

and are absent on most bedding planes even there, although conditions for preservation appear to have been favorable in the Ventura Basin, as fine laminations, slump structure, etc., have been perfectly preserved. This strongly indicates that the currents forming the ripples were not a normal feature of the circulation in the deep, ancient basin, or even the result of occasional basin-wide occurrences such as tsunamis, but that they were restricted to the same environment as the conglomerates and occurred only occasionally. This leads us to suggest that the ripple-forming currents were dilute turbidity currents, of sufficient velocity to move a light bed load by traction, but not able to lift an appreciable amount of sediment from the sea floor. Outside the area of the conglomerates, such currents did not develop. The only reason the authors can suggest is that the conglomerates were deposited in or at the lower end of a submarine valley. The walls of this valley, by hemming in a dilute turbidity current, would prevent lateral spreading. In this manner, a large hydraulic radius would be maintained, resulting in a higher velocity than on a wide slope where a spreading and thinning dilute turbidity current would creep

slowly down slope, unable to ripple its floor.

CONCLUSIONS

1. The faunas indicate that the lower Pliocene was laid down in water 4,000 to 5,000 feet deep, and that—from that time to the present—a gradual shallowing to sea level, of the waters over the basin, took place.

2. The conglomerates and graded sands of the lower Pliocene were deposited at depths greater than 4,000 feet. The sands and conglomerates of younger formations were deposited in progressively shallower water toward the Recent.

3. The distribution of redeposited foraminifera in the section points to a continually uplifting northern marginal area and a downwarping central area. The tilting accompanying this process created slopes favorable for the generation of turbidity currents and landslides.

4. The emplacement of the graded sands in the deep water appears to have been accomplished by the action of turbidity flow, rather than by other currents of non-turbid origin.

5. The conglomerates of the Pliocene were deposited by submarine landslide action.

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