Two earlier river channels of the Colorado River are known. One flowed into Matagorda Bay in the vicinity of Tres Palacios Creek. The other flowed, together with the Brazos River, into a large bay that occupied eastern Matagorda and western Brazoria Counties, Texas. Extensive deposition by these two rivers filled this bay and their combined delta advanced into the Gulf in the vicinity of Freeport. Any barrier beaches that were in front of the bay were buried by these sediments.

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HISTORY OF APALACHICOLA RIVER DELTA AREA, FLORIDA

The Apalachicola River and its tributaries have delivered significant quantities of sediment into the northeastern corner of the Gulf of Mexico since early Tertiary time. The location of a major drainage outlet in the Alabama-Florida-Georgia tri-state area must be a matter of structural control, inasmuch as well-developed Cretaceous cuestas across southern Alabama and Georgia divert important drainages either toward the east (Atlantic Ocean) or the west (Alabama River system, draining into Mobile Bay). The early Tertiary predecessor of the Apalachicola River may have been located about 75 km. east of the present river.

The modern gorge of the Apalachicola has been occupied since perhaps middle Miocene time, when a previous estuary (in an important graben or half-graben) was completely filled with sediment. The Mio-Pliocene river built three or four cuspate deltas, at elevations of about 80, 50, 35, and perhaps 25 m. Three of these still exhibit relic offshore-flat, barrier-island, and drained lagoon topography.

Clear evidence is present in the area for Pleistocene sea-levels at 9, 6, 0, and −2 m. During the Pleistocene, the Apalachicola dammed the mouth of the Chipola River with sediment, forming Dead Lake, and almost completely filled a large estuary near the village of Apalachicola, leaving Lake Wimico and East Bay as remnants. Many of the features of the modern cuspate delta (including offshore shoals) have been formed, and reworked, as sea-level moved up and down during the Pleistocene. One of these features, an as yet inadequately explored and filled channel perhaps 35–40 m. deep, is under the present course of the river.

The low wave-energy level in the northeastern corner of the Gulf of Mexico—much like that along geosynclinal coasts of the past—is responsible for preservation of many delta characteristics which probably would have been eliminated if breaker heights had been typical of an open ocean.

Subtle structural deformation, still continuing in the delta area, partly controls the overall delta outline as well as many of the details. The prime structural trend in the area is N. 50° E.; there is less evidence for linears striking approximately N. 70° W.

ABSTRACTS OF PACIFIC SECTION PAPERS

April 9 and 10, 1964, Los Angeles, California

THOMAS A. BALDWIN, Humble Oil and Refining Company, Los Angeles, California

ISLAND OF FREEDOM

A dilemma faces geologists in the scientific societies. How can we cope with our need for improved professional status without tending to destroy scientific freedom through increased regulation? Members of the Association of Engineering Geologists have vigorously sponsored a state licensing law to regulate their field. Geologists in the other specialties feel that this legislation would divide the profession and hinder free scientific opportunity. Several Societies have condemned the proposed bill. The Pacific Section A.A.P.G. has led these groups toward more forceful action. The facilities of our Society have been used to organize an inter-society committee for the purpose of writing a registration law acceptable to all geologists. After the new committee was operative the Pacific Section stepped out of the picture and invited the American Institute of Professional Geologists to sponsor the activity.

These Pacific Section actions were necessary under the stringent circumstances, but the result of the action will be a regrettable increase in regulation. Disassociation from this activity was accomplished at the earliest possible moment. Long-continued or often-repeated professional activity would invite surveillance and regulation of our scientific society by governmental and corporate bodies. Many leaders of the Pacific Section feel that professional activities may occasionally be necessary but are always regrettable.

We should strive to keep the American Association of Petroleum Geologists an island of scientific freedom in the sea of professional regulation.

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DISTRIBUTION OF FORAMINIFERA AND SEDIMENTS, PERU-CHILE TRENCH AREA.[1]

Nineteen trawl samples and 13 trigger cores were collected between depths of 179 and 6,250 m. in the Peru-Chile trench area off the western coast of South America. Sediments are mainly olive-green silt, clay, and colloidal material; however, four cores contain significant amounts of either sand-size Foraminifera or shale fragments, and one of these cores is mainly white volcanic ash. Values for organic carbon and nitrogen are much higher in the bathyal than in the abyssal zone. Sediment grain sizes do not exhibit definitive trends with either water depth or distance from shore.

Calcium carbonate content decreases sharply below 3,500 m., reflecting reduced quantities of calcareous Foraminifera in the trench. Deeper than 1,500 m., radiolarians are commonly more than twice as abundant as Foraminifera. Foraminifera larger than 0.5 mm. were concentrated in the trawl samples and below 1,000 m. are dominantly arenaceous. Among smaller Foraminifera, calcareous forms predominate down to 2,000 m.; at greater depths calcareous- arenaceous ratios fluctuate greatly. Planktonic foraminiferal tests are most abundant in the bathyal zone.

Bathymetric foraminiferal zonation is based upon upper limits of occurrence for both the larger live

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