CHAPTER (I)

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1. General statement:

The present dissertation deals with the stratigraphy and geological history of the Pliocene sediments exposed between Kafr Dawoud [lat. 30° 28¯ N and long. 30° 49¯ E] on the western fringes of the Nile Delta in the north and Sedmant El Gebel [lat. 29° 08¯ N and long. 30° 54¯ E] in the south (figure 1). Small outcrops of Oligocene and Miocene were identified at the southern part of the Giza Pyramids Plateau. The Quaternary section covers the area between the Nile in the east and the Oligocene – Neogene sediments in the west. Though most of the Quaternary sediments lie now within the cultivable fields yet still a relatively thin dissected linear belt flanks the plantation to the west.

Topographically, the area studied for the most part is characterized by relatively low relief exposures. It is only in El Khatatba area, that a notable relief is present, where the clastic scarp rises about 30 m above the cultivation edge. In the Pyramids Plateau, the scarps overlook the lowland including the green fields with a difference in elevation of approximately 35 to 50 meters. Further south, at Monshaat Kaseb, Kafr Hemyied and Tahma villages, quarrying of the black clays led to the formation of a considerable size depression 1.50 km^2, located *ca* 100 m below the surface of the main desert.

In addition to its great historical importance as it includes many pyramids, temples and tombs, this area gained more economic importance since the establishment of many quarries; such as the quarries of sands and gravels in areas of Dahshour, Sedmant El Gebel, El Khatatba, Kafr Dawoud and many others, which are exploited for building purposes. Moreover, there are many quarries of black clays (e.g. Southwest of Beni Youssif, Monshaat Kaseb, Kafr Hemyied, and Tahma) used for brick

industry. The stratigraphy of these black clays was overlooked by previous workers, never gained an importance in the chronological sequence of the Egyptian stratigraphy before the present thesis. There is also a petroleum oil field belonging to the Gulf of Suez Petroleum Company (GUPCO) near Dahshour town.

The Giza - Fayium divide has witnessed a lot of developments; many parts of the desert have been reclaimed, many farms have been created and a lot of important and beneficial projects have been set up. Besides, many new cities such as 6th October City and El Sadat City have been established to house the growing population plus being major industrial centers.

The Giza district has its military importance as it includes several army camps and training centers such as Dahshour and Beni Youssif camps. To sum up, the great importance of the studied area as one of the vital places in Egypt is obvious.

2. Aim of study:

The present study aims to throw more light on the stratigraphy and on the geological history of the western fringes of the Nile Delta - Lower Nile Valley stretch. To recapitulate, the main targets of this work can be outlined in the following points:

1. To establish a map of the different rock units exposed in the study area.
2. Measuring several stratigraphic sections.
3. Identification of the fossils collected from the measured sections.
4. Analysis of the clastic sediments to recognize the different heavy mineral associations.
5. To interpret the data obtained in a synthesis aiming at building the geological history of the study area and to integrate this history into a global context.