

Abstracts of papers presented in Collegiate Academy Paper Sessions

PHYSICAL SCIENCES

The use of high-voltage photography as a technique for detecting subsurface electrical inhomogeneities in materials. Rodney Roundtree. A method was devised to test the ability of high-voltage photography to detect sub-surface electrical inhomogeneities independent of surface smoothness in which two or more samples could be tested under exactly the same conditions with controlled deviations in surface smoothness. This method was used also to examine the ability of the photography to resolve differences in the conductivity of materials which have no surface correlations. Finally, the resolving power of the technique to detect deviations was tested. The findings of this study indicate that it is possible to detect subsurface electrical deviations. It was found also that materials of differing resistivity could be detected to some degree.

Photo-oxygenation of enamines. John T. Cooney. The synthesis of a series of ring-substituted anilino stilbenes is described. These compounds exist mainly in the enamine tautomeric form, yet the enamine concentration is nearly independent of the substituent on the aniline ring. These compounds offer a unique opportunity to examine substituent effects on the rate of photo-oxygenation as a means of studying the mechanism of enamine photo-oxygenation.

Preliminary results are consistent with a recently proposed mechanism involving the formation of a charge-transfer complex as the rate-determining step in the photo-oxygenation of secondary enamines.

Cataclastic rocks in the eastern Piedmont of North Carolina. Dennis A. Clark. Cataclastic rocks associated with major fault zones in the eastern Piedmont represent a neglected aspect of Piedmont geology which may prove useful in understanding this region's geologic and tectonic history. Current research in progress in the eastern Piedmont supports Farrar's (1980) interpretation that major lithologies, structures, and regional metamorphic gradients do not cross the cataclastic zones and do suggest several periods of undated cataclasis. More detailed mapping and field work in the eastern Piedmont are necessary for proper documentation as well as for providing a better understanding of the cataclastic zones within the Piedmont. A major goal is to relate the cataclastic zones to the overall tectonic and geologic history of the eastern Piedmont.

The geomorphology of the Granite City boulderslope in the Cashiers Valley, NC. David J. McCraw. Granite City is a gravity-induced boulderslope found in the Cashiers Valley of western North Carolina on an ENE steep slope. It occurs at the extreme southern ridge spur leading from Blackrock Mountain (a large exfoliation dome) between