

of marble? For the motion of the most subtle body can only be quicker; it cannot be instantaneous, any more than that of the heaviest and most massive bodies. A prejudice too favorable to the Heavens and their celestial bodies has in fact given them prerogatives which they are beginning to lose. The Heavens have been thought incapable of change and alteration; we have recently been disabused of that by experience; but if we are logical, there ought to be now of all times a great prejudice against alterations and change of sub-lunary bodies. The same Laws of Nature hold throughout everything, and the Heavens should in no wise be privileged. The motion of a block of marble proves the necessity of some duration for that of light. The motion of sound which travels so quickly is in effect, compared to that of light, only the motion of a block of marble raised without much difficulty by a crane.

It follows from Observations by M. Roëmer, that light in one second of time travels 48203 common French leagues, and  $\frac{1}{111}$  parts of a league, a fraction which might well be neglected. Sound in the same times travels only 180 toises, that is to say, a part of one league more than four times smaller than the fraction  $\frac{1}{111}$ , which is negligible in the motion of light. If we compute from that the path which it [light] travels in one minute, and that which it must travel to be retarded ten minutes to our perception, we will be frightened, alike at the immensity of space, and at the swiftness of light, and at the subtilty proportional to this swiftness, and at human understanding.

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#### ASTRONOMY

## Mt. Locke Selected For Second Largest Telescope

THE SECOND largest telescope in the world will be located on Mt. Locke, the 6,790 foot peak in the Davis Mountains of southwestern Texas, which has just been selected as the site of the new McDonald Observatory, a cooperative enterprise between the University of Texas and the University of Chicago.

A bequest by the late W. J. McDonald of Paris, Texas, to the University of Texas will provide the eighty-inch telescope and buildings, while the University of Chicago will provide a staff under the direction of Dr. Otto Struve, director of the Yerkes Observatory.

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#### TEXTILES

## Moth Repellent Dye Being Sought For Clothes

THE RAVAGES of clothes moths amount to about \$100,000,000 a year in this country. Some six hundred moth-proofing materials have been patented, not including fumigants. Thus the clothes moth, seldom seen and preferring dark places, may well be listed as a "public enemy" and put on the spot if we can.

The latest idea in protection against moths is the development of a dye for wool that makes clothes as distasteful to moths as they are beautiful to human eyes.

At the University of Illinois under the direction of Dr. L. R. Shriner, this problem is being tackled by a Textile Foundation fellow, H. E. Ritchey.

At present only one dye on the market is moth repellent, preliminary tests show. This was of course accidental. Mr. Ritchey is now at work to determine whether moth repellents will retain properties when combined with dyes. If they do, whether the anti-moth material will interfere with the coloring by the dyes must then be investigated.

He believes that there is a good chance of developing an ideal moth-proofing material in the form of a moth-repellent dyestuff. The ideal material would first be effective, have no objectionable odor, should adhere evenly to the fabric treated, be unrecognizable on the material, not dust off, not be toxic to humans, and be reasonably priced.

"Some of the multitude of patented mothproofs are ineffective, but the chief loophole for moth attacks probably lies in defective conditions of application," said Mr. Ritchey in discussing the need of better moth protecting. "Sprays, for instance, are not applied thoroughly, or fumigants are allowed to escape through lack of air-tight chests or wardrobes. The habits of moths are their greatest protection. They prefer dark places and are seldom seen in the light. The moth that seeks the bright lights and incites the housewife to frantic efforts is usually a harmless variety. His destructive brother works under cover and frequently goes undetected until the damage is discovered.

"Some of the most commonly used substances are paradichlorobenzene,

naphthalene, carbon bisulfide and carbon tetrachloride. Of the many materials, some seek to kill the moth, others endeavor to nauseate him and thus divert his presence or his appetite. Some methods probably only lighten the moth's daily routine.

"The great number of 'proofs' attests to the serious need for protection against moth ravages, and would seem to assure adequate defense. In actual practice, however, few of the materials prove entirely satisfactory. Some are inflammable, others poisonous to humans, some malodorous, others difficult to apply, and still others are unsatisfactory because of their expensiveness."

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#### ETHNOLOGY

## Indians Branded Selves With Bonfires

STOIC INDIANS of the West branded designs on their skin by literally lighting small bonfires on themselves, it appears from new information about ancient practices obtained from living Indians.

Mission Indians of California used both branding and tattooing to adorn their bodies, J. P. Harrington of the Bureau of American Ethnology has learned. For the branding, the Indians took leaves of California mugwort which were dry and shriveled in early summer. These dried leaves were pounded on an anvil stone to make a spongy fuzzi-like material. The stuff was then laid out on the bare skin of the Indian to form the desired pattern and the dried leaves were lighted.

"The pain was intense as the burning reached the skin," writes Mr. Harrington in a report of Smithsonian Institution explorations, "but it was borne without a wince or murmur. The brand resembled a cattle brand and adorned the person for life."

Mission Indians tattooed themselves by pricking a pattern with a cactus or other thorn, or a bit of sharp flint, and then rubbing a bluish-black dye, made of black nightshade, into the bleeding wound.

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