SCIENCE NEWS

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SOYBEAN OIL PRODUCTION

THE soybean is now Americanized, and soybean oil, its principal commercial product, is now manufactured in the United States in a quantity equal to that produced from cottonseed, which long was America's greatest source of edible oils. The soybean oil industry in America is only about two decades old, although imported soybean oil has been used for much longer than that. Wartime conditions greatly boosted production, but peacetime uses will probably keep up the present rate.

Soybean oil is used in the United States for shortening, margarine, other edible products, soap, paints and varnishes, linoleum and oilcloth, and in printing inks, but its principal use is in foods. Approximately 96 per cent. of the 1943 production was used in edible products, according to O. H. Alderks, of the Soybean Research Council, reporting in the new issue of *Chemical and Engineering News*, published in Washington by the American Chemical Society.

Some 891,000,000 pounds of soybean oil was used in 1943 in food products, he says. It has now replaced a great amount of cottonseed oil in shortening, the cottonseed oil having been shifted to other edible products. In margarine it has replaced all coconut, babassu and similar oils, and accounts for about 40 per cent. of margarine fats. In salad oils and cooking fats, 124,000,000 pounds were used in 1943, replacing the unobtainable coconut and palm oils of the Pacific area.

Soybean oil has a number of desirable qualities, Mr. Alderks states. It has generally low bleaching costs, whiter products, good rancidity behavior and good consistency behavior. Its undesirable characteristics are poor flavor stability, particularly of the lower-grade oils, and additional cost to hydrogenate.

Flavor stability will improve, according to Mr. Alderks, with an improvement in the entire soybean industry, beginning with improved farm practices, better and quicker harvesting, prompt drying when necessary, better storage and improved methods of oil extraction. Clean, fully matured, sound, fairly dry, yellow soybeans produce the best oil.

ITEMS

CHEMISTS are learning how to make new desirable substances by building up the kind of molecules desired, declared George R. Harrison, dean of science at the Massachusetts Institute of Technology, speaking during the intermission in the broadcast program of the New York Philharmonic Orchestra, sponsored by the United States Rubber Company. Only a few tens of thousands of different kinds of molecules have been identified as occurring in nature; now nearly a million new kinds of molecules have been produced, he stated. "Scientists have long known," he said, "that the best way to understand a material is to understand the molecules of which it is composed." In earlier days, he added, "chemists produced new substances by mixing chemicals together, letting them fizz more or less at random, and then seeing whether the new substance obtained had properties which would be useful. To-day, however, they are learning to figure out in advance how to build molecules which will have any desired property." The spectroscope is the instrument that has enabled chemists to find out how atoms fit together to make molecules, Dr. Harrison stated, adding: "This device has unlocked even more secrets of nature than have its companions, the telescope and the microscope."

A NEW safety fuel for aircraft, so resistant to accidental ignition that a lighted match can be dropped in without causing a fire, has been announced and its properties demonstrated in New York to a group of scientists. It has all the power of 100 octane fuel, extended tests in a high-powered airplane engine show. The new safety fuel is a development of the Standard Oil Company of New Jersey, and the demonstration was made by technical men of that company and of Pan American World Airways. The chief engineer of the latter company pronounced it to be "an important technical advance in aviation." The safety feature of the new fuel is due to the fact that it does not form inflammable vapors in the air in great enough quantities to ignite, unless it is at temperatures above 100 degrees Fahrenheit. Ordinary motor and aircraft gasolines do, and they ignite readily and burn rapidly because of the vapors formed. The new fuel, however, must be fed into the engine by direct injection rather than by ordinary carburetion such as is used with conventional gasolines. Unless suitable carburetors are developed, engines now in use will have to be converted for fuel injection if the new fuel is to be used. After the fuel is injected in the cylinder, it is vaporized by the heat developed during compression. The fuel mixture is fired by the conventional spark plug.

A NEW comet, named du Toit for its discoverer, has been speeding across the heavens during the past two months. The faint comet, discovered by a member of the Harvard Observatory staff at Bloemfontein, South Africa, has been watched by astronomers in South Africa as it traveled from the constellation of Leo, the Lion, to Hydra, the Water Monster. In April, Harvard's South African Station radioed that the tenth magnitude comet had been discovered on April 9. As the object was not found on plates of the region made at the Harvard Observatory here, however, Dr. Harlow Shapley, director of the observatory, withheld announcement and wrote for confirmation. Harvard has received a second radio message, presumably in reply to Dr. Shapley's letter, stating that the new comet had been observed continuously for two months by both the Boyden Station at Bloemfontein and the Union Observatory at Johannesburg. Dr. J. Jackson, director of the Royal Observatory of Capetown, has computed the approximate orbit of the comet which now, however, has become so faint as to be beyond the limit of the ten-inch photographic telescope.