

## ARCHAEOLOGY

**Ancient Shawls Pass Modern Textile Tests**

**S**HAWLS made for fastidious Egyptian royalty as far back as 1400 B. C. have been put to modern tests at the Philadelphia Textile School, and it appears that broadcloth was known and appreciated even in that early time.

For use in the tests, the Metropolitan Museum of Art contributed eight little squares of cloth from Egyptian tombs of three different periods of history. One fragment was cut from a sheet or shawl in the burial of Queen Meryet-Amun, who lived in Egypt about 1400 B. C. Five more squares came from the burial garments of the little old Princess Entiu-ny who lived about 1000 B. C. Two samples were from shawls worn in the Roman period of Egypt, about the second century A. D.

The tests made by Bradley C. Aleo and Howard A. Walter show that the modern broadcloth texture was used in Egyptian cloth of all three periods. The majority of the samples were of this weave, which consists of using twice as many warp as filling threads per inch. The fragments of cloth are cited as evidence that "even so many centuries ago people recognized the wearing qualities and fast weaving possibilities of this texture."

Microscopic studies of the fibers in the cloth showed that every piece was made of flax.

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## VITAL STATISTICS

**Health Record for 1931 In Spite of Depression**

**I**N SPITE of economic depression and an influenza outbreak during the early part of the year the deathrate for the United States and Canada will probably be lower for 1931 than ever before, statisticians of the Metropolitan Life Insurance Company predict from their study of the company's records of deaths among the industrial population during the first nine months of the year.

"Regardless, however, of whether a new low point in the deathrate is actually reached, the 1931 health record to date is in many respects the most remarkable of all the years," the company reports.

The records of the company showed that deaths for the first three quarters of this year are only three-quarters of one per cent. higher than last year's all-time record minimum deathrate.

The deathrate for tuberculosis dropped seven and one-half per cent. If this continues to the end of the year, the largest year-to-year decrease registered for this disease in ten years will be recorded.

The diphtheria deathrate also dropped to a new low of 3.9 per 100,000 which is one-seventh of the rate twenty years ago. New low deathrates for the year are also expected for typhoid fever, diarrheal conditions and conditions associated with childbirth.

Another unusual feature for the year's health picture so far is that there has been no rise in the pneumonia deathrate in spite of the influenza outbreak and high mortality from that disease.

The diseases which showed important increases during the first nine months of the year besides influenza are cancer, diabetes and infantile paralysis. The influenza deathrate returned to normal after last winter's epidemic was over.

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## GEOLOGY

**Glacial Diamonds Found In American Gravels**

**A** NUMBER of diamonds have been found in gravel deposits in Michigan, Wisconsin, and Illinois. While the majority of them are small, many diamonds of considerable value have been discovered. The largest so far reported found weighed 21½ carats.

A great diamond field somewhere in the north is believed to be the source of these stray diamonds. Where it is—or was—no one knows. But undoubtedly at some time glaciers swept over it, carrying away with them some of the diamonds, and perhaps even sweeping away the entire deposit. As they moved down over the Great Lakes region they scattered the diamonds among the gravel they left in their wake. Attempts made to find this field have all failed. Probably if still in existence it is hidden in the great wild and inaccessible areas of Canada, and the search for it is on a par with the hunt for the proverbial needle in the haystack.

The diamonds found in the gravel beds, having been washed by water, are clean and easily seen. They resemble pieces of glass or clear crystal quartz. Usually they will reflect a rainbow of color without polishing. Therefore pebbles showing rainbow colors are worth examining carefully.

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**IN SCIENCE**

## ASTRONOMY

**Astronomers Watch Return Of Comet in Saturn 'Family'**

**T**HOUGH so faint that it can only be glimpsed in the very largest telescopes, Neujmin's comet, first observed in 1913 and now on its first return to the neighborhood of the earth, is being carefully watched by astronomers. It is a great rarity, for it is a member of Saturn's "family" of comets, and the second one to be seen more than once.

According to the "capture" theory, the larger planets, Jupiter, Saturn, Uranus and Neptune, have captured comets as they were moving through space. That is, as the comets came within the gravitational attractions of these bodies, they were pulled inwards enough to make them part of the solar system. They still show the identity of their captor by making a close approach to the orbit of that body on each of their trips around the sun.

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## ENGINEERING

**Cars of Future Will Need Better Lubricants**

**A**UTOMOBILES will soon have such great speed and acceleration that special extreme-pressure lubricants not now available to the public will be needed to keep their transmission and differential gears from scoring and breaking down under the strain to which they will be put.

This is the suggestion of H. C. Mougey and J. O. Almen, engineers of the General Motors Corporation, made before the American Petroleum Institute meeting at Chicago. They pointed out that even now the generally accepted theory of lubrication does not hold for some parts of the automobile.

It is widely thought that in lubrication a film of oil actually prevents rubbing surfaces from coming together, the engineers said. But, they declared, this condition does not apply to highly loaded gears which make contact at fast rubbing speeds as in the transmission and differential of an automobile.

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# E FIELDS

## CHEMISTRY

## Thin Chromium Coatings Protect Army Rifles

**V**ERY THIN coatings of chromium, bluish-white non-tarnishing metal used on auto trim and plumbing fixtures to keep them shiny, are being applied to the interiors of Uncle Sam's large and small caliber guns to keep them from rusting and to give them longer life, Dr. William Blum, Bureau of Standards authority on electroplating, revealed in an address before the Franklin Institute in Philadelphia.

Not more than four ten-thousandths of an inch thickness of chromium metal is used as the protective coating on rifle and machine gun barrels at Frankford Arsenal, Philadelphia, and on six-inch guns at Washington Navy Yard.

Dr. Blum predicted that chromium-plating for wear resistance would be more extensively utilized in the near future. Chromium aids the manufacture of both paper and metallic money. Printing plates from which all United States paper currency and postage stamps are printed are chromium-coated, while some dies used in stamping coins at the Philadelphia Mint are made to last longer by chromium coats. Other applications of chromium include tools for cutting soft but abrasive materials, dimensional gages, electrotypes, piston pins, machine parts, etc.

Electro-deposition of platinum metals and tungsten promise to meet new problems of industry in the near future, Dr. Blum said.

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## ETHNOLOGY

## November Meteors Were Dead Souls to Mexicans

**B**EFORE the first Europeans came to America, the Mexicans knew the meteors in the skies that display themselves every autumn. They called them "falling hairs," and believed they were souls making their annual visit to earth with the Lord of the Dead. They commemorated the showers each year by "quecholli" festivals about the end of October. The festivals and the shooting

stars were associated with the end of the world.

Stansbury Hagar, ethnologist of the Brooklyn Institute, finds evidence in an ancient Aztec code, that the "falling hairs" were the familiar November meteors with their fiery trails behind them. Mexicans as well as Mayas appear to have distinguished between various meteor groups.

At Acancéh, Mayan city in northern Yucatan, an Indian Zodiac is identified by Mr. Hagar in stucco decorations on the facade of a pyramid. Astronomical signs in regular sequence show Taurus and the Pleiades. A down-flying half-human figure with star-symbols in his tail and arrows over his head, Mr. Hagar believes, is a Taurid meteor emanating from Taurus in November near the meridian.

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## MEDICINE

## After-Care of Paralysis Victims Strongly Urged

**T**HE NEED for adequate after-care of the pathetic victims of the recent infantile paralysis outbreak is being urged by the Medical Society of the County of Kings, Brooklyn, N. Y. A special committee on after-care of this disease is now at work in cooperation with the Visiting Nurse Association and the medical profession generally to see that this important feature of the treatment of the disease is not neglected.

The after-care of these small patients is aimed to prevent as far as possible the distressing deformity and crippling which this devastating disease almost always leaves in its wake. While much may be done along these lines, the work must be carried out under expert guidance and for a long period of time.

"The outstanding duty of the health authorities and of the medical profession lies in warning the public that there is no panacea," the medical society has declared. "Irreparable damage can be done by the over-stimulation of muscles and by other improper handling. Finally, early neglect may result in deformity which could have been prevented."

The bulk of the patients in the last epidemic came from homes where after-care at private fees would not be possible, the society's committee on public health found. Many patients were from families which under normal conditions would have difficulty in affording the type of after-care required.

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## MATHEMATICS

## Mathematics May Hold Key to Quantum Theory

**T**HAT the lumpiness of energy may be explained on purely mathematical grounds was suggested to the meeting of the American Mathematical Society at Columbia University by Prof. Edward Kasner of Columbia, as a result of his studies of curves.

An imaginary or complex mathematical curve, Prof. Kasner said, has a peculiarity that a piece of it can never be made like a straight line no matter how short a piece is taken. Prof. Kasner studied the ratio between the length of a straight line cutting such a curve when the length of the piece cut off is made smaller and smaller, and found some curious things.

In ordinary curves this ratio is one but in the special cases considered by him the ratio can have only discontinuous values less than one, such as 0.94, 0.86, 0.80, etc. These values become realized when electrons are assumed to shoot out with the velocity of light and measurements are made in the space of Minkowski and Einstein.

Jerkiness of this kind reminds one of the things observed in the quantum theory. Prof. Kasner suggested that there may be some relation between the mathematical fact and the physical quantum laws.

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## PHYSICS

## Long Pipe Lines Unhurt By Stray Electricity

**S**TRAY ELECTRIC currents from street car tracks may travel along nearby pipe lines and hasten their corrosion, but the currents which follow long oil and gas pipe lines for miles and miles do not speed up rusting and leaking. This is the conclusion of Stanley Gill and W. F. Rogers, research engineers with the Gulf Oil Companies, following a study reported in *Physics*.

It is well known that currents from electric railways often jump to nearby pipe lines and rapidly destroy the pipe. But the currents Mr. Gill and Mr. Rogers studied are found in pipe lines far from electric railways or other sources of stray currents and frequently follow the pipe for miles without getting larger or smaller. They called these "long line currents."

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