ASTRONOMY

Time Studies Suggest Distance To Europe Varies With Moon

REGARDLESS of the state of British-American amity, the distance between the United States and England appears to vary each day as the moon moves across the sky. If the hypothesis advanced to the American Astronomical Society by Dr. Harlan T. Stetson, director of the Perkins Observatory at Delaware, Ohio, and Alfred L. Loomis, of the Loomis Laboratory, Tuxedo, N. Y., is correct, the change in distance is about 63 feet. They make this suggestion to account for surprising variations in British and American time which have been uncovered by Mr. Loomis' researches.

With what is probably the most complete installation of the latest type of precision clocks in the world, and automatic radio sets to record time signals from a number of national observatories, he has found that the times do not agree. Even when the corrections published by the British Admiralty for their time signals from the radio station at Rugby, and those of the Naval Observatory for the Annapolis signals, are applied, there is still a slight difference, often as much as a tenth of a second, between them, despite the fact that both are correct.

The time is determined at both places by observing the instant that a star crosses the meridian. Therefore, if the two observatories are shifting slightly in longitude, the star will cross slightly early when it is west of the average, and late when it is to the east. In the absence of any other satisfactory explanation, Dr. Stetson and Mr. Loomis have adopted the idea that such a shift does take place. It does not matter whether either one or both of the observatories is moving; it is the distance between them that produces the effect.

The Loomis-Stetson hypothesis to explain this variation in step with the moon's position is that there is a natural stretching or shifting in the earth's crust, within its elastic limits, which would yield and recover periodically under the stress of the moon's gravitational pull.

Another result of the studies is the indication that the radio wave takes twice as long to cross the Atlantic as would a beam of light travelling the same distance. This, they believe, is due to the fact that the radio waves do not travel directly, but are reflected repeatedly from the Kennelly-Heaviside layer high above the earth's surface. The time taken corresponds to some thirty such reflections. They find that this time also varies with the moon's position in the sky, and attribute this to an actual tidal effect in the layer, produced by the moon's pull.

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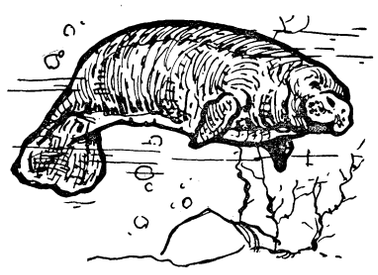
The effect of marine climate on paintings and art objects is being investigated by the International Museums Office, with a view to knowing the best precautions against damage in overseas transportation.

ZOOLOGY

NATURE RAMBLINGS by Frank Thone



Sea-Cows

FLORIDA real estate is a great subject for the ribald jest of the skeptical. But the favorite joke about selling sea bottom to the unsuspecting investor may some day fall flat. The bottom of the sea, or at least of the shallow lagoons and river mouths, has some promise; if not as building lots, at least as cattle pasture. Sea-cow pasture, anyway.

In the warm streams around the coasts of Florida there grows a plant called locally "manatee grass," a favorite pasture of the manatee, or sea-cow. A great lubberly creature is the sea-cow, not a fish, but a mammal that has taken to water and developed flippers instead of legs, like the walrus and the whale. She is valuable for both flesh and oil, and possibly also for leather. Chemical analysis of the manatee grass shows it to be richer in food value than alfalfa. Sea-cow ranching seems to be a really distinct possibility, for the animals are both stupid and tractable, and it is possible to impound the shallow waters in which they browse.

Sea-cows evidently were known to the mariners of early modern times, whose accounts, losing nothing in the telling, were further magnified by credulous authors who traveled by arm-chair route. An old wood-cut shows a very literal "sea-cow," with formidable horns, a belligerent eye, and a mouth opened wide in a ferocious bellow. The accompanying text states that "The Sea-Cow is a huge Monster, strong, angry, and injurious," which, to anyone who knows the real manatee, is a most untruthful slander.

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The moon reflects only about one-fourteenth of the sunlight falling on it.