

ASTRONOMY

# Star Study Program Will Not Be Finished Until 2019

## Special Star Camera Will Take Milky Way Pictures Now, Others for Comparison in Period 75 Years Hence

**P**HOTOGRAPHS made over a four-year period beginning in the year 2015 will be required to complete a research program to measure the rotation of the Milky Way, which will start soon at the Lick Observatory of the University of California, on Mount Hamilton.

A new \$65,000 star camera, making exposures on plates 17 inches square, will be used, says Dr. W. H. Wright, director of the Observatory. The 16-ton mounting for the camera, arranged to turn as exposures are made, thus compensating for the earth's movement, is now in place. Eventually it will have two lenses, one to photograph in blue and ultraviolet light, the other in yellow light.

However, the European war will delay indefinitely the completion of the former, since the glass discs of which it is ground were ordered from abroad. The glass for the latter arrived just before hostilities began, and is now being ground to the right curvature. For the present, says Dr. Wright, this one will do double duty.

Every clear night, after the lens is in place, photographs will be made, overlapping pictures of the northern part of the heavens. Four years, it is estimated, will be required to complete the work. Seventy-five years from now, the series will be repeated, and comparison of the two sets of plates will show the rotation of the Milky Way.

The sun, as well as all the stars we see, is part of the Milky Way system, or Galaxy, and partakes of this rotation. These stars are arranged in a great cluster the shape of a grindstone. We are inside, and when we look to the edge of the grindstone we see a much greater concentration of stars than when we look to the side. This concentration is the Milky Way. The grindstone is about 100,000 light years (600,000,000,000,000 miles) in diameter.

Stars nearest the center turn fastest. We are about two-thirds of the way out from the center, and at that distance take about 220,000,000 years to make one circuit. Long though this is, the distance is so great that we are traveling at a

speed of approximately 170 miles per second to make it. These figures will be known much more accurately in 2019, when the Lick Observatory program is completed.

Incidentally, the new star camera has many other uses, and will not be placed in retirement in the 75-year interval.

*Science News Letter, August 10, 1940*

ARCHAEOLOGY

## Ancient Gateway of Kish Reconstructed in Museum

See Front Cover

**A**LITERAL gateway into the past is the outstanding feature of the Field Museum's new hall of Babylonian archaeology, which was recently opened to the public. It is a reconstructed gateway of the ancient city of Kish, on the Euphrates, rebuilt with the original stucco pieces taken from the ruins as far as possible, and with the gaps supplied by Museum artisans.

The gateway comes from the later days of Kish, when a Persian dynasty ruled over the Tigris-Euphrates valley. It dates from the reign of King Shapur II (310-370 A.D.) But Kish had days of glory far earlier than that. The city stood through changing fortunes for some 4000 years before it was finally abandoned in the seventh century A.D. At times it rivaled and even outshone its better known neighbor, Babylon, which stood only about ten miles away.

In the new hall dominated by the gateway are the fruits of ten years of intensive excavation of the ruins of Kish, including such interesting objects as one of the first wheels ever used on a chariot, building bricks which are almost exact duplicates of bricks made in modern kilns, bones of fresh-water fish that were left when a post-Noachian deluge swept over the city site, and even gambling devices from some proto-historic den of sin.

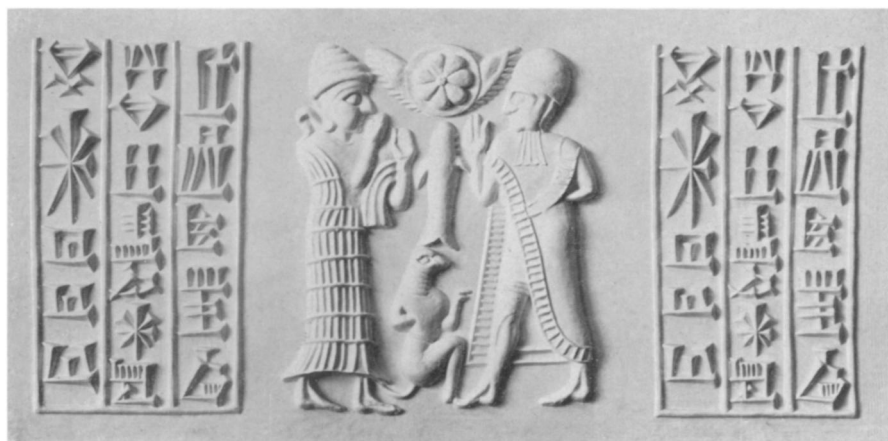
*Science News Letter, August 10, 1940*

ASTRONOMY

## Rocket Journey to Moon Shown at Fels Planetarium

**J**OURNEYING by rocket to the moon, to see the earth eclipse the sun on April 15, 2033, will be the experience of visitors to the Fels Planetarium in Philadelphia, during August, F. Wagner Schlesinger, director of the Planetarium, has announced.

The Planetarium chamber, he said,



**GOD MEETS GODDESS**

*A feature of the Field Museum's new hall of Babylonian archaeology is a frieze composed of enlargements of ancient seals. This one shows a god and a goddess in conversation, flanked by the same cuneiform inscription, repeated on each side. Between the pair are representations of a monkey, a fish, and a winged sun-disk.*

*Science News Letter, August 10, 1940*