The second half of Figure 6 from a paper by Elliott Taylor and John Leonard, entitled "Sediment consolidation and permeability at the Barbados forearc," was omitted; the second half of Figure 3 from the same paper was mistakenly repeated instead. Reprinted below in its entirety is page 299 of SR Vol. 110 as it should have appeared, with the correct second half of Figure 6 shown.

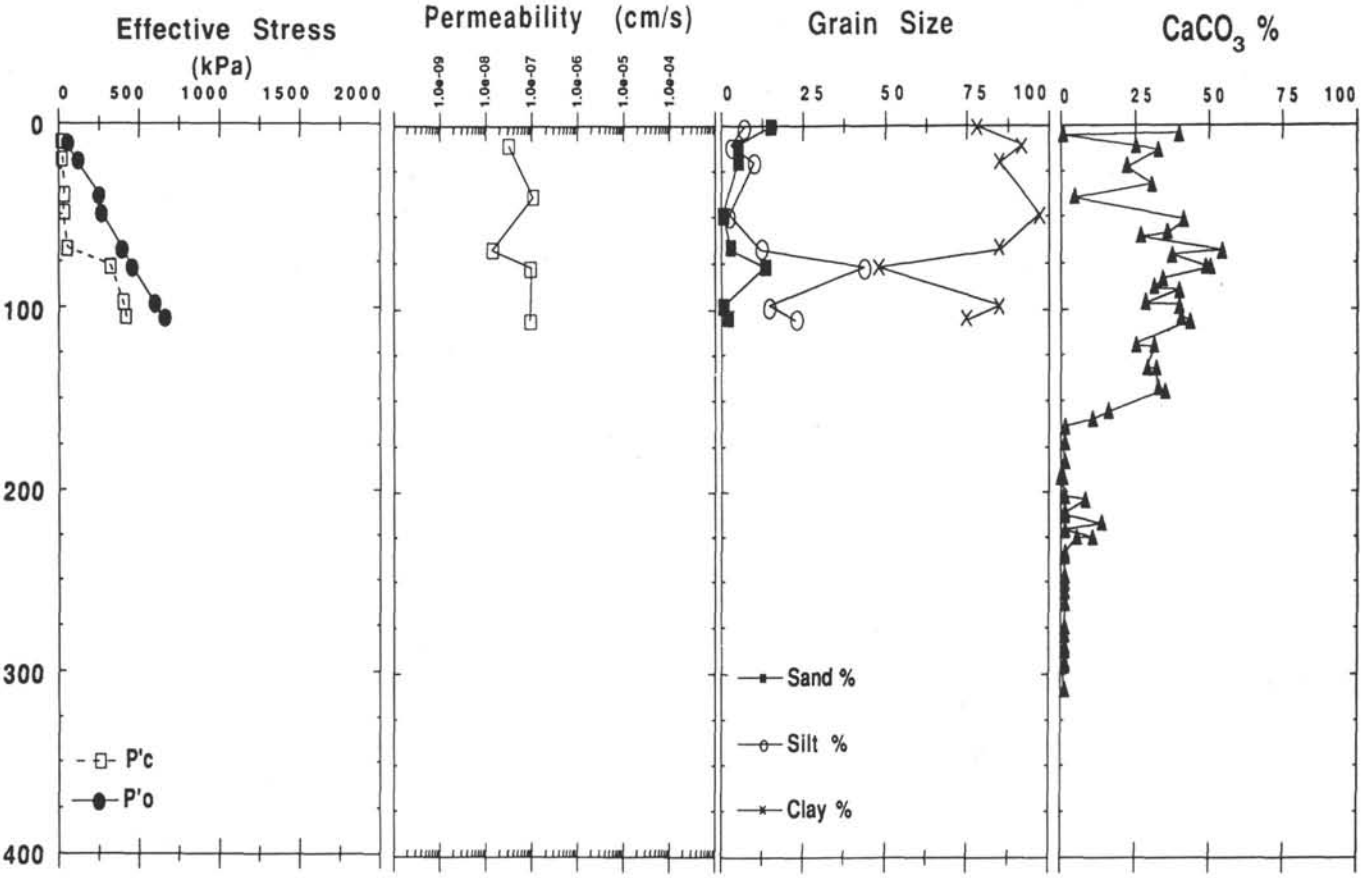

Figure 6 (continued).

1988; Gieskes et al, this volume). The larger scale formation permeability associated with structural features in the forearc could not be measured, nor do we know how this more permeable system may operate on a temporal and spatial basis. From Leg 78A geochemical data, Gieskes et al. (1984) concluded that if advection of interstitial fluids is occurring associated with the subducting sediment slab, this advection cannot be in an upward direction, and fluids must be flowing laterally. The low permeability at Site 671 (500 mbsf) may represent a cap to fluid flux through mudstones overlying the décollement. This cap impedes upward fluid advection of incompressible pore-water contained in fine-grained, low-permeability, subducting sediments. This process creates a high pore-pressure, low-strength zone as the sediment is brought beneath the deformation front and subjected to a rapidly increasing stress field resulting in "lubricated subduction" (Marlow et al., 1984). This plane of weakness facilitates further sediment subduction and lateral advection of fluids, helping propagate the incipient décollement as far as 6 km to the east of the deformation front. However, physical evidence of compaction and geochemical pore-fluid characteristics indicate that farther west in the zone of accretion and deformation, upward flow of fluids is occurring via narrow fault planes and other vertical pathways.

Because offscraped Leg 110 sediments have a very low intergranular permeability, if we apply vertical and lateral loads to the section, with only limited dewatering, the *in-situ* pore pressures will increase, limiting a net increase in effective stress and hence consolidation. Should this process continue to develop, the low strength of the sediment will allow it to fail under increasing applied stress. This failure, in the form of a propagating fracture, scaliness, or veining provides a conduit for fluid escape, decreasing the pore pressure from the zone of failure and allowing some consolidation to take place. The combination of intergranular and fracture permeability, operating on variable time scales, together regulate the deformation and dewatering of accreted and subducted sediments (Moore, Mascle, et al., 1988). Carson and Berglund (1986) modeled similar effects of limited fluid flow, fracture development, and subsequent dewatering in a laboratory simulation of the convergence process.

Pore Pressures

The state of effective stress within the sediment column is a function of the total stress environment and pore pressure. Any models of sediment accretion, faulting, and subduction must either make measurements of pore-pressure distribution or infer them. The shipboard efforts to obtain *in-situ* pore-pressure information from the drill-in packer unfortunately were unsuccessful (Mascle, Moore, et al., 1988). However, an estimate of the pore-pressure conditions may be inferred from the relative degree of consolidation, assuming that pore pressures in excess of hydrostatic account for the underconsolidated state measured in oedometer tests.

The maximum expected pore pressures from consolidation tests are plotted in Fig. 14. These values, obtained from the maximum OCD, indicate a substantial pore-pressure build-up in sediments across the forearc. The distribution of pore-pressure with depth in the sediment section does not appear to be affected by occurrence of major thrust faults, although much denser sampling would be required to test this idea. Geochemi-