

## PUBLIC HEALTH

## Influenza and Scarlet Fever Are Still a Menace

**I**NFLUENZA and scarlet fever are still on the rampage throughout the nation but meningitis has fallen off a bit, temporarily at least, reports from state health officers to the U. S. Public Health Service show.

This is the season for scarlet fever cases to reach the year's peak but the increase this year is higher than ever before, with 8,807 cases reported for the week of March 7.

The influenza picture is about what it has been for the past three weeks. For the week ending March 7 there were 11,240 cases reported. This is nearly double the number of cases for the corresponding week last year and nearly three times the average number of cases reported in the first week of March for the past 8 years.

Meningitis cases dropped from 307 cases the week of Feb. 29 to 256 cases the week of March 7. Health authorities are not sure whether the disease will continue its downward trend or rise again.

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## PLANT PHYSIOLOGY

## Green Light Poisonous to Primitive Green Plants

**G**REEN light is "bad medicine" for green plants of the primitive group known as the algae. They seem to find it definitely poisonous, faring worse in its presence than they do in absolute darkness.

This hitherto unknown fact about the relation of light and plant life was discovered by Dr. Florence E. Meier, in the laboratories of the Smithsonian Institution.

Dr. Meier has been working for several years, studying the various effects of radiation on plants. For simplicity's sake, she uses the lowly algae, most familiar in everyday life as the green scum that forms on stagnant water, and the green mats that spread over wet soil.

In her present experiments, she first kept a quantity of green algae in complete darkness, though supplied with mineral nutrients in solution. They of course failed to increase in number, and after a time degenerated and slowly died.

She exposed a similar quantity to full sunlight. As expected, they increased and multiplied—fourfold in two weeks. Then she tried the effects of various

parts of white light. A narrow band of blue light was distinctly encouraging; the algae increased threefold in the same period. Red and yellow light gave results not quite so good—only twofold increase in two weeks.

But green light was worse than no light at all. The cells not only refused to increase in number, but actually decreased. There was no cell division, and many of the cells died. The green light apparently is actually poisonous to these organisms.

Infra-red light—the invisible rays at the lower end of the solar spectrum—seem to have no more significance for plants than they have for the human eye. Under it, the algae cells acted just as they had in complete darkness.

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## MINERALOGY

## Three New Rare Minerals Brought to Smithsonian

**D**ISCOVERY of three new minerals—rare and hitherto unknown constituents of the earth's surface—has just been announced by the Smithsonian Institution.

The first, which was collected and studied by Edward P. Henderson, mineralogist of the U. S. National Museum staff, is a bright canary-yellow colored powdery mineral. It came from the uranium-vanadium bearing sandstone along the north wall of the Gypsum Valley in Colorado, and has been named steigerite, in honor of Dr. George Steiger, formerly chief chemist of the U. S. Geological Survey. Analysis shows it to be a combination of vanadium, aluminum oxides, and water.

The two other new minerals were announced by William F. Foshag of the National Museum staff. Both were found near Franklin Furnace, N. J. One is a variety of the rare mineral known as ganophyllite, first described in Sweden more than 40 years ago and since found in minute amounts in New Jersey. Ganophyllite is chemically very complex, being a mixture of silicon, aluminum, iron, calcium, magnesium, and other oxides, with bound water.

The second new material is described by Dr. Foshag as a "zincian amphibole"—a form of the mineral known as amphibole but which contains an unusual amount of both zinc and manganese. It occurs in very close association with the ganophyllite and would be confused on superficial examination with the ordinary form of horn-blende.

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# IN SCIENCE

## PHYSICS

## Six Step Atom Smasher For Speedier Atomic Particles

**E**XPERIMENTS are under way at the University of Chicago to construct an improved atomic bombardment apparatus for use in creating artificial radioactivity and transmutation of the elements.

The equipment would be similar in principle, but with a slight variation, to the giant "cyclotron" magnetic accelerator apparatus of Prof. E. O. Lawrence at the University of California, state Dr. Robert J. Moon and Prof. William D. Harkins (*Science*, Mar. 6).

Dr. Lawrence's apparatus speeds up the desired atomic particles twice each trip around the apparatus and thus ultimately gives them energies comparable with 7,000,000 electron-volts of energy.

The new Chicago experiments have as their goal the hope that particles in the apparatus can be speeded up, not two but three or six times each revolution. "If successful," state Dr. Moon and Prof. Harkins, "this system should make it possible to attain much higher equivalent voltages."

Technical difficulty anticipated in the research is the attainment of some accurate method of using three-phase alternating current to provide the three or six "kicks" to the particles as they speed round and round in the apparatus.

Physicists want higher energies of the particles in their bombarding experiments because it will then be possible to pierce more easily the electrical repelling barriers which guard the nuclei, or cores, of atoms.

The whole of the new nuclear physics is intimately bound up with the successful breakdown of this nuclear barrier. The host of startling effects obtained in Dr. Lawrence's University of California laboratories has been due to the driving ability of his giant cyclotron apparatus. Any way to increase the effectiveness of the equipment, as proposed by the University of Chicago scientists, is an important step in unlocking the secrets bound up inside the atom.

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# FIELDS

## MEDICINE

### Half Million Workers Are Exposed to Silicosis Cause

**T**HE CONTROL and prevention of silicosis, the disease that attacks workers in certain dusty trades and which is now a subject of Congressional investigation, is mainly a medical problem, Dr. A. J. Lanza of the Metropolitan Life Insurance Co., New York City, told the American College of Physicians. The severe type of the disease is gradually disappearing, but a milder type is very common throughout industry, Dr. Lanza finds.

The disease is chronic and progresses slowly, the rate at which it develops depending on the amount of dust in the air and the amount of silica in the dust.

Dr. Lanza estimates that at least half a million workers are exposed to conditions that cause silicosis. X-ray pictures of the lungs are essential in diagnosing silicosis but Dr. Lanza warned physicians not to depend on X-ray films alone in diagnosing this condition. Physicians who interpret X-ray films for diagnosis of this condition should be experts on the general appearance of the healthy chest as revealed by X-ray films.

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## MEDICINE

### Doctor's Hunch Helps "Bleeder's Disease"

**H**OW a doctor's hunch led to what appears to be an effective way of treating children suffering from hemophilia, the hereditary bleeder's disease which afflicts members of European royalty, was told by Dr. Roger I. Lee of Boston to the American College of Physicians.

The method consists in giving doses of placental extract by mouth. The man who had the hunch about it is Dr. R. B. Eley of Boston. This doctor had been giving another substance extracted from the placenta to prevent measles in children. Dr. Eley could give no reasons why he thought placental extract would help bleeders, Dr. Lee said. Nevertheless, it seems to work though only time will show its true value. It is not as suc-

cessful with older children and not at all with adults, probably, Dr. Lee explained, because digestion in adults keeps the blood-clotting substance of the extract from being absorbed by the system.

The fact that the extract is remarkably effective in children, however, is encouraging, since Dr. Lee said that if the little boys who have inherited this condition can be gotten safely past their twenty-first birthdays, their chances of surviving are pretty good. If the swollen knees, due to hemorrhage around the knee joints, which are characteristic of the disease, appear early in childhood, the boy's chances of living till he is twenty-one are pretty slim, Dr. Lee said.

The big thing in treating this condition, Dr. Lee said, is to start the clotting process in the patient's blood. Once started at clotting, the blood of a bleeder will form a clot like blood from normal persons. Dr. Lee mentioned various substances that have been used in trying to start this clotting process, among them an extract from the spleen.

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## ARCHAEOLOGY

### Roman Quarry in Germany Bears Sun-Religion Signs

**R**OMAN soldiers stationed in southern Germany nearly 2000 years ago "went to temple" with the German "Mädels" on Sunday, just as American doughboys did a few years ago. And they absorbed some of the then prevailing German religious ideas, recording them in rough but spirited inscriptions on the walls of the quarry where they were detailed to work on week-days.

Basis for a romantic story of this kind has been patiently worked out from rock-carvings in an ancient quarry near Bad Dürkheim, which long puzzled archaeologists. Their significance, as finally read, is reported by Director Friedrich Sprater of the Historical Museum of the Palatinate, in Speyer, Bavaria. (*Die Umschau*, Feb. 2).

Inscriptions found in several parts of the quarry identify the men who worked it long ago as a detail of soldiers of the Twenty-Second Legion, with headquarters at Mainz. But the religious carvings are all native German. They are symbols of a form of sun-worship, and include numerous figures of horses, a rooster, a man dancing with a spear, a bird fighting a snake, and several pictures of a wheel carried aloft on a pole. Only one carving of a swastika has been found on the rocks.

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## PSYCHOLOGY

### Now "Basal Age" Shows How Child Will Do in School

**I**T'S NOT the number of a child's birthdays, but his "basal age" that tells whether he is old enough to get along in his school grade, Dr. Ira S. Wile and Rose David told the meeting of the American Orthopsychiatric Association.

The traditional practice of placing a youngster in first grade when he has seen six summers, never earlier or later, is all wrong, they indicated. So is the more up-to-date practice of grading by "mental age."

Besides the age reckoned by birthdays (chronological age as it is known technically) children have as many other ages as Shakespeare described in the "Seven Ages of Man." They are: anatomical (growth), physiological (physical development), psychological (mental development), pedagogical (school achievement) emotional and social ages. All these ages should be considered in grading the child. But more important than any of these is the "basal age."

"Basal age," as described by Dr. Wile, is a more meaningful variation of mental age. When psychologists say that a child has a mental age of six years, they mean that he does as well on certain tests as the average 6-year-old. He may miss some questions entirely but do well on others.

If, however, the child has a basal age of six years, it means that he can pass every one of the tests on the list expected of the 6-year-old.

Present methods of plumbing intellectual function are something like plugging a watermelon to see what it is like before buying it, Dr. Wile pointed out. In either case a conclusion is drawn concerning the whole, either watermelon or intellectual function, from a small section of its content. Tests for intelligence quotient and mental age tell something about intellectual function but they do not tell everything.

"Throughout the country," Dr. Wile said, "there are too large percentages of children who are failures in reading, likewise disgraceful proportions of children who are victims of retardation and non-promotion because of maladjustments in the school system. The numerous victims of school failure in single subjects are penalized because educators lack an appreciation of their mental organization."

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