

CHEMISTRY

Nylons From Corn Cobs

Sheer stockings will come from the farm. Furfural, obtained from the raw material, is the chemical from which nylon is built.

➤ **THOSE LOVELY**, sheer nylons—they are going to be synthesized from corn cobs and oat hulls instead of coal, air and water.

Chemists have discovered how to make nylon plastic from waste products from the farm, and Du Pont has begun constructing a new plant at Niagara Falls to make the chemicals of the new nylon process from furfural, a chemical curiosity of a quarter of a century ago.

"Over 100,000 tons of agricultural by-products will be needed to supply the furfural needed by the new plant," Dr. O. W. Cass, of Du Pont's Niagara Falls Research Laboratory, told the Chemurgic Conference in Oklahoma City.

Nylon stockings, panties and other products will be grown down on the farm so far as their basic raw chemical materials are concerned. Now the nylon raw materials are obtained from natural gas, petroleum or coal—and air and water.

"We can now make nylon from materials which are available in practically unlimited quantities because they are grown each year," Dr. Cass explained.

The starting point of furfural, chemical raw material for the new nylon process, may be any one of a wide variety of agricultural by-products—oat hulls, corn cobs, cottonseed hulls, flax shives, bagasse from sugar cane, peanut shells, rice husks or even wood.

One bushel of corn cobs makes 40 pairs of stockings, so far as the basic chemical is concerned, but other chemicals than the principal one are also needed.

A dozen years were required to develop the new nylon process, and laboratory research began in the fall of 1935, three years before nylon was announced to the public. The fundamental nylon process took over a decade of research and pilot plant work.

Two intermediate chemicals that nylon wearers never hear about are combined to produce the finished nylon material. These are called adipic acid and hexamethylene diamine. The conventional process uses phenol or benzene from coal, ammonia from air and water, and oxygen from air.

The new process announced by Dr.

Cass starts with the furfural from cobs or hulls, converts it into adiponitrile and then makes hexamethylene diamine.

A new field of chemistry, based on furfural, and called furan chemistry, was predicted by Dr. Cass, who rated nylon production as just one of many future chemical achievements based on utilization of this kind of waste material.

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MEDICINE

Portal-to-Portal Cleaning Protects Drugs From Dust

➤ **HERE'S ONE** John L. Lewis and his coal miners seem to have overlooked: portal-to-portal, or at least portal-to-job, dry cleaning of employees' clothes.

It is one of the special features of the new drug manufacturing plant of the Winthrop Chemical Company which recently went into operation.

The object is to keep every speck of dust out of the medicinals made there for hypodermic injection into sick people. Before entering the main building where the medicines are made, employees and

visitors must walk through one of two narrow passages lined with double dusting blowing and suction units designed to remove lint and dust from their clothing. The 35 compartmented laboratory workrooms where the medicines are prepared are isolated, germ-proofed and air-conditioned for protection of the medicines. Nose and mouth masks and specially designed dust-free gowns must also be worn by everyone entering the weighing, preparation and filling rooms.

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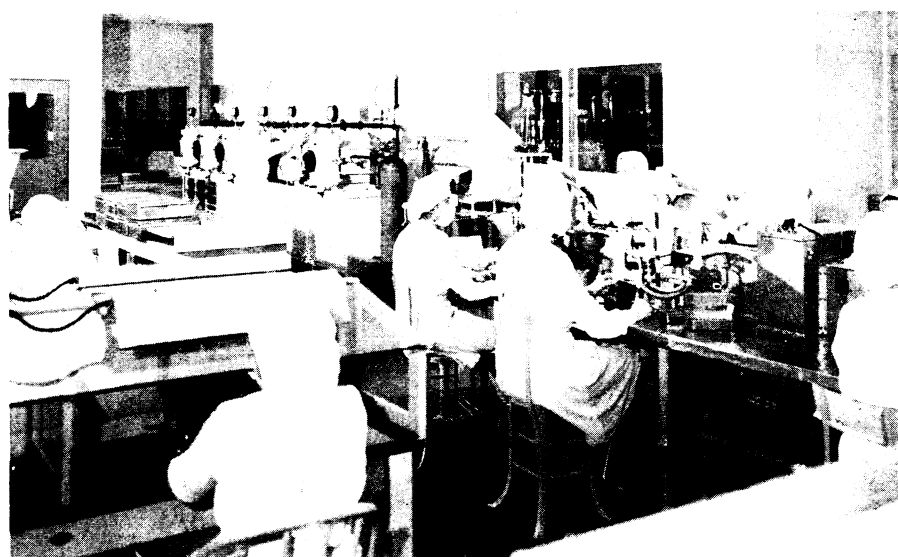
OPTICS

Flare-Absorbing Lenses Protect Glassworkers' Eyes

➤ **GLASSWORKERS**, fusing glass in sodium flares, are enabled to see work otherwise hidden by the yellow flame by means of new eyeglasses revealed by the American Optical Company.

The lenses of the new eyeglasses contain standard optical glass to which is added a small quantity of a rare metal, didymium. Lenses made of this special glass absorb 90% of the yellow sodium flare of the fusing flame which is caused by the burning of sodium, one of the ingredients of glass. They permit the worker to look through the opaque yellow light emitted and see his work clearly. They protect workers also from the headaches that usually accompany extended work with sodium flames.

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SPICK AND SPAN—In addition to "portal-to-portal" dry cleaning of workers' clothes, this room of the Winthrop laboratories has a special vestibule made to insure 30% humidity. Workers wear lint-free masks and gowns and weigh powders under glass hoods.