

Transcription of Notes from conversations  
w/ Hag Ahmed Youssef Moustafa, May 20-23, 1981

Mohammed Shata translating

He started repairing things at age 5, can now do 22 types of resto... Starting in 1935 Hag Ahmed worked with George Reisner (MFA archaeologist) for ten years... Began working for Dept of A in 1932.\*

In May 1954, the Royal ship was discovered- Hag Ahmed was in Luxor at the time. He was not called because they thought the boat was in one piece (assembled) peering through the hole in the blocks. Over next three years many people were consulted, but not Hag Ahmed. Between 1954 and 57 on the "faith" that he would eventually be given the project he undertook a study of wooden boat construction, shapes, and tomb reliefs. He toured Rosetta and Maadi, and any spot where scenes of boats and building might be found, took (and developed) some 700 pix of these details, and through friends in Luxor obtained many books on boatbuilding. \*As a principal member of the Restoration section of Dep of A. he had a chance to travel widely. He was sure that some similar boat would be depicted on one of the tomb walls, or some such. During this time he visited and studied contemporary boatbuilders in Egypt, as well as completing the projects he had originally gone to Luxor to finish, restoring reliefs in tombs.)

The Late Abu Bakr, then the director of restoration, called him in '57 and asked him to take a look at the boat "as a friend". He stalled telling them he had to finish the work begun in Luxor, while in reality he was finishing his own research into the Ship. While Bakr and others were upset over his stalling, staff of the library helped translate books on boats from French and English. He studied boat structure only, not use, dates, etc. U. of Chi treated him as a "Professor". Not trusting translators, he also went to Cairo and read up (in Arabic) on boats to be certain the info agreed. He ended up buying most of the books on boats he read, and now has a library of about 3,000! During those three years spent much of his time in research, sleeping and eating little- "it was better to study hard". His book of notes culled from this period covers Egyptian shipbuilding from 32,000 BC to 800 AD.

on S. side of

The Dof A had begun to clear away the rubbish around Cheops in 1940. The rubble being some 230 meters long and 12 M high, it took 13 years to complete. (See below beneath the Pyramid for details of Malaks discovery...)

\*Biographical note: Hag Ahmed considers his abilities to come from a special relationship he has w/ god. As example, he relates a story of trying for a year and a half to restore a mask (of ? ) without god. He had

~~grown too confident~~  
\*U of Chicago library at Luxor

grown too confident, believing that his skills were in himself. When he realized his error, and changed his attitude, the mask was rebuilt in 3 hours

Hag Ahmed was placed ~~in~~ in charge of the Ship project in 1957. After removing the Keystone (See Jenkins pg 48), each of the 41 Limestone blocks (weighing 15 tons was removed and replaced with a wood ~~shutter~~ canvas shutter. moved the blocks on rollers... Pure gypsum was the material poured between the blocks in Ancient times... materials in pit- wood, mats and rope. a few limestone blocks also.

23m There are 1224-7 pieces (depending on the source of info), 11 of which were ~~7281~~ long planks of cedar. Planks steamed to shape originally, had flattened from the weight of layers above (13 in all) See rough sketch attached for method of streaming used then and by Hag Ahmed.

Each piece and each layer was photographed as it became visible. Each piece was drawn in detail, also recorded in terms of its relative position. In total, some 7500 photographs and 5000 drawings were made, all by Hag Ahmed. ~~Small~~ In proper archaeological fashion a notebook recorded every detail with a photo of each object + date of excavation, #, location, remarks, condition, (See slides for details and illustrations of hanging platform Hag worked from. (See Jenkins 71) and my rough illustrations). A rolling platform (suspended railway) allowed composite pix to be made. a 3x3m grid recorded layer details (abc by 1,2,3,4,5, etc) Dr Zaki Iskander, chief chemist with Dof A, applied the Polyvinyl acetate. As Hag Ahmed claims that small pieces got an hour's dunking, and large pieces ~~XXXXXXXX~~ a couple of brushings, there is serious question (in my mind) as to whether treatment was adequate.

Page 90 Jenkins (restoration of timbers). Patches as detailed, 3% of pieces (my guess) made wholly new. rotted interior repaired as follows. Exterior peeled off rotten interior, interior discarded. exterior fragments measured and dado'd to take a 1/2' x 1 lattice. on their inside face. These two are glued together w/ flour glue over a "plug" of the timber's original interior. Shell is then removed from plug and an ash/animal glue ~~applied~~ applied to exterior cracks in original fragments. Shell is flipped over and the same glue is used with a layer of flax over the lattice and fragments. these are presumably fastened to the plug and then 2 layers of veneer (see sample) were layed over the exterior (on the non-original faces) \* I think. Sandust + animal glue used for general repairs

More notes on excavation and recording: The notebook was kept on the site, the cross referenced index card system was updated at home each evening from those notes. Separate cards reproducing Hieroglyphics and carpenters notes on each piece, (the former full size) sketches, etc are all in sequence and x indexed, as is the plan of planks and beams detailing holes for lashings and the notebook on lashings. 1:10 and 1:20 models were built for study and for testing arrangements. See pix. A third 1:10 model is under construction to be placed in a 1:10 model of pit, arranged in 13 layers to show Ship as found. (my orig drawing 1:100)

The boat had no fungus, according to Hag Ahmed, only the crumbling of time. A 1000 year old Ennep timber was used in replacing damaged cedar. A few of the bottom layers contained pieces that could not be saved or restored ~~XXXXXX~~ - they turned to powder when touched.

\*One of his assistants took the pure ash from a special barbecue business nr the pyramids. Owner, who'd thrown it out charged 5p per 1/2 K after catching asst taking ash one day.

Hag Ahmed mixes samples of glue/sawdust mixtures and then breaks samples between fingers, testing for a sample with the same or better strength as original wood. Fragmented frames were reconstructed w/ tiny dowels and glue.

sides of hull

Notes on arrangements of ~~timbers~~: three main sections each about 12 meters long, the ~~main sections~~ sections had about 11 pieces each, see Jenkins 86. The keel section fit together fairly easily, having few parts, the ~~main~~ main question being how much rocker to give it for and aft. The final arrangement is 5 meters height at bow, 6m, 9cm at stern. Hag Ahmed has a chart like a jigsaw puzzle picture showing each piece in place (by numbers). Hull had lost 75 cm of curve on either side due to flattening of timbers. This became apparent when none of the 52 deck beams fit (see slides of pix). See earlier sketch on steam bending. Note also Jenkins 119, deck beams are notched to sheer strake blind.

In order to be treated and drawn the panels of the cabin were dismantled. After reassembly with small trunnels the tongue and grooved, mortis and tenoned pieces were set up in various configurations, until the virtually every hole in the deck and fitted joint had a corresponding member. There were a few pure copper brads used to hold the door latch in place, but otherwise no metal at all. Rope lashings were Egyptian hemp Halfa.

The Shelf clamp is set inboard from the rail (see slides of model) and the area normally covered ~~wik~~ by the washboards and covering boards is left open to save weight and improve ventilation. He feels this last was done this way only on this ship (not general practice) due to its extreme size. The notched king plank or center support beam was at first thought to be a keelson notched for frame ends. Later the identification of the support stations were identified and located it became apparent that the beam belonged above, not below these stations.

Notes from May 29, 81: There were layers of matting between every other layer of boat in the pit. Hag Ahmed thinks the rope ~~lashings~~ lashings were ordered cut by Chepp's 1st grandson Dedefre (who's cartouche is painted on one of the 42 blocks in order to be certain that no-one but Cheops could use the ~~ship~~ ship. The 42 blocks represent the then 42 provinces of Egypt; 21 each for upper and lower. Boat was layered starting at the bow and working aft.

Identification of models in bay 2.

1. fisherman, 208, 2-3 men rowing 5.14' general purpose dinghy, ..  
3.25-30' sailing, 2-3 men crew for freight (market)  
2. 120# motor/passenger vessel 4.15', 2-3 men, fishing, (nets), boat transport "feluca type)

Spanish windlas used to tighten lashings. Double walled cabin (cedar and mats) used as airconditioning, mats removed in winter for heating cabin. Cabin placed aft of center so that boat would balance when loaded. Oars have arrow shaped blade- tradition stemming from spear/oar for killing or mording/crocks and hippos while under way. One oar had to be made new. Boat is away

almost all lebanese cedar, with a few odd pieces of acaia, sidder (ziziphus spina-christi) and a few other idigenous woods. The boat was arrange andrearranged four times before settling on the current configuration.

P. Bipke 7/10/81

MIT Cheops Project

Progress Report #1

October 4, 1982

Late on August 26th (48 hours before departure) I heard a rumor that Hag Ahmed Youssef Moustafa had suffered a heart attack and was gravely ill! Attempts to telex the American Research Center in Egypt for more information proved unsuccessful. To say that I left for Cairo with a certain amount of anxiety would be an understatement.

My arrival and subsequent apartment search, as well as my attempt to discover Hag Ahmed's condition met unexpected complications. The man I had used as an interpreter last year, a friend and former Egyptologist, had initially agreed to work with me this year and to find a flat for me before I arrived. Due to unexpected circumstances he was not even in Cairo when I arrived, and when he did turn up a week later announced that he had to go to Saudi Arabia for a year; leaving in five days! On September 7th I was able to make contact with the Giza Inspectorate and confirm that Hag Ahmed had had a blood clot in early June and had been hospitalized for some time. Later that month he was able to return home but was given orders for "six months house rest and no work". On September 14th I was able to visit with him for several hours- details as follows.

He is mobile, fully alert and in good humor.

None of his faculties, mental or physical, appear to be impaired in any way.

He still wants to undertake our project but should delay the start until January, 1983.

He feels we can cover all pertinent information in two months (instead of four and a half as he'd indicated in his last letter) and that this this period would still command the same tuition, \$2,000.

Much of our correspondence (both directions) went astray, and as a result he had not heard my counter-offer of \$500.

We met again on 9/23 to exchange copies of missing correspondence, and agreed to begin negotiations in earnest after Biram, the holiday celebrating the return of the pilgrims from Mecca. I have discussed the situation with a mutual friend and he agrees with my assesment that Hag Ahmed and I will probably be able to start work together before January (Hag Ahmed being restless). I feel that a tuition that more accurately reflects his cost of living and previous salary levels can be agreed upon, with luck. In any case a rate of \$500 a month (the rate he originally requested for the longer period) should be readily attainable. In the interim I am selecting a new translator and studying the Cheops ship in some detail.

In the event that this week's meeting proves tougher than anticipated, I have made arrangements that will permit me to make the most of my time while the Hag and I work things out. I will be studying some third and fourth dynasty adzes in the Cairo Museum (for their design and effectiveness) as they relate to adze markings on the Cheops ship's timbers. If time permits I will replicate one of them using appropriate tools, materials and techniques as much as possible. My understanding of the ship and its restoration should be greatly enhanced through this additional work.

Progress Report 2.  
November 16, 1982

Three additional meetings with Hag Ahmed Yousseff in October and early November have clarified his views and brought the situation to a head. His health seems to be improving, but his restlessness leads him to ignore the doctor's recommendations for bed rest. In point of fact, he is constantly up and about serving tea to visitors, and praying five times a day. -He insists that he is "well"; I would not go quite that far.

We are still in disagreement over the proposed tutorial, or rather the tuition for this. He views the fee of \$2,000 as payment for his "secrets", not as payment for his time. He rejected my counter-proposal of \$500 a month (for the two months) on this basis. (See Progress Report 1.)

For our next meeting I am having my final offer transcribed as well as translated so that my position is absolutely clear. He will understand that I cannot and will not pay him for his "secrets", particularly in the context of preparing a joint article. The idea is preposterous. I am offering him \$20 an hour -total hours to be around 100- to be paid on a weekly basis. (He had requested \$1,000 up front and \$1,000 at the half way point, an arrangement that <sup>would</sup> leave me with no leverage.) If he chooses to consider the money as payment for his "secrets" that's his business, but I will have no part in it.

If he agrees with these terms then I will spend the time between now and February (the newest proposed starting date) preparing for the tutorial and raising additional funds to cover the higher than anticipated fee and living expenses. If he disagrees, I intend to work full time on the study of the adzes, hoping that time and circumstance may soften his position. I'm not hopeful about the latter, but I've certainly compromised enough. It has become increasingly clear that Hag Ahmed is isolated politically within the Antiquities Service, and that as a result, no efforts are being made to record his knowledge while its available. I personally fail to see how they can ever hope to conserve the snip without an intimate knowledge of the reconstruction/restoration work as performed by "the Hag" (as he is known here). I do not, of course, make such statements here, or to Egyptologists, but that is the root of the situation. The Hag says that I am the first person with a hands-on understanding of boatbuilding to take an interest in the details. And, since there seem to be no Egyptians with such a background on the scene, I tend to think that if I don't get the information nobody will. The Hag will take it with him to the grave, perhaps, at a great loss to himself, and to the rest of us. How sad?

(now)

The initial phase of the adze study is nearing completion. Detailed drawings of five small adzes and eight models of same have been made while (in typical Cairo style) anywhere from one to five people assigned to work with me sat around talking to friends, staring off into space and asking if I was finished "yet". One complete adze and two blades remain to be recorded, but the main thrust of the research has moved on to the metallic composition,

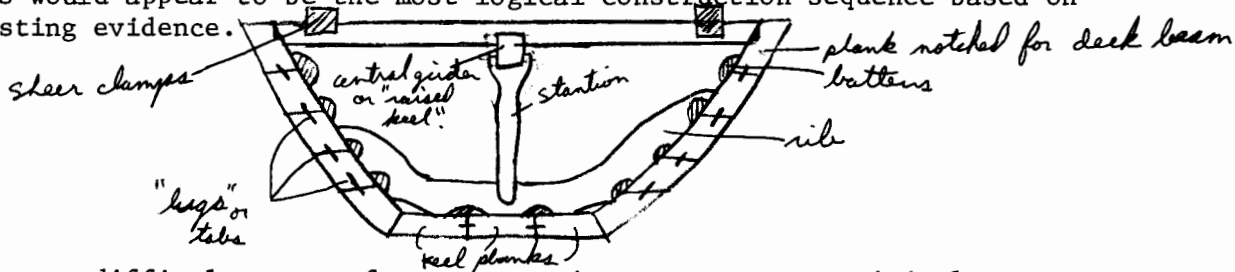
Seventy to eighty timbers were reshaped by steam-bending. They were wrapped in three to four layers of burlap and continually doused with boiling water over a period of two to three weeks. Once softened, the timbers were pulled back slightly towards their original shape each day.

It was not long after this process was completed for the third time that the ship's timbers were put into a storage shed to await completion of the museum building. Lack of climate control within the shed, poor shelving, and a particularly hot September led to extensive dessication; checking, cracking, and even total collapse.

As is stated in, but not clear from, Nancy Jenkin's book The Boat Beneath the Pyramid, the original plan was to draw each piece in scale, build and experiment with models and then work on the original timbers. For a variety of reasons, this plan was amended after a year or so. The drawing and modelling staff was drastically reduced. Hag Ahmed, having gained confidence from his studies with Nile boatbuilders, went to work on the timbers directly. The models were completed much later after the third and fourth reconstructions.

Reconstruction of the hull was largely a matter of jigsaw puzzle work -- the pairing of mortises and lashing holes being used as much as plank shape. After a plank's location was determined it would be steam bent to approximately the original curve, this being determined by the shape of its neighbor and fairness of line.

Assembly (lashing) was made easier by the existence of "lugs" and two sets of lashing holes. The larger set, some 4341 holes, were aligned in series so that one line could be led rail to rail. The smaller set, just 285 holes, were arranged in single pairs at critical points. It became clear that the smaller set could be used to set the hull up in the rough; bracing added to adjust plank alignment; mortises cut and lugs made to fit them; and the hull could then be faired. Seam battens could then have been fitted and the rail to rail lashings and ribs installed. This would appear to be the most logical construction sequence based on existing evidence.



The most difficult parts of reconstruction were, not surprisingly, those timbers that were simplest in shape and similar in dimension: deck beams, cabin walls, and columns for supporting the outer screen.

Best time line I could reconstruct from existing notes:

1954	Aug-57	Aug 58	July 59	Aug 64	July 68	March 71	March 82
discovery, excavation, measuring, treatment, restoration begins.	puzzle work, measuring, reshaping 1st reconstruction completed	adjustment of planks, reconstruction of cabin + screen 2nd reconstruction completed	Deck beams indicate that hull as rebuilt is too narrow. 3rd reconstruction corrects this. - Ship then dismantled for storage - Museum construction begins	a new restoration shed is built. Damage from poor storage restored & replaced. 4th reconstruction locates battens over seams for 1st line.	Ship dismantled, and rebuilt in museum	Museum repaired, rebuilt & modified. Opens to the public March 6, 1982	

During the first week of June 1966, some cement mixing machinery used in the construction of the museum building was operated while placed over the second boat pit. A large amount [unknown quantity] of water being used in its operation was running out onto the ground. In Hag Ahmed's words, "Tomorrow, if God wills it, when we open the second pit, we'll know how much, if any, leaked in. It may be like Russian salad (dressing) all over everything."

On an unrelated but cheerier note, in 1965 three ships were discovered in the Fayyoun oasis dating to the early 1800's. Although the discovery went unpublished, Hag Ahmed says he has the timbers from these vessels in storage. These craft dated as they are, might provide valuable information about Egyptian boatbuilding before the European influence took hold. From the few photographs I've seen, the vessels would appear to be in the 30+ foot range. One in particular has a planking system that echos existing evidence of the little known, transitional hulk!

It has become clear that Hag Ahmed's reports, photographs, negatives, and notes are badly in need of organization and cataloging. My translator, Gehanne Amin Abdel-Malek, has expressed an interest in doing this, but whether this will come to pass remains to be seen.

This report only outlines the major "new" information I have come across. The details now fill 150 pages of notes.

Respectfully,

Paul Lipke  
Cheops Ship Project

PL/mfl





TECHNOLOGICAL PLANNING PROGRAM  
Cheops Project.

DEVELOPMENT RESEARCH AND TECHNOLOGICAL  
PLANNING CENTER

CAIRO UNIVERSITY, SARWAT STREET, GIZA

مركز بحوث التفتية والتخطيط التكنولوجي  
جامعة القاهرة شارع شروت - الجيزة

Progress Report 3  
February 12, 1983

Delays, holidays and fundraising are the cause of the hiatus between reports two and three. Some real progress has been made, however. After two late November meetings, a third December 12th meeting produced a financial agreement on the basis of the 'per-hour' offer outlined in report #two [which see]. As a result, much of late December and early January was spent fundraising to meet the higher than expected costs. Between new pledges, half a dozen outstanding solicitations and cost savings in the Living Expense line item the Project should just break even! Better still, the long delays have come to an end (knock on wood) and serious progress has been made.

On February third Hag Ahmed Youssef and I had the first of our thrice weekly meetings. To date we have covered unpublished details of the discovery, excavation and a few aspects of restoration and reconstruction. [The next two weeks focus on the critical restoration process.] Perhaps the most interesting notes to date are as follows.

- 1) A few parts of the ship stacked near the walls and floor of the pit were severely damaged over the millenium by condensation working in concert with compression (weight of the timbers above) and the calcium in the limestone that makes up the plateau. Most of the parts were in near perfect condition, by contrast, when removed from the pit. The 23 years since excavation have left their mark in the forms of warping, distortion, checking etc. throughout the ship. We'll cover the details in the next two weeks.
- 2) Three pieces, roughly triangular in shape, could not be placed in the reconstruction. That is, no location could be found where they served any function or fit existing holes, markings, etcetera. [There is a chance I'll get to examine them later, and in any case the scale drawings will be available.] In any case, this confirms and defuses the rumour that the "ship is not all there, and some pieces were not used and were even thrown away".
- 3) The heiratic signs carved into the planks and seam battens by the fourth dynasty Egyptians to make reconstruction (by Cheops' spirit) casier number 1131 !! Earlier publications have indicated there were a few dozen. A full study of these would be a year or two's work for specialists in heirogyphics and ship construction.
- 4) The use of polyvinyl acetate to seal the timbers as they were excavated was to cause problems later when pieces distorted by 4,700 years of compression had to be rehumidified and reshaped. The PVA had to be softened and scraped off in these cases. An unanswerable question arises. How much vital information in the form of



~~TECHNOLOGICAL PLANNING PROGRAM~~  
Cheops Project

DEVELOPMENT RESEARCH AND TECHNOLOGICAL  
PLANNING CENTER

CAIRO UNIVERSITY, SARWAT STREET, GIZA

Progress Report #3, Page 2.

مركز بحوث التنمية والتخطيط التكنولوجي  
جامعة القاهرة - شارع شروت - الجيزة

tool and wear marks was lost in the process?

In the above items I have, of course, focused on the problems. The positive material has been published, in the main. Some new tidbits worth mentioning:

- 5) The Hag clearly refused to be rushed in his work by the political storm/pressure swirling around the ship. On one occasion he threatened to quit if a two week deadline was enforced. [In the end he was to quit five times for periods up to six months in the battles for control and authority.]
- 6) The excavation was successfully undertaken with the absolute minimum of equipment by Western standards.
- 7) The Hag seems very willing to talk about the problems created by the restoration shed and museum building's poor climate control, the many times the project had to be moved, and so forth.

I trust the sample contained in this report will dispell any doubts about the project's value. I confess that during the five months of negotiations and delays I often wondered what in heck I was doing here.

More news as its recorded!

Cheers,

*Paul*  
Paul Lipke



~~TECHNOLOGICAL PLANNING PROGRAM~~  
CHEOPS PROJECT

DEVELOPMENT RESEARCH AND TECHNOLOGICAL  
PLANNING CENTER

CAIRO UNIVERSITY, SARWAT STREET, GIZA

مركز بحوث التنمية والتخطيط التكنولوجي  
جامعة القاهرة - شارع شروت - الجيزة

Progress Report #4

March 27, 1983

The mettings continue, more or less on schedule. The principle areas and details have been covered. The remaining weeks will be spent drawing constuction plans and a set of lines plans, while tying up loose ends. Some tidbits follow...

Principal restoration methods (briefly):

Stabilization of the timbers was initially attempted with Bedacryl 221, but by 1955 polyvinyl acetate had become the preferred material; tests with the former proving unsatisfactory. PVA between 2.5 and 5.% of a solution that was largely acetone (90%) with small amounts of amyl acetate (8%) and DDT (2%) was brushed on repeatedly until visual inspection indicated that the timber surface was incapable of absorbing more.

Small cracks and fragments were filled and/or glued together with a paste made of animal glue, crushed limestone, natural pigments, water, and a filler. The latter was either sawdust of beechwood, "gazwareen" (a conifer I'm still trying to identify), or a powder made from scraps of the original timbers. These scraps came from patched or scarfed areas (see below) or from unidentifiable fragments at the bottom of the pit.

Fine cracks were filled with a paste of parafin and "allafonaya," the latter being, I believe, a petroleum based resin. (Am investigating.)

Badly dessicated areas were cut out and "new" wood was glued, scarfed, rabbeted, tenoned, pinned &/or splined to replace it. It was stained to match adjoining areas when visible to the public. The "new" pieces were cut from timbers salvaged from Cairo's repaired mosques. They averaged 1000 years in seasoning time and were of a variety of species, only one of which has benn identified to date.

and details of mining, smelting, casting and hammering of the adze blades. Inquiries are under way to see if I can get some copper ore, specifically malacnite, from some ancient mines in the Eastern Desert about 90 km from of Aswan.

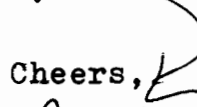
Though no complete adzes from the fourth dynasty are known, one complete one from the 18th dynasty conforms closely to the profile view of adzes shown in fourth dynasty reliefs. From this and other comparisons it would seem that there were two forms of the small, 9-12" adze; an older "hook" form, weaker and with a more acute angle between the blade and the handgrip than the inverted "v" form, which came into predominance perhaps around the eighth dynasty. One explanation may be that in the early dynastic times heavy work and <sup>even</sup> such lighter jobs — as shaping were carried out with the large adze (roughly four feet long according to reliefs) no complete examples of which have been found. This form could achieve the necessary strength in the handle and blade-mount by dint of the handle's greater diameter and the ~~less acute~~ blade to handgrip angle made possible by the different handle length and user's positioning.

Comments and criticisms regarding the tool project or negotiations with the Hag would be most welcome! For those of you not at MIT the best way to write to me is through Marcelle at the American University. Most letters get here in 7-10 days, though it is safest to retain a copy for re-mailing, as one or two have been lost.

Marcelle Lipke 90  
Office of Student Affairs  
American Univ. in Cairo  
P.O. Box 2511  
Cairo, Egypt

I've taken out an affiliation with the American Research Center in Egypt, their auspices being useful in dealing with the bureaucracy. It's not clear to me why they didn't suggest affiliation when I first contacted them\*—it would have made life MUCH easier— but as they were in the midst of changing directors and other <sup>major</sup> confusions, allowances must be made. They've certainly been of great help since.

Report number three will include a critique on borrowed typewriters of contemporary Egypt, with special emphasis on their suitability to non-typists, i.e.

Cheers, 



Paul Lipke  
Visiting Lecturer, MIT

\*Last summer



جامعة القاهرة - معهد ماساتشوستس للتكنولوجيا  
برنامج التخطيط التكنولوجي



CAIRO UNIVERSITY - MASSACHUSETTS INSTITUTE OF TECHNOLOGY

~~TECHNOLOGICAL PLANNING PROGRAM~~

Cheops Project

DEVELOPMENT RESEARCH AND TECHNOLOGICAL  
PLANNING CENTER

CAIRO UNIVERSITY, SARWAT STREET, GIZA

مركز بحوث التنمية والتخطيط التكنولوجي  
جامعة القاهرة - شارع شروت - الجيزة

Progress Report #5  
April 27, 1983

For once, I shall be brief. Hag Ahmed and I have met for the last time within the terms of the agreement. I have received his drawings of the ships construction details, he has received a copy of my lines drawing. We have cleaned up all the loose ends, and I have started on the first draft of the final publication. All has gone remarkably smoothly in the last month or so.

I will be returning to Boston, Massachusetts on or about May 23rd, 1983. I will be staying (and can receive mail and/or phone calls) at: 889 Watertown St, West Newton, Ma. 02165. Tel: (617) 244-2008 After about June 1st I will be resting for a month or so at: Box 95, Chilmark, Mass 02535 (617) 645-2214. "Resting" will, of course, include completing the manuscript and sending it out for criticism. Anyone of you who is masochistic enough to be interested in reading/reviewing the ms should let me know. Seriously, any comments will be most welcome.

I will be meeting informally with Hag Ahmed once more, and will continue to visit the Ship Museum to check my notes.

Hoping to see each of you soon,

Regards,

Paul Lipke  
Cheops Ship Project

CHEOPS PROJECT UPDATE  
September 17th, 1983

The manuscript of the final report, tentatively titled, The Royal Ship of Khufu; A Retrospective, is presently out for review. Professors George Bass, Richard Steffy and Frederick Van Doorninck of Texas A&M and Dr. Sean McGrail of the National Maritime Museum at Greenwich, England are undertaking this task. It is expected that all the red-lined copies will be back by mid-October so that the final draft can be in the mail to potential publishers by mid-November. At present these include the International Journal of Nautical Archeology and Greenwich's Maritime Monograph Series.

The manuscript runs 20,000 words and 65 illustrations including lines drawings, construction plans, planking diagrams and lashing diagrams. Architect Peter Schmid has been kind enough to conduct major surgery on 13 line drawings of mine so that they can be published.

In the interesting tidbits department: One of the oars to the Ship, made of Ostrya carpinifolia (hop hornbeam), has been calculated to have weighed 127 pounds when new! Anyone who has any ideas as to why the Ancient Egyptians would use one of the heavier woods known to man for an oar is requested to write to me soon. -It would appear that the deck structures, canopy, deckhouse, etc., were designed to be quickly removed and/or reassembled for versatility in cargo capacity. (Details upon publication.)

Paul Lipke  
MIT Cheops Project

A personal note: I am pleased to be able to say my new address is:

Paul Lipke  
Curator, Marine Department  
Plimoth Plantation  
Box 1620  
Plymouth, Ma 02360

(617) 746-1622

CHEOPS PROJECT UPDATE  
September 17th, 1983

The manuscript of the final report, tentatively titled, The Royal Ship of Khufu; A Retrospective, is presently out for review. Professors George Bass, Richard Steffy and Frederick Van Doorninck of Texas A&M and Dr. Sean McGrail of the National Maritime Museum at Greenwich, England are undertaking this task. It is expected that all the red-lined copies will be back by mid-October so that the final draft can be in the mail to potential publishers by mid-November. At present these include the International Journal of Nautical Archeology and Greenwich's Maritime Monograph Series.

The manuscript runs 20,000 words and 65 illustrations including lines drawings, construction plans, planking diagrams and lashing diagrams. Architect Peter Schmid has been kind enough to conduct major surgery on 13 line drawings of mine so that they can be published.

In the interesting tidbits department: One of the oars to the Ship, made of Ostrya carpinifolia (hop hornbeam), has been calculated to have weighed 127 pounds when new! Anyone who has any ideas as to why the Ancient Egyptians would use one of the heavier woods known to man for an oar is requested to write to me soon. -It would appear that the deck structures, canopy, deckhouse, etc., were designed to be quickly removed and/or reassembled for versatility in cargo capacity. (Details upon publication.)

Paul Lipke  
MIT Cheops Project

A personal note: I am pleased to be able to say my new address is:

Paul Lipke  
Curator, Marine Department  
Plymoth Plantation  
Box 1620  
Plymouth, Ma 02360

(617) 746-1622

CHEOPS SHIP PROJECT  
Progress Report

The last few months have proven productive. Copies of the manuscript sent out for criticism received prompt attention, and the comments made were all appropriate, cogent and helpful. The mss is now typed into its final draft and will be sent out for consideration by January 15th.

First choice as a possible publisher is the National Maritime Museum at Greenwich, England. Sean Mcgrail, their Chief Archeologist, has critiqued the work and has said he would be "delighted" to submit it to the Publication Committee for consideration as a monograph to be published before their November, 1984 Sewn Boats Conference. This is a first in international gatherings, this focus on Sewn Craft, and the possibility of publishing in time for it is very exciting indeed. Needless to say, I will probably be presenting a paper there regardless of whether they accept the mss for publication.

Lastly, as a result of the response to his drawings for the fourth draft, Peter Schmid has been asked to produce three additional drawings for the mss to be submitted to Greenwich! John Waterhouse of MIT's Hart Nautical Collection has kindly ~~offered~~ to run the stats on the Cheops Ship through their computer in the hope of getting some reasonable projections on hull stability, center of bouyancy, and so forth. Hats off to Peter and John for service above and beyond the call of reason, let alone duty!

Cheers,

Paul Lipke  
Cheops Ship Project

January 2, 1984