

## Do You Know?

*Cork* normally is used in 50 different places in an automobile.

Domestic *airplanes* carried over 470,000 passengers in 1931, and over 4,000,000 in 1941.

*Mice* have been taught to distinguish between two musical notes, one of which is associated with the appearance of food.

On seacoasts where fresh water is scarce, *fish* is a better food than lower forms of marine life because the salt content is less.

Giant *cement kilns*, 500 feet long and weighing 1,200 tons, are each turning out up to 200,000 tons annually to meet war needs.

Thirty-five new improved varieties of strains of *crop plants* were released by the U. S. Department of Agriculture during the past year.

Not all *plastics* are new; cellulose nitrate was discovered in 1830 and celluliod was produced in 1868; casein plastics were made before 1900.

A baby *kan garoo* at birth is about one three-thousandths of its mother's weight; the human baby is approximately one-twentieth the weight of the mother.

An ounce of *field soil* contains some 50 billion bacterial cells, a large but unknown number of fungi, and something like 5,000,000 protozoa, in addition to other organisms.

Some 12,000 *mulberry* slips were planted in Brazil in 1930 as a basis for silk culture, and silk weaving was begun in 1938; in 1942 over 277,000 mulberry trees were planted.

Fifty United States doctors, scientists, engineers and other specialists are working with some 2,500 Brazilians in the Amazon and Rio Doce campaigns against *malaria* and other diseases.

*Lumberjills* are replacing lumberjacks in England; strong, physically fit women from 17 to 40 years of age, after one month's training in forestry, are working in the timber and the sawmills.

### CHEMISTRY

## Three Kinds of Sugar

**New table treat, apple syrup, contains sucrose, dextrose and levulose. Has a clear amber color but does not taste particularly like apples.**

➤ "PASS the apple syrup, please" will soon become a familiar request at American breakfast tables.

"Just concentrated sweetness," was the description given the new product by three U. S. Department of Agriculture research men before the meeting of the American Chemical Society in Cleveland. The three men are Dr. R. E. Buck, Dr. J. J. Willaman and Dr. H. H. Mottern, all of the department's Eastern Regional Research Laboratory at Philadelphia.

The strong appeal which apple syrup is expected to have for the national sweet tooth is due largely to the fact that it contains three different kinds of sugar: sucrose, dextrose and levulose. Of the three, levulose is by far the sweetest, and it is present in the syrup in high concentration. The product has a clear amber color, but does not taste particularly like apples.

Apple syrup offers an opportunity for the utilization of the enormous quantities of apples that now are never marketed, and simply rot on the ground under the trees. It is estimated that at least 20 million bushels of apples are thus lost every year. This is enough to make 100 million pounds of syrup, if all could be used.

Last year preparations were made for producing 20 million pounds of apple syrup, but a short crop of both apples and manpower cut the actual production down to three million pounds. The 1944 apple crop promises well, but labor is still short, so it may not be until after

the war that we shall all be able to get our quota of apple syrup.

The syrup is prepared in much the same manner as the commercial product which has been given the advertising name "apple honey," but (as the advertisers put it) "something new has been added." Essentially, commercial apple syrup is made by clarifying the apple juice with lime to remove among other things the jellifying substance, pectin, and then evaporating it down to the desired consistency.

Commercial apple syrup is excellent for the uses to which it is put, but many persons find that it has a slight bitter after-taste. One additional chemical step has been put into the preparation process, which removes this tang and leaves the product with an unalloyed sweet flavor.

Glucose has been prepared almost exclusively from corn so long that it is often called "corn sugar." The peculiar situation that has obtained for the past year or two, of having a surplus of wheat but none of corn, has brought about investigations of commercial methods for producing glucose from wheat starch. Several reports on various phases of this were presented at the meeting, by J. M. Brown of the Revere Sugar Refinery, Boston; Mason Hayek of Joseph E. Seagram and Sons, Inc., and R. L. Shriner of Indiana University; and R. J. Dimler and C. E. Rist of the Northern Regional Research Laboratory at Peoria, Ill.

*Science News Letter, April 15, 1944*

### BIOCHEMISTRY

## Elixir of Youth in Protein

➤ SOMETHING that the old-time alchemists would certainly have called the elixir of youth, had they known about it, exists in everyday protein foods—meat, cheese, eggs and the like. At any rate, its absence from the diet brings about baldness, defective teeth, anemia, cataract, permanently bloodshot eyes, degeneration of the sex organs in the male, reproductive failure in the female.

The substance that wards off these

obvious signs of senility is called tryptophane; it is one of the dozen or so essential building-blocks of proteins known as amino acids. The ill effects of diets deficient in this and other specific amino acids were described by Dr. L. Emmett Holt, Jr., of the Johns Hopkins University, speaking before the meeting of the American Chemical Society in Cleveland.

Lack of other amino acids produces other kinds of degeneracy, Dr. Holt con-