MICRO-FOSSILIFEROUS ZONES OF THE EOCENE-OLIGOCENE SECTION OF NORTHERN MEXICO-SOUTH TEXAS

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This paper is based upon an investigation of the stratigraphic range of microscopic fossils obtained from samples of the Zacate Well No. 2, located 50 mi. south of Laredo, Texas, near the town of Zacate, Mexico. Samples of cuttings were recovered at 10-ft. intervals from the surface to a depth of 6,180 ft. These samples were washed individually and the microscopic fossils, Foraminifera and Ostracoda. picked out and mounted; a separate slide for every sample. From this suite of slides a "first occurrence" range-chart was constructed, an abbreviated form of which is presented in Table I. The term "first occurrence" as used in this chart

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indicates the stratigraphic position of first appearance of a given fossil as encountered by the drill and not its first appearance in the stratigraphic section. Accordingly, this so-called "first occurrence" chart actually indicates the stratigraphic position of disappearance of a given form by reason of change of environment at time of deposition or subsequent erosion.

The upper 210 ft. of the section involved contains no recognizable fossils. This section represents non-marine Frio member of the Oligocene? The first micro-fossiliferous zone recognized by the writers was encountered at a depth of 210 ft. It contains Lenticuling vicksburgensis, Nonion umbilicatulum (small), and Eponides affinis. This zone marks the top of the Mint Springs member of the Vicksburg Oligocene. The second zone is characterized by the appearance of PVrulina cuspidata and Discorbis of subauricana. This zone occurs within the Mint Springs member at 220 ft. The third zone includes Anomalina bilateralis (large) and Lenticulina convergens, marking the top of the Red Bluff member of the Vicksburg Oligocene at 420 ft. The zone of Lepidocyclina sp., Nonion umbilicatulum (large), Brachycythere triangularis, and Hemicristellaria sublituus occurs within the Red Bluff at 540 ft. The zone of Lenticulina guttacosta and Bulimina ovata (large) occurs at a depth of 610 ft. near the base of the Red Bluff. The sixth zone of "first occurrence" at 830 ft. includes Lenticulina guttacosta var cocoaensis. Discorbis jacksonensis, and Uvigerina jacksonensis. Economic paleontologists consider this zone as marking the top of the Jackson Eocene or Whittsett member. The zone of Marginuling cocoaensis and Cassidulinoides brazilensis occurs within the Whittsett at a depth of 970 ft. The eighth zone is marked by the first appearance of Textularia hockleyensis. This fossil, which occurred at depth of 1,340 ft., is one of the most widely known microscopic fossils of the gulf costal section. It marks the top of the middle Jackson Eocene or McElroy member. The ninth zone is characterized by the "first occurrence" of Textularia dibollensis, the marker for the lower Jackson Eocene or Caddell member. This marker first occurs at a depth of 2,140 ft. The final zone presented in this section contains; Nonionella cockfieldensis, Glandulina laevigata var ovata, Cytheretta cockfieldensis n. sp., and Textularia dibollensis var dumblei. These fossils mark the top of the Cockfield Eocene at 3.710 ft.

Epoch	Age	Member	Depth	Thickness
		Frio	0 - 210	210
Oligocene	Vicksburg	Mint Springs Red Bluff	210 420 420 810	210 890
Locens	Jackson	Whittsett McElroy Caddell	810 — 1340 1340 — 2140 2140 — 3710	530 800 1570
	Claiborne	Cockfield	3710 - 6180	2470

From this information the following summary is presented:

The writers extend appreciation to George Boyle of Mission, Texas, for furnishing the well samples used in this study and to R. L. Denham of the King-Wood Oil Company for assistance in picking out and mounting the microscopic fossils.