CHAPTER 8

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The present work is a stratigraphic studies of the Oligocene sediments on four wells (Abu Tunis IX, East Faghur-1, Khalda-1 and N. Ghazalat-1), located in the Northern part of the Western Desert, Egypt.

The Oligocene section in Khalda-1 and North Ghazalat-1 is represented by upper unit known as Shoushan Formation (mainly limestone) and lower unit is called Alam El Buieb Formation (calcareous shale). In Abu Tunis IX the only represented formation is (Alam El-Bueib). In East Faghur I the Oligocene section is composed mainly of limestone (Shoushan Formation).

49 foraminiferal species and 14 Ostracoda species have been studied in details and illustrated in plates.

The planktonic and benthonic larger foraminifera and ostracoda were very useful for establishing the biostratigraphic zonation.

The following are the foraminiferal biozones arranged from younger to older :

4. Miogypsinoides complanatus/Lepidocyclina spp Zone (In Khalda well No. 1).
4. Lepidocyclina (Eulipidina) undosa Zone (In North Ghazalat-1).
4. Nummulites intermedius Zone (In East Faghur well No. 1).
3. Globorotalia opima opima Zone (In Khalda 1 & North Ghazalat-1 & Abu Tunis IX).
2. Globigerina ampliapertura Zone (In Khalda-1 & North Ghazalat-1).
1. Cassigerinella chipolensis/Pseudohastigerina micra Zone (In Khalda-1 & Abu Tunis IX).

According to Ostracoda :-

2. Neocypredeis spp Zone (Oligocene) (In Khalda-1 & North Ghazalat-1 and East Faghur-1).
1. Trachylebris nodosus nodosus Zone (Middle Eocene) (In East Faghur-1).

Conformable relationship between Upper Eocene and Lower Oligocene sediments in Khalda well No. 1 and North Ghazalat well No. 1. While in East Faghur well No. 1 and Abu Tunis well No. IX there is unconformity surface between the M. Eocene and Oligocene, as the Upper Eocene eroded and the Oligocene has deposited directly on Middle Eocene with unconformity surface between them.

Fig. 20 : It shows the relation between X and Y_2 in Lepidocyclina spp.

X : Diameter of protoconch + Diameter of Deuteroconch.

Y_2 : Width of the species.

It is noticed that there is reliable positive linear correlation without interdependency, but completely dependency between the X & Y_2 variables.

Fig. 21 : Shows the relation between X and Y_1 in Lepidocyclina spp.

X : Diameter of protoconch + Diameter of Deuteroconch.

Y_1 : Diameter of protoconch.

From this relation it is noticed reliable positive linear correlation with little interdependency between X & Y_1 variables.