CORRECTIONS TO VOL. 129, *SCIENTIFIC RESULTS*, ODP *PROCEEDINGS*, PAGES 618–619

In a paper by R.L. Larson, M.B. Steiner, E. Erba, and Y. Lancelot, entitled "Paleolatitudes and tectonic reconstructions of the oldest portion of the Pacific plate: a comparative study," Figures 3 and 4 were incorrect as published on pages 618 and 619 of SR Vol. 129. Pages 618 and 619 of SR Vol. 129 (Larson, R.L., Lancelot, Y., et al., 1992) are reproduced on the following pages as they should have appeared, with the correct Figures 3 and 4.

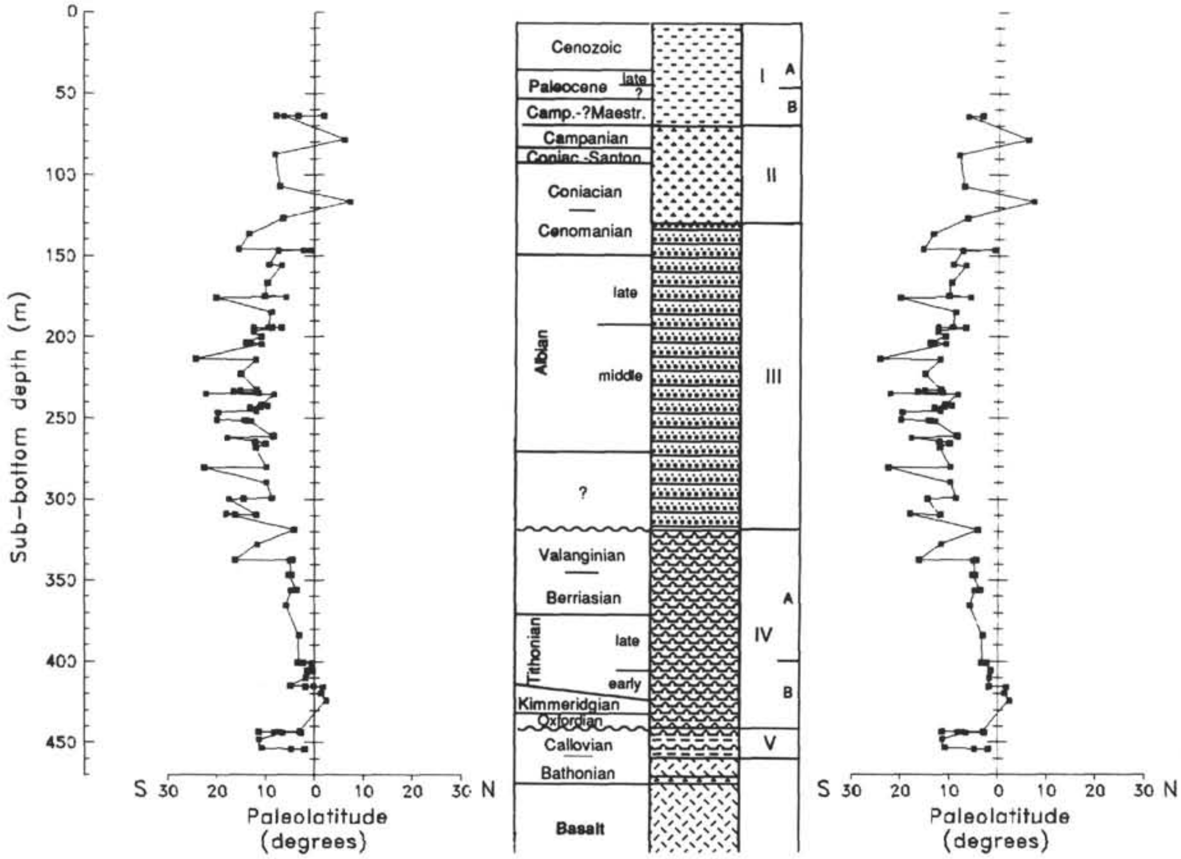

Figure 3. Site 801. Stratigraphic plot of paleolatitudes (from Steiner and Wallick, this volume). Left: Paleolatitudes from each sample in the categories judged most reliable and slightly less reliable (see Steiner and Wallick, this volume, for discussion). Right: most reliable samples only. Paleolatitudes in degrees north (N) and south (S) of the equator (0).

Pringle, 1988). Two solutions, labeled "no anomalous skewness" and "anomalous skewness," account for a discrepancy in the skewness data that occurs mainly before M10 (~130 Ma). Confidence lunes for the Phoenix lineations do not intersect lunes for the Hawaiian and Japanese lineations for these older anomalies, suggesting either that anomalous skewness is a significant factor, or that another plate (called the "Stealth" plate by Larson and Sager) is involved in the solution labeled "no anomalous skewness" on Figure 5. This discrepancy does not significantly affect the paleolatitude histories of any of the Leg 129 sites. The "no anomalous skewness" solution for 122 Ma (anomalies M0 to M4) is essentially a confirmation of the same pole location calculated by Cande and Kent (1985) and Gordon (1990) for these anomalies with the same technique used by Larson and Sager (this volume).

These paleolatitude plots, like those from the remanent sediment inclinations, show that the portion of the Pacific plate containing the Leg 129 sites was in the Southern Hemisphere from the Kimmeridgian (Late Jurassic) to approximately the end of the Cretaceous. They show a pattern of southern movement from very low (5°–10°S) southern paleolatitudes in the Late Jurassic to a maximum south paleolatitude during the Barremian-Hauterivian. No skewness data are available for the Cretaceous Normal Polarity Superchron from the Aptian through the Santonian, but northward Pacific plate motion is clearly recorded in the sediment inclinations of the Aptian interval.

Paleontological data only partially reflect this plate motion during the Late Jurassic and Early Cretaceous. The position of Site 801 close to the paleoequator during the Late Jurassic is possibly reflected by nannofossil assemblage composition. While nannofossils are scarce, they suggest high-fertility conditions. In fact, both *Biscutum constans* and *Zygodiscus erectus* are relatively abundant (Erba and Covington, this volume) and possibly indicate the paleo-upwelling belt. The motion southward through the Late Jurassic and Early Cretaceous should be reflected by nannofossil and radiolarian distribution and by the sedimentary regime as well, but it is not. We would expect increases in calcareous nannofloras accompanied by a decrease in siliceous plankton, and calcareous sediments should become progressively more important. However, most of the Lower Cretaceous sequences at Sites 800 and 801 consist of radiolarite and claystone that yield abundant radiolarians and are barren of calcareous nannofossils. This is not a reflection of the general evolutionary trends of nannofossils, because these forms became numerous and a major carbonate producer in the latest Jurassic (Roth, 1986, 1989). This evolutionary pattern continued through the Early Cretaceous. The biogenic composition of pre-Aptian sediments is most probably controlled by paleoceanographic conditions favorable to preservation of siliceous organisms over calcareous forms, and not by the paleolatitude history. Dissolution of carbonates deposited beneath the 3000–4000-m deep carbonate compensation depth (CCD)

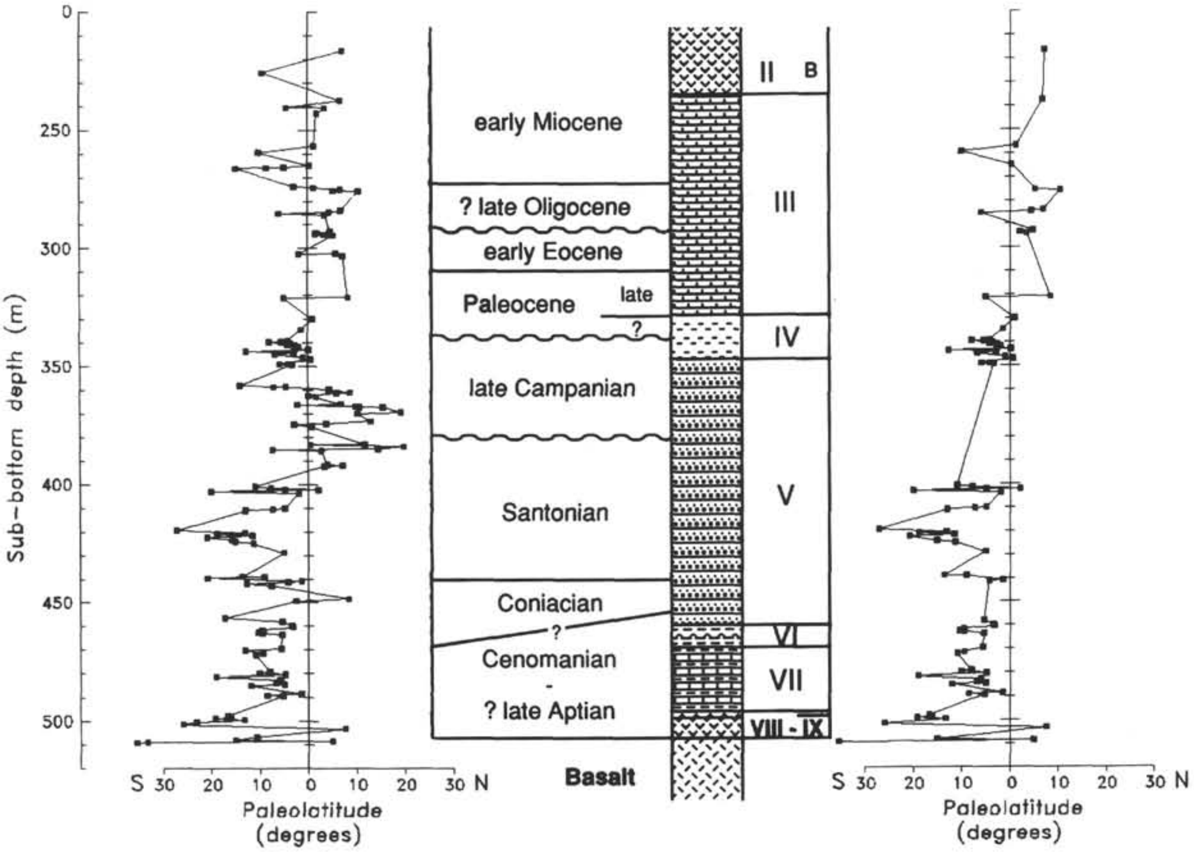

Figure 4. Site 802. Stratigraphic plot of paleolatitudes (from Steiner and Wallick, this volume). Left: Paleolatitudes from each sample in the categories judged most reliable and slightly less reliable (see Steiner and Wallick, this volume, for discussion). Right: most reliable samples only. Paleolatitudes in degrees north (N) and south (S) of the equator (0).

(Thierstein, 1979; Arthur et al., 1985) is probably the major factor determining the silica/carbonate ratio in sediment composition rather than type, rate, and magnitude of plankton productivity.

Surprisingly, biogenic pelagic carbonates became common in the mid-Cretaceous at both Sites 800 and 801. The Aptian-Cenomanian interval is characterized by volcaniclastic turbidites with evidence of carbonates redeposited from shallow-water sites. However, several background pelagic layers occur between the redeposited events: they are mainly radiolarian-rich beds (chert, radiolarite, porcellanite, and dominantly radiolarian limestone, limestone, and chalk in the late Aptian–Albian–Cenomanian). Carbonates are relatively more abundant at Site 800 where the Albian consists entirely of limestone and chert overlying radiolarian limestone of late Aptian age. This pattern is in contrast with the history of the carbonate dissolution of the mid-Cretaceous oceans that shows a worldwide rise of the CCD in the Aptian to Santonian interval. In particular, a shallowing of some 1000 m was estimated in the Pacific (Thierstein, 1979; Arthur et al., 1985), that closely coincides with abnormal volcanic activity (Schlanger et al., 1981; Larson, 1991). Such extensive mid-plate volcanism probably increased the levels of dissolved CO_2 in the oceans and atmosphere that controlled the accumulation/dissolution of carbonates (Arthur et al., 1985).

We cannot exclude the possibility that the mid-Cretaceous nannofossil limestone and chalk at Sites 800 and 801 are redeposited from shallower sites and thus preserved because of rapid accumulation as turbidites. However, this is unlikely because these pelagic carbonates show no evidence of reworking and do not contain shallow-water particles. In addition, there are no turbidites in the Albian-Cenomanian of Site 800, and the planktonic calcareous and siliceous assemblages of the nonturbiditic beds preserve a clear paleoecologic signal related to the transit of the sites across the paleoequatorial upwelling area during different times. Finally, the accumulation rate of the mid-Cretaceous limestone and chert suggest pelagic sedimentation. If a pelagic depositional interpretation is correct, then the shift from exclusively siliceous biogenic sediments to a dominantly calcareous sedimentation is out of phase with the general CCD fluctuation and requires an explanation other than increased preservation of carbonates. We speculate that the lithospheric swell produced by the ascending superplume material that fed the massive mid-Cretaceous volcanic eruptions (Larson, 1991) elevated the seafloor above the CCD by Aptian time. Once Sites 800 and 801 reached paleodepths shallower than the CCD, the blooms of the high-fertility indicators during the paleoequatorial transit could be preserved.

In general, the magnetic anomaly skewness and seamount data show higher southern paleolatitudes than do the sediment inclinations. This is probably due to "inclination flattening" resulting from sediment compaction, as suggested by Blow and Hamilton (1978), Hall and Kodama (1983), Arason and Levi (1986), Anson and Kodama (1987), and Celaya and Clement (1988). Recently, Tarduno (1990) and Gordon (1990) have demonstrated generally