

## PHYSICS

**American and German Receive Franklin Medals**

**A**N AMERICAN engineer and a German physicist share one of the highest awards given by an American institution. Dr. Ambrose Swasey, of Cleveland, and Dr. Philipp Lenard, of Heidelberg, were given Franklin Medals by the Franklin Institute at a special meeting in Philadelphia.

In collaboration with his partner, the late Worcester R. Warner, Dr. Swasey organized the Warner and Swasey Company, which has made many of the world's largest astronomical telescopes, in addition to machine tools. He also founded and endowed the Engineering Foundation and invented a range finder that was adopted by the United States Government.

Dr. Lenard was the first physicist to obtain cathode rays, consisting of rapidly moving electrons, outside the tube in which they were generated, and also discovered the "photoelectric effect" of ultraviolet light. At present he holds the rank of "Geheimrat" and is director of the Radiological Institute of the University of Heidelberg. Because of his feeble health, he did not come to Philadelphia in person.

Thirteen other awards were given at the same time by the Institute which was founded in 1824 as a memorial to Benjamin Franklin. Three of these were Cresson Medals, the Institute's oldest award, having been established in 1848. These went to Dr. Percy W. Bridgman of Harvard University; to Dr. Charles Le G. Fortescue of the Westinghouse Electric and Manufacturing Co.; and to Dr. John B. Whitehead of the Johns Hopkins University.

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## ARCHAEOLOGY

**Mystery Mound in Cuba Hints at Cannibalism**

**A** MYSTERY STORY dating back to the days before Columbus sailed to America has been uncovered in Cuba by H. W. Krieger of the U. S. National Museum. Mr. Krieger has just returned from exploring Indian mounds along the coast of Cuba.

Out of the thirty Indian mounds discovered by Mr. Fox of Florida, Cuba, and excavated by Mr. Krieger, there was one mound on the southern coast different from the rest in a mysterious, sinister way. All of the mounds investi-

gated were village trash heaps, containing animal and bird and turtle bones, also shells and other refuse. But this one mound had mixed in with mammal bones, shells, and earth a quantity of human bones broken up.

Indian cannibalism? Possibly, Mr. Krieger answers.

Some of the bones were split lengthwise, as cannibals broke bones to eat the marrow inside. But just to make the solution of the prehistoric mystery case harder, some of the human bones were not split, but broken into short lengths.

It is known that roving Carib Indians had the custom of eating human flesh. Bands of piratical Caribs from Dominica and neighboring islands made life miserable for peaceable Arawak Indian farmers in the islands of Porto Rico, Haiti, and Cuba.

The Cuban mound which revealed such gruesome remains may be some of the Caribs' work. This can be verified in part by study of stone implements on the surface of the mound.

The mystery mound cannot be explained, however, by saying that a Carib band descended on a seaside village and held one terrible feast of victory. Mr. Krieger found dismembered human bones mixed in the refuse from top to bottom of the mound. The culinary practice that the human bones represent, whatever it was, lasted for a considerable time, as the mound is a city block in length and approximately ten feet high near its center.

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## MEDICINE

**Hodgkin's Disease Treated Successfully with X-Rays**

**S**UCCESS in X-ray treatment of a few cases of the usually fatal Hodgkin's disease was reported before the meeting of the American Medical Association by Dr. A. U. Desjardins of the Mayo Clinic, Rochester, Minn. Surgery was entirely ineffective in treating this disease, which is characterized by nodes or tumors in the lymph glands of the body. Sometimes these tumors interfere with breathing and sometimes they stop the circulation of blood to the bone, resulting in destruction of the bone with much attendant pain. The disease is much more common than formerly supposed, Dr. Desjardins said. Its cause is obscure, but heredity may play a part, and also prolonged infection of any kind.

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**IN SCIEN**

## ASTRONOMY

**New Minor Planet Sighted From Argentine Observatory**

**A**N ASTEROID or minor planet was discovered on May 10 at the La Plata Observatory, Argentine, the Harvard College Observatory has been informed telegraphically by Prof. J. F. Hartmann, director. The new asteroid can not be seen by American astronomers as it is in the southern skies, in the constellation of the Hydra, right ascension 14 hours and south declination 22 degrees.

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## CHEMISTRY

**Gasoline Extinguishes Fire In Visioned Ammonia World**

**A** WORLD in which gasoline would be used to extinguish fires was described here before the Chicago section of the American Chemical Society by Dr. Edward Curtis Franklin, professor emeritus of organic chemistry in Stanford University. Dr. Franklin was awarded the Willard Gibbs medal for "eminent work in and contribution to pure or applied chemistry."

As a pioneer in the chemistry of ammonia, he opened up a new field and by the study of ammonia and the classification of its compounds made them available to industry. This work began 35 years ago at the University of Kansas.

In order to emphasize the fact that ammonia, like common water, forms many different kinds of compounds, Dr. Curtis imagined the water of the world replaced by ammonia.

"Liquid ammonia vapor," he said, "in an atmosphere of nitrogen is transported over the land areas of the earth and precipitated from ammonia clouds as liquid ammonia rain in the tropics and temperate zones, and as ammonia snow on mountain tops and in the arctic regions. Plants and animals flourish in the ammonia world."

In such a world where ammonia takes the place of water, cocktails would be liquid ammonia solutions of either ethylamine or diethylamine.

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# CE FIELDS

DESIGN

## Shape of Movie Screen Should Be Improved

**T**HE SHAPE of the motion pictures on the screen has not been so pleasant to look at since the coming of the talkies cut a slice off the side of the picture Loyd A. Jones of the Kodak Research Laboratories has found during a study of what would be the best dimensions for the projected rectangle.

Before the talkies the standard motion picture projection had breadth and height in proportions four to three. The narrowing of the available picture area in order to provide space for the photographic sound record has reduced the breadth to 115 per cent. of the height. Pictorial composition and practical usefulness are both injured by the unsatisfactory proportions of this area, experts are agreed.

Statistical studies of the proportions used by famous artists in their paintings have now shown that certain ratios of breadth to height are favored more than others. In particular it was shown by a study of the works of Rubens that, as the number of human figures in the composition increases, the breadth of the picture should become relatively greater.

The four to three ratio is an example of what is called "static" symmetry as contrasted with the "dynamic" symmetry widely used in the famous "whirling square" of classical Greek art. In deciding the best dimensions for the moving pictures on the screen, Mr. Jones found many other factors than those applied to still pictorial composition must, however, be taken into consideration.

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ARCHAEOLOGY-PHOTOGRAPHY

## Flying Archaeologist Makes Unique Picture Record

See Front Cover

**F**LYING over the far-flung ruins of civilizations which his own scientific institution is busily exploring from the ground, Charles Breasted, of the Oriental Institute of the University of Chicago, has obtained 12,000 feet of unique

motion picture film, showing the work of "the largest archaeological research organization in the world."

Mr. Breasted, who has just returned from his magic carpet flight over the broken magnificence of old Babylonia, Persia, Egypt, and other Near Eastern countries, told his experiences recently in a radio talk under the auspices of Science Service, over the Columbia Broadcasting System.

"From Rutbah we flew on to Baghdad through a fiendish dust storm in which visibility was nil and progress was possible only by constantly establishing our position through radio," Mr. Breasted said. "Capt. Olley, who had never before flown this route, literally bisected the Baghdad airdrome, and brought us safely down.

"After a sleepless, choking night, the dust settled as suddenly as it arose, and we were able to record in movies the work of our Iraq Expedition, stationed about 50 miles out in the barren plain northeast of Baghdad, where we are excavating two large ancient Babylonian cities, the latest 'layers' of which date from 2500 B. C."

Pushing on toward Persia, the fliers met another dust storm, and had to climb to 12,000 feet to find clear sunlight. At Shiraz, 5,000 feet above sea level, they left their plane for an automobile detour to Persepolis, which Mr. Breasted describes as "the most magnificent site of the ancient world with the single exception of the Acropolis at Athens."

"Persepolis, the capital of the Persian Empire built by Darius the Great about 500 B. C. and destroyed by Alexander the Great in 331 B. C., stands at the base of a black mountain on a great terrace built of gigantic stones taller than a man, and surveys a vast plain encircled by mountains," said Mr. Breasted.

"Here ruled the emperors of ancient Persia, and here today the Oriental Institutes is excavating and restoring this place of transient grandeur. Our expedition headquarters is the reconstructed harem of Darius. Needless to say, our cinema record of Persepolis—the first one ever made on standard size film—is of remarkable interest."

The tombs of Xerxes and Artaxerxes, near Persepolis, were visited by the fliers, and the impressive rock sepulchres were photographed. (See front cover).

The motion picture record obtained in the air survey will be used in a talking picture, in which the voice of Dr. J. H. Breasted, director of the Institute, will describe the scenes.

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MEDICINE

## Little Ultraviolet Needed To Cure or Prevent Rickets

**T**HE AMOUNT of ultraviolet radiation needed to cure or prevent rickets is surprisingly small, Dr. Arthur Knudson of Union University, Albany Medical College, found in studies with rats which he has reported to the Society for Experimental Biology and Medicine. Assuming that a similar relationship holds for human beings as for the animals he studied, Dr. Knudson says it appears that much smaller amounts of ultraviolet radiation than are generally considered necessary will be effective.

The amount needed to cure rickets is directly proportional to the area of skin exposed, he found in his studies. Thus exposure of one-fourth of a square inch of skin for twenty minutes daily healed rickets completely in three weeks in the rats. The same result was obtained by exposing one square inch for five minutes, two square inches for two and one-half minutes or one-eighth square inch for forty minutes daily.

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EDUCATION

## Three R's Taught In Tuberculosis Hospital

**T**UBERCULOSIS patients in the Manitoba Sanatorium at Ninette near Winnipeg, Canada, are able to study subjects ranging from the three R's to French, history and university courses, Dr. David A. Stewart, superintendent of the sanatorium, reported to the American Occupational Therapy Association. One official teacher gives all the instruction and guidance to older, younger, ambulant and bed patients alike.

Patients found to be illiterate are taught to read and write, non-English patients are taught English, technical correspondence courses are supplied at low cost through the provincial Department of Education, and "brushing up" courses are given in such subjects as grammar, spelling, bookkeeping and arithmetic.

"Of all occupations for sick people, especially sick people in bed, or barely ambulant, or even on exercise, one of the very best in our experience is study," Dr. Stewart declared. Besides helping to pass the time in the hospital and cheering the patient, study might prove very useful in improving his vocational ability so that he would be better fitted to make a living when he left the hospital.

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