AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
IRRIGATION AND HYDRAULICS DEPARTMENT

MORPHOLOGICAL CHANGES ON THE RIVER NILE BEFORE AND AFTER HIGH ASWAN DAM

By
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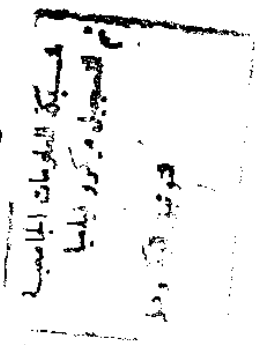

A Thesis
Submitted for the Fulfillment
of the Requirements for the Degree of
Master of Science
in Civil Engineering

Supervised by

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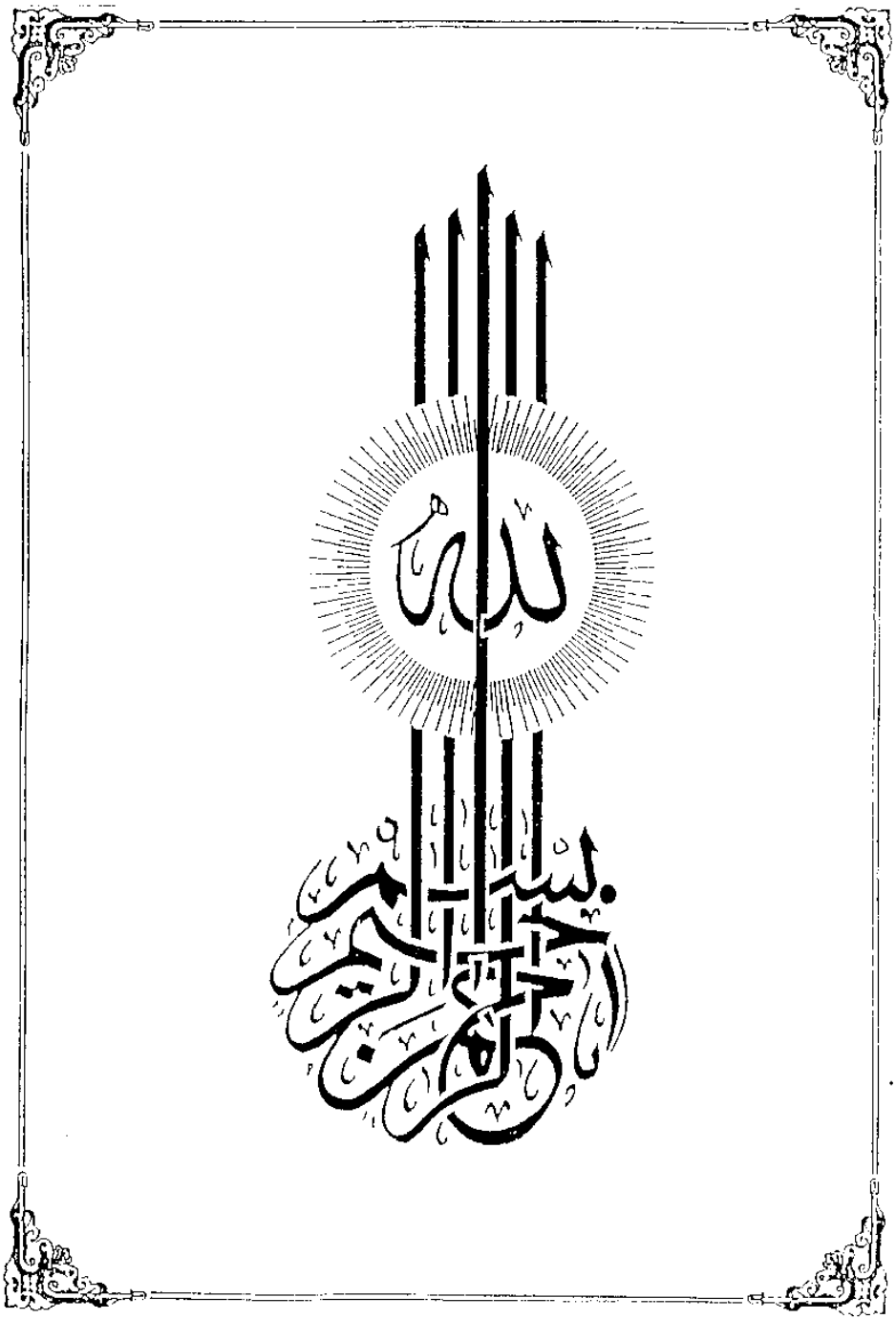
Cairo, Egypt
1998



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STATEMENT

This dissertation is submitted to Ain Shams University for the partial fulfillment of the requirements for degree of Master of Science in Civil Engineering.

The work included in this thesis was carried out by the author in the Department of Irrigation & Hydraulics, Ain Shams University, from June 1996 to September 1998.

No part of this thesis has been submitted for a degree or a qualification at any other University or Institution.

Date : November 2, 1998

Signature : Nahla. Elsaied

Name : Nahla El-saied Sadek

To the soul of my father

To my great mother

To my dear husband Ahmed

and my lovely children

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AIN SHAMS UNIVERSITY
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IRRIGATION AND HYDRAULICS DEPARTMENT

By: Eng. Nahla El-Saied Sadek
Title: Morphological Changes on the River Nile Before and After High Aswan Dam

Registration Date: June 1996 **Exam Date: 2/ 11/ 1998**

ABSTRACT

The main objectives of this study are to investigate the influence of hydrological and morphological changes on the different parameters such as channel plan form, islands formation, changes of channel length and width, meander parameters, development of meander, bends migration and erosion and deposition near the embankments. This study is focused on Rosetta Branch which is one of the Nile Delta two branches Rosetta Branch and Damietta Branch. The Rosetta Branch was selected to perform this study because of many reasons. First, Rosetta Branch is considered more sinuous and of different characteristics from those of the Damietta Branch and the River Nile. Also there were no similar studies available for the branch. There is a need for this study to develop the branch for navigation, and to protect water structures and river banks. Finally, this study can be used as a reference for future prediction of the morphological changes of the branch. This study used Caris (GIS) software to digitize and analyze hydrographic survey maps, hydrological data, and other types of data before and after HAD. The digitized maps were used to monitor morphological changes of Rosetta Branch. Computer programs were used to compile all types of data, make the necessary computations and analyze different parameters changes before and after HAD. Due to hydrological, environmental and morphological changes, it was observed that the areas of the islands in the branch were increased after HAD. Rosetta Branch is

tending towards a single channel after HAD construction due to many of islands are being connected to the main banks Also, khors along Rosetta Branch experienced some changes after HAD such as formation of some new khors and closure of some khors specially existing near the inner curves. The analyzed khor changes also include the geometrical changes of the existing khors. Some relations were derived to relate different meander parameters for Rosetta Branch.

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