CHEMISTRY

Plastic Made of Soybean Offers Use for Farm Products

HENRY FORD'S greatest love among the "chemurgic" products—agricultural products used industrially—that he sees aiding economic progress is known to be soybean protein plastic.

Already this synthetic material is understood to be used in manufacture of the steering wheel, horn button and other such parts of the Ford cars. It is first cousin to casein plastics, made from the jelly-like or cheese curd of milk, which have wide use in buttons, buckles, radio and electrical parts, etc.

The soybean is four-tenths protein compared with two-tenths oil. The protein portion can be mixed with water, various chemicals, colors, and filler material, such as wheat chaff, wood flour, etc., to make a useful member of the great group of materials that the chemist calls "plastics." Heat and pressure are used to temper the plastic after it is put into the desired shape.

In addition to development undertaken by Ford and other manufacturers, the federal government through the Department of Agriculture's Bureau of Chemistry and Soils established early last year a soybean industrial research laboratory at Urbana, Ill., in cooperation with 12 North Central states. Here some 30 chemists and other staff members are developing and improving industrial uses of soybeans.

The Farm Chemurgic Council has been urging the industrial and other use of soybeans for several years as a part of its program to obtain the use of more American-grown agricultural products in industry.

Although the soybean was introduced in the United States as early as 1804, it is still one of the young giants in our industrial and agricultural life. In the Orient its uses have been many from time immemorial. In recent years the amount of soybean planted has increased greatly. Acreage in 1907 was only 50,000; in 1937 it was 6,049,000 according to preliminary figures. The 1937 crop was between 36,000,000 and 40,000,000 bushels of the bean itself.

It is estimated that some 50 factories are turning out various industrial products using soybean products. Soybeans are used in making such products as paint, enamel, varnish, glue, printing ink, rubber substitutes, linoleum, insecticides, glycerin, flour, soy sauce, breakfast food, candies, roasted beans with nutlike flavor, livestock feeds, as well as plastics.

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PROTECTION FOR PLANTS

Extra protection is given the conservatory attached to Prof. Wallace's house at Storrs, Conn., by a covering of cellulose film outside the glass frames.

DEMOGRAPHY

Population to Decline Despite Increases in Past

MAN POWER—or brain power—is the most valuable resource of the world, for out of it arises civilization and culture.

There has been a certain complacency about the renewal of our human resources. The population of the world trebled in the last 160 years. The white races increased from 150,000,000 people in 1780 to 635,000,000 in 1930. That would seem to justify the idea that there is no need for worry about the natural increase in population.

Today it is possible for the first time to inventory, with some scientific accuracy, man power not only by counting heads but by determining the contents of the heads. Frederick Osborn of New York City, who has collaborated with Dr. Frank Lorimer on population studies, reported recently to the American Association for the Advancement of Science that the old process of population growth is coming to a sudden stop among peoples living in cities.

By using crude birth and death rates, experts as recently as a decade ago found the population appeared to be rapidly increasing. But when the age grouping of the population and other factors were considered, it was found that true rates for 1930 were 16.9 births per 1000 and 16.3 deaths per 1000, contrasted with crude rates of 18.7 and 10.8.

The slight excess in the rate of intrinsic reproduction in 1930 above that needed for replacement has been whittled away since that time, Mr. Osborn finds. There is no doubt that the country is at present declining in numbers in the true or intrinsic sense.

The best guess of the population students is that the fall in birth rate will continue, and that the gross population will be something less than 150,000,000 in 1970, declining thereafter.

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