

## PHYSICS

# Electric "Feelers" Probe Films Ten-Millionth Inch Thick

## Characteristics of Organic Materials Much Too Small For Viewing Through Microscope Explored by New Method

SEEKING from the infinitesimal building blocks of matter themselves the secret of why atoms and molecules cling together, to compose the living and lifeless substances of the world, Dr. William D. Harkins and E. K. Fischer of the University of Chicago reported to the American Chemical Society that they are now able to reveal the presence of thin layers of organic material 500 times too small to be seen through the most powerful microscope.

Though we can not see them, such films are on all surfaces, Dr. Harkins explained, and knowledge of them will lead to a better understanding of why all things hold together. He pointed

out that since the human body is made up largely of surfaces in contact with surfaces, this research may eventually explain body processes now little understood.

Films of water have been studied. Such films, only one ten-millionth of an inch in thickness, Dr. Harkins declared, are divided up into islands and continents, and the study of the geography of the surface of almost any body of water reveals an interesting topography. The continents and islands, too small to be seen, are located by measuring with very delicate and sensitive instruments changes in electrical potential caused by the film.

Dr. Harkins has found that the outer part or top of an organic film is, in general, electrically positive with respect to the underlying liquid. Although the change of potential, usually about three-tenths of a volt, seems small, he said, such potentials are related to important features of the surface. Paradoxically, films composed of extremely large molecules, with weights of about 17,000, set up the same potentials caused by films of smaller molecules. What is even more strange, very large molecules gave much thinner films than those made up of molecules sixty times smaller.

*Science News Letter, September 23, 1933*

## ASTRONOMY

## Saturday, Sept. 23, Sees Beginning of Autumn

AT 7:01 A. M., eastern standard time, Saturday, Sept. 23, the summer of 1933 came to an end, and autumn commenced. Then, according to computations made in the Nautical Almanac Office of the U. S. Naval Observatory, the sun, which is now moving southwards in the sky among the stars, crossed the equator.

This event is called the autumnal equinox. At this time of year the sun rises directly east and sets directly west, so that it is above the horizon as long as it is below. After the twenty-third, the days will continue to shorten, and the nights to lengthen, until the winter solstice on Dec. 22, when the sun reaches its farthest south position, and winter commences.

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New York, Nebraska, and Pennsylvania have enacted laws providing for use of non-shatterable glass in all motor vehicles after designated dates.

## HORTICULTURE

# New Fig Variety Ripens After Picking

A NEW variety of fig that may be picked green and sent on its way to distant markets while it ripens, like most other fruits, is being developed at the Texas Agricultural Experiment Substation, Angleton, Texas, under the supervision of R. H. Stansel. Heretofore no variety of fig has been known that would not sour within one or two days after ripening or that would ripen if picked green. This new fig, if perfected, will greatly expand the fresh fig market.

Figs of this new variety turn purplish brown about ten days before they ripen and will continue to ripen if picked thereafter. The single tree that Mr. Stansel has requires so long a growing season that frost catches the crop in most fig-growing areas.

As one of the steps in further experimentation, Mr. Stansel plans to grow some trees of this variety in the Rio Grande valley, where the growing season will be long enough to allow the entire crop to mature. There are two possibilities. One is to grow the fig entirely

in the winter garden areas. The other is to produce a fig that will retain the characteristics of this variety and yet ripen in a shorter season. Shortening the growing season is the more desirable, since it will allow the growers to get their fresh figs on the market earlier.

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