

## GEOGRAPHY

## Polar Ice Cap Shivering In Perpetual Vibration

**E**VEN an ice cap shivers in the wind of a Siberian polar sea. So it appears from the discovery reported by Ibrahim Fakidov, member of the Soviet Arctic expedition on the S. S. Cheliuskin.

M. Fakidov found that the solid ice cap of the Chukchi Sea is in a state of perpetual vibration. Reporting this observation (*Nature*, Oct. 6) the Russian scientist stated that the vibrations are caused mainly by wind. In addition to wind vibrations he also observed "disturbance vibrations" in the ice, spreading equally from the center—the spot of the breaking up of the ice in different directions.

M. Fakidov stated that he planned to set up special ice seismographs on the shore-ice to take observations of both types of vibrations. These data are expected to prove valuable in forecasting ice conditions.

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## MEDICINE

## Mothers' and Babies' Lives Saved By Prenatal Care

**C**OLD figures that tell the story of how mothers' and babies' lives were saved by care of the mother during the months before the birth of her child were reported by Dr. E. L. Bishop, Tennessee state commissioner of health, and Dr. W. C. Williams, director of Williamson County, Tenn., health department, to the Southern Medical Association.

The figures showed what happened to two groups of mothers in Williamson County. One group, reported to the health department by physicians, were regularly visited by public health nurses who pointed out to them the dangers of childbearing, taught them how to care for themselves, and reported on their condition to the physician in charge. The other group had no supervision or care before childbirth.

The figures showed that the rate of maternal deaths per thousand births was approximately four times as great in the unsupervised as in the supervised group. There were no deaths in the supervised group from preventable causes but the deathrate from such causes in the unsupervised group was over 4 per 1,000 births.

"The supervision of 50 per cent. or more of prenatal cases has been associated with what was believed to be a significant decline in the maternal mortality rate," Dr. Bishop said in reporting results of seven years during which the maternal hygiene program has been in force in Williamson County.

Babies as well as mothers benefitted by the care given to the mothers. In the first place more babies were born alive to mothers in the supervised group.

Discussing the figures which give the mean annual death rate for babies under one year of age, Dr. Bishop pointed out that this rate was two and one-half times higher in the unsupervised group than the supervised group and three times higher in the state at large than in the supervised group. The rate of deaths from infectious and respiratory diseases was six times greater in the non-supervised group than in the supervised group. The death rate for diseases of stomach and digestive organs was twelve times greater in the unsupervised group.

Statistical analysis showed that the cold figures were significantly in favor of the supervised group. These mothers and babies had a distinct advantage over those of the unsupervised group in their fight to survive the hazards of childbirth.

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## CHEMISTRY

## Soviet Chemists Produce Leather From Dolphins

**L**EATHER from dolphin stomachs is the latest achievement of Soviet chemists.

In their search for new sources of leather and leather substitutes, the chemists have found that dolphins—sea-going mammals and small relatives of the whale—have stomachs that provide suitable material for women's and children's shoes, and various haberdashery articles.

Dolphin leather will be manufactured at the Leather Works in Tagan Rog, Northern Caucasus. The method was worked out at the Azov-Black Sea office of the Leather Trust.

Soviet chemists have been actively working on leather materials, since the second five year plan calls for increased shoe production. One hundred million pairs per year is the goal to be attained, compared with present output of thirty million. Twenty-one new factories are to be constructed for the purpose.

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# IN SCIEN

## PHYSICS

## Purest Water Weighs Less Than Kind Man Drinks

**"P**ROTIUM oxide," purest water yet prepared, practically free from "deuterium oxide" which contains the double-weight hydrogen variety, is lighter than the common drinking water by about 12 parts per million. Ordinary water contains about one part in 9000 of heavy water, according to the group of investigators who carried out the extensive purification in connection with the work here described.

E. H. and Prof. C. K. Ingold at University College, London, and H. Whitaker and Prof. R. Whytlaw-Gray at the University of Leeds, purified London and Leeds tap water by fractional distillation, electrolysis and decomposition with metals, until it contained at the most a few units per cent. of the original heavy water.

The discovery of heavy water has involved many changes in the chemist's and physicist's "constants." Even the atomic weights of hydrogen and oxygen, among the most accurately known, need slight alterations. The scientists point out in their communication (*Nature*, Oct. 27) that it is doubtful whether the ratio of the weight of hydrogen to oxygen has ever been determined using gases of normal composition.

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## ARCHAEOLOGY

## Finds 4,000-Year-Old Stone Age Village

**T**HE VILLAGE of some of Sweden's Stone Age hunters and fishermen, 4,000 years old, has been found on the shore of picturesque Valdemar Bay on the southeast coast.

Prof. O. Janse, archaeologist who made the discovery, expects to find other, similar settlements in the region.

Prof. Janse unearthed quantities of fish and animal bones cast aside by the villagers from their meals, and also the pieces of their earthenware vessels.

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# CE FIELDS

## CHEMISTRY

## Weight of Rare Element Determined for First Time

**T**HE FIRST atomic weight determination of protactinium, next to the heaviest element, has been made by Prof. Aristid Von Grosse and M. S. Agruss of the University of Chicago who recently isolated this element for the first time. The value of its atomic weight is 231, with an accuracy of 0.5 per cent.

The 0.1 gram of protactinium oxide recently isolated was used for that purpose. The pure compound potassium protactinium fluoride was prepared and converted into the oxide, using platinum equipment exclusively. The ratio of two molecules was determined by means of a very sensitive ultra-micro-balance. From this ratio the value of the atomic weight was determined.

This atomic weight fixes also the values of all other elements of the actinium radioactive series and is in complete agreement with the result which Prof. F. W. Aston, British authority on actinium lead, obtained with his mass spectroph.

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## METEOROLOGY

## Drought Threatens Return; Abnormal Frosts in East

**D**ROUGHT again hovers threateningly over a large part of the country, as dry, chill winds in the East and South bring a foretaste of early winter, a survey of mid-November weather by the U. S. Weather Bureau discloses.

While abnormal cold carried frost far down into Georgia, and early snows fell in New England, the West received the not-too-welcome boon of a warm wave, with temperatures from 9 degrees to as much as 14 degrees above normal from the Great Plains westward. Without accompanying rain, warm weather there must be rated as "not-so-good."

But from everywhere have come reports of lack of rain. As yet, actual drought conditions do not prevail ex-

cept in limited regions, thanks largely to the more-than-generous rains that fell during September. However, there is a noticeable note of anxiety in many of the crop-weather reports.

Winter wheat conditions in the Ohio valley are stated to be "good to excellent," except in the upper valley where in many localities the crop must be reported as poor because of lack of rain. The northern parts of the Corn Belt still have moisture "sufficient for present requirements;" nevertheless "even in these sections good rains would be helpful in most places." The same holds true for the winter wheat areas of eastern Nebraska and Kansas, and southward through Oklahoma, Arkansas and Louisiana.

In the Plains area, from Montana southward, there is a recurrent note of their already four-year-long tragedy of drought; "winter grains are in serious need of moisture, with much plowing and seeding suspended due to dry soil and stands that are generally unsatisfactory or poor."

More cheerful word comes from the Pacific Northwest, where good rains have helped the wheat. And even in the drier Midwest and Southwest the lack of rain has not been an unmixed curse, for the corn and cotton harvests have gone ahead rapidly in the dry fields.

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## ARCHAEOLOGY

## "Cities" of Maya Land Different From Today's

**I**F YOU have a mental picture of Mayan Indians living in crowded streets in beautiful stone "cities" down in Yucatan and Guatemala, that picture should be erased.

Dr. Oliver G. Ricketson, Jr., archaeologist of the Carnegie Institution, is attempting to correct this popular impression that the ancient Mayas congregated in great cities. The rank and file of the Mayan people were always farmers.

"The ruins that we see today," explains Dr. Ricketson, "are the civil and religious centers to which the surrounding farmers flocked on market and feast days."

Out from the hub of such civic centers may be still seen radiating in every direction in the jungle the low house mounds where the farmers had their homes. The population around such a center as Uaxactun, in Guatemala, is estimated at no less than 48,000.

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## PLANT PATHOLOGY

## Boron Causes Leaf Spots That Look Like Disease

**B**ORON, familiar to most of us in its common compound borax, can cause spots that look as though they were caused by disease organisms, states Dr. J. J. Christensen, pathologist of the University of Minnesota. Excess boron in the soil frequently brings them out.

The boron spots, states Dr. Christensen, resemble the common spot blotch disease of barley, making it difficult to diagnose the condition without careful laboratory examination. The spots may be artificially induced by adding either borax or boric acid to the soil in which the plants are growing.

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## AGRONOMY

## Crowded Planting Lowers Corn Quality

**C**ORNSTALKS growing in a field do not like overcrowding any more than men working in a factory do; they respond by inferior individual performance. A measure of this unfavorable effect of crowding has been obtained by Harold F. Eisele, of the biology department of Sioux Falls College, S. D.

In his experiments, Mr. Eisele grew separate plots of corn, one with one stalk to a hill, one with three and one with five. At intervals during the growing season he gathered sample stalks from all the plots, and compared their growth in height, in stem thickness, in leaf area and in total weight of dry substance. In all these measurements, except stalk height, the plants crowded five to a hill were markedly inferior, while the ones that had been given the relative freedom of one stalk to a hill made the best showing.

At the end of the season, the ears were harvested and the grain yield measured. In the crowded stand, about a fourth of the stalks failed to bear any ears at all, and nearly half of the ears that were produced were nubbins. In the one-stalk plot, every stalk produced at least one ear, and many bore two, while the nubbins amounted to not much over a tenth of the total. The average length of the ears from the five-stalk stand was a little under six inches, while the stalks from one one-stalk stand averaged nearly two inches longer than that.

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