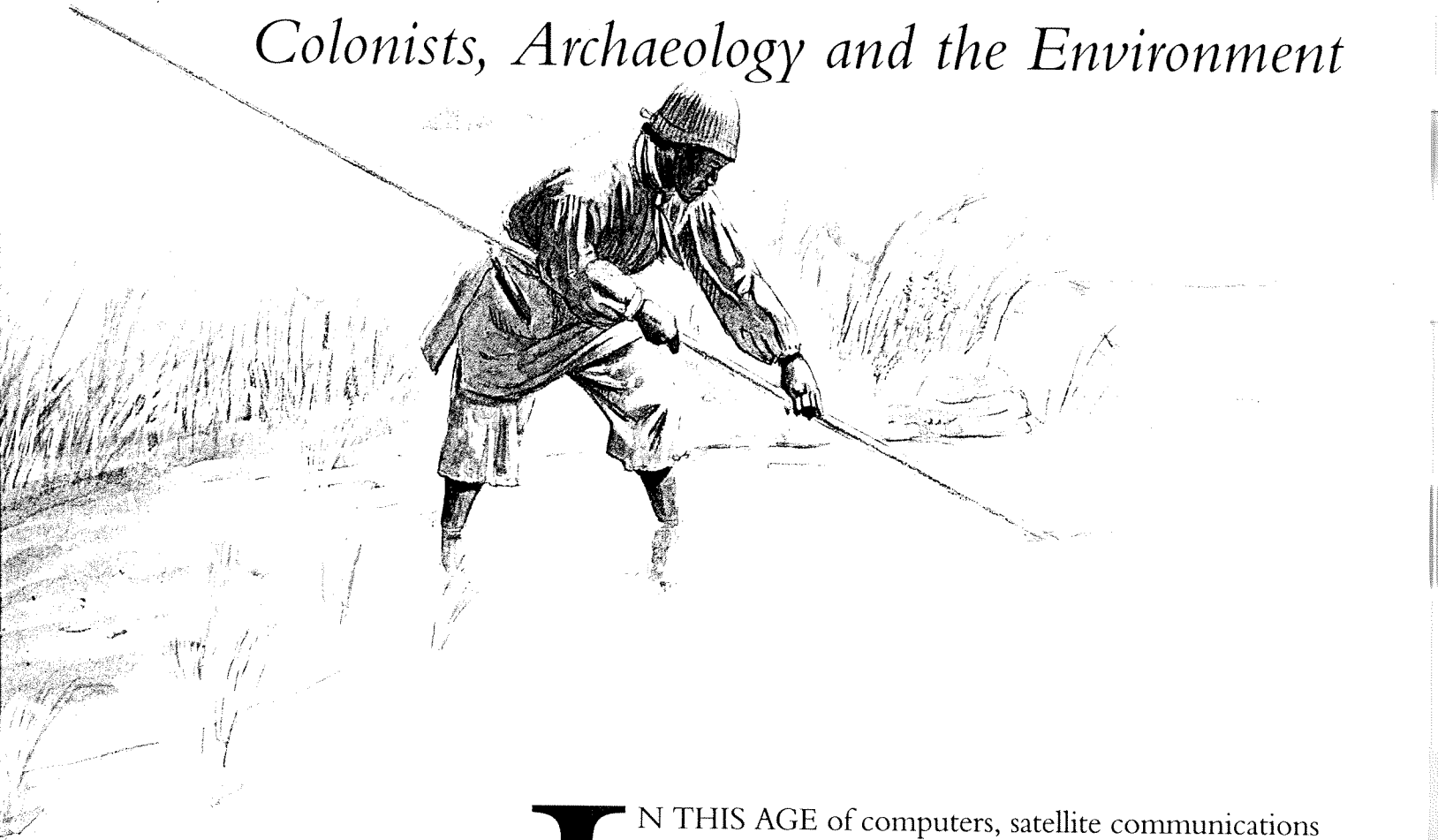


A Good & Fruitful Land

Colonists, Archaeology and the Environment



IN THIS AGE of computers, satellite communications and an array of other new and developing technologies, we sometimes forget that a mere 300 years ago Delaware was a frontier, an edge of what was clearly known, and in most respects a terra incognita.

Explorers such as Henry Hudson had entered Delaware Bay during the late 16th and early 17th centuries, but the years 1623 and 1631 mark the beginning of the permanent presence of Europeans in the Delaware estuary.

by Charles H. Fithian

Illustrations

by David Rickman



Members of a 17th century Delaware household gather bed oysters on a blustery winter day.

As the 17th century progressed, Dutch, Swedish, English and Africans came in increasing numbers. Each of these groups adapted to the natural environment and created different colonial societies along this frontier. There were as many reasons for coming to the New World as there were colonists, but, as in other frontier regions, land, profit and opportunity were factors which made the enormous risk worthwhile.

When these explorers and settlers entered the Delaware, they found an environment that was rich with life. Describing the Delaware

River in 1634, explorer Thomas Yong stated that "I am confident that this River is the most healthful, fruitful and commodious River in all the North of America, to be planted."

The broad marshes, extensive forests, numerous rivers and creeks and the bay itself teemed with a variety of plant and animal life. Some were familiar, many were not. David DeVries, William Penn, Gabriel Thomas and other 17th century chroniclers of the area's natural history spoke frequently of the abundance of this "good and fruitful land."

Despite the riches of the land and water, the newcomers had to make significant changes in their way of life in order to adapt to the environment of the Delaware estuary. The process of settling the area in turn modified the land, impacted resources

and began the transformation of many aspects of the Delaware ecosystem.

Today, Delaware's natural environment is a reflection of what the first Europeans encountered. To better understand the current condition of the Delaware Bay and River, it is necessary to understand the processes that brought about their present state. The science of archaeology provides important information about these long term changes. Just as biologists, zoologists and ecologists study the ecology of plant and animal communities, archaeologists study human ecology.

The investigation of archaeological sites and a careful use of historical documents allow researchers to understand the developments and changes of a specific time period or those over a broad

By the middle of the 18th century, Delaware colonists began using long-handled tongs to take advantage of the channel oysters of the deeper water.



time frame, spanning hundreds of years. The study of where sites are found on the land reveals the importance of ecological factors such as soil types, elevations and available fresh water in the selection of locations for plantations.

The presence of broad marshes was a major reason that the use of landings became so important and encouraged the early development of roads. This landing-road network is a feature distinctive to Delaware for this early time period. The study of artifacts and other materials, such as animal bones and shells, plant remains, pollen, charcoal and soils, carefully excavated from archaeological sites, provides important ecological information which permits a better understanding of the environment at different times, the interaction between people and the environment, as well as the human impact on resources and ecosystems during historic times.

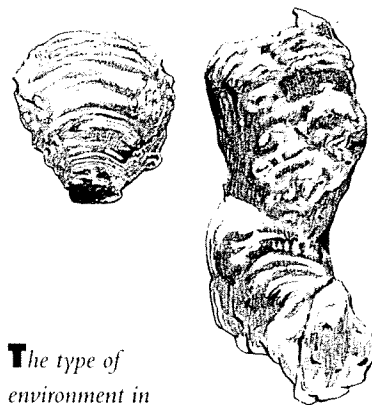
For example, a sample of charcoal recovered from a well dating to 1690-1720 at the Webb's Landing Site on the Murderkill River has provided some remarkable data on historic forest composition during the colonial period.

Finding evidence of oak, pine, chestnut, hickory, ash, poplar, cottonwood, butternut, ash, sweet gum and willow together suggests that a largely deciduous forest, more typical of drier, interior, upland settings, extended well out into the lower coastal areas during the 17th century. These forests were biologically diverse and abundant, and would have been essential in supporting the increase in human population resulting from this period of immigration.

While some of these trees are found in coastal areas today, this information suggests Delaware's forests looked considerably different three centuries ago and that dramatic change has occurred on the landscape. Woodlands similar to this survive today only as remnant stands along Mudstone Branch near Dover and in the Ellendale Forest south of Milford. Deforestation became such a serious problem in colonial Kent County that the provincial government attempted to preserve forest stands by requiring people to make house and fence repairs and to obtain firewood only from windfall and dead trees. The actual effect this law had is hard to measure, but it nonetheless indicates an awareness of the changes that were being wrought on the land at that time.

The remains of shellfish that are frequently found in deposits at early archaeological sites give further evidence of man's connection to the environment. Research has shown that colonial Delawareans ate oysters, clams, crabs and even conchs. These "ecofacts" are not simply the leavings of past meals, but are potential sources of ecological information as well. By studying the shape of an oyster's shell and growth rings at the hinge where the two halves of the shell connect, archaeologists can determine information about what kind of environment the animal lived in, the age of the oysters and the time of year or season in which they were harvested.

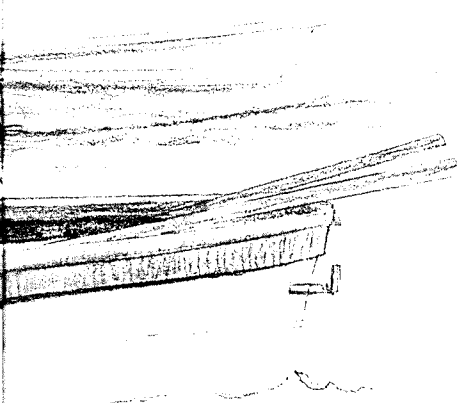
Oyster remains from several sites in Kent County have provided the first information on the historic utilization of this resource in central Delaware. The



The type of environment in which oysters live is a major factor in determining the shape of their shells. The bed oyster are found in shallow water with sandy bottom. Channel oysters occur in deeper water with muddy bottom.

sample from the Webb's Landing Site, for example, was compared with two samples from 18th century sites from the town of Dover on the St. Jones River. These urban deposits, recovered from The Green, date to opposite ends of the century - one from 1710-1730 and the second to 1770-1815. Analysis showed that the bed oyster was most common. This species lived in shallow water and was harvested with rakes or by hand when wading at low tide. Channel oysters were present in all three samples, but in very low quantities. Unlike the bed oyster, these are found in deeper water and harvesting required a boat as well as tongs. These tongs were a scissors-like tool, probably resembling the patent tongs used by watermen during the 19th and 20th centuries. While research has shown that the use of oyster tongs in the Chesapeake dates to very early in the 18th century, a search of Delaware records for fishing and oystering equipment has not revealed their presence before the late 1740s, with most of the entries dating to the 1770s.

The abundance of the bed oyster and the scarcity of channel oysters in these samples indicate Delaware colonists employed a simple harvesting strategy focused on easily acquired resources in shallow water. It wasn't until the late 18th century that a different technology



would be used to exploit deeper water environments.

The deposits are different in terms of water salinity and time of harvest. The shells from the Webb's Landing Site are from low saline environments exclusively. The Dover shell, in both the early and late 18th century deposits, however, came from mixed salinities. Time of harvest is also contrasted between the three samples. The Webb's Landing shell indicates a fall-to-spring period of utilization, whereas the Dover shell seems to have been harvested throughout the year. Shellfish easily collected in shallow water and on a seasonal basis are indicative of an individual, rural plantation usage.

The Swedish naturalist Peter Kalm records the presence of a market on the Delaware River that supplied the city of Philadelphia during the 1740s. The shell from the Dover deposits, with their varied seasons of use and mixed salinities, provide the first evidence of the presence of a similar market in the St. Jones River area as early as the second decade of the 18th century and reflect the developing urban presence of the town of Dover.

The comparison of oyster ages from the deposits with other assemblages from Kent County has provided a way of examining the human impact on the local ecosystems. The overall age of the Webb's Landing oysters was around 4.5 to 5 years, indicating no stress on the oyster population due to harvesting. On the other hand, the late 18th century oyster shell from Dover shows a dramatic drop to as little as 2.6 years. The general trend shows younger shellfish were being harvested as the 18th century progressed. This is clear evidence of the increase in human population that occurred during the colonial period and its impact on a resource which began to exhibit signs of stress from over-harvesting before the end of the 18th century.

This may also account for the change from the use of rakes to tongs. As the easily acquired shallow water oysters were depleted, people moved out to deeper water to gather their oysters.

The Delaware ecosystem today is still a remarkable place. It supports a variety of plants and animals, many of which we are still learning about, as well as numer-

ous human activities. As we work toward preserving and managing Delaware's varied natural and cultural resources, archaeology will play an important role in providing information necessary for current scientific research, as well as allowing us to see the patterns of change over time in the link between human culture and the environment. This knowledge will serve to remind us that our present lives represent a legacy which leads directly to Delaware's earliest beginnings. **OD**

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Archaeological research has provided the first physical evidence of the biological diversity of Delaware forests during the colonial period.

