

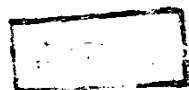
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THE STRATIGRAPHY OF THE CRETACEOUS- LOWER TERTIARY OF THE SOUTHWESTERN REGION OF THE GULF OF SUEZ-EGYPT

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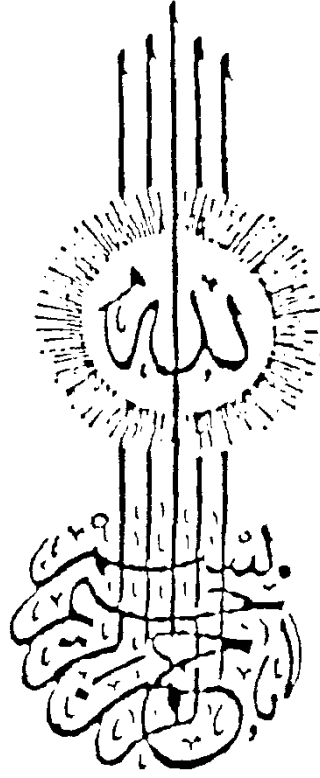
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وَقُلْ اَعْمَلُوا فَسَيَرَى اللّٰهُ عَمَلَكُمْ وَرَسُولُهُ وَالْمُؤْمِنُونَ
سَتَقْبِلُ اللّٰهُ الْعَالِمِينَ



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ABSTRACT

The present work deals with the stratigraphy of the Cretaceous - Lower Tertiary rocks in the southwestern part of the Gulf of Suez region. This study was achieved by measuring six stratigraphic sections covering the study area to delineate the Upper Cretaceous - Lower Tertiary boundary. The main part of this work was devoted to paleontologic and stratigraphic investigations which represent the best tools for stratigraphic correlation between different regions. The highly fossiliferous rock units are dealt with paleontologically, while the poorly fossiliferous ones are dealt with lithologically by correlation with other areas. The identified microfossils (planktonic and benthonic foraminifera) are illustrated by using the Scanning Electron Microscope (SEM) photographs, while normal photography was used for macrofossils.

The paleoecologic studies include the quantitative evaluation of the foraminiferal assemblages (planktonic and benthonic) and the graphical representation of the numerical results which reflect a clear view about the paleoenvironmental conditions that prevailed during the deposition of the different rock units.

Structural studies were also discussed generally by using photogeological interpretation and field observations. A photogeologic map for the study area was constructed and was checked in the field. The geologic history of the study area was deduced by using all the information obtained from the paleoecological, stratigraphical and structural studies.

Finally, a taxonomic discussion was introduced for the foraminiferal species and includes some remarks for each species and its stratigraphic distribution (universally and in the study area), as well as a range chart for each measured stratigraphic section.

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CHAPTER I

INTRODUCTION

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1

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INTRODUCTION

1. Generalities

The present study deals with an area located in the southwestern part of the Gulf of Suez region. The study area includes Gebel Esh El-Mallaha, Gebel Gharamul and Gebel El-Zeit. The area under study lies between latitudes $27^{\circ} 30'$ and $28^{\circ} 03'$ and longitudes $33^{\circ} 05'$ and $33^{\circ} 35'$ and covers a surface area of approximately 4000 square kilometers (fig. 1). The Cretaceous-Lower Tertiary rocks in the world (generally) and in Egypt (specially) end a period of drastic events. The Cretaceous-Lower Tertiary rocks have been selected for this study because of their stratigraphical importance. The greater part of this work was devoted to paleontological stratigraphical investigation because this is the best tool for stratigraphic correlation between different regions.

It is interesting to mention that in the last years, Cretaceous sediments in the Gulf of Suez area took a particular attention from petroleum geologists. The Duwi Formation (phosphate-bearing Campanian rocks widespread in southern Egypt and often termed "Brown Limestones" in the Gulf of Suez region) is nowadays considered to be an important source of hydrocarbons in the region (ROBERTSON Report, 1986). In the past, it is well known that the only major source rocks for hydrocarbons in this part of Egypt was the Miocene "*Globigerina* Marls" sediments (SAID, 1962). This explains why the Cretaceous rocks were relatively neglected and the Miocene attracted the attention of geologists. The study of the Pre-rift sediments plays an important role in understanding the Pre-rifting geology of the Gulf of Suez region.

The area under study has different rock units, some of them are highly fossiliferous and the others are poorly fossiliferous. The rich fossiliferous units are dealt ^{with} paleontologically, while the poorly fossiliferous ones are dealt with ^{by} correlation with other areas depending on the prominent features which characterize these units. The study area was subjected to some tectonic events during the geologic ages. These events resulted some complicated structures and affected the rock units distributed in the region.

2. Methodology

The author directed his efforts to deal with the salient points in the area under study :

