

production of energy of the white dwarfs to contraction. That is, the energy released as the outer parts fall to the center is converted into heat. Proposed nearly a century ago, a similar theory was once given in explanation of stellar energy in general, but it was shown that it would not provide energy for the times over which the stars seem to have been in existence. Dr. Marshak says that it would suffice to keep the white dwarfs going for 100,000,000 years at least, and after that

they will probably become dark objects. Dr. H. A. Bethe, of Cornell University, whose theory of the hydrogen-helium transmutation as the source of most stellar energy is now generally accepted, addressed the meeting as well. Dr. George Gamow, of George Washington University, who presided, spoke on his theory that stellar explosions are due to particles called neutrinos, which have no mass.

*Science News Letter, May 10, 1941*

ARCHAEOLOGY

## Takes "1,000-to-1 Chance" Of Finding Oldest Virginians

### Smithsonian Scientist Will Explore Remnant of Site Left From Excavation for Four-Lane Skyline Drive

ON a "1,000-to-1 chance" of striking important revelations of the first—literally first—families of Virginia, Dr. Frank H. H. Roberts, Jr., of the Smithsonian Institution, is preparing to make archaeological excavations beside Virginia's famous Skyline Drive near Bedford.

Since discovery there recently of ancient Folsom Man's typical stone dart points, the Virginia Mountain site has been a question-mark spot for popular and scientific interest. Will it, or will it not, reveal as much information about Ice Age Southerners as Dr. Roberts has learned about Ice Age Westerners from digging in the Lindenmeier site, where Folsom Man camped in Colorado, 20,000 years ago?

Possibility that Indian souvenir-hunters of the twelfth or thirteenth century A. D. may unwittingly have given modern science a false steer on Folsom Man's presence at the site is cautiously seen by Dr. Roberts.

"The two Folsom dart points were

found in debris of a prehistoric camping ground," he explains. "This may mean that Folsom hunters who reached Virginia camped or worked there 10,000 years, or more, in the past. While Folsom Man's presence in Virginia has been previously detected from such points, they have been found on the surface of the ground. None of his Virginia campgrounds have been examined, which might reveal the sort of food he ate, his other kinds of stone and bone tools, and other evidence of his life in Eastern America. Most important of all would be discovery of skeletal remains, for Folsom Man's appearance is unknown.

"Prehistoric America, however, had its souvenir hunters and antique collectors, and it is possible that the campground was occupied by Virginia Indians of comparatively recent times—recent compared to Folsom Man's era—and one of them may have brought home and kept an old Folsom point.

"In the Southwest, we find traces of Indian collectors frequently. An Indian

## ● RADIO ●

John L. Collyer, president of the B. F. Goodrich Company, and Dr. Howard E. Fritz, manager of the company's synthetic division, will discuss synthetic rubber and rubber-like materials as a means of conserving supplies of imported natural rubber vitally needed for defense as guest scientists on "Adventures in Science," with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, May 15, 3:45 p.m. EDST, 2:45 EST, 1:45 CST, 12:45 MST, 11:45 a.m. PST. Listen in on your local station. Listen in each Thursday.

pot may be unearthed full of odd objects that the owner previously collected and treasured."

To find out which of these solutions is correct, Dr. Roberts will have only a remnant of the original site to explore. Highway excavations for the four-lane Skyline Drive cut through the old site, removing 95% of it. It was during the digging that workmen first observed Indian objects. Dr. David I. Bushnell, Jr., Smithsonian Institution archaeologist called to the site, recognized its significance for American prehistory.

*Science News Letter, May 10, 1941*

METALLURGY

## Patented Process May Aid Production of Magnesium

THREE new methods for the more rapid purification of magnesium, essential defense metal which, because of its lightness, is used in airplane construction, were revealed in four patents just granted by the U. S. Patent Office. Thomas H. McConica, III, of Midland, Mich., is the principal inventor, though Charles E. Nelson and Thomas Griswold are named in two as co-patentees.

In purifying magnesium from its ores, it is obtained as a vapor, mixed with carbon monoxide, the vapor being condensed to form the solid metal. When first produced, the vapors are hot, and, unless quickly cooled, there is a chemical reaction to form a magnesium compound

## Don't Delay

getting that new book you want to read. SCIENCE NEWS LETTER will gladly obtain for you any American book or magazine in print. Send check or money order covering regular retail price (\$5 if price is unknown, change to be returned) and we will pay postage in the United States. When publications are free, send 10c for handling. Address:

Book Department  
SCIENCE NEWS LETTER  
2101 Constitution Ave. Washington, D. C.

Keep your copies of SCIENCE NEWS LETTER safe and sound in our special binder . . .



PRODUCED BY GILMER

hooked wire. Remove any issue you desire and reinsert it just as easily. Holds 26 copies, opens freely, allows pages to lie flat, strong enough to last for years. We will refund your money if you are not satisfied. Send check or money order to SCIENCE NEWS LETTER, 2101 Constitution Avenue, Washington, D. C.

With SCIENCE NEWS LETTER stamped in gold on front and spine, this excellent buff buckram binder costs \$1.25 postpaid. Snap new issues into the cover with a little unbreakable

again, which lessens the efficiency of the process.

This is accomplished, in the first of the new methods, by admitting the vapors to a chamber through which is falling finely divided magnesium powder. Each particle acts as a cool nucleus on which the vapor can condense. The mixture of powder and gas is blown through a cooling column, around which cold water circulates.

Then it enters the top of the chamber from which the magnesium powder fell in the first place. The gases are carried away through an exhaust pipe, but the powders are whirled, by the force of the air, around the outer part. Heavier particles drop into a chute which takes them out, but smaller ones fall into a central hopper, ready for another chance to enter the condensation chamber.

The second patent covers a method by which a stream of gas such as helium, hydrogen, or hydrocarbon vapors, is cooled below the freezing point of magnesium (1200 degrees F.), and mixed with the vapors, to cause condensation. In the third and fourth patents the magnesium vapor is condensed by passing it through a bath of another metal which vaporizes at a temperature higher than that at which the magnesium condenses.

The patents are numbered from 2,238,907 to 2,238,910. All four are assigned to the Dow Chemical Company.

*Science News Letter, May 10, 1941*

#### MEDICINE

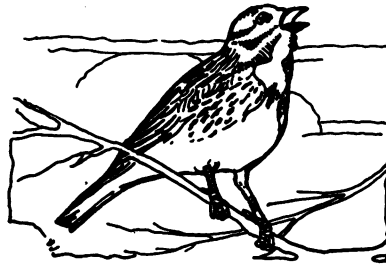
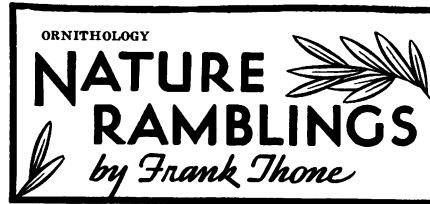
### Fat Is Life-and-Death Issue in Diabetes

**N**EW knowledge of diabetes, showing that in this disease of faulty utilization of sugar, the paramount, life-and-death issue is fat, won for Dr. William C. Stadie, of the University of Pennsylvania, the John Phillips Memorial Medal for 1940-1941 of the American College of Physicians.

The diabetic, without insulin, is unable to use sugars and so he must fall back on fats for his energy requirements, Dr. Stadie pointed out. He gets part of the energy he needs by burning fat in the muscles themselves. But from one-third to one-half of the energy from fat is obtained by a preliminary burning of fats in the liver, during which substances called ketone bodies are formed.

Regulation of this part of the fat mobilization for energy, however, is limited, so that more ketone bodies may be formed from fat than can be used. If this continues unchecked the dangerous acidosis and coma of diabetes follow.

*Science News Letter, May 10, 1941*



### How Many Birds?

**B**IRDS are nesting in every tree—or at least so it seems to the drowsy suburbanite who wants to sleep until half-past seven when the robin outside his window gets other ideas on the subject about half-past four. With three pairs of songbirds nesting anywhere in the same block your dawn-awakened citizen will swear grumblingly that every feathered alarm clock in the country has joined a conspiracy against his slumbers.

How many birds are there in the United States? There are many perfectly serious reasons for wanting to find out, and Roger T. Peterson, of the National Audubon Society, has attempted to make an estimate. After checking over a considerable number of sample counts made during the nesting season, in a few representative habitats, he hazards a guess that "eventually we will find not less than five billion breeding birds in the United States, and probably closer to six billion."

That would average out to about 40 or 50 birds for every human inhabitant—a figure that at first seems astonishingly large, until one visualizes the noisy concentrations of blackbirds that will gather later in the season, or the great "rafts" of ducks that are happily again beginning to be in evidence on some of the new wildfowl refuges.

However, Mr. Peterson declines to call his figure more than a guess. The sample counts are not large enough, or numerous enough, and they leave too many habitat types out of the picture entirely, simply because nobody has ever gone to the trouble of making close counts of the birds in such places as the short-grass plains and mountain heights in the West and the pine barrens and salt marshes of the East.

Bird censuses that have been made with reasonable care show plainly that there is great variation in population density in American bird populations, just as there is in the human population.

The flat, intensively cultivated farmlands of Kansas, for example, show a relatively low bird population—as little as one bird to five acres. Yet in the woodlots and plantings around the farmhouse there are as many as 20 birds to the acre. Eastern woodlands harbor four or five birds to the acre, while neglected farmlands in the same region support only about half that population density.

Bird "cities," like human cities, seem to grow up where there is water. Mr. Peterson estimates that the average bird count on wet lands in the East is not far from nine per acre, and that the concentration in many favorable watery areas is double that figure.

Overclean cultivation of farms and ill-advised drainage of swamps and shallow lakes, in Mr. Peterson's opinion, are the greatest causes of devastation in the bird world. Beside them, the small boy with his BB gun (who'll probably miss anyway) is as nothing. He would have farmers keep plows away from weedy, brushy fencerows, and local authorities think long and earnestly before they permit a land speculator to begin the draining of a swamp.

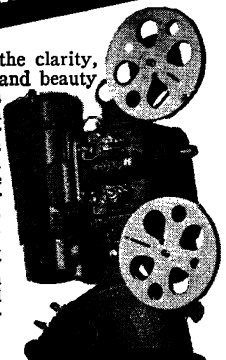
*Science News Letter, May 10, 1941*

**DOUBLE Your Fun with 8 mm Movies**

You will THRILL at the clarity, the detail, the sparkle and beauty of your 8 mm. films when projected with an Ampro "8". Now, color movies you have always dreamed of are yours. Enjoy Ampro's reverse picture operation for humorous effects... its 400 ft. reel capacity, fast automatic rewind, full 500 watt, brilliantly clear illumination with flickerless pictures, and many other of the exclusive Ampro advantages.

#### Talking Movies in Your Home!

New Ampro low-cost 16 mm. sound-on-film projectors bring "life-like quality" talkies right in your home—for entertainment, parties, education, fun for the entire family. Big li-



braries of talkie news reels, comedies, feature films, travelogues are available at little cost.

**Send for Catalog** giving prices and full story of Ampro 8 mm. and 16 mm. silent and sound projectors.

**AMPRO**

**Precision Ciné Equipment**

2851 N. Western Ave. Chicago, Illinois