

NUTRITION

Drink Steak in Diet Study

Students get their beefsteak in lemon-flavored drink in studies shedding light on diet requirements. Some amino acids found non-essential.

► WHILE most American civilians have been struggling with red meat shortages and red point coupons, 12 men graduate students at the University of Illinois have for the past eight months been getting their beefsteak, or rather, its nutritional equivalent, in a lemon-flavored drink.

The men voluntarily assumed the role of human guinea pigs in order to aid studies of human requirements for amino acids. The studies were reported at a meeting at the Nutrition Foundation in New York by Prof. William C. Rose, biochemist and acting head of the University of Illinois chemistry department, who has studied amino acids for 20 years and is an international authority in that field.

Amino acids are often called the building blocks of proteins, the food constituents found in meat, eggs, milk, cheese, cereals and some vegetables. Of the 22 known amino acids, 12 have been known to be not essential for animals.

The human guinea pigs at the University of Illinois helped prove that these same 12 are non-essential to humans. Of the other 10, eight that are required by animals are now known to be essential also for human diet needs. One, histidine, is essential for animals but not for humans. One more amino acid remains to be tested.

Instead of eating meat or other protein foods, the 12 human guinea pigs drank solutions of the amino acids in distilled water flavored with lemon juice. The rest of their diet came in the form of special crackers spread with purified butter, cod liver oil and vitamin pills.

This diet contained all the food elements in proper proportions to maintain weight and the nitrogen balance of the body. Determination of the nitrogen balance is a method for telling whether or not a person is getting enough of the right kind of proteins in his diet. By omitting the amino acids, one at a time, from the protein drink, and following the weight and nitrogen balance, the question of whether or not a given amino acid is a diet "must" could be determined.

Studies of human amino acid require-

ments are of particular importance now because of the world-wide meat shortages which are likely to continue for some time to come. Meat and other foods derived from animal sources contain all the amino acids heretofore believed to be essential for human diets. When nutritionists have to plan adequate diets with little or no meat, they can do the job more successfully if they know, from studies such as Prof. Rose's, just which amino acids are required and must be furnished by other protein sources, for example, peas, beans and cereals.

Science News Letter, June 12, 1943

AERONAUTICS

Plywood Uses for Planes And Gliders Held Limited

► PLYWOOD cargo planes and gliders will fly post-war airplanes; plywood will fill a host of industrial needs. But it isn't going to replace all other materials and no one should expect it to do more than nature gave it strength to do, James J. Dunne of the United States Plywood Corporation warns in a report to the American Society of Mechanical Engineers.

Although new plastic glues have produced eye-opening results for plane designers, there is no such thing as the much publicized "plastic plywood," Mr. Dunne explains. There isn't any such thing as a plastic plane.

Aircraft plywood is nothing more than layers of veneers bonded together with a waterproof, fungus-proof plastic, usually phenol formaldehyde resin. The finished product is only about 10 per cent plastic.

When aluminum became scarce, plywood was called upon to fill the gap overnight. Design data either were not available or out of date. Much money has gone into futile samples that never had a chance, Mr. Dunne declares.

Many problems have been solved but Mr. Dunne believes that the wood aircraft program needs coordination. There should be some plan for distributing the work to qualified plants in localities where the labor problem is least critical.

A clearing house should be set up, he urges, so that plants that have facilities and are capable of quality work shouldn't have to go begging for business when there is so much to be done.

Science News Letter, June 12, 1943

PHYSICS

Miniature Turntable for Taking-X-Ray Pictures

► NEW AID TO DOCTORS trying to locate and remove foreign bodies such as coins and safety pins lodged in the lungs is expected from an X-ray machine newly installed at the University of Pennsylvania Hospital.

Chief feature of the new X-ray machine is the miniature turntable incorporated in it which enables the doctor to change the patient's position so that the pictures can be made from any angle, even vertical, without lifting or turning the patient bodily.

The machine is called a biplane fluoroscope because with it examinations can be made and X-ray pictures taken in both horizontal and vertical planes. It was made by the Westinghouse Electric and Manufacturing Company.

Science News Letter, June 12, 1943



TURNTABLE — This miniature turntable is incorporated in the X-ray machine. Physicians may thereby change the position of a patient at will during delicate operations to remove foreign bodies from the lungs