

## PHOTOGRAPHY

**Photoflash Bulb Can Be Used Many Times**

**A** NEW photographic flash lamp which can be used over and over again is under development at the Lamp Laboratories of the Westinghouse Electric and Manufacturing Company. A flash of a mercury arc in a small bulb only six inches long and a little over an inch in diameter floods the scene to be photographed with a light intensity of 500,000 lumens. The same lamp can be operated continuously on 100 watts while the studio scene is being prepared and then the lamp flashed to its great brilliance during the actual exposure of the film. The characteristic green-blue rays from the mercury arc affect photographic film much more strongly than ordinary rays from an electric lamp.

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## NUTRITION

**Americans Do Not Eat Enough Protein Foods**

**I**F 1,000 New Yorkers are at all typical of the nation's food habits, we don't by any means eat enough protein foods. Meat, fish, eggs and cheese are the chief protein foods. (*Journal American Medical Association*, April 3).

Our general health would be better and we would be mentally and physically more efficient if we consumed more protein in our daily diet.

Drs. Benjamin I. Ashe and Hermon O. Mosenthal have over a long period of years been studying normal, apparently healthy persons who have reported to them for health examinations.

By analyzing the 24-hour specimens of urine of these normal persons they have arrived at the protein, salt and fluid intake of 1,000 residents of New York City.

Various workers in nutrition state that the suitable daily protein intake is from 75 to 100 grams. The so-called minimal intake is set at 45 grams. In more familiar terms, this minimal intake is a little over an ounce, since 28.3 grams are the equivalent of one ounce. One hundred grams is less than a quarter of a pound.

Doctors Ashe and Mosenthal were surprised to find that of their 1,000 New Yorkers 61 per cent. ate only 42 grams or even less protein a day. Only 40 persons of the 1,000 ate 75 grams or more protein daily.

"Nutritional" edema, fatigue, anemia, cloudy swelling of vital organs, lack of resistance to infection, pellagra and other ill effects have been cited by authorities as caused by low protein ration.

Women were the chief offenders in the matter of low protein intake. Low and low-normal blood pressure readings were encountered frequently among this group, yet the high protein eater did not have high blood pressure, these doctors found.

Underweight occurs frequently among the low protein group. Mild secondary anemia is common.

Among those who were high protein eaters there were more men. The blood pressure was not high, the weight was average (rarely any overweight) and there was rarely any anemia.

The "low salt" eaters were chiefly women; "high salt" eaters chiefly men.

These physicians conclude that persons with high blood pressure do not habitually eat more protein or more salt than normal persons eat. They find no evidence that a low protein diet will materially reduce hypertension provided there is no anemia.

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## PALEONTOLOGY

**Rich Find of Fossils Made In Brazil**

**A** RICH new bed of 175,000,000-year-old fossils, which has already yielded several previously unknown reptiles and significant facts concerning the origin of dinosaurs and modern mammals, has been discovered in southern Brazil. It is believed to be the most important American deposit ever found representing the Triassic period, nearly 200,000,000 years ago, when the first reptile fore-runners of the dinosaurs and mammals were in the ascendancy.

The bed was found by Llewellyn I. Price and Theodore E. White of Harvard's Museum of comparative zoology, during a pioneering one-year field trip in this region.

Chief among the two scientists' finds are at least 15 reptile species and genera, believed to be the finest cross-section of South American Triassic life ever made available for scientific study. Nearly 30 complete skeletons are included, as well as many skulls and other significant fragments. At least 15 of the animals are entirely new to science, and their significance can only be guessed at until complete analysis, estimated to take about five years, is made.

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**IN SCIENCE**

## MEDICINE

**New Chemical Treatment Succeeds in Meningitis**

**S**UCCESS with a new chemical treatment for dreaded meningitis is reported by Drs. Francis F. Schwentker, Sidney Gelman and Perrin H. Long, of Sydenham Hospital, Baltimore City Health Department, and the Johns Hopkins Hospital, Baltimore. (*Journal, American Medical Association*, April 24)

Ten patients suffering from meningitis, which is an inflammation of the coverings of the brain and spinal cord due to infection, were treated with the chemical. All but one recovered. The chemical used has the long name of para-amino-benzene-sulfonamide.

This and a similar chemical, the red dye named Prontosil, have been used successfully against hemolytic streptococcus infections such as child-bed fever, erysipelas and scarlet fever.

The ten cases reported by the Baltimore physicians were of meningitis caused by injection with a different germ, the meningococcus. Meningitis may be caused by other germs. Cases of streptococcus meningitis have already been successfully treated by this chemical.

In treating the meningitis patients, the chemical was injected into the spinal canal and also under the skin. In a number of cases the organisms disappeared from the spinal fluid after the first treatment. In others, it took several treatments. The one patient in the series who did not recover had been desperately ill when admitted to the hospital and died of pneumonia on the fifth day. His spinal fluid had been free of meningitis germs for three days, indicating that the treatment had probably been effective for the meningitis.

Meningitis due to meningococcus infection is generally treated with an anti-meningococcus serum. The serum treatment has not been entirely satisfactory. In reporting results of the chemical treatment, Dr. Schwentker says that it seems to be as effective as the serum treatment and has the added advantage of being free from the irritating effect due to foreign protein in the serum.

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# THE FIELDS

## PALEONTOLOGY

### Complex Life Existed Nearly a Billion Years Ago

**L**IFE in fairly complex form existed on earth nearly a billion years ago. Such is the evidence of a jellyfish fossil found in lower Algonkian rocks at the bottom of the Grand Canyon of Arizona, and reported to *Science* by Dr. C. E. Van Gundy of the University of California.

The fossil consisted of an imprint seven inches in diameter, in fine-grained sandstone. It is remarkable to find a jellyfish fossil in rocks of any age because the extremely unsubstantial flesh of these creatures disappears so quickly. But to find such an impression in rocks that may be anywhere from 600,000 to more than 900,000 years old, where life evidences of any kind are almost unknown, constitutes a scientific record.

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## PSYCHOLOGY

### Time Can Now be Enlarged With a Slow-Motion Camera

**U**SE of the ultra-speed camera to magnify time in much the same way that the microscope magnifies objects in space is urged upon scientists by Drs. Carney Landis, New York Psychiatric Institute, and W. A. Hunt, Connecticut College, in a communication to *Science*, (April 23).

This Alice-in-Wonderland instrument will enlarge the most fleeting instant as much as 200 "diameters." The ordinary slow-motion picture which makes the baseball player or the diver seem to glide gracefully like a rhythmic dancer enlarges time only four times. Such pictures are taken at the rate of about 64 exposures per second and then are projected much more slowly—about 16 to 20 frames per second.

Nowadays the taking of 3,000 exposures per second is perfectly practical. Pictures have already been made by Drs. Landis and Hunt at speeds between 700 and 1,500 frames a second. When these are slowed down to the ordinary projection speed, it is possible to see a

great deal that happens much too swiftly for the human eye to take it in without instrumental aid. This enlargement of time is analogous to the work of a microscope that could make a half-inch-long insect appear nine feet long. Drs. Landis and Hunt have applied such time enlargement in study of swift human reactions.

The expression which appears on a man's face when he is startled by the loud sound of a revolver shot looks in an ordinary motion picture like a jerk. Slowed to one fourth normal speed by the slow-motion technique it looks more like a hiccup. The newer camera technique slowing it down to a fiftieth of normal speed reveals it as something like a slow stretchy yawn.

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## BIOLOGY

### Eyes, Ears, Mouth Grown in Tadpole Tail

**"A** FROG with a head where its tail ought to be." Or to be more meticulously accurate, a frog tadpole with eyes, ears, and mouth actually growing in its tail.

This was the fantastic picture of experimentally induced growth exhibited before the meeting of the National Academy of Sciences by Dr. Oscar E. Schotté of Amherst College.

Dr. Schotté cut the tails off large tadpoles of the common piping frog. The tails started to grow again, as tadpole tails will under such circumstances. Into this regenerating tissue Dr. Schotté then implanted the beginnings of eyes, from frog larvae of an earlier growth stage.

These cup-shaped rudiments of eyes took hold and grew fast. Some influence emanating from them compelled the growing tissue of the tadpole tail to form eye lenses over them.

But that was only the beginning of the story. The new tissues grew on at a great rate. And presently there appeared in them the essential parts of ears and a mouth cavity.

Dr. Schotté's explanation was that the embryonic eyes had a capacity to induce indifferent growing tissue, wherever located, to cooperate in eye formation; following that, there was an extension of the activity until an "upper head field" had been formed, bringing about the ear development; finally the formation of a "lower head field," producing the mouth cavity.

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## PHYSICS

### Cradles of Industry Produce New Products Upon Demand

**S**OME industries arose with man through the ages and others have been created in recent years through research. The laboratories where searchers after knowledge synthesize new products and new ways of doing things are veritable cradles of industry.

So many of the new things we use and accept as commonplace came not from a lone inventor in a garret but from research workers in modern industrial laboratories or universities. The nitrogen-filled electric lamp, sound motion pictures, synthetic plastics, chemicals galore, new metal alloys, new cleaning powders, and hundreds of other products have arisen out of "being researchful".

One of the pioneers in organizing industrial research was the late Dr. Robert Kennedy Duncan, founder of the industrial fellowship system of the Mellon Institute. He will be remembered when on May 5-9 the new monumental building of that industrial experiment station is dedicated in Pittsburgh.

Everyone who has eaten a "hot dog" has reason to appreciate one advance that took ten years of intensive work and "put cotton shirts on wieners." Now cellulose sausage casings measure 500 miles a day. While they are edible, they do not stick to the sausage and can be used in manufacturing the skinless variety.

Dr. Edward R. Weidlein, director of Mellon Institute, cites the decade of struggle to make wieners' shirts as a lesson in patience. But there are many other less spectacular achievements which range from gas purification with recovery of toluene for war purposes to creating new uses of carbon dioxide in beverages, fire extinguishers and "dry ice."

The research workers, called "fellows," set to work by industries at the Mellon Institute, have improved razor blades, food packing, yeast, cosmetics, dry cleaning, roofings, galvanizing, silverware, steel products, and glassware. They have labored to reduce the menace of smoke in the atmosphere and they have tried to discover the cause and prevention of tooth decay.

Such successes in research have convinced hard-pocketed business men that research pays dividends in dollars as well as better living conditions. Banks recognize that industries without research are not good risks. Research has ceased to be merely a luxury; it is one of civilization's necessities.

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