hossam maghraby

# بسم الله الرحمن الرحيم

## مركز الشبكات وتكنولوجيا المعلومات

## قسم التوثيق الإلكتروني

hossam maghraby

# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

hossam maghraby


# بعض الوثائق الأصلية تالفة
# وبالرسالة صفحات لم ترد بالأصل

# GEOLOGY AND TECTONIC EVOLUTION OF THE AREA AROUND GABAL ABU FURAD, NORTHERN EASTERN DESERT OF EGYPT

A THESIS
SUBMITTED IN PARTIAL FULFILLMENT
FOR THE REQUIREMENTS OF THE MASTER
OF SCIENCE DEGREE
(GEOLOGY )

BY

**ALAA AHMED ABDEL KAWY MASOUD**
**(B.SC. GEOLOGY, EXC. HONS.)**

GEOLOGY DEPARTMENT
FACULTY OF SCIENCE
TANTA UNIVERSITY

1997

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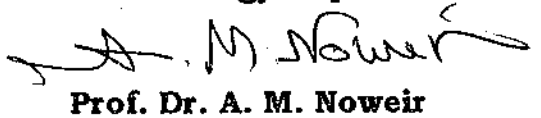
1997

*DEDICATED TO MY MOTHER*
*AND TO*
*THE SPIRITS OF MY FATHER AND MY NEPHEW*
*HAYTHAM*

# SUPERVISORS

| | |
|---|---|
| **Prof. Dr. M. K. Akaad** | Ex-president of Tanta University, Professor of Geology, Geology Department, Faculty of Science, Tanta University. |
| **Prof. Dr. A. M. Noweir** | Head of Geology Department and Professor of Geology, Geology Department, Faculty of Science, Tanta University. |
| **Prof. Dr. A. M. R. Abu El Ela** | Assistant Professor of Geology, Geology Department, Faculty of Science, Tanta University. |

**Head of Geology Department**



**Prof. Dr. A. M. Noweir**

# CURRICULUM VITAE

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**Head of Geology Department**

**Prof. Dr. A. M. Noweir**

# DECLARATION

I declare that the contents of this thesis haven't been submitted for any degree at Tanta or any other university.

**Alaa A. A. Masoud**

Geology Department, Faculty of science, Tanta University

# STATEMENT

Beside the research work materialized in this thesis, the candidate has attended the following courses for one year in the following topics:-

*1- FIELD GEOLOGY.*
*2- IGNEOUS PETROLOGY.*
*3- METAMORPHIC PETROLOGY .*
*4- ECONOMIC GEOLOGY.*
*5- GEOCHEMISTRY.*
*6- STATISTICS.*
*7- ESSAY.*
*8- GERMAN LANGUAGE.*

He has successfully passed the final examination of these courses held in September 1993.

**Head of Geology Department**

**Prof. Dr. A.M. Noweir**

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*Special thanks to* ***Prof. Dr. A. M. R. Abu El Ela*** *Assistant Professor of Geology, Faculty of Science, Tanta University, for introducing me to the area, for accompanying me during all of the field trips, for his kind supervision, wise guidance, great help during field work and petrographic examinations, fruitful and stimulating discussions, comments on earlier drafts of the chapters that greatly improved the quality of the thesis.*

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# CONTENTS

# Chapter ONE : INTRODUCTION

# CHAPTER ONE

## INTRODUCTION

### 1.1. Delimitation of the Area

The area around Gabal Abu Furad which forms the subject of the present thesis, is located in the southern sector of the northern Eastern Desert of the exposed Precambrian rocks of Egypt (Fig.1.1). It is named after the conspicuous mountain of Abu Furad which occupies the central part of the present map area.

The study area covers about 994 $km^2$ of the basement crystalline rocks. The central part of the district is traversed by the Qena - Safaga highway which runs in an E - W direction, leading from the Nile valley to the Red Sea coast.

The area under consideration is bounded by the following coordinates:
Longitude : 33° 28′ 15" - 33° 48′ 28" E.
Latitude : 26° 32′ 25" - 26° 48′ 42" N.

### 1.2. Physical Features

The conspicuous land features of the present area include the following mountains arranged roughly from north to south :

- Gabal Ras Barud (1339 m.a.s.l.).
- Gabal Abu Hawis ( 1046 m.a.s.l.).
- Gabal Um Taghir El-Foqani ( 900 m.a.s.l.).
- Gabal Abu Furad (1029 m.a.s.l.).
- Gabal Abu El-Diyab ( 479 m.a.s.l.).

The area under consideration is drained by three main wadies and their tributaries. These include W. Barud, W. Um Taghir and W. Safaga. W. Barud crosses the northern part of the area, trending roughly NW - SE and flowing southeastward. It opens into W. Um Taghir along which the Qena - Safaga highway ( about 160 km ) is laid at km. 10 from Safaga. It had a very wide sandy plain striking Gabal Ras Barud from the south. It also opens into W. Um Taghir at km. 38 from Safaga. W. El-Barud El-Abiad is a tributary of W. Barud. W. Safaga crosses the southern part of the present district, trending roughly E-W and flowing eastwards to the Red Sea. Between W. Safaga and W. Um Taghir the studied area is drained by W. El-Bula, W. Abu Furad and W. Abu Maya. Both of W. El-Bula and W. Abu Furad flows into W. Safaga, whereas W. Abu Maya flows and opens into W. Um Taghir. The southern part of the map area is drained by W. Talet El-Zarga and W. Abu Marawat El-Rayan. Water resources of the studied area include Bir Ras Barud, Bir Abu Maya and Bir Abu Marawat.