interpreted to be in a synformal remnant between Granville age basement nappe deformed in the Alleghanian orogeny. A deep seated Taconic suture and the edge of the Granville North American basement must be southeast of the NJ Coastal Plain. This implies that any post-Taconic terranes of the mid-Atlantic area must be thin skimmed and accreted as rootless thrust slices, at least as far southeast as the NJ Coastal Plain. If the deep seated Taconic suture is along the hinge line of the Baltimore Canyon Trough, which has been proposed as the locus of the Alleghanian orogeny, then the process of crustal suturing may include the rather faithful reoccupation of a younger suturing on an older schedule. Through-Terrane fault zone of 50 km width, which is characteristic of the hinge line suture, may include juxtaposed suites of several orogenies.

from this common ichnofacies through the upper Passaic Formation in the syncline, documents the large-scale development of lake-margin communities towards and through the Triassic-Jurassic boundary.

The oldest well-sampled assemblage comes from a prominent black and gray lacustrine sequence in the Abernethy Mountain area, No. Pa. Most of the most common ichnite Areipsa; other forms present include Grallator (Grallator) sp., Brachychirotherium parvum, Brachychirotherium sp., Rhynchosauroides brownvicensis, and Batrachopus. Grallator is almost identical to that in the basal Lockatong Formation, some 16 million years older. However, also present is the oldest occurrence of the crocodilian track Baratrocopus, an ichnotaxon abundant in the Jurassic-Pliensbachian Triassic of Africa and possibly in the Late Triassic of Europe.

Footprints from between the two pollen-bearing horizons which define the Triassic-Jurassic boundary comprise a Grallator-dominated assemblage with abundant Rhynchosauroides sp. and Baratrocopus. This assemblage is similar to several from just below the Orange Mt. Basalt near Montclair and Clifton, N.J. Post-Orange Mts. Basalt assemblages range from many of the by the well-preserved Anomoano and a great reduction in the abundance of Rhynchosauroides.

While as yet insufficiently sampled, the footprint bearing intervals of the Jacksonwald syncline do show the elimination of the Lockatong-lower Passaic Areipsa-dominated association and its replacement by a Grallator-dominated one, composed of survivors. Further sampling of these new localities should refine our knowledge of the rate and time at which this transition took place.

FABRICATION DIAGNOSTIC OF AMPHIBOLITE GRADE DEFORMATION AND RELATIVE STRAIN RATES VS. RECRYSTALLIZATION RATES IN QUARTZ-FELDSPAR MYLONITES

Richard, E. and Olsens, Paul E., 1987, A portable subbottom profiling system, operating at 7 kHz frequency, Portable subbottom profiling systems, operating at 7 kHz frequency, have been deployed on over 150 Canadian lakes in a variety of geologic settings. The systems have been damaged by strong (m6) historic earthquakes and in a limited number of lakes in areas both with and without historic records of seismic activity.

A strong objective of this research is to differentiate sediment disturbance due to seismic shock from the effects of several other processes that can cause similar appearing features. Shoreline erosion and sedimentation, groundwater sapping, deltaic processes, late-glacial sedimentation, ice-block collapse, processes, etc. may create bottom morphologies and sediment assemblages which reflect failures on basin sides. A major objective of this research is to compare the differentiation of seismic features by computing the following analyses: 1) seismic vs. nonseismic, 2) seismic vs. nonseismic deposition, 3) seismic vs. nonseismic sedimentation, 4) seismic vs. nonseismic processes, etc. The techniques have been developed to distinguish from those generated by seismic shocks or by faulting. A further objective of this research is to compare the differentiation of seismic features by computing the following analyses: 1) seismic vs. nonseismic, 2) seismic vs. nonseismic deposition, 3) seismic vs. nonseismic sedimentation, 4) seismic vs. nonseismic processes, etc. The techniques have been developed to distinguish from those generated by seismic shocks or by faulting.