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GEOLOGICAL AND GEOPHYSICAL STUDIES ON SOME
LOWER CRETACEOUS SEQUENCES IN THE
NORTHERN PART OF THE WESTERN
DESERT, EGYPT

THESIS

Submitted for the Degree of
DOCTOR OF PHILOSOPHY
IN GEOLOGY
"APPLIED GEOPHYSICS AND SUBSURFACE GEOLOGY"

23 694

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1986

ACKNOWLEDGEMENTS

The author's thanks is due to Professor Dr. M. G. Barakat, Head of Geology Department, Faculty of Science, Cairo University, for his supervision, senior advice, constructive discussions and valuable leading comments during the preparation of this research.

My special thanks are due to Professor Dr. A. M. Sabri, Geology Department, Faculty of Science, Ain Shams University, for his continuous encouragement and guidance during the preparation of this thesis.

I would like to thank Dr. M. A. M. El Hefnawy, Ass. Professor of Geology, Faculty of Science, Al-Azhar University, Dr. M. Darwish, Ass. Professor of Geology, Faculty of Science, Cairo University and Dr. A. M. A. El Sayed, Lecturer of Geology, Faculty of Science, Ain Shams University for their unfailing assistance and fruitful discussions.

The author - also - acknowledges the authorities of E.G.P.C and G.P.C for providing the core and ditch samples and the unpublished materials upon which this thesis is built. Without their generous help, this work would not had been accomplished or achieved.



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CHAPTER I

INTRODUCTION

Location :

The Western Desert covers an area of about 700,000 sq.Km, about two thirds of the surface area of Egyptian territory. The northern region extends over an area of about 250,000 sq.Km. The study area comprises about 45,000 sq.Km being marked by Latitude $29^{\circ} 50'$ and $31^{\circ} 40'$ N and Longitude $25^{\circ} 00'$ and $28^{\circ} 00'$ E (Fig. 1). It is bounded from the north by the Mediterranean Sea and delineated from the west by the Egyptian-Libyan border. This district forms a part of the Egyptian mobile shelf (Said, 1962).

In general, the surface of the study area is a featureless plain covered by the northerly gentle dipping Tertiary succession characterized by a wide regional extent and reasonable lithological uniformity (Zittel, 1883).

Exploration History :

Exploration activities were carried out by different operators in the study area and the neighbouring district since 1940 when the Anglo-Egyptian Oilfields (AEO) drilled the Daba exploratory well outside the study area on the coastal belt.

The first detailed gravity, magnetic and seismic surveys were conducted in some parts in the study area by

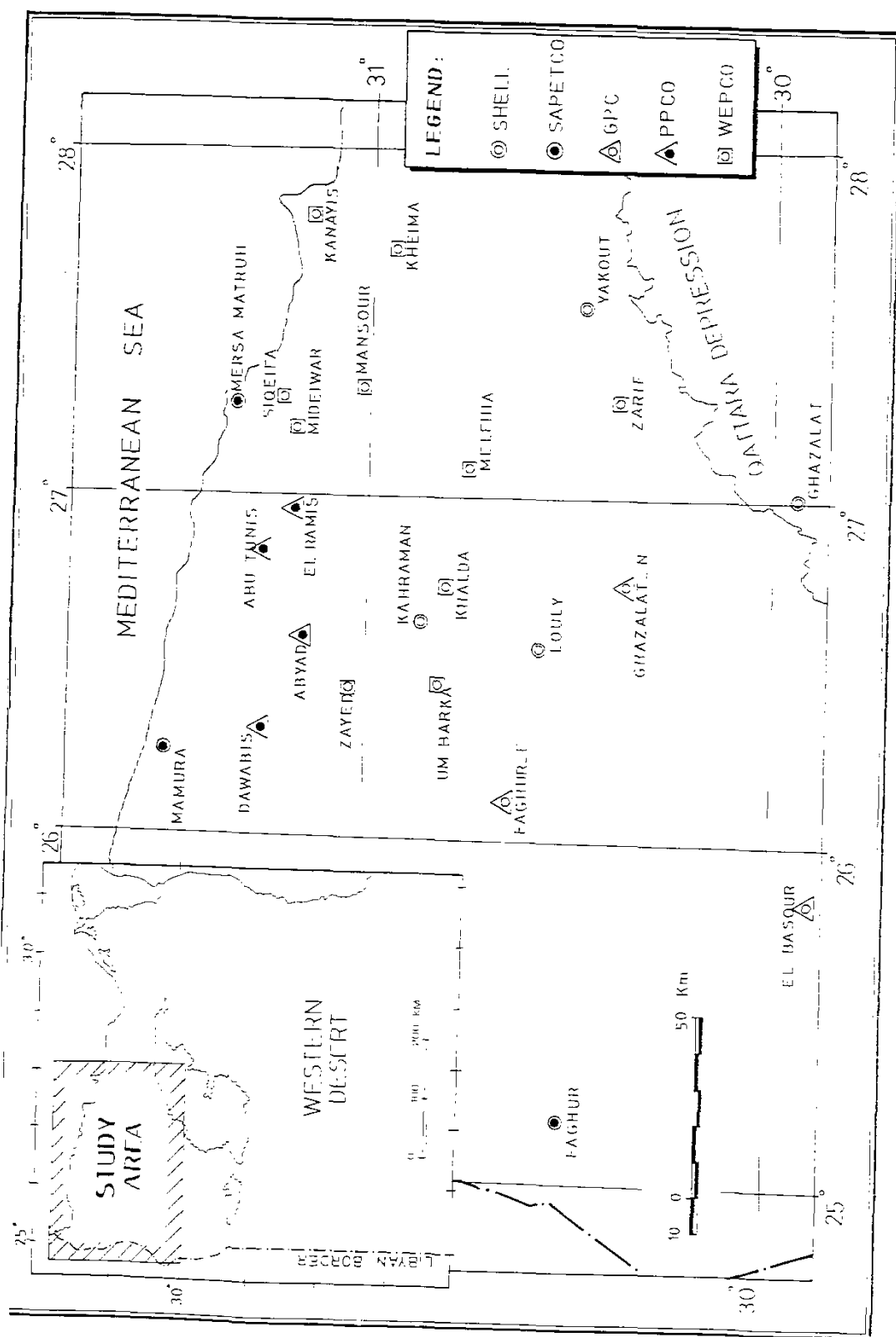


Fig.(1) Location Map

the Sahara Petroleum Company (SAPETCO) during the mid and late fifties. These geophysical prospecting methods were used in an attempt to define the deep seated trends and elucidate the configuration of the Basement Complex.

From 1954 to 1958 SAPETCO drilled nine wells in northern Western Desert, four of them in the study area; Mersa-Matruh well during 1956 and Mamura, Ghazalat and Faghur wells during 1958 (Fig. 1). Despite the negative results from the hydrocarbon point of view, they provided valuable subsurface information relevant to the geological set up of the region.

By the advent of 1964, a vast stretch of the northern half of the study area was covered by detailed seismic work using dynamite as a source of energy. This work resulted in approximately 5 x 5 Km closed loops of seismic lines. Due to the difference in reflection quality from one area to another, the quality of the seismic data obtained ranges from feeble to fair.

During 1968 Phillips Petroleum Company (PPCO) drilled Abu-Tunis, Abyad and El-Ramis exploratory wells and Dawabis well in 1969. These wells did not achieve economic results concerning oil accumulation.

In 1969, the Western Desert Petroleum Company (WEPCO) discovered the Um Barka oil pool. After the Um Barka oil