larger issue is at stake here, however. Latitudinarian science was forced to deal not only with Aristotelianism but also with the sectarians' romance with alchemy and "illuminating" experience. It is, perhaps, Shapiro's reluctance to face the latter that provides the book's major unfinished business.

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Prehistory of an Island

The Archaeology of Martha's Vineyard. A Framework for the Prehistory of Southern New England. A Study in Coastal Ecology and Adaptation. WILLIAM A. RITCHIE. Published for the American Museum of Natural History by the Natural History Press, Garden City, N.Y., 1969. xviii + 254 pp., illus. $15.

Six shell middens and 13 radiocarbon dates provide the author with the principal evidence from which he seeks to generalize "the major aspects of the prehistory of Massachusetts, Connecticut and Rhode Island, and to relate the adjacent, and much more fully known, New York State." Readers familiar with Ritchie's reconstruction of the prehistory of New York State (where he is state archeologist) will find familiar cultural sequences with additional correlations from coastal manifestations.

Four horizons discerned in most of the sites are distinguished by color and shell components. Prior studies by Byers and Johnson (1940) disclosed closely similar features to the sites reported here. A suggestion of an original podzolic surface at the base of the Hornblower II midden is described, but for the other sites the original surface is not recorded. Ground plans showing excavated features and site boundaries are presented with section profiles indicating the stratigraphy of each site.

Only a single and apparently casual burial was located in the partial excavation of the six sites reported.

An admirable analysis of the shell and bone artifacts by J. H. Waters provides detail on the diet of the people who occupied these sites from about 4200 years ago up to the earliest contact with Europeans. Although the principal animal whose remains were found in the midden debris was the white-tailed deer, bone fragments indicate that raccoon, black bear, fox, dog, beaver, muskrat, varieties of duck, geese, turkey, and swan, in addition to seal, porpoise, bluefish, striped bass, tautog, scup, and cod, were utilized. In most levels of the sites, the predominant shellfish are the quahog (*Venus mercenaria*) and the bay scallop (*Pecten irradians*). The inhabitants also gathered quantities of the soft clam, long or razor clam, oyster, mussel, boat or slipper shell, and occasional specimens of moon shell, whelk, and conch. Changes in shell-type abundance in the various levels of the sites are attributed to overfishing or changing salinity as a result of sea level changes. Very few plant remains were recovered from any of the sites. Ritchie's explanation of the preponderance of quahog in the middens as being due to the ease of recovering them "lying exposed on the bottom" is not accurate, for the animal is usually found in vertical position with both valves buried from ½ inch to 8 inches and only the siphons protruding.

Of 18 charcoal samples submitted for radiocarbon analysis, 13 proved acceptable to the cultural sequence inferred by Ritchie. In an introductory statement the author says that "because here for the first time in this area of New England, interpretation and hypothesis on this scale are attempted, it is patently required to offer the supporting data of the site excavations. . ." To say the least, it would have been more scientific to include conflicting evidence as well, "for the critical student, so that he may evaluate the evidence for himself." Of seven radiocarbon samples at the Vincent site, which is inferred to have been occupied nearly continuously for the last 4000 years, only two determinations were deemed acceptable, and the other five dates are not described. Because of the shallowness of the deposits, all radiocarbon dates from middens are inherently suspect because of possible contamination from contemporary rootlets which preferentially invade charcoal (largely because of the ability of charcoal to retain moisture in these otherwise coarse-textured deposits).

The problem of sea level rise in this part of coastal New England is crucial to any interpretation of the prehistory of Martha's Vineyard. Evidence from New Jersey and even Connecticut is largely irrelevant because of differential isostatic rebound coupled with eustatic changes in sea level. Estimates derived from radiocarbon dates of organic deposits indicate only the time at which rising ground water levels (backed up by rising sea levels) intersected the base of depressions within which the deposits accumulated. The succession of "coastal tradition" sites described by Ritchie may simply reflect the distance early people were willing to carry shellfish prior to opening and eating them and discarding the shells. The lack of dates older than 2270 ± 160 B.C. (Y-1530) obtained from Stratum 4 of the Hornblower II site may therefore indicate only the time at which rising sea level made carrying shellfish to that location practicable. Despite the fact that this was the oldest site found on Martha's Vineyard, only 13 squares in a grid of 77 five-foot squares covering approximately 50 percent of the estimated site area were excavated. Several middens known to the reviewer along Squibnocket Head have been exposed and destroyed by cliff retreat (the average rate of which is 4 to 6 feet a year). It is entirely possible that older sites have been submerged or destroyed by rising sea level and shoreline retreat.

Despite attractive format and copious illustration of sites, excavation stratigraphy, and artifacts, six similar sites with 13 radiocarbon dates make slender reeds from which to construct "a framework for the prehistory of southern New England."

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Effects of Radiation

Molecular Photobiology. Inactivation and Recovery. KENDRIC C. SMITH and PHILIP C. HANAWALT. Academic Press, New York, 1969. xviii + 230 pp., illus. $10. Molecular Biology.

This book is an outgrowth of a course taught by the authors at Stanford University. Its main purpose is to provide sufficient information for an understanding at the molecular level of the biological events that occur following the interaction of ultraviolet light with the proteins and nucleic acids of simple systems such as viruses and bacteria. It was not the authors' intention to provide a comprehensive review of photobiology; they have tried instead to write a book that would be useful for students in various disciplines from biology to physics.

Although the book is relatively short,