



Goodyear

CROSSING THE CHANNEL—English tractor company official David Tapp becomes the first person to drive across the English Channel, taking seven hours and 45 minutes. The huge Goodyear tires, designed for use in rice fields, are nearly six feet high.

GEOLOGY

River Drowned Under Bay

Geologists have found the 18,000-year-old bed of the Susquehanna River, granddaddy of the east coast water system, drowned beneath the Chesapeake Bay—By Elizabeth Hall

► THE 18,000-year-old bed of the Susquehanna River, granddaddy of the East Coast water system, has been discovered drowned beneath the waters of the Chesapeake Bay.

The ancient bed of the Susquehanna, long searched for by geologists, was located by studying the boring samples for the Chesapeake Bay Bridge-Tunnel between Norfolk, Va., and Virginia's Eastern Shore and by using a geophysical tool called a subbottom echo profiler.

The two-mile-wide sea bed was located about 160 feet below mean sea level, just off the southern shore of Fisherman Island at Cape Charles, Va., and just under the mile-long Baltimore Channel tunnel.

There was no Chesapeake Bay 18,000 years ago. Instead, the Susquehanna River with its headwaters in the Catskills was the main water artery of the Eastern Seaboard.

Sea level was about 450 feet lower than now and the ocean was about 70 miles away from the mouth of the Chesapeake Bay. The submerged Continental Shelf was land where plant and animal life existed.

As the last glacier melted and the crust of the earth started to rise, the sea level rose also and the ocean began to cover the land. The river valleys were "drowned" as silt, shells and sediment filled up the channels. The Miocene layer covering the surface of this period is a silty, shell-filled clay; after that the Chesapeake Bay area was a swamp, containing several peat bogs.

Between this Miocene layer at minus 160 feet and the present Chesapeake Bay "bottom," varying from 40 to 75 feet, is a layer of silt, sand, marl and hard mud.

Although long suspected by geologists,

this sunken river system had been untouched for thousands of years. Dr. John T. Hack of the U.S. Geological Survey in Washington, D. C., predicted the presence of the Susquehanna Channel in 1957 in a report on the "Submerged River System of the Chesapeake Bay."

Dr. Hack obtained the results of studies on borings at 14 bridge sites over the Potomac, Susquehanna, Rappahannock, York, Choptank, Severn, Patuxent Rivers and the Chesapeake Bay itself.

He believed the master stream channel had to flow into the ocean between the two Virginia capes at the mouth of the Chesapeake, rather than under what is now the Eastern Shore of Virginia and Maryland, Dr. Hack told SCIENCE SERVICE.

Dr. Hack's theory was not supported until borings to test samples of the sea bottom for the Chesapeake Bay Bridge-Tunnel, future wonder of the world, were taken by Percy Z. Michener, project manager for Sverdrup and Parcel, consulting engineers for the Bridge-Tunnel project.

The bridge pilings were sunk at levels varying from 165 to 175 feet in the bay floor, but the borings samples were taken from as deep as 310 feet, Mr. Michener said. The engineers brought up samples of cypress logs, bones and shells among other things, dating back to the Pleistocene geological period.

Dr. Wyman Harrison of the Virginia Institute of Marine Science, and Richard Malloy of the Coast and Geodetic Survey used the subbottom echo profiler to determine the exact location of the channel. The profiler sends high frequency sound waves

from an electrical sparking device, towed behind a boat, into the water and below the ocean bottom where the echoes are reflected.

Dr. Harrison and his colleagues analyzed the contents of the sediment in their laboratory at Gloucester Point, Va., and then sent them to Dr. Gene Rusnak of the Miami Marine Laboratory. Radiocarbon tests showed that some of the samples were 18,000 years old.

Dr. Jaan Terasmae, world famous Canadian palynologist, studied the pollen content of the old swamp sediment on top of the Miocene surface. The pollen closest to the Miocene surface was 15,000 years old, and showed that spruce and pine trees were dominant on the now-submerged Continental Shelf.

Thirteen thousand years ago, alder trees were very prominent and by 10,000 years ago oak trees covered the land. It was about this time that the bay began to flood and the ocean to cover the land.

When the Chesapeake Bay Bridge-Tunnel is completed early next spring, motorists from all over the world will be driving over and under 17.6 miles of open ocean. But they will also be driving over a sunken system of waterways that is 18,000 years old.

• Science News Letter, 84:86 Aug. 10, 1963

ASTRONOMY

Portable Astrodome To Shelter Equipment

► A 300-POUND portable astrodome shelter has been developed for use either as a temporary or permanent observation station by Parabam, Inc., in Hawthorne, Calif.

The shelter, six feet in diameter, can be used to house cameras and other astronomical equipment. With a rotatable hemispheric dome and closable viewing aperture, it can be made airtight, protecting against both moisture and temperature. It can be moved by truck, plane, helicopter or manual power.

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