

## ASTRONOMY

## Pons-Winnecke Comet Sighted on Return to Sun

THE FAMOUS periodic Pons-Winnecke comet has returned for another visit to the vicinity of the earth. From the Hamburg Observatory, Germany, the astronomer Wachmann sighted it on March 24 for the first time since its 1927 visit.

It is still faint and visible only in large telescopes, and is located in the constellation of Ophiuchus, the serpent holder, which is in the early morning eastern sky.

The comet is not expected to provide the astronomical entertainment that it offered in 1921 and 1927. In 1927 it was first seen at Yerkes Observatory of the University of Chicago and came within 3,500,000 miles of the earth, only  $14\frac{1}{2}$  times as far away as the moon. Because Pons-Winnecke was affected by the planet Jupiter on its present journey round its orbit, the time between its visits to the earth is lengthening and its closest approach to the sun will not be as close as it has been in the past.

The comet was discovered by a French astronomer, Pons, in 1819, lost and then rediscovered by a German, Winnecke, in 1858. It has been seen about every six years since then, except on two of its returns when it was missed.

On July 1, 1908, the earth passed through the track of this comet and night clouds appeared so white and luminous that people were able to read small-typed print indoors at 10:30 p. m., without artificial light. This phenomenon was due to the scattering of sunlight by the fine dust of the comet.

In 1927 it was discovered that Pons-Winnecke comet has the smallest nucleus or body that has ever been observed in any comet. It is not more than two or three miles in diameter.

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## PHYSIOLOGY

## Liver Studied Chemically In Health and Disease

HOW THE hemoglobin-producing factors of the human liver are affected by various diseases was reported to the American Chemical Society by Dr. G. H. Whipple of the University of Rochester School of Medicine. Dr. Whipple was one of the pioneers whose investigations led to the liver treatment

for pernicious anemia, in which disease the hemoglobin content of the blood is somewhat reduced.

Acute infections reduce the store of these potent hemoglobin-producing factors in the human liver somewhat, Dr. Whipple found. On the other hand, chronic intoxications had very little effect.

In cirrhosis or inflammation of the liver there was a marked reduction in the amount of the hemoglobin-producing factors. Pernicious anemia showed very high values for these factors. Secondary anemia due to loss of blood showed low normal values, but even long standing severe anemia will not seriously deplete this store of hemoglobin-producing factors in the liver, Dr. Whipple asserted.

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## PSYCHOLOGY

## Rivalry and Reward Speed Accomplishment in School

IF A CHILD is behind in his school work it is just as likely to be because he is acting from wrong motives as that he lacks ability, Dr. Douglas Fryer, of New York University, said.

Dr. Fryer described a study of 100 children, of whom it was found that only about a third were really trying to learn their lessons. Some were afraid. Some were trying to disturb their classmates who were learning. But those who really tried to learn progressed twice as rapidly as the others of approximately equal intelligence.

"A reward incentive will cause 12-year-old children to do arithmetic 54 per cent. faster than their usual pace," Dr. Fryer said. "A rivalry incentive will cause the same children to do this work 47 per cent. faster. Both reward and rivalry incentives applied together will cause an increase of 65 per cent. in accomplishment.

"For children to work for their class or gang in order to beat another class or gang, is not so strong an incentive as trying to beat other individuals. In other words we work harder for ourselves than we do for others.

"But children will work for their class in school much harder than they do with the bare incentive to learn their lessons.

"Blame or reproof incentives wear out quicker than praise and encouragement. Over a long period of time praise will act as the best incentive."

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# IN SCIENCE

## AERONAUTICS

## Leningrad Scientists Plan Stratosphere Ascent

A SPECIAL BALLOON now under construction in Leningrad will be used by Soviet scientists in an attempt to set a new altitude record by penetrating into the stratosphere, in order to study electric and magnetic phenomena, cosmic rays and solar energy in the upper reaches of the atmosphere.

The closed passenger car, which will be attached to the balloon, will have walls ten millimeters thick. It is being constructed of a specially strong non-magnetic alloy which has been perfected by a group of specialists working under the guidance of Engineer Vasienko.

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## CHEMISTRY

## Crystals of Vitamin B<sub>1</sub> Obtained by Acid Process

VITAMIN B<sub>1</sub>, preventive of the Oriental disease beri-beri and other nerve disorders, has been obtained in crystals by Dr. Atherton Seidell and Dr. M. I. Smith of the U. S. National Institute of Health. This achievement, important because it makes the vitamin available in pure form for chemical study, was announced at the meeting of the American Chemical Society.

Dr. Seidell and Dr. Smith obtained a concentrate of vitamin B<sub>1</sub> from brewers' yeast by processes already known. This they treated with picrolonic acid, precipitating out substances of no vitamin value. The liquid left over, when evaporated, yielded a partially crystalline deposit, which after further purification gave them a quantity of prismatic crystals.

These crystals appear to be the vitamin in pure form. Rats suffering from a deficiency of vitamin B<sub>1</sub> were cured with as little as fifteen thousandths of a milligram—about as much as you could pick up on the point of a pin.

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# OE FIELDS

## HYGIENE

### Standing Straight Found Best Posture Exercise

**S**TRAIGHTENING up into correct posture many times a day is the best exercise for good posture, much better than daily dozens or other gymnastics, the Missouri State Medical Association has concluded.

According to the modern theory, poor posture is not the result of weak muscles, as formerly held, but the result of acquired improper muscle habits. It follows that trying to correct poor posture by daily and hourly gymnastics to strengthen the muscles is wrong. The way to do it is to correct the faulty muscle habits by assuming the proper posture many times during the day.

"Only in this way," comments the editor of the Association's journal, "do we achieve the correct posture of the body to foster full vigor and health, prevent waste of energy and inculcate confidence and assurance."

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## ETHNOLOGY

### Jews a Mixed People Partly Nordic in Origin

**T**HE JEWS, subject to such violent opposition by the Hitlerites and members of the so-called Nordic movement in Germany, are not, properly speaking, a race. They are a people of mixed racial origin and may even trace part of their ancestry to the fair Nordics. It is no more correct to speak of the "Jewish race" than it would be to refer to the "French race" or "German race."

The Jewish people were originally a Semitic people who even in very early times mixed with Amorites, Hittites, and Philistines; their so-called "Jewish" nose being acquired from the Hittites, according to a British authority on anthropology, Dr. A. C. Hadson, of Cambridge University.

From the Amorites, modern Jews derive their claim to Nordic descent.

The Amorites were a fair people.

The Jews of Germany, and of northern and eastern Europe generally, are by no means purely of the old Palestinian stock, mixed though even that was. They represent a dispersal of the old stock northward and westward by way of the Black Sea and the river valleys that slope towards it. They represent also a vigorous and successful missionary effort on the part of Judaism at about the beginning of the Christian era, which brought into the fold of Abraham considerable numbers of aliens, mostly Slavic, around the Black Sea coasts.

It is perhaps the bitterest piece of irony in the whole tragic situation today in Germany that Hitler, leader of the "Nordics," is himself a non-Nordic, and that the Jews who are being hazed by his partizans have a strong strain of his own "Alpine" blood in their veins.

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## PHYSICS

### Scientists to Hear Music By Three-Line Transmission

**W**ITH THE Philadelphia symphony orchestra playing in Philadelphia, and with Leopold Stokowski and the audience miles away in a great hall in Washington, the National Academy of Sciences and guests on April 27 will hear a unique symphony concert.

This symphonic program will be a novel supplement to the annual spring meeting of the National Academy.

Engineers of the American Telephone and Telegraph Company will play as important a part in the symphony as Stokowski and his musicians. Three telephone lines will connect the Washington hall where Stokowski and the audience are located with the Philadelphia hall where the musicians perform. Stokowski will be able to control the qualities of the music heard by the audience in a manner that would be impossible if the orchestra were playing directly to them. The multiple telephone lines will allow the transmission of overtones and music qualities lacking in ordinary long distance telephone transmission.

Two days prior to the demonstration, Dr. F. B. Jewett, vice-president of the American Telephone and Telegraph Company, will explain the principles and development of long-distance sound transmission and reproduction.

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## PHYSICS

### New Use for Electric Eyes Is Measuring X-Rays

**E**LECTRIC EYES that open doors, operate switches, measure light and do a host of other automatic services for science and industry, are now being initiated into a new job of measuring X-rays. Prof. Paul R. Gleason, Colgate University physicist, has found that non-vacuum type of photoelectric cells can be used to measure X-ray radiation from tubes operating up to at least 200,000 volts.

Two cells, properly compensated by filters, measured X-rays in agreement with the standard ionization chamber usually used to within 10 per cent. for long waves but failed by about 25 per cent. at shorter wavelengths. Fifteen seconds were needed for the photocells to get into action when recording X-rays while less than a second lag occurred when light was being measured.

Prof. Gleason is hopeful that photonic cells can be developed into practical X-ray measuring devices.

Photocells of the non-vacuum type are made in various ways. Some of these types, known technically as "barrier-layer" cells, consist of a thin layer of copper on cuprous oxide, while others are made of a layer of selenium on iron. They have the advantage of being more rugged than the vacuum tube types.

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## PHYSIOLOGY

### Vitamin A in Milk Depends on Hay Cow Gets

**H**OW MUCH vitamin A there is in milk, and in the butter made from the cream thereof, depends to a considerable extent on the kind of hay the cow gets. So reported Dr. E. B. Meigs, A. M. Hartman and H. T. Converse, of the U. S. Bureau of Dairy Industry, before the meeting of the American Chemical Society.

Dr. Meigs and his associates found milk and butter produced on a basis of good alfalfa hay to be definitely richer in this essential vitamin than similar products based on a poor grade of timothy hay. High-grade alfalfa fed to dairy cows is reflected later in a rich natural yellow in their butter, indicative of a high vitamin A content.

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