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

Mohammed Shata translating

He started repairing things at age 5, can now do 22 types of restoration. Starting in 1935, Hag Ahmed worked with George Reisner (MFA archeologist) for ten years. Began working for the Dept of Antiquities in 1932.¹

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 the next three years many people were consulted, but not Hag Ahmed. Between 1954 and 1957 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 boat building might be found, took (and developed) some 700 pictures of these details, and through friends in Luxor obtained many books on boatbuilding.² As a principal member of the Restoration section of the Department of Antiquities, 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 1957 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, the staff of the library helped by translating books on boats from French and English. He studied boat structure only, not use, dates, etc. The University of Chicago treated him as a "Professor". Not trusting translators, he also went to Cairo and read up (in Arabic) on boats to be certain the information 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, he 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 3,200 B.C. to A.D. 800.

The Department of Antiquities had begun to clear away the rubbish on the south side of Cheops in 1940. The rubble being some 230 meters long and 12 meters high, it took 13 years to complete. (See *The Boat Beneath the Pyramid* for details of Malaks discovery).

¹ Biographical note: Hag Ahmed considers his abilities to come from a special relationship he has with god. As an 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, believing that his skills were in himself. When he realized his error, and changed his attitude, the mask was rebuilt in 3 hours.

² University of Chicago Library at Luxor

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Hag Ahmed was placed 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 and canvas shutter. The blocks were moved on rollers. Pure gypsum was the material poured between the blocks in ancient times. Materials in the pit consisted of wood, mats and rope, and a few limestone blocks also.

There are 1224-1227 pieces (depending on the source of information), 11 of which were 23 meter 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 steaming 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. 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 713: and my rough illustrations. A rolling platform, suspended railway, allowed composite pictures to be made. A 3x31 meter grid recorded layer details (abc by 1,2,3,4,5,etc).

Dr. Zaki Iskander, chief chemist with the Department of Antiquities, applied the polyvinyl acetate. As Hag Ahmed claims that small pieces got an hours dunking, and large pieces 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 was repaired as follows. Exterior peeled off rotten interior, interior discarded. exterior fragments measured and dadoed to take a ½ by 1 foot lattice. On their inside face, these two are glued together with flour glue over a “plug” of the timber's original interior. Shell is then removed from plug and an ash/animal glue 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 laid over the exterior (on the non-original faces)³ (Written Note - I think sawdust and animal glue was 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 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 pictures. A third 1:10 model is under construction to be place in a 1:10 model

³ One of his assistants took the pure ash from a special barbecue business near the pyramids. The owner who had thrown it out charged 5p per ½ a kilo after catching the assistant taking ash one day.

of the pit, arranged in 13 layers to show the Ship as found. (Written note: my original drawing 1:100)

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

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

Notes on arrangements of sides of hull: three main sections each about 12 meters long, the sections had about 11 pieces each, see Jenkins 86. The keel section fit together fairly easily, having few parts, the main question being how much rocker to give it fore and aft. The final arrangement is 5 meters height at bow, 6 meters 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 pictures). 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 mortise and tenoned pieces were set up in various configurations, until 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 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 stanchions were identified and located it became apparent that the beam belonged above, not below these stanchions.

Notes from May 20, 1981: There were layers of matting between every other layer of boat in the pit. Hag Ahmed thinks the rope lashings were ordered cut by Cheop's first 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.) 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,..
2. 1208 motor /passenger vessel 4.15 , 2-3 men, fishing (nets), transport "feluca" type
3. 25-30' sailing, 2-3 men crew for freight (market boat)

Spanish windlas used to tighten lashings. Double walled cabin (cedar and mats) used as air-conditioning, 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 keeping away crocks and hippos while under way. *One oar had to be made new.*
Boat is

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almost all Lebanese cedar, with a few odd pieces of acacia, sidder (ziziphus spinar-christi) and a few other indigenous woods. The boat was arrange and rearranged four times before settling on the current configuration.

P. Lipke 7/10/81