

BIOCHEMISTRY

Find New Evidence Humans Need Vitamin E

► "TENTATIVE EVIDENCE" that vitamin E may after all be needed by humans appears in studies by Drs. Alvin Nason and I. R. Lehman of the McCollum-Pratt Institute, Johns Hopkins University, Baltimore.

The vitamin, known chemically as tocopherol, was discovered 30 years ago as a nutritional item needed for reproduction by rats.

Its value for human nutrition has long been debated. It has been generally considered necessary for maintaining the structure and function of muscle, including heart muscle, and the peripheral blood vessel system in a number of animals.

These effects have been laid to its protective action in checking the oxidation of unsaturated fats and other substances sensitive to destruction by oxidation such as vitamins A and C. However, the exact mechanism of the vitamin's primary role in nutrition and whether humans actually do need it had not been determined.

The studies by the Johns Hopkins scientists, reported in *Science* (July 1), suggested that the primary function of the vitamin is to activate a yellow enzyme chemical called cytochrome c reductase. This yellow enzyme plays an important role in oxidation processes involved in energy transfer in cells of the body.

The vitamin may activate the yellow enzyme with the help of some fatty chemical. This possibility, and the behavior of the yellow enzyme in dystrophy muscles of both humans and other animals that are deficient in vitamin E, are now being investigated.

Science News Letter, July 16, 1955

HOME ECONOMICS

Custom Tailoring Makes Cake Mixes Succeed

► CUSTOM-TAILORING of the ingredients is the reason cake and pie mixes succeed while cakes and pies made from scratch in the home kitchen too often fail, Miss Irene Anderson, supervisor of experimental testing at General Mills, Inc., told the meeting of the American Home Economics Association in Minneapolis.

When homemakers make a pie, cake or doughnuts from scratch, they do not buy one kind of shortening for pastry, another for cake and a third for deep-fat frying. That is what is done in the mix business, Miss Anderson said.

The flours used are also especially adapted for each mix, and baking powders are selected which "give tolerance," both in mixing and baking, and have the longest shelf life.

She urged homemakers to follow the directions on the packages. If, for example, the directions for a cake mix call for water and milk is used instead, the result will be a coarse, dry cake.

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EAR-EMITTED SPEECH — Dr. Henry M. Moser, director of the Ohio State University Speech and Hearing Clinic, uses a noise-canceling lip microphone and an ear transducer in studies on speech sounds from the ear.

PHYSIOLOGY

Pilots Soon May Talk Through Their Ears

► PILOTS of high-powered and noisy airplanes may talk through their ears, not their mouths, in the future, scientists at Ohio State University foresee.

When background noise is high, understanding of ear-emitted speech is often better than that from the mouth, their studies showed. Severe noisiness reduces intelligibility of any speech, but has less effect on ear-emitted sounds than on mouth-emitted speech.

Drs. Henry M. Moser, John J. Dreher and Herbert J. Oyer recommend designing a special microphone for picking up voice signals from the ear. Several types of microphones and ear seals that isolate sounds from the ear have been used in the tests. (See SNL, Nov. 20, 1954, p. 325.)

The scientists have since learned that in 1935 the late George A. Graham of the Army Signal Corps laboratory at Fort Monmouth, N.J., had noted the emission of speech sounds from the ear, but no extensive research had been done.

The Ohio State studies were part of a research project on voice communication for the Air Force Cambridge Research Center of the Air Research and Development Command in Washington.

Ear-emitted sounds occur naturally, along with mouth-emitted speech. By constructing a soundproofed baffle box to cover the mouth and nose, anyone can produce audible ear-emitted speech, which can be transmitted through stethoscope earpieces.

Science News Letter, July 16, 1955

AERONAUTICS

Three Jet Types Seen For Airlines of Future

► THREE JET engines, the turbo-prop, the by-pass and the conventional jet, will be the major types used by airlines of the future, the president of Trans-Canada Air Lines predicted in Toronto, Canada.

The turboprop, Gordon R. McGregor told SCIENCE SERVICE, would be used for the shorter flights. The by-pass engines would take over medium long-range runs. The conventional jet, such as used in fighters and bombers, would fly intercontinental routes.

By-pass powered planes are not now commercially available, but they have proved promising in tests. For improved fuel efficiency, these engines draw more air into the intake than is needed for fuel combustion. The excess is routed around the combustion chamber into the exhaust. The by-passing air slows down the exhaust gases, making the engine more practical for slower speeds than the regular jet.

Extremely fast planes are senseless for flying short routes, Mr. McGregor said.

"More time is used loading baggage than would be gained by great speed. It does not make that much difference."

For long intercontinental flights the high-thrust jet will probably pay off.

The first stage in this evolution took place in Trans-Canada's fleet with the introduction of Vickers Viscounts, four-engined turboprop planes, which also have been ordered by Capital Airlines in the United States.

Science News Letter, July 16, 1955

PSYCHOLOGY

Assembly-Line Worker Is Under Great Strain

► THE ASSEMBLY line worker, even in a simple job, may be under more of a psychological strain than the man who works alone and performs all the steps in a production process.

This is indicated in research by Dr. Alvin Zander, program director of the University of Michigan's Research Center for Group Dynamics. Dr. Zander is a member of the summer faculty of the University of California at Los Angeles.

In a recent research project at Michigan, Dr. Zander and associates set up two production situations that simulated assembly-line work and that of an individual craftsman. At each worker's foot was an electric button, which he was asked to press whenever he felt the urge to stop work and take a break.

The scientists found that, in the assembly-line situation, workers are very much dependent upon the actions of fellow workers and other factors beyond their control. A crafts worker who does each step in production of an object himself is under less pressure from the group.

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