



It happens that on May 18, Mercury is about 5 degrees, out of a possible 7, north of the ecliptic and this brings the line from sun to planet still more nearly vertical, with the result that this month Mercury will set as much as an hour and a half after sunset.

Because of its proximity to the sun, Mercury is very difficult to observe, and no very distinct markings have been seen. However, the planet is so small, about 3100 miles diameter, that it does not have an atmosphere; it is not massive enough to hold one even if we could now endow it with such a layer of air. And just as the moon always keeps the same face toward the earth, so does Mercury always present the same hemisphere to the sun. This was demonstrated several years ago at the Mt. Wilson Observatory when very delicate measurements, with a device called a thermocouple, were made of the planet's surface temperature. No heat whatever could be detected from the dark side, which is close to the absolute zero of minus 460 degrees Fahrenheit, even though the side toward the sun is about 660 degrees Fahrenheit, hot enough to melt lead. Even if Mercury turned at such a speed that many weeks were required from sunset to sunrise, the dark side would hold a little heat, which could be detected.

The reason why Mercury should rotate so slowly as always to keep the same face to the sun is the same as that for the similar behavior of the moon to the earth. When Mercury was younger, and the globe was still in a plastic condition, tides were caused by the sun's pull. These acted as brakes, and gradually slowed its turning, but finally, when the present condition was reached, this braking action ceased. The same thing happened with the moon, due to tides caused by the earth's pull. The effect is

still going on with the earth. Tides here, largely caused by the moon's attraction, are gradually slowing down our rotation, and the time will come, in the very distant future, when one hemisphere of the earth is always turned to the moon. As this will be some 25,000,000,000 years from now, we hardly need worry about it!

Celestial Time Table for May

Saturday, May 2, 3:00 a.m., Moon nearest, distance 223,700 miles. Monday, May 4, early a.m., Meteors of eta Aquarid shower. Thursday, May 7, 8:13 a.m., Moon in last quarter. Monday, May 11, 2:50 a.m., Moon passes Venus. Friday, May 15, 1:45 a.m., New moon. Sunday, May 17, 12:18 a.m., Moon passes Mercury; 11:00 a.m., Moon farthest distance 252,500 miles; 3:50 p.m., Moon passes Jupiter. Monday, May 18, 4:00 p.m., Mercury farthest east of sun. Tuesday, May 19, 8:49 a.m., Moon passes Mars. Saturday, May 23, 5:11 a.m., Moon in first quarter. Saturday, May 30, 1:29 a.m., Full moon; noon, Moon nearest, distance 222,000 miles.

Science News Letter, May 2, 1942

ARCHAEOLOGY

Life Was Long Clambake For Tennessee Indians

VANISHED traces of a vanished people are described and pictured in a new publication of the Smithsonian Institution, by William S. Webb and David L. DeJarnette of the Tennessee Valley Authority staff (Reviewed, *SNL*, this issue).

The vanished people were Indians who lived on the banks of the Tennessee so long ago that their only record consisted of vast heaps of river-mussel shells, remnants of their feasts. Even these have vanished now, flooded by the waters backed up in the 75-square-mile artificial lake behind Pickwick dam.

When it became evident that the new lake was going to flood the shell-mound

areas, TVA archaeologists went to work on the mounds, using WPA labor and taking advantage of the facilities of the WPA Archaeological Laboratory at Birmingham and the Alabama Museum of Natural History.

Life for these vanished Indians appears to have been one long clambake. The shellfish of the river, together with fresh-water snails, seem to have constituted their staff of life. They lived right on the mounds their own feasts had created, and even buried their dead in them.

It is inferred that they were a very early people because no evidence has been found that they used bows and arrows, and in their more primitive stages at least they had no pottery. In these traits they tie in with the Basket-maker people of the Southwest, whom they also resembled in using the spear-thrower, or atlatl, as their principle projectile weapon.

Lowest in the mounds, and therefore earliest in time, were fireplaces indicating that they cooked their mussels by simply baking them on hot rocks. Higher up were crudely hollowed-out vessels of sandstone and soapstone, in which food might be boiled. Finally pottery vessels and other objects appear. There is no evidence at any stage of agriculture, though there is some indication of the use of storage bins, in which they may have kept collections of nuts, seeds, roots and other wild vegetable foods.

Primitive as they were, these Indians had the same domestic animal that has been found with all other North American tribes, the dog. The dog appears to have been of some special significance in their religion, for dog skeletons have been found showing signs of elaborate ceremonial burial.

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Diamonds are believed to have been first discovered in Brazilian gold washings in 1670.

Earliest zoo of which there is record was founded in China about 1100 B.C. by the First Emperor of the Chou Dynasty; it was called the Park of Intelligencé.

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