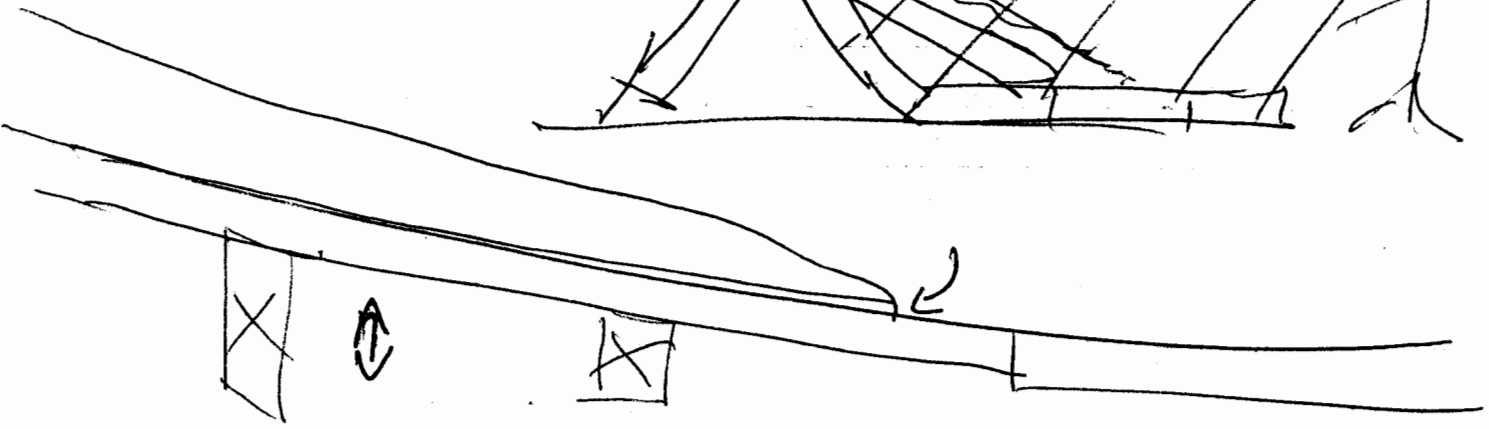
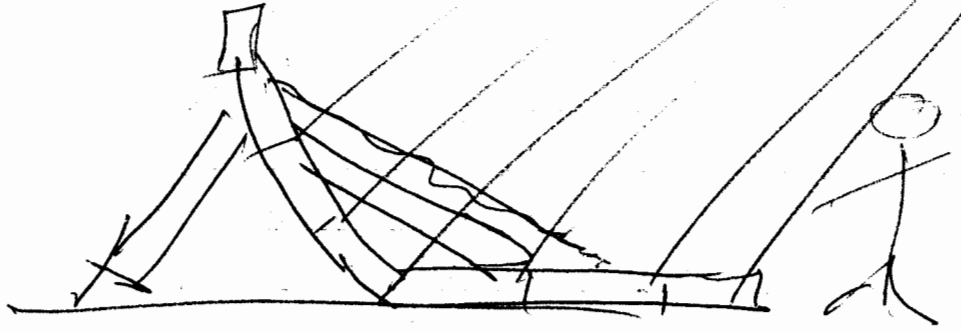
2



3



(4)



1980 Umschau Verlag Breidenstein GmbH, Frankfurt  
am Main  
(5)

Nandy Jenkins - Das Schiff in der Wüste  
Ägypten zur Zeit König Cheops Umschau  
Translator Volker Bradke

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Études de Nautique Égyptienne  
L'Art de la Navigation en Égypte  
M. Charles Boreux 1925  
French Institute

---

will look  
for

- His Arabic writings -

---

German Article

6

~~Big Ship Study~~ | no painting  
or labels

3/14

✓ reports  
✓ 5 ships models  
✓ BT building understanding  
questions to ask?!

①

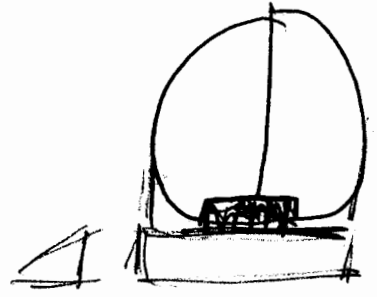
started 5<sup>th</sup> recon

12 / Sept / 1970

to Spring, 71 Feb-March

6, March 1982

- Tell Schanne re 3/22 Messin's after
- See tools to plan lines taking  
check table for flatness (switch  
of masonite?)



Will look for <sup>testing</sup> covers pix - detail

sleeve <sup>cover</sup> crossbraces orig (bow once broken but stern's good)

5<sup>th</sup> recon - <sup>some</sup> more reshaping

pix

95 + 86

page ~~5~~ <sup>23</sup> C1

will look for Aboutake

7 Jan, 1965 Plenderleith <sup>visited;</sup> report  
submitted at end of month

1978

(2)

Sample reports 10, April - Brooklyn Museum people visit  
report to Min of Culture

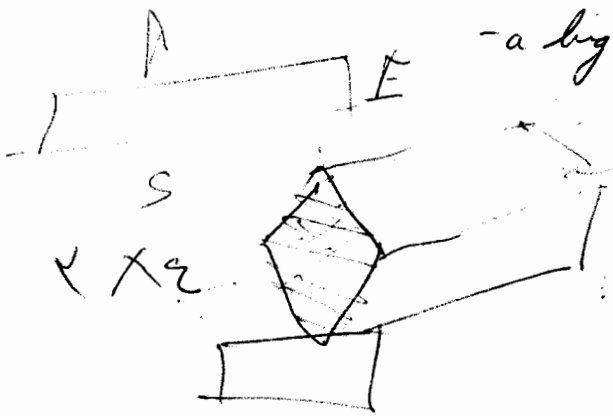
better to change bldg than  
keep ~~the~~ ship in it

- how to move ship in 1 piece

lift boat (w/out cabin) through  
roof or  
closed affair

For Egyptology Center

Thurs, 17, /6/76  
<sup>June</sup>



- a big crack in <sup>E</sup> glass wall at east end  
covered, 80 or 81  
in

seen by general director of Center  
when come to see one at West end

- maybe it will fall (over entrance)  
so replace it



(5)

1978, 4/2 January

To Asst to Min of Culture & Mass Communication

between 2-3rd - lots of rain  
museum  
& leaked in so much

pieces were washed overboard  
or into hull

come & look at problem

---

1959 28/November

To Dir of Architectural Div  
Egyptology Center

work needs 4-5 big pieces of  
wood from store under  
M of Sultan Hassan, like others given  
before - much appreciated

please tell people responsible  
to prepare them, etc.

④  
May - July 1980, August - Oct 80, Nov - Jan 81  
~~1980-81~~

[ change ropes of keel from temp lashings to permanent  
Nov-Jan - replaced another rib (from dryness) - send rope  
not restorable - oars of center rotund after damage + 5 miscellaneous pieces work progressing on mis pieces not finished yet  
piece of bow treated + restored untied + then tied back on...

May - July

cleaned piece inside sleeve  
cleaned off chemical products  
cut patch for <sup>2 patches</sup> piece of <sup>at</sup> bow - <sup>stuck to</sup>

Canopy - repaired + restored  
dryness - caused roof at rear to shrink + cracked  
restored + arranged deck under

end of side 2

pit

pit of repaired outer bow sleeve in 1000's of pieces / fragments. Pit of (new) piece on bow

- ① from pit
- ② store, museum - store
- ③ in museum (1980)
- ④ replace

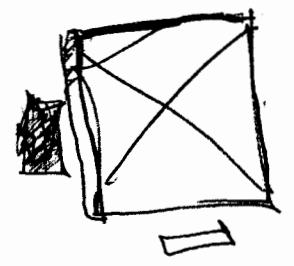




(5)

When models finished? - 1966 - 12, June  
When cement accident? -  
was sealed? 1 week - 10 days  
don't know

Cement Machine ran water into 2nd pit  
how much - "Keter"



Frank Morossi's drawing of observation platforms  
& elevator  
size comment not important to 117

drawing of bldg too small for strip, it's a jump  
1965 Newspaper comment on new bldg on the  
page understand of bldg: middle of type 27 - side 1  
"preparing"

(56-57) Blders saw him coming, didn't want to tell him  
(1954-55?) paid 500 - (2,000 today) in baksheesh to  
get their cooperation (over 3 months period).

1 pound over  
hired good carpenter at ~~twice~~ regular (50)  
pay - 1.50 per day to show him for 2 weeks

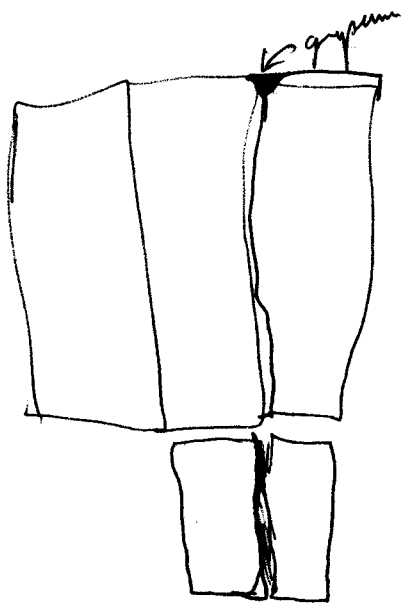
worked on model in house near  
el Alla - Astad  
just had blder correct him when  
he's wrong

Folklore stories from carpenters  
neighbors thought crazy

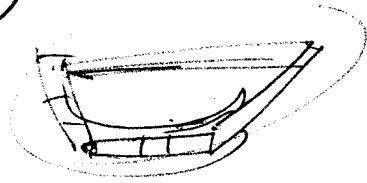
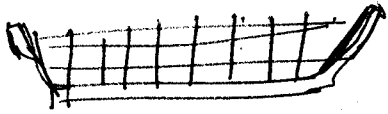
1-10 = after 3rd recon - during delays  
1-20 = " 4th?! before organizing or 5th

6

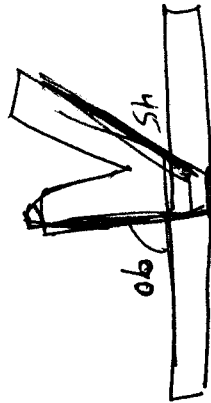
didn't try to replace seal



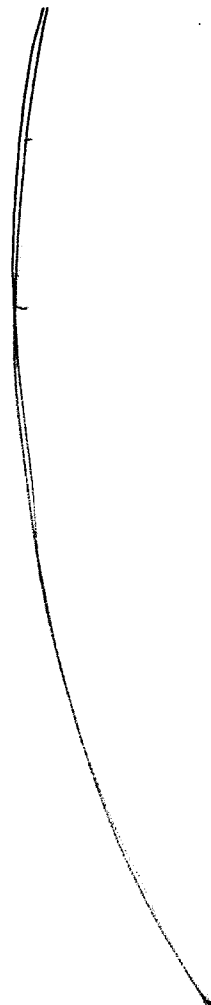
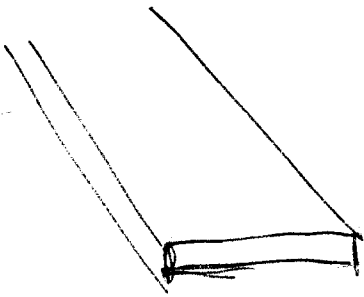
9



doesn't see a difference ~~separation~~ between two



ultra  
batters  
at least 4 small clumps  
|  
small triangle



2

1/15 3/15

5 model pit  
dry run measuring / make painters, etc  
scale drawings

buy heartwood vs slash?  
inside calipers NO  
bore small hole? string or thread by thread



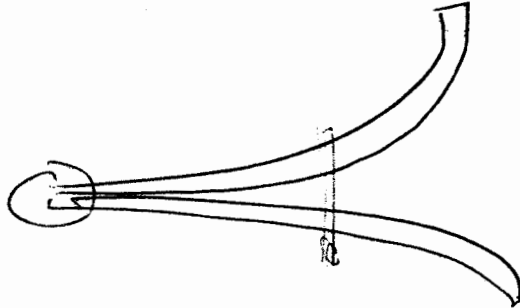
scale drawings - levels low rounded? essentially, if at all  
curve or hollow " " ? no plank sections shown  
poorly defined piece breaks notched in - essentially as flat    
tals in slots # 59 - none shown

See Book 2 pg 23



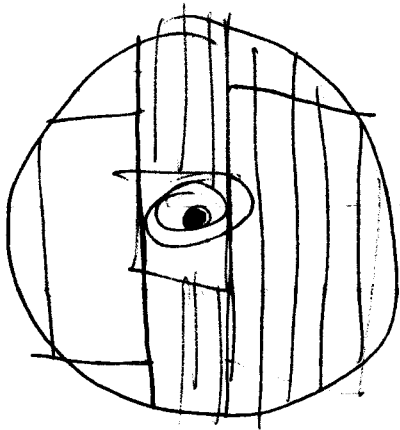
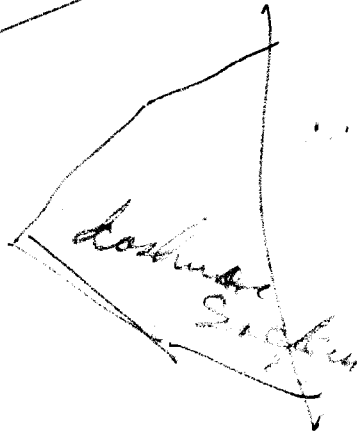
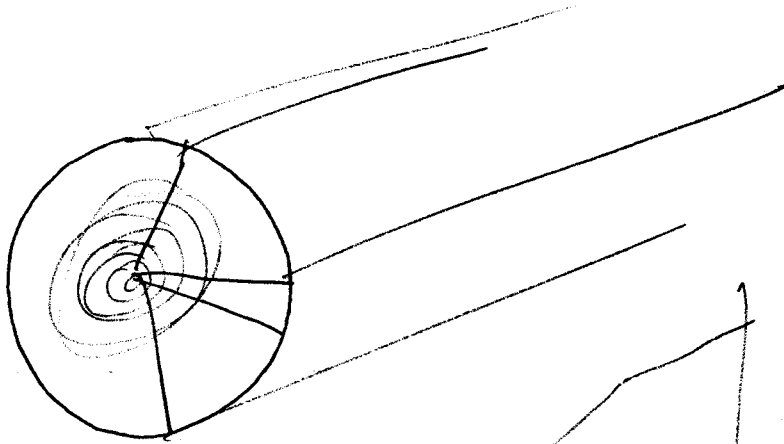
4 pieces not used  
check plank / scarf bundle shaded in - see pit  
logs, etc

take pit of 5 models + lashing covers + lashings  
under



②

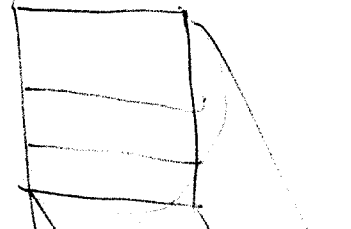
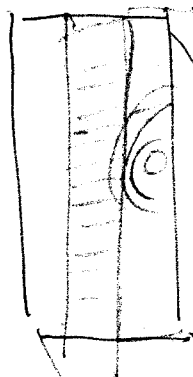
3/15



Eneferu

Palermo stone

brought 40 ships of wood  
 balke  
 by saw made pyramid at  
 daskung



didn't look for slash or  
 sawn

I have scratches  
 & could see end grain from  
 scraps etc cause PVA obscured it



Pit also of <sup>5</sup> scale models + lashing covers

(2)

### List of pit of scale drawings

- (8 ~~18~~) lashing covers
- 19 deck beam
- sheet # 5 stem, stem, oars + ~~piece~~ piece
- # 9 outer sleeve covers
- 15 + # 13 for variety of lashing + variation in drawing details, damage
- ~~19~~ 20 " " " " " "
- 31 + 32 (deck) " " " " " "
- 32 " " " " " "
- sheet 33 item 186 (177) top 4 moused pieces?
- 37 stem details, cabin pole details
- 38 ribs - obvious (?) but later cause battens irregular  
 + ribs are cut for them spatially (then planks)
- Sheet 39 item 308 outer sleeve for pole support?
- 40 outer sleeve, ribs, moused pieces (185) likes righting ideas → 320  
 → 185
- ~~41 deck beams~~ subdeck #
- 42 plank?; inner sleeve, clamp
- ~~47~~ 47 inner sleeve etc
- 46 outer " "
- 54 battens
- 61 planks, clamps etc
- 62 " " "
- 75 Keel sections + clamp

18  
 # 17 moused ca.  
 15 cabin post  
 sheet #  
 14  
 30 (sheet 29)  
 58 (" gang plank  
 one of ~~the~~)  
 roof of cabin sheet 34 #149 etc  
 plank  
 Sheet 42  
 Sheet 46, 340?  
 53, 336 etc?  
 #203  
 61 m. m. plank  
 see above

Rest 100 battens bad

sheet 46 341+ four cut beams - not in ship

orig knots filled w/ glue, alaforanga etc

restatement of idea to publish complete ship

(4)



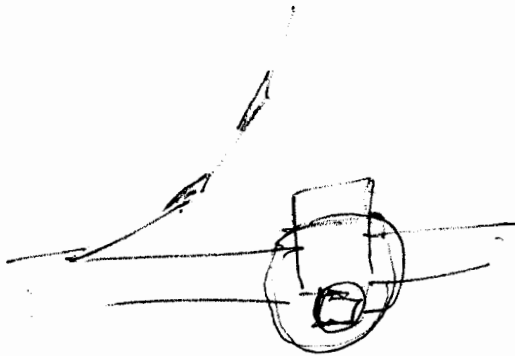
- says, so far, in the best

3 years - 5 years  
full time

20 Administrator  
40 drawer / designer  
30 blder

Key  
photography / <sup>specialist</sup> brown

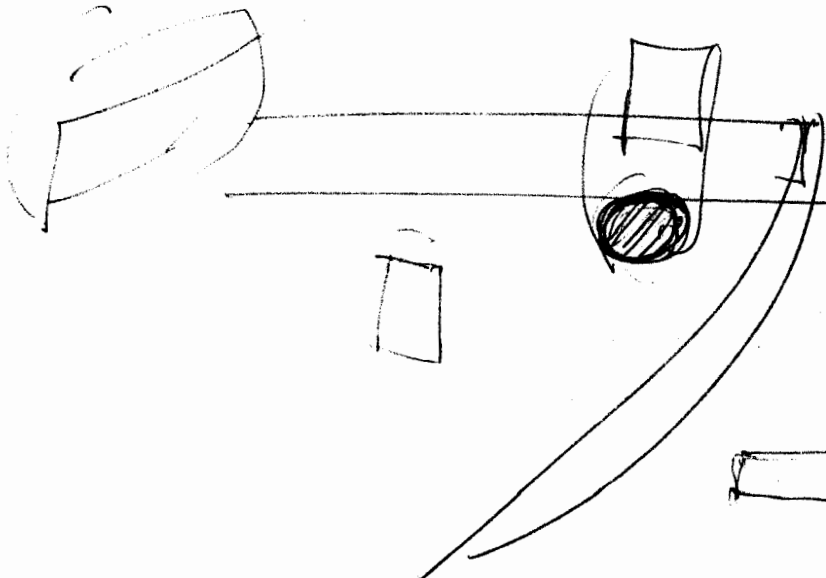
part time historian / Egyptology



he thinks access to Museum, politics etc  
are not a problem

Of either offers find of, then ok,

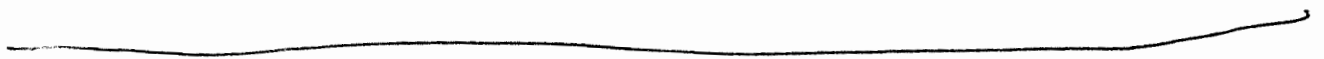
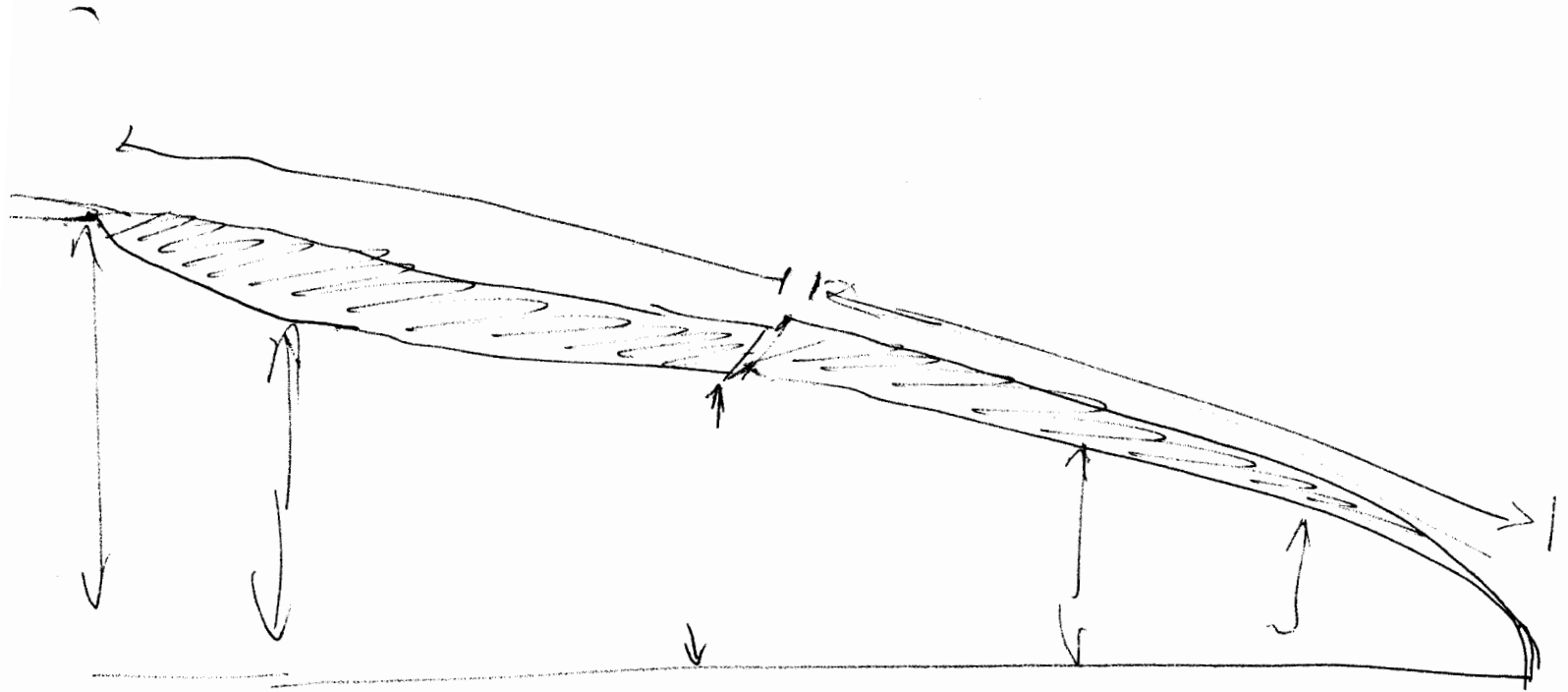
he'd take small salary + work 8 of 12



located by holes in  
clamp only, has no  
rope lashing marks or  
other, were split  
in pit to each side,  
but not near clamp

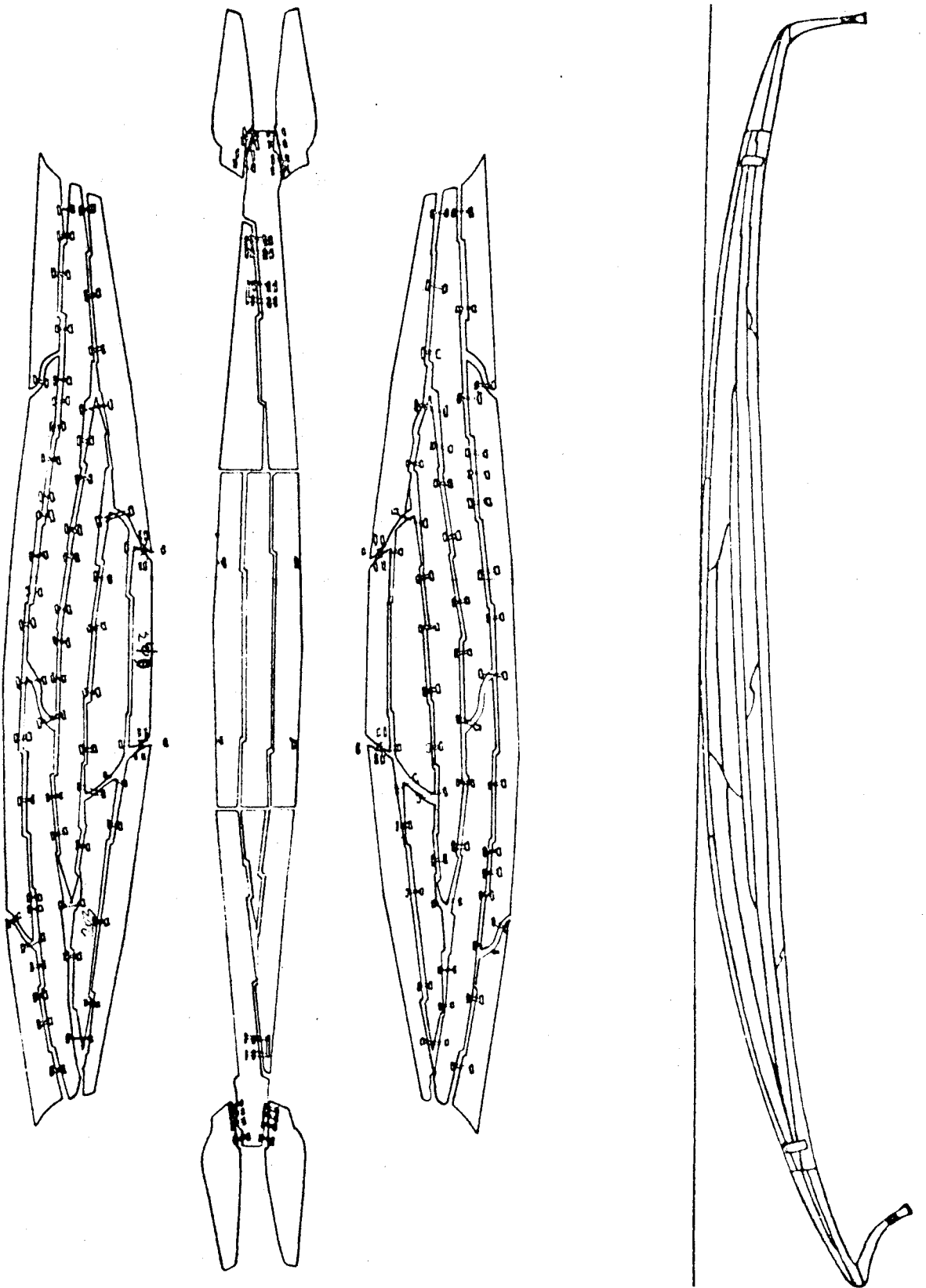
5

example shaded levels of roofs



FOLD-OUT PLAN 3

The keel and the side-parts of the boat



say ~~be~~ 3 weeks - last 2 of "Feb" + 1st of March  
3/22

① ← Bing planking diagram →  
Why think ticks

- demonstrations this week  
- middle calipers - name in arabic?  
ask Mai what "Alaphoneya" is...



- bārgal, mon  
farigh

section view correct  
details of # 2, 3, & 4. - new deckbeams

dates - change of schedule + next 2 weeks

when mounted, very hard

normal

~~20, 20~~ gram alaphoneya - crushed fine  
40 60 waf

reverse proportions of waf + resin

pot placed in "sand bath" in a <sup>large</sup> pot. See pit

crushed alaphoneya + waf in pot

(holds heat better when water)



1/3 alaphoneya  
2/3 waf

soft mix w/ weak wood

for darker / Browner wood <sup>he</sup> uses redder sandust - gawareena

for lighter wood (a little - oak like) - light (an evergreen)

also req animal glue - in 50lb barrels

②

can reheat it

tinted latex w/ oil paint tint in  
turpentine - brushed on



1 x 2 cm cracks or smaller  
larger ones w/ glue past

glue/water mix (see earlier demo)  
50 mls

mix <sup>up</sup> sand dust + <sup>green</sup> dyed deck well about  
50/50

a small test <sup>for</sup> of natural color  
& strength - added more glue cause to

\* if not <sup>viscid</sup> glossy, add more  
glue. <sup>needs</sup>

<sup>also</sup> can test by feel, it shouldn't  
run too thin  
- gets darker as it dries

add <sup>dy</sup> tints as needed can be one  
or three yellow, red, brown.

mix &

then add glue

(3)

keeps reworking samples,

for larger amounts  
uses patly knife - harder  
mipes them better



1st too red  
2nd too brown  
then " yellow  
more brown

from sample to large amount

takes <sup>sample from</sup> large bucket w/ <sup>small</sup> sample dry (see pit)  
in hand.  
- all measurements by eye -  
- the more you work <sup>up</sup> it the better you get at matching  
\* - for next time plane & paper for drawing, the 2  
triangles  
put tacks in desk?  
masking tape

to match exactly  
N. Basagooz - 1/2 hour  
shabee - in Egypt  
allen in english

Mans, i 100

①

3/23



✓ what % of ~~length~~ width for scraps & patches?  
only: large cracks; large patch; small, small not used

✓ which recon were <sup>most of</sup> batters located? 4th <sup>off + on</sup>  
(Jenkins page 102)

✓ check time line in him -

✓ between when was mus hit? 61-70 even to 75  
- pit of Fayyum vessels? repairs 75 to 82  
being + into after?

"Kasagöz" - burned  
~~beaten~~, crushed, walnut shell  
also one lighter, less burned-beated  
used w/ water

hot H<sub>2</sub>O + <sup>2 T. ±</sup> ~~2 cups~~ glue w/  
Kasa göz used to paint in grain  
stir well

skabta - allen - water purification  
used also in darkroom



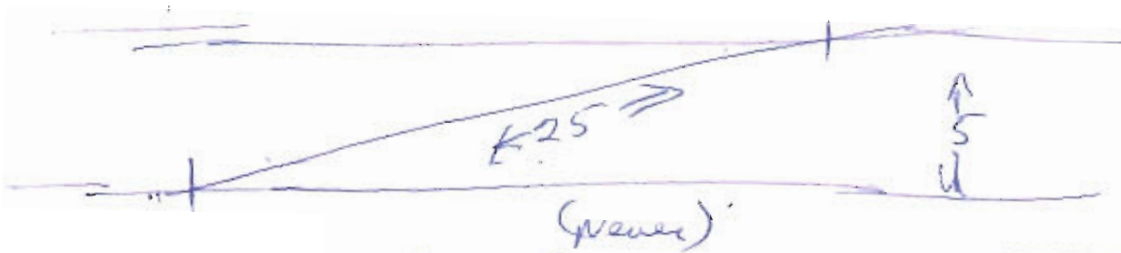
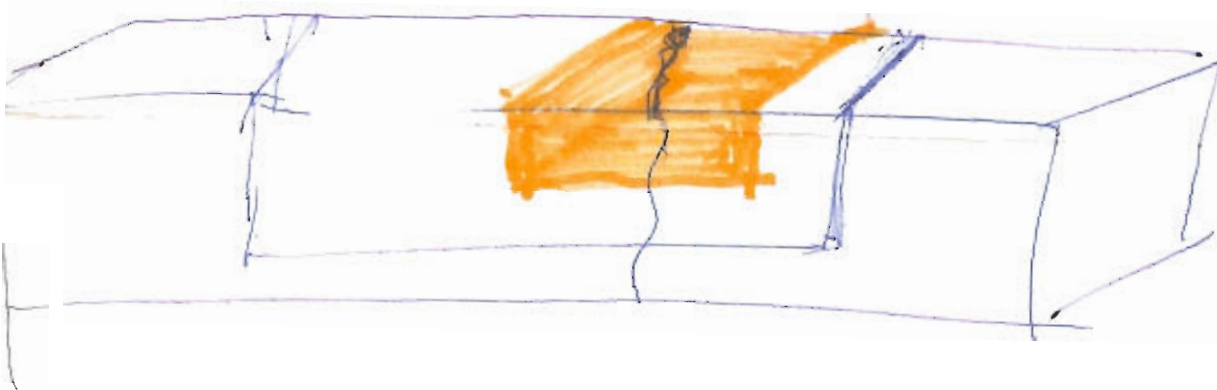
(2)

100

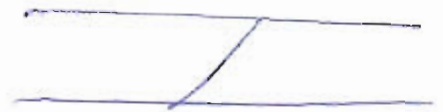
solution may last for week or two. if  $K_2O$  evaporates, just add more. - can use base for year or two

it "beads" a little like water

works out 10 cm either side



- only by eye -



3/28

names of tints: yellow - "corah" - ~~iron ore~~ (light)  
brown - teena - ~~iron ore~~ (crusted)  
red - mufree - iron ore?

else  
what is Hasagoy used for? <sup>It's known in 40, Islamic studies/carpentry</sup> also w/ <sup>water, glue + Hasagoy as stain</sup> 80% attapone 20% wax  
as ~~thin~~ sealant like varnish

sample of saabe - aluminium carbonate?

\* Saabe - "alum de potasse"  
crushed & melted w/ ~~glue~~ glue

dimension "~~stone~~" of boat

loa w/out posts 43m 32cm  
max. beam 5m, 66cm

(at midship) depth sheer to keel 1m 78cm

draught (from keel to "waterline") 1m 48cm

from base line to top of Bow post 6m 81cm  
" " " " " " Stem " 7m 50cm

discussion of Abubakar

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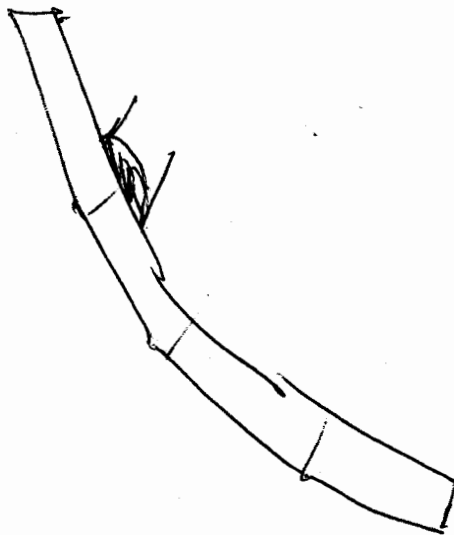
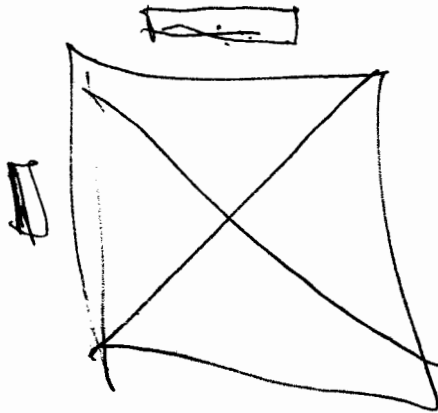
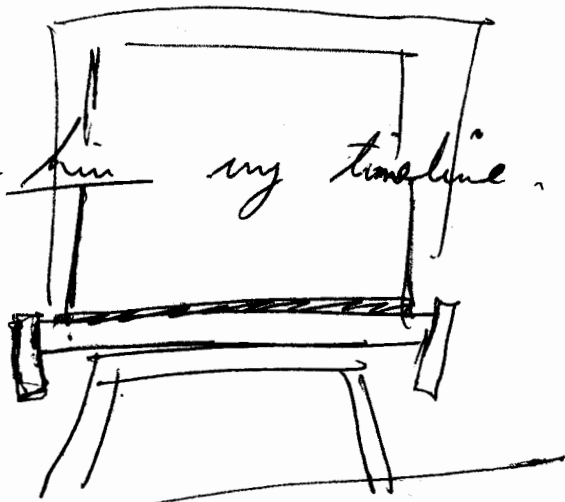
Emergency Boat of Cheges (Continued) (1956)  
extract of (Archeology)

---

Moh. Ali boats 1962 June & August

\* Pit later looks like "hulk"  
no encouragement to reconstruct with her timber

I give him my timeline.



Use materials thicker - Arden - Inspect  
- check names

3/30

✓ What was main thrust of 2nd recon?

↳ when 3rd dismantled?

✓ what carrier for eneb stain? <sup>Lesegoy E?</sup> <sup>+ #20</sup>  
says no new wood showing

✓ Arabic-English decoder? No

did he PWA or stabilizing Moh Ali timber? No

(take 3 months)  
Why

Can't he make a scale ~~trace~~ plank plan tracing  
off smaller scale drawing?  
↳ can't be traced... (?)

check Archeology pit?

---

port 64 asked to rebuild very quickly  
cause Khrushchev? (Soviet premier) was visiting &  
wanted to see the boat

13, May 1969 - after 4th recon

Dof asked him to detach to move to museum

finished <sup>doing so</sup> → 22 Dec 1969

? month

Sat 12

Obelisk Skibe -1943

Udgivet af Sportens Bibliotek  
af  
Skibsfører

Carl V. SØLVER

Check for English in M.M.

Write via Eshanne

Will tell questions I haven't asked +  
think well, cause coming to end...

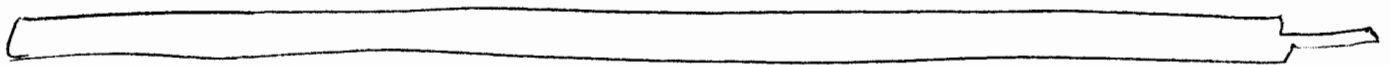
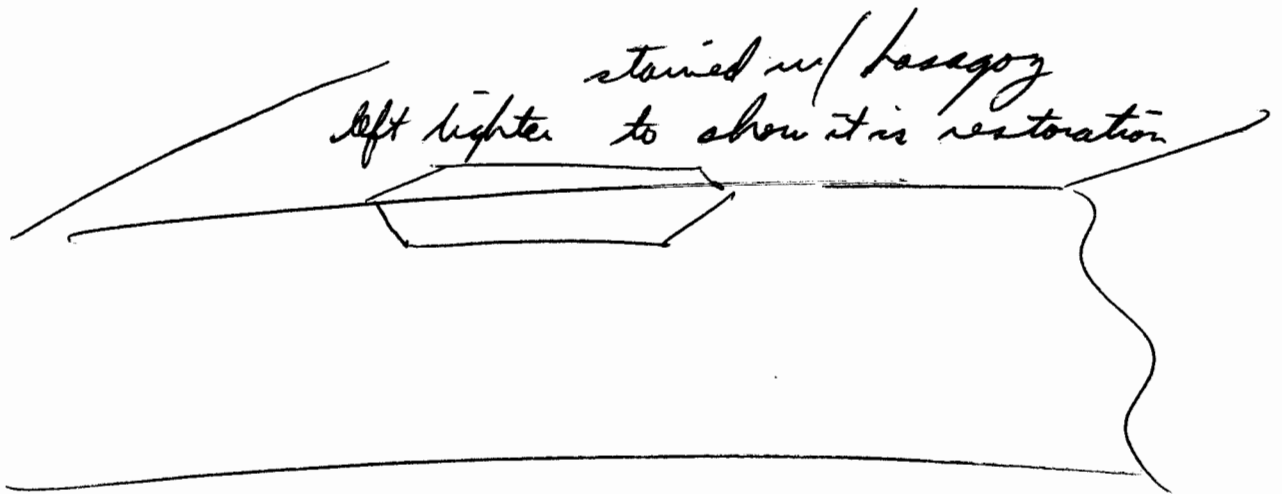
prep for Sat  
① How would I arrange <sup>the</sup> chapters / book for  
pros.

outline Subjects, chapters, etc for whole area

② 5 bays, Design for contents  
1 excavation  
1 resto  
1 reconstructions  
1 construction  
etc

③ English <sup>ship</sup> ~~boat~~ terminology

5 curved unused pieces  
Saw J. Ross slide - nice  
MAI has J Ross's address?



1 sq meter has 16 holes (?)  
bottom first marked at heel - bird symbol

April, 2nd

check tape supply - extra box? / Behame + reports  
name of bird sign.

Have Ludwig of book + museum bags later -

Clear clamps

2 days I have time  
if they to finish lines etc

longitudinal ~~central~~ deckbeam - support - ~~central~~  
- carrying beam or suspended keel battens

low post's inner support /  
low backing plate or ~~back~~ inner sleeve

- check Greenhill?!

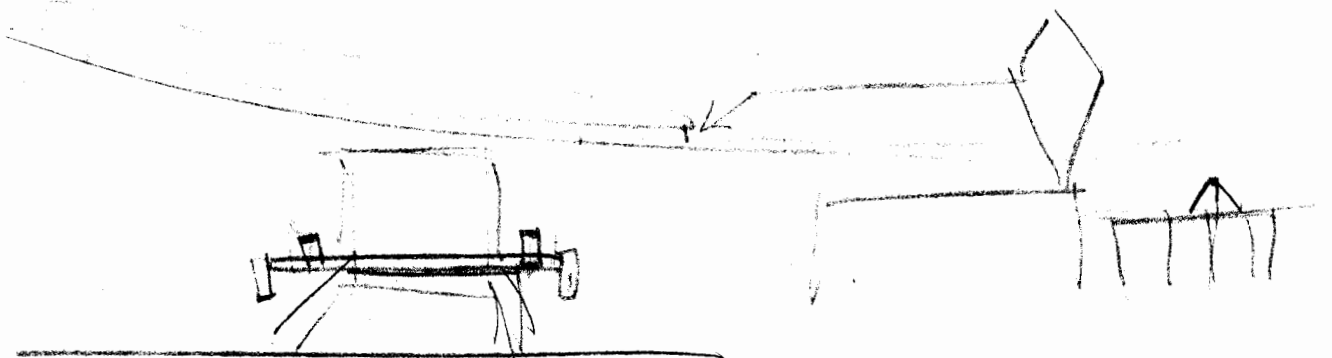
//  
59 2nd 59 3864 / 67, 70

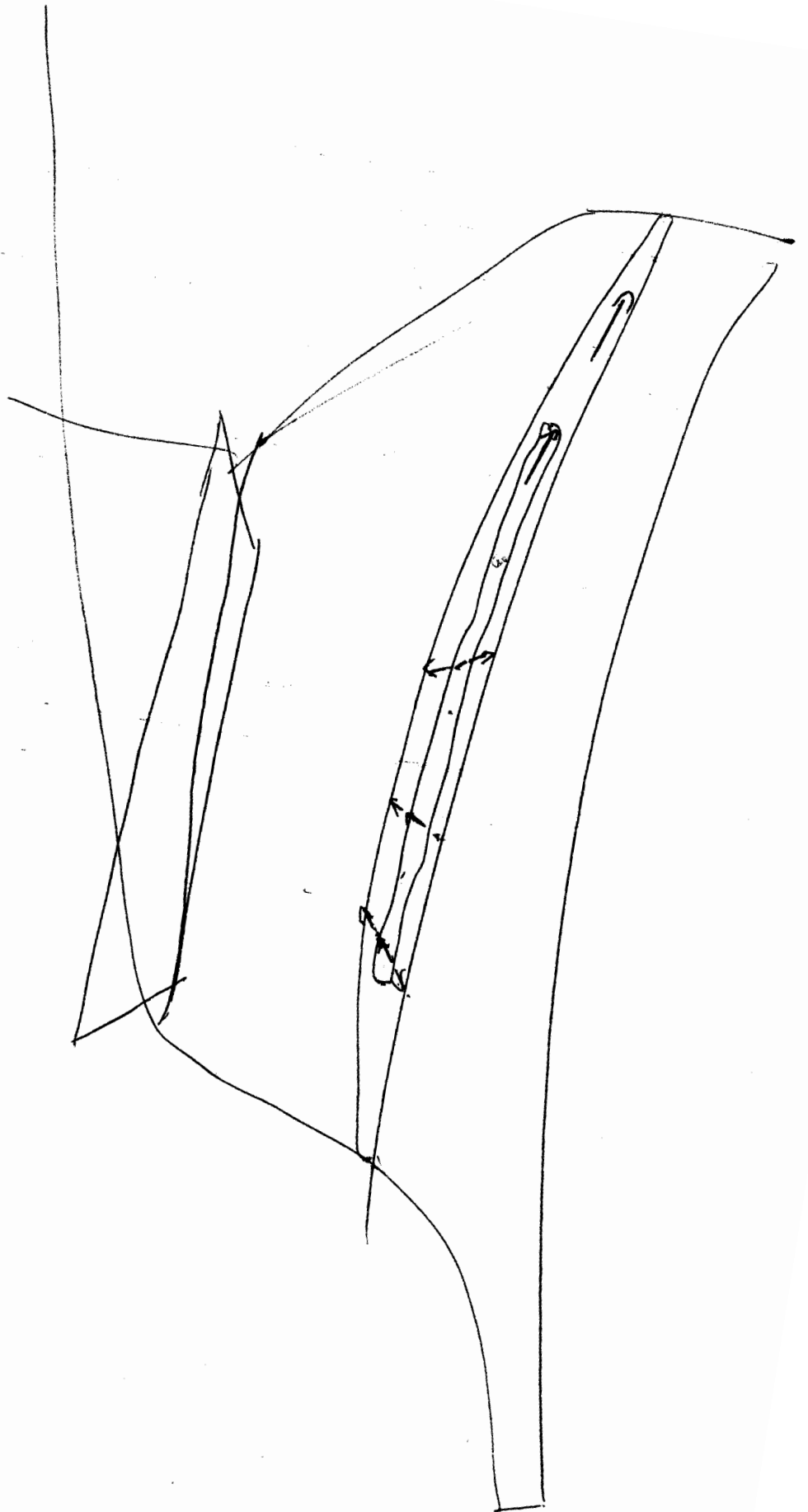
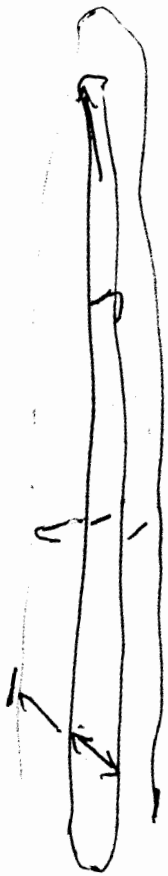
2nd second adjust shape, lash some planks

discuss \_\_\_\_\_ 4/6

did 26 py

get - 3 more <sup>pit</sup> whole mosque + dome



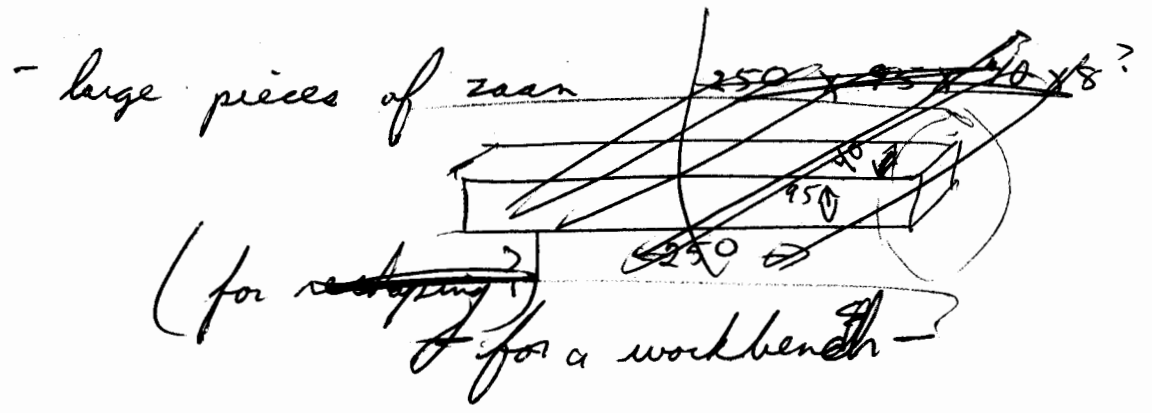




Leak up/Melek's after Monday?  
M's schedule

①  
separate requests for car, typewriter + telephone

to raise large timbers (27/12/56) of 9th layer  
after this I realized the layers  
underneath ~~are~~ contained larger timbers  
& will need heavy equipment - please come &  
see



- buy large crates for storage

discussion - 6/12/56 - ~~discuss~~ Dir of E center  
criticised scale work <sup>+ model of</sup> unrelated to recon.  
8/12/56 Kq says, you're wrong, please come & look again

- Dir of Diga zone + Chemistry Dept essential  
involvement for 1st phase, but we don't  
get along + even <sup>some</sup> friends are come to disagreement.

someone asked to leave + work on <sup>some</sup> Hetepebes material,  
so please accept my resignation + in retiring

~~work on ship~~ ✓  
Mid Oct → End Nov 1956 2/12/56 (Dre)

① timbers in good condition after excavation  
- no insect damage or presence

② In pit: temp 19-20° } condition good cause covered pit  
Abs. Humidity 75° } after each excavation

③ photob 3-6<sup>th</sup> layers w/ composite for grid  
" " " each piece for file

④ lifted pieces 50-90 from these layers  
108 pieces in shed now

⑤ treated all w/ PVA

⑥ described each piece in logbook

⑦ started file for 1958

⑧ pieces on shelving (w/ file) in same array as in pit

⑨ copied all signs (ones 2 in red + carved)

⑩ designers starting drawing + seal work

— Another request for camera supplies

11/5/56 - want work in fall season ① if

② prepare car

③ all personnel free of other commitments

✓  
③

25/July/55 - end of ~~the~~ season

(# have plants still?) lifted blocks, mats, plants etc  
- will close pit for summer

- worked on completing resto shed to  
prepare for next season

✓ started again - mid Dec, 55 - lifted first layers  
& first chem treatment)

most important piece to date:

7 oars & 15 columns +  
15 panels & Eastern <sup>end a large</sup> papyrus column  
removed - stem post  
doors w/ 5" locks  
~~-----~~

2/5/56

discussion on Museum <sup>of</sup> Min of Culture  
will send <sup>3</sup> color plans for ~~public~~ consideration

~~6/6/56~~

✓ 20/April/56 - high temp causing change in timbers  
- request AC asap - 3 to keep temp  
15-20° & RH 65-75% - & will keep  
H<sub>2</sub>O in basin

will not lift more timbers till AC in

✓ 27/march/56 Stopped lifting 2nd layer  
because

- ① stopped photographing
- ② not finished drawings of saline pieces
- ③ ~~rest~~ had to leave for Turpan at DyA's instructions

✓ 15/2/56 two typewriters - Arabic & European - request  
turned down - \$ to go to more essential  
workmen, materials

work on boat  
✓ 24/1/56 → 12/2/56

- ① continue treatment (rests)
- ② registration of tubers 23-42
- ③ " of humidity & temp 70-75 RH  
61-65 F
- ④ supports for ~~rests~~ big pieces during rests
- ⑤ to Turpan

24/1/56

Please Approve More hours - 2 Non + Hg

✓ 24/1/56 - prevent damage - ~~rats~~ rats may get in, please take  
precautions

lifted 58 pieces - its going quickly & will update  
reports as needed

①  
4/9 Behanne to check 57-58 as to completion of 1st recon.  
Nov 57 - Aug 58 resto & recon

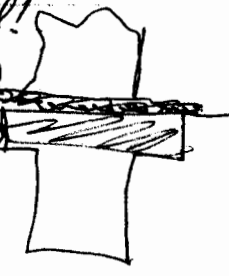
Review more reports? Schedule translations of questionable areas  
~~As sprinkler system working/booked up? No~~

~~Storage tube & for drawings he can spare?~~

Question for recon session

any bright Egyptian prospects interested in ship who he could "apprentice"?

~~The unasked questions - what are they? None, have covered!~~  
27/12/54 "realized about gluing" > gyps from sealant in mud



get details of his camera & film

~~Still have plants & mats in Magazine?~~

~~Rocks through roof?~~

~~Why do ~~it~~ for each piece not correspond up total excavated?~~

Tracing Paper? Fit M's book.

~~Behanne to go through reports while we're working?~~

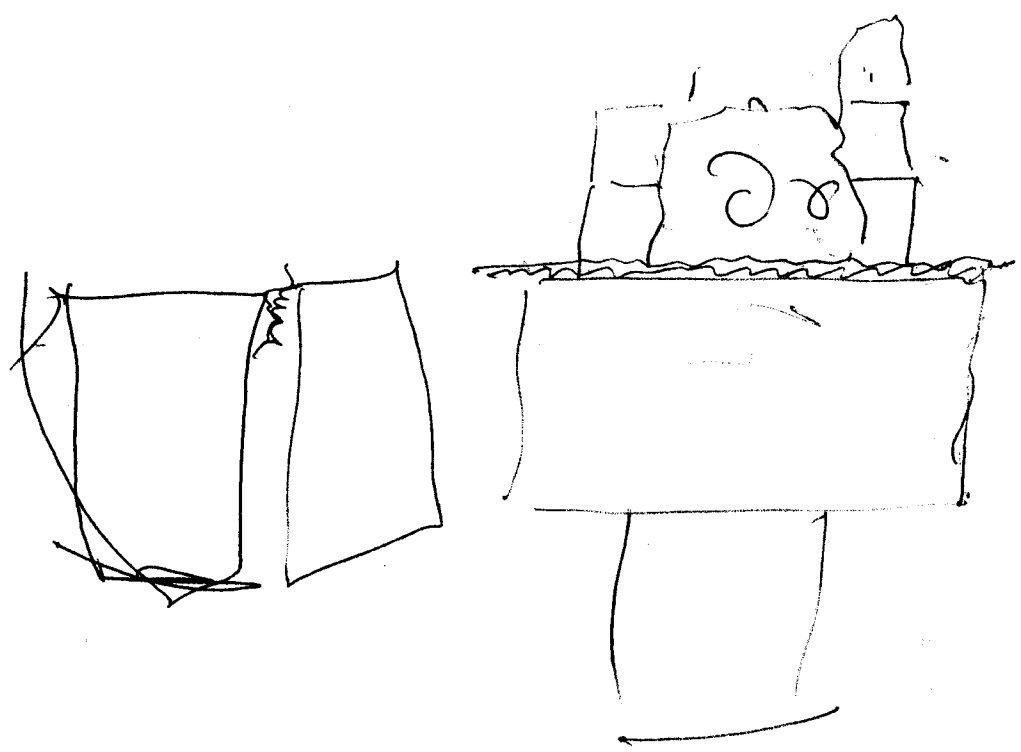
Ricke figures? Will look later "it's in a sketch"

Schedule session on Mura <sup>digging</sup> ~~digging~~ etc.

Ward  
Photos: B + W & Slides Photo 3 of us working model measuring " itself

# 7-35  
10  
50  
40

45  
28  
17



4/9 (2)

Review of reports questions

when stopped working for 4 months -  
Min of Culture re teaching: I can't leave, too busy at  
w/ E center, whats going on? <sup>ship</sup> Work has  
stopped

Plants identified? Iskander took to England - see report  
- has in Magazine

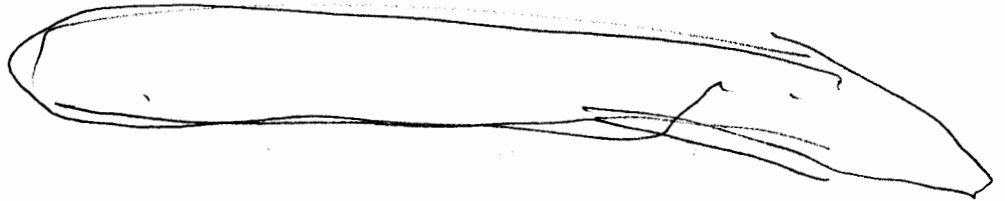
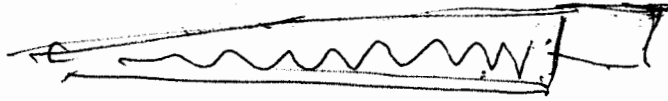
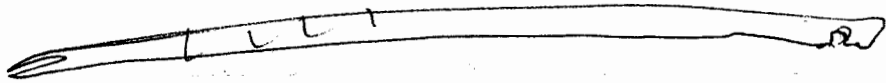
Rocks through roof

Asbestos -  
glass even weaker, so be careful of old  
musem w/ glass

Museum site changes - changes of Minister VS E Center  
VS Ship, Jonville  
Mus

Epoca <sup>tuber</sup> # discrepancy - all of a type may be given  
one #.

③





4/11 ①

✓ Review more reports

✓ Big bright Egyptian prospects & he could apprentice?!

✓ Details of his camera & film - the process of how & when he took photos?!

✓ Rike figures? Katke compur } bought 1945-48  
20 plates  
for cut film

✓ Photos of the 3 of us working  
✓ model measuring  
✓ model itself

Kodak  
Phyfilm NP 20 Panchromatic  
20 DIN/80 ASA

10 yr (Kodak Ortho X sheet film  
Developer D.61A

✓ - Storage tube for drawings box ser # ED 6145386701  
- Tracing paper 10 yr Forte Fortepan 32 (blissy)  
✓ - Schedule session on museum display, etc 21" Din, 35" SCA

✓ Keep Greenhill & calculator for a while still?!

✓ Will bring drawing of ship as soon as complete - week or two

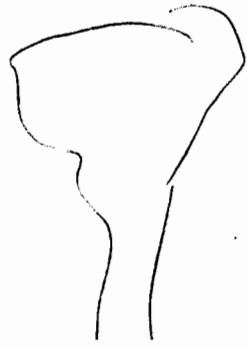
✓ - Tools used by 7th D children: no feel cause all fast sanded smooth-\*

✓ - Portrait of them - you identifying w/ them

✓ - Hornell pix - can we locate folder holder to take w/ ?  
Where wd he start looking?

Get ships curves

\* copper tracing on blacks, only



" I am part of the ship, itself, a special piece;  
1st stroke, port for'd, W by, I don't know"

- How would he find a Hornell type timber

40 years - these people are already dead  
& nobody marks the old days,  
bts broken up for firewood.

Tag

south of Siza on Nile

East Mingo - old man who died

↓ Damietta

w/ battens in places

oil, asphalt &

caulking - hemp

local stiches

Some Questions

4/11/83±

①

Subject:

Excavation: Were <sup>does</sup> any legs found in the pit? If not, why ~~do~~ <sup>do</sup> we think the ~~the~~ ancient Egyptians left them out? If so, where were they in the pit?  
yes, some 400

Jenkins says the fische were kept in Arabic & English, true?  
If so, can I see ~~some~~ of the English ones? [page 78 Jenkins]  
If not, where could she/Watters have gotten that impression? (see BAR NS)

Can I arrange to visit & study (in detail) the scale drawings & excavation photographs at his convenience? (He needn't be w/ me during the 4-5 hours I think I will need.)  
I could collect questions for a regular session, but neither he nor Behrens need to be in the room every minute while I study. NO

Restoration: The "70-80% cases of distortion": what parts of the ship other than the planking, keel, & doors were affected? (see BAR)

Restoration: (cont)

Were there other places (besides the oars) where aluminum was used? (yes under deck panels. See BAR)

Were there other particularly "different" restoration techniques he used that he hasn't mentioned?  
No

Was there any bacterial damage at any time?  
Not that he knows of

What is the current problem I have noticed in the deck (aft of the cabin)? What treatment is being done? difference in hygroscopy of orig. wood + sandust (conjecture)

Can he + I ~~get~~ <sup>go to</sup> some snel samples from under the ~~mosque~~ <sup>where they are stored?</sup>

Can he find the grinding stone samples?  
No, he looked. هو على  
نفس الدنيا  
من

What tools +/or techniques (in addition to the chisel he's shown me) were used in the restoration + reconstruction. For instance, were large sections of desiccated wood <sup>cut</sup> out only w/ a chisel, or were other tools like saws or drawknives used also? What kind of drill did he use to bore out the <sup>chisel</sup> oar shafts, and how did he keep them aligned? (see BAR)

أو  
ز  
مور  
اور

~~4~~ 3

The center has 3 sections

Ah Azhar / - chemical

- Best of small things

- temples

Cairo U also

No good cause profs are bad - yg gift

Tried to set up in / Cairo U

but said has to do on blackboard

Had 3 yr program did in 8 months not demo  
(+ their all profs now)

3 people Mai -

Alaya Sherif - in France getting PhD

Muntiri - in Gada, married - no other info

1 or 2 yrs each w/ him & worked very well  
from own interest

1 year & then we'll see {  
Gued Mahmoud Saada <sup>3 times a week</sup> for year  
Hassan Hassan Hassan  
Hassan Mustafa Shukri  
on rec to general, not ship

doesn't know if have staying power to keep  
up their present interest

~~Def A too unstable to allow good men to  
last~~

Restoration (cont):

✓ When did he use <sup>the</sup> low viscosity paste (95% water, 5% glue) + when did he use the high viscosity mix? ~~Some examples?~~ In what situations?  
(see BAR)

✓ How are the patches (of enamel) and glue/paste reacting to the ongoing changes in the ship [due to poor climate control]? Not known

Restoration (Cont):

1961 book on the ship, he says the parts of the ship "were cleaned using an electric brush...  
 What is an "electric brush," and how much was it used? and in what ways? [I will bring the exact quote.]  
 Vacuum cleaner/brush Not used more than a day or two.

What fastenings used w/ aluminium strip in deck?  
steel screws

What are the details of the "iron" support system (ribs) he's added to reinforce the ropes that hold the ship together? How ~~was~~ was ship rebuilt in Museum?  
see BAR

How many pieces in the ship are all eneb now?  
or what %  
What parts besides, 16 stowings, the loar, & some deckbeams & lugs,  
see BAR

PVA has been known to obliterate or obscure fine scratches and marks. Has he had any problems w/ this, such as making the signs hard to read? No

Can he explain why the eneb samples seem so much darker than repairs to ~~some~~ other patches on ship? "Eneb" not all same specie

Restoration: Were there any other problems with the aluminum (that led to the result) in the restoration, i.e. ① rejection of carpenter work? ② breakage from mis-handling or accidents ③ technique he used he would like to (or did) change later (5)

Reconstruction: Was there any particular reason why he started w/ the port (left) planking first? ~~Yes~~ No

Did he have a system for recording and comparing measurements of different pieces? We've seen the ~~deck~~ grouping of panels (in the report) w/ a drawing [for example]; was this done as part of the excavation process & used later in the reconstruction? ~~Done later?~~ Were similar drawings done for the whole ship? Alternatively, did he note down a given set of dimensions on a note-pad & work from this "listing" alone?

Details of lashing ship together: what fibre he used, how it was threaded & tightened, etc. see BAR

I'd like to check the plank # sequence for ~~the~~ both sides. [I'll bring a photolet to work from]..

In which reconstruction ~~was~~ (and how) did he locate the proper position for the central girders & sheer clamps? see BAR



Reconstruction (cont): Can I see the 5 models of other boats he made? later, photo only

~~Were~~ were the ribs inserted into the hull?  
In ~~which~~ reconstruction? At what stage in that reconstruction? <sup>of the</sup> 4 + 5 recon

The 13 knots: details of the study he did + when he first used them in the reconstruction? What kind of rope used to replace ~~the~~ orig? see BAR

Construction: <sup>most</sup> "Questions to be formed after we've covered it next week..."

In any event, will we study his 1-20 model in detail? May I photograph it in detail?

Does he think the 1-20 model is <sup>close to real</sup> accurate enough to make a lines plan from? If so, why don't he + I do one together (during the 2nd month) as time allows?

Miscellaneous Questions:

Where should I have Basil Greenhill's book sent? ARCE?

What did Richard Walters cover during his 3 month visit that is missing from Jenkins book or my outline? None

Does he have a <sup>J.P. cut 4000</sup> bibliography of <sup>all the</sup> serious articles, studies and books <sup>in post/camp</sup> on ~~the ship~~ the ship? If not, will he release prepared ~~notes~~ Nothing not in BHL Bibliog

Does he have a copy of the Plenderleith report?

Tea time? Do rest students get scientific training? Will 2nd ship get high tech/scientific approach? Bright prospects, current "curator" None  
~~When/ does he wish to go month by month through the entire period? (During the fourth or fifth week? Later?)~~

Concerned about single copies - photo stat idea? Rejected

## Questions

Subject

Construction details

what does he feel 10 cases used for (arrangement theoretical, & know)?

\* applications of 13 knots (angle study)  
3 or 4 pieces not used - see them

## Restoration

- How are patches + glue/paste standing up to bad conditions?  
any bacterial damage at any time? - current of deck?

- details of iron supports lashing ropes -  
of 70-80 compression cases - what were they other than  
planking?

trench samples? (ie door, for future record restoration?)

- can I see any pieces in storage? any record of treatment?  
if not, what % covered.

- other pieces aluminium used? other "different" techniques?

- When did he use low viscosity (>5 water, 25 glue) mix + mica  
versa?

- Comment on Dekender's "electric brush cleaning" etc. (see quote)

## Photos

(special cases) etc

+ drawings look through & photo record of excavation at length?

✓ + scale drawings? (Study conditions of damage +  
check tabbing in doors (bevels, particularly, crown) etc)

study drawings of 3 unused pieces  
take pit of sign diagram?

his Bibliography?!

Can we put together a bibliography?

Misc:

When did you become Director of Restoration  
" " " start working for the Antigües Service

What did Richard Walters cover that is  
missing from Jenkin's book or my outline?

\* Where should B Greenhill's book be  
sent?

When does he think sud pit will be  
opened? Will they take a "scientific" or  
"high technology" approach? ~~or~~

Do students in Restoration/Archeology get "scientific"  
training?

- What is the background of current curator of the ship?  
Are there any bright young people in the wings to  
make him optimistic?

- We need to go month by month (?) through hole period, obviously,  
not his record book.

Casual

Where should Beerhill be sent?

Excavation: any <sup>logs</sup> logs found in pit?

Need time line

Misc When did he become dir of restoration?  
What did Walters cover that is missing  
in Jenkins or my outline?

Reconstruction

Reconstruction: see 5 (1981) models again?

When were models completed

Why port side first? Any reason?

Any system of recording & comparing measurements?

- check plank sequence, both sides (Bing or Jenkins)  
Are signs still readable in surface of planks &  
stoppers? any PVA fading?

Construction - prop cedar woods, where are they?  
(see, Albu Lake)

Waterline?

more on logs / heat vs slash cut?

scale lines off model?

## Reconstruction (cont):

I'd like to check the plank # sequence again, on both sides. (I'll bring a photo set of his to sketch)

(Recto)

PVA has been known to raise, or obliterate scratches & marks. Has he had any problems w/ this <sup>such as</sup> "making the signs" hard to read?

- Can I see the 5 models of other boats he made?

Construction details: <sup>joint</sup> (Questions to be formed after we've gone over it next week.)

- In any case, <sup>will</sup> we study his 1-20 model in detail? Photograph it in detail?

May I do a scale drawing of it (on my own time but at his convenience?) Estimate <sup>maybe</sup> 20 hours?  
~~Estimate of 20 hours?~~

## Restoration (cont):

Do the files record the details of treatment?  
Is this recorded anywhere? If not consistently,  
what percentage is covered?

When did he use low viscosity paste (25% water,  
75% glue) & when did he use the high viscosity  
one? Examples?

How are patches (of enamel) & glue/paste standing  
up to current bad conditions?

How much ~~was~~ "electric brush cleaning" was there?  
(Alexander, Dept of Antiq, 1961)

Details of the iron support system he's put  
in to lock up the rope?

## Reconstruction:

Why did he start on the port side (planking)?  
Was there any particular reason?

Did he have a "system" for recording & comparing  
measurements (when trying to locate pieces)?  
Details of the system?

## Examination:

Were any lugs found in pit?  
Were there any Butterfly joints in pit? (Albubaker)

Can I arrange to visit & study the scale drawings & elevation pictures at length at his convenience? I need 4-5 hours, at least, I think.

~~Can I take a line drawing off the~~

## Restoration:

The "70-80 compression cases": what <sup>parts</sup> of the ship other than planking & keel & the door we saw?

Were there other places aluminum was used (besides ours)? Were there other different restoration techniques used?

Was there any bacterial damage at any time?

What is the current problem I've noticed in the deck aft of the cabin?

Can he find some enamel samples?  
" " " grinding stone samples?



Misc

When does he think 2nd pit will be opened? - Will they take "scientific approach?"

Do now students (in Egypt) get scientific training?

- Background of current curator - any bright prospects (Egyptians) who are interested?

Reheme 376 of tape 21, side 1 - translate last word

what <sup>of pieces</sup> ~~are~~ have major sections of rubble in them <sup>Doesn't know</sup>  
approximate section (all ends - 5-10%) <sup>width, height</sup>  $\approx 5\text{cm} \times 2.5 \times .5$  thickness  
dimensions of 'u' beams, <sup>how long</sup> ~~size of posternings~~ / ropes  
to be replaced every <sup>5-6 yrs</sup> 10 years!  
more pit of final reconstruction!

- عنب - grapes, black night shade - عنب الذئب
- عجوة - jujube Mona
- إنقاذ - salvation

Does he have any of these ~~comparisons~~ <sup>comparing</sup> drawings now?  
- no didn't make any -

AE cutout =  $\frac{7}{52}$  cm?

\* Check/Study Shubaka lashing details / number of lugs, etc

~~to~~ knot study -

look at + discuss the three <sup>(4)</sup> unplaced pieces in terms of the model

Jenkins pg 100 - details of steel supports - alternating ribs?  
See page 2 - blacked round guides  
Does he think there'll be 2nd edition

Page 23+

①

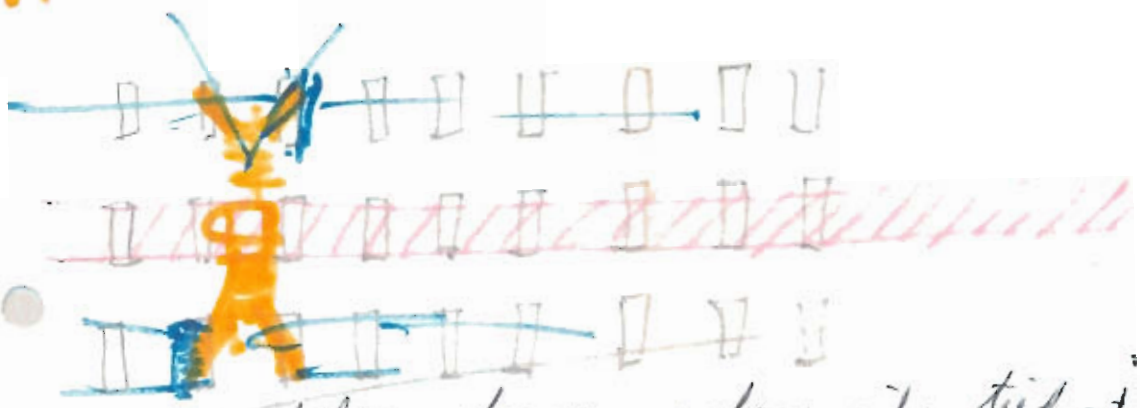
1/5

of 16 - 6 small - 10 large ribs  
larger ~~spaced~~ hole determined location



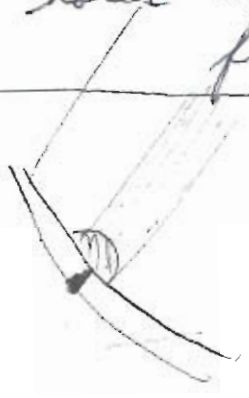
==

Diagrams



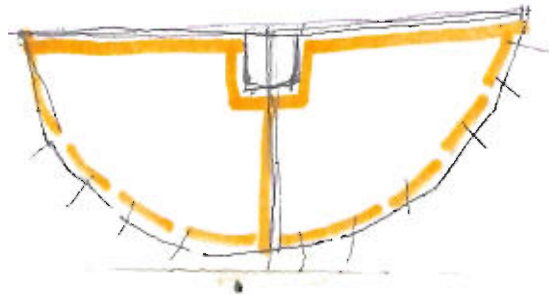
holes larger where ribs tied at 3-4th stake  
from sheer + at keel

Denkine connection



White best ash preference

①



# Take Camera 4/26

✓ ~~like figures~~

✓ ~~drawings~~

~~terminology~~

~~Museum days~~

~~book organization~~

take pic of museum + boat pits + old tenanes wall

check construction notes w/ Louie of ship <sup>(get approx dimension of major elements)</sup>  
~~liner esp. w/ aft of SA, joints - construction details / ~~sketch, etc~~~~

tell Hag Seivan Article says he + Melack will open the pit within a year <sup>hopefully</sup> w/ an underground Mus ltr w/ Unesco's help.

Get Zebedak, Bagwarian samples

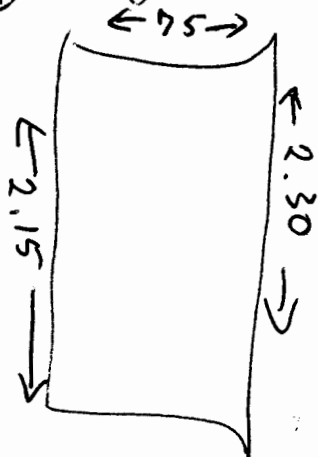
✓ How were small pieces raised? <sup>stacked high</sup> <sup>wooden tray</sup> <sup>carried by</sup> <sup>individually</sup> in basket <sup>kept</sup> <sup>apart</sup> <sup>individually</sup> <sub>+ mats</sub>

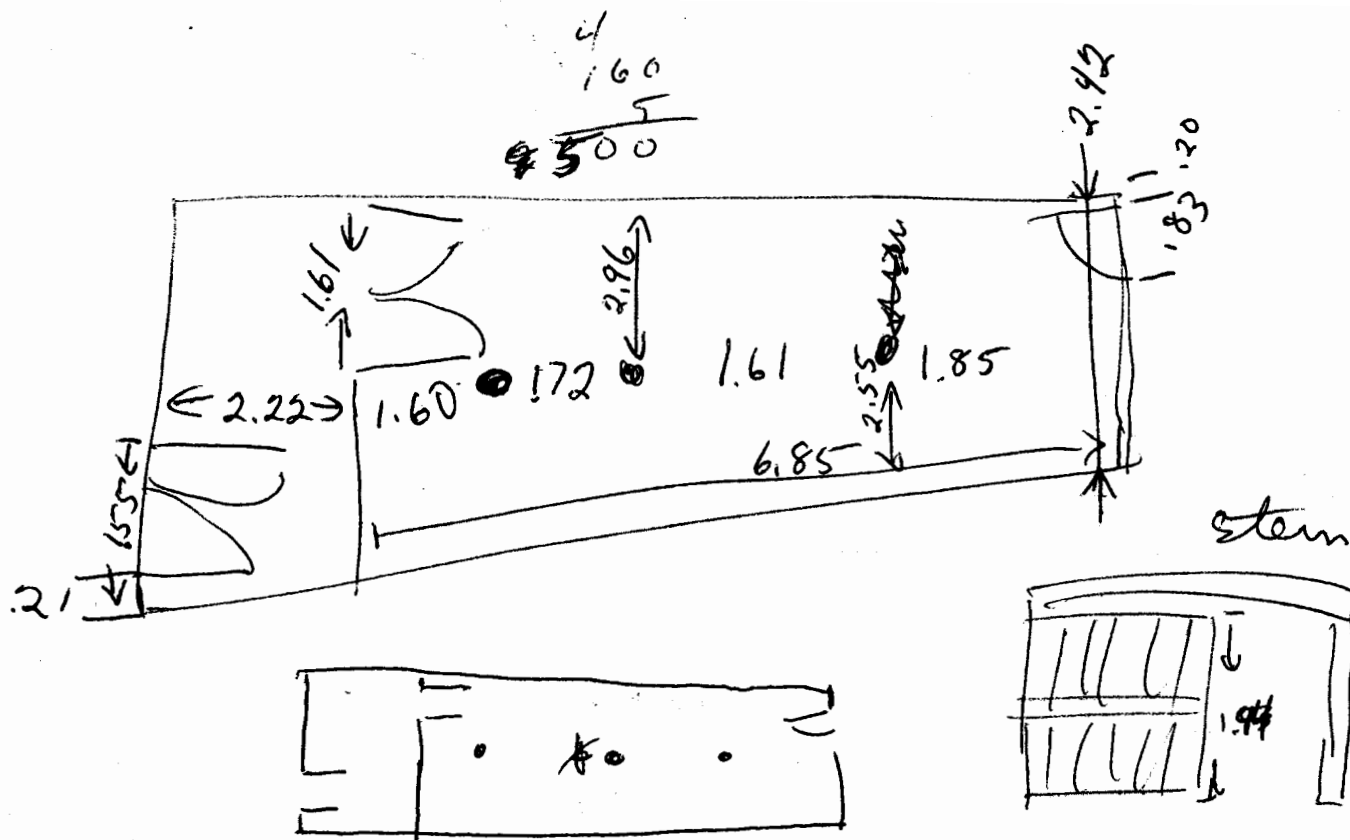
Does he have complete record of quarry marks?   
 yes lol

Dimensions of pieces # 59 (door)

52 - - rope or mat

needs ~~the~~ <sup>ropes</sup> ~~ropes~~ <sup>over</sup> new ropes in basket





Has many drawings of ship - perspective

Think about fees for return to work on Museum Design  
 bring some U.S. stamps?

Write from States ASAP (not via Sehenne, she'll  
 be back mid Sept)

- Photocopy Mus plan -

Not here Sunday, Tues, Thurs  
 for 1 month



Questions to be answered while in Egypt - independent of Nag  
Ask Mai who "Munti" is?

~~Woods / sandust identification - proper names, density,  
get glue specs (in states)~~

~~Ask Mai re what Walters covered (Nesim? her to review notes)~~

~~Ask Mark Lehner re conditions in pit / stone conservationist?~~

~~Current training of conservationists, restorationists~~

~~ATC Restoration lab?~~

~~check 1961 citing for Mango?~~

~~Source for Polythelone Egypt - Wilke?!~~

~~Shawne to translate questionable segments (before this  
sent home?)~~

See M. Nabil El Hadidi re wood identification <sup>via</sup> Michael Hoffman,  
Case U. Herbarium - Faculty of Science  
Cairo U.

nab'  
gemonez  
kut  
atL  
Labah  
Sawt

nabh -

ج  
ج  
ج  
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ع  
ك

French

jujubier - sidder  
sycomore  
munier  
tamaris  
acacias  
" nilotica

~~"Nabih" (sidder?)~~

~~find current value of te 500 in 1955~~

Mai:

~~Zeebeedack?~~  
~~Ask time line~~  
~~Stagnation~~  
~~time names?~~

John Ross's address

~~Will she tour Mrs. w/ me~~

~~Allophoraya~~

~~Sheebe~~

~~Zeebeedack~~

~~Enel~~

~~Stagnation~~ (yellow)

~~Opra / pabra~~

~~Terna (brown)~~

~~Mighra (red)~~

~~blat~~

from buried limestone?

~~romulus~~  
~~bronze stone from~~  
Esna - edge region used to  
smooth wood in 1950s