

Darlington of the John Innes Horticultural Institution and Dr. D. G. Catchside of King's College, London.

Farm mechanization has not proceeded as far in Great Britain as it has in the United States, but Dr. S. J. Wright, deputy director of the Agricultural Engineering Research Institute at Oxford University, sees its coming to the islands without very great misgivings.

"Mechanization is neither a serious menace to our rural amenities nor a

royal road to prosperity," he declared. "Most of the changes for which mechanization have been blamed are due to purely economic causes, and in the long run, agriculture can absorb mechanization without prejudice to its own interests. Moreover, under present conditions, only the machine can give the agricultural worker the leisure and amenities which he is entitled to demand."

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CHEMISTRY

Government Chemists Make Wool-Like Fiber From Casein

TWO U. S. Department of Agriculture chemists have discovered a method for making a wool-like fiber from casein, a component of skim milk. Somewhat similar to an Italian method by which a wool-like fiber has been made for the last three years, the process is being patented under the public service patent law. Discoverers of the process are Stephen P. Gould and Earl O. Whittier, both of the Bureau of Dairy Industry.

To make the fiber, casein is softened in water and dissolved in caustic alkali. It becomes a thick, sticky mass, which is carefully worked into the proper consistency by aging, addition of modifying agents and dilution. The mass is then forced through multiple spinnerets of the kind used in making rayon. The fibers are separated and hardened in an acid bath containing formaldehyde and modifiers.

Synthetic fiber produced in this manner has a chemical composition almost identical with wool except for a lower sulfur content, it is claimed. The fiber, it is also declared, is faintly yellow in color and resembles washed and carded Merino wool, the finest size marketed.

The casein fiber has the characteristic fine kink of natural wool and may be blended readily with natural wool. It has an advantage over kinky fibers made from plant materials in that it takes wool dyes.

Because the fibers are smooth rather than scaly, the new material cannot be felted. It does not shrink as much as natural wool, it is declared.

Similarity of manufacture to the rayon manufacturing process leads the two chemists to believe that its manufacture can be readily carried out in rayon

plants by the substitution of casein for cellulose and of different chemical reagents. The two chemists believe it can be produced for fifty cents a pound, approximately the same price as rayon.

Casein is already used for the manufacture of a wide variety of plastic products, such as billiard balls, and for paper coating. Despite the possibility of expanding the market for casein, which comprises three per cent. of skim milk, Bureau scientists do not believe production of milk for its casein content alone would be profitable.

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EVOLUTION

Evolution at Work Seen in Moth Study

EVOLUTION at work in quite recent (geologically speaking) time, and very probably still at work, has been traced with the help of some big moths, by Dr. W. R. Sweadner of the University of Pittsburgh.

Dr. Sweadner's subjects were the common and widely distributed cecropia moths—big, hairy, handsome fellows with crescent-shaped white spots in their wings. Although they all look rather alike to the casual observer, there are enough differences in structure and marking to separate them into eight distinct species, spread clear across North America. Each species has its own territorial range.

Examination of Ice Age history makes it highly probable that during that revolutionary epoch there were three species of these moths—eastern, central, and western—each kept away from its



TOO CLOSE FOR COMFORT

Artificial lightning on a tantrum missed this engineer by a scant two feet as it broke away from its prescribed path in the Westinghouse high voltage laboratory at Sharon, Pa. It ran down the partition protecting the engineer, only a fraction of the 50,000-ampere, 3,000,000-volt bolt remaining in the transmission pole.

neighbors' range by natural barriers, which operated not directly on the insects but on the food plants on which they depended.

As the Ice Age drew to its close, the trees and shrubs on which the cecropia caterpillars feed followed the retreating edge of the glaciers northward. Well up in Canada, the range of the plants spread to east and west, and the moths extended their range with them.

This brought the hitherto separated species into contact. Interbreeding occurred, and played a very important part in the development of several additional species. Indeed, one of the species now recognized is considered by Dr. Sweadner to be merely a complex of hybrid intergrades between two overlapping older species, and not a distinct group at all.

Dr. Sweadner demonstrated the possibility of producing definite new forms by cross-breeding the various species in the laboratory.

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As far back as 1860, photographers recorded an eclipse of the sun.