

## NUTRITION

**Leafy Vegetables Test As Good Anemia Tonic**

**I**F LEAFY vegetables can be made popular food in the South, the nutritional anemia now prevalent in many rural districts may be decreased.

This is the moral from a scientific study on diet reported before the American Home Economics Association meeting in Atlanta. Miss Olive Sheets conducted the feeding experiments at the Mississippi State College, using anemic young rats for her subjects.

In some parts of the rural South, the diet contains too little iron, Miss Sheets explained. This produces nutritional anemia. Since the climate in the south-eastern United States is suitable for gardens nine to ten months of the year, Miss Sheets determined to conduct tests to see whether vegetables containing iron would prevent or alleviate the anemia.

So far, she reported, she has studied mustard, turnip tops, spinach, collards, two varieties of lettuce, and also cow peas. These vegetables "have decided anti-anemic potency," Miss Sheets said. Spinach, one of the best iron foods, is seldom eaten by southern rural people, she stated.

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## CHEMISTRY

**New Paraffin Process Preserves Bodies Forever**

**B**ODIES of dead persons can be kept, life-like and without decay, for an indefinite time—probably for thousands of years—by a new process of preservation using paraffin, developed by Prof. Edmond J. Farris of the Medical College of the State of South Carolina. Prof. Farris's process is described in the technical journal, *Science*.

Corpses preserved by the paraffin method do not have the shrunken, dried appearance of Egyptian mummies, but are natural in both form and color, Prof. Farris says.

The process is essentially similar to one used for many years in biological laboratories for the preservation of small bits of plant and animal tissue, and lately employed also by Dr. G. K. Noble of the American Museum of Natural History in New York for making vividly lifelike mountings of small snakes, lizards, etc. But up to the present it has not been used for so large an object as a human cadaver.

Four steps are involved: fixation or embalming, dehydration, clearing, and infiltration with paraffin. Embalming with a solution of formaldehyde, sodium borate and common salt, injected through the blood vessels, prevents the loss of color and form during the process. Then the body is soaked in alcohol solutions of increasing strength to get the water out, or dehydrate it. Then comes the "clearing" process, a soaking in an oily liquid called xylol, with about 5 per cent. of carbolic acid added. Finally comes the infiltration process, in melted paraffin, after which the excess paraffin is removed with xylol and running hot water. The total time consumed in all the steps is about seventy days.

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## CHEMISTRY

**Vitamin G Pronounced Twins By New Researches**

**O**NE OF the vitamins is twins.

Vitamin G is now known to consist of two factors, tentatively called X and Y, which are as necessary to each other to produce the vitamin G effect as Siamese twins are to each other.

This discovery was made by Prof. H. C. Sherman of Columbia University and Miss Hazel Stiebeling then of Columbia but now at the U. S. Bureau of Home Economics.

Vitamin G is the anti-pellagra vitamin, that prevents the development of the disease of malnutrition that has often been prevalent in the South among poor whites and negroes whose diet consists largely of corn pone, molasses and "fat back" pork. It was identified by the late Dr. Goldberger of the U. S. Public Health Service and called by him the P-P or pellagra-preventive factor. The British have named it the B2 vitamin because it once was considered a part of vitamin B.

The Columbia University investigators split the G vitamin into two chemical parts. They set feasts before rats that had varying amounts of these X and Y factors. They watched them and weighed them to see how they grew. It was found that X and Y are both necessary. Double doses of Y without any X caused the growth curve to flatten out slowly, showing that lack of X prevented proper growth after the rats had eaten the food for some time. If two doses of Y were placed in the ration without any X factor, the rats did not attain proper growth from the very beginning.

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**IN SCIENCE**

## PLANT PHYSIOLOGY

**Plants Use Sugar to Save Selves From Drought**

**S**UGAR is the means of saving plants from drought, thickening their sap so that the ardent sun and the drying winds cannot pull all the water out. This is indicated by physiological researches reported by Dr. I. Vasiljev of the Institute of Plant Industry in Leningrad.

Experimenting with wheat plants under varying conditions of drought, Dr. Vasiljev found that as drying proceeded, increasing amounts of starch and other insoluble carbohydrates were converted into sugars. When water conditions improved the process was reversed and the sugars again became insoluble carbohydrates of more complex structure.

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## ARCHAEOLOGY

**Palace of Unknown Ruler Found in Persia**

**A** PREHISTORIC palace built for an unknown ruler of an unknown people in Persia, more than 4,000 years ago, has been discovered at Tepe Hissar, according to a cable dispatch from Dr. Erich Schmidt. Dr. Schmidt is field director of the joint expedition of the University of Pennsylvania Museum and the American Institute for Persian Art and Archaeology.

Reporting to the University Museum in Philadelphia, Dr. Schmidt says the palace shows that a town existed in this northwestern part of Persia as early as 2000 B. C. Last October, the same expedition found under a huge mound at Tepe Hissar the remains of 200 people of an unknown race, buried with many beautiful possessions. The palace now discovered appears to mark the center of their town, and the archaeologists have hopes of reconstructing the life of townsfolk in Persia in that ancient time.

Dr. Schmidt also reports the finding of splendid alabaster vessels, a copper dagger with a silver grip, and many ornaments of gold, silver and agate.

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# FIELDS

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ENGINEERING

## Modernistic Building Shows Achievements of Science

See Front Cover

**S**TRIKINGLY modernistic in design and construction is the huge Hall of Science building in Chicago which has been dedicated as the key structure for the Century of Progress Exposition next year. Its two floors and mezzanine, containing nine acres of exhibit space, will illustrate the development of the sciences and their application during the past 100 years. The tower is 176 feet high and contains a 25 tone carillon.

Unusual illuminating effects are being achieved to accent the unique architectural features. The tower is bathed in a blue and red light at night. In the wall surface facing a courtyard, triangular bays extending the full height of the facade have been installed with a facing perforated in a pattern representing an abstract design of tree branches. An ever-shifting play of colors moves through the perforated pattern to provide a unique effect. The faces of huge pylons which guard the north approach to the building are lighted with indirect Neon floods. The lighting effects inside are equally novel.

The Hall of Science is set on the edge of a beautiful lagoon that opens into Lake Michigan. It is a temporary structure, planned for the 150 day duration of the exposition.

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HOME ECONOMICS

## Chair For Potato Peeler Increases Her Efficiency

**T**HE HOUSEWIFE or hired cook who sits down comfortably in a kitchen chair to peel potatoes for dinner has the right idea. If she stood up or perched on a stool, she would waste energy on the potato peeling job.

This new report on kitchen efficiency was presented to the American Home Economics Association by VeNona W. Swartz who described scientific experiments at Washington State College.

College students, their teachers, and

a group of housekeepers peeled potatoes in 175 experiments, Miss Swartz said. As each worker peeled, the amount of oxygen she consumed was determined by means of a gas mask and a bag strapped to her shoulders.

Peeling potatoes is light work, Miss Swartz reported. It requires an increase of about 50 per cent. in energy expenditure over a state of rest. Sitting comfortably in a kitchen chair is the best energy economy for this task, she reported. None of the workers saved energy by sitting on a kitchen stool. Two workers used more energy when they worked on stools than when they stood.

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ENGINEERING

## Coal Gives Cheaper Power Than Free Falling Water

**W**HY do industries continue to build steam power plants and buy coal to burn in them when millions of apparently free horsepower-hours are wasted every year by water as it falls from the mountains to the sea?

This question, often asked by the layman, was answered by K. M. Irwin and Joel D. Justin, engineers of Philadelphia, in a report to the American Society of Mechanical Engineers.

Only the most economical plant to build and operate is installed, and in some parts of the country where fuel is cheap and favorable hydroelectric sites are available, from 25 to 40 per cent. of the installed capacity of a system may use water power, the report stated. However, in other regions where fuel is somewhat more costly, but where there are very favorable hydroelectric sites with relatively cheap storage, from 60 to 70 per cent. of a system's capacity may be in water power. In certain sections of Canada the ratio is even higher.

The fact that engineering development and lowered cost of fuels has approximately halved the cost of steam-produced electric power since 1905 was also cited as an important reason for the continued installation of steam plants. In addition, Mr. Irwin and Mr. Justin pointed out that hydroelectric sites are often far from the factories and homes for which their power is desired. Expensive transmission lines, frequently as costly as the plant itself, must be built.

Another great disadvantage of the hydroelectric installation is the fact that most streams carry many times as much water in winter as they do in summer.

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PSYCHIATRY

## Half of Mental Disease Caused by Focal Infection

**H**ALF of the patients in hospitals for mental disease owe their illness to definite changes in the tissues of their brains brought about by chronic infections of teeth, tonsils, sinuses or digestive tract, in the opinion of Dr. Henry A. Cotton, director of research at the New Jersey State Hospital.

By eliminating the chronic infections in these patients, Dr. Cotton and associates were able to double the number of recoveries at the hospital during the last thirteen years. Two thousand instead of one thousand patients recovered during that period. Incidentally the State saved for at least six years \$1,000 a day for the maintenance of these patients, leaving out of consideration the large amount saved in cost of construction of a new building to care for that number.

Dr. Cotton began working along this line back in 1905 in Munich. At that time he found there were definite changes in the brain in the functional disorders, which he says afflict one-half of the patients in mental disease hospitals. Still later he found that it is chronic infection which produces a poisoning that destroys the brain tissue.

In order to prevent the occurrence of mental disorders as well as many physical disorders Dr. Cotton advocates searching for and cleaning up chronic infections in children.

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ARCHAEOLOGY

## 500 Axes Found in Stone Age Hardware Store

**A** WHOLESALE stock of fully 500 stone hand-axes made by men of the Old Stone Age has been found by Miss Gertrude Caton-Thompson, British archaeologist, excavating the floor of the Kharga Oasis, Egypt, for the Royal Anthropological Institute.

The axes were in mint condition, as if never used. All were highly glazed from long exposure to water-borne sand. The tools in this old Egyptian "hardware store" offered a variety of shapes to choose from. They ran in size from approximately eight inches in length to miniature axes not over an inch and a half long. Flake implements and the flint cores from which they had been made were found with the axes.

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