scientific technique of candymaking, are possible with low-methoxyl pectin and polyoxyethylene stearates. The pectins are used to produce jellies containing high percentages of invert sugars or glucose. The polyoxyethylene stearates are providing better dispersion of starch in sugar sirups for making gum drops.

Carbonated beverages, another large user of sugar (13% of last year's sucrose and a considerable dextrose tonnage), employ sugar and other carbohydrates chiefly for their sweetening powers, but also to supply body or mouth feel. About 27% of carbonated beverage manufacturers use dextrose in a 5 to 45% mix with sucrose. In acidulated beverages the sucrose undergoes inversion, but this probably does not alter the resultant sweetness by the time it reaches the consumer. Until recently, bottlers used canners' sugar, but the industry is now promulgating its own standards for sugar to be used in making carbonated beverages, proposing tolerances for color, ash, insolubles, bacteria, yeasts, molds, and test for foreign odor and taste.

The ability of sugar to reduce the brashness of salt is perhaps its most important property to the meat packer. Although not a large user of sugar—an estimated 50 to 60 million pounds annually—it does perform several important functions in meat preparation and storage, not all of them completely understood. In addition to its softening of the salt taste, sugar, especially reducing sugars, help to retain meat color, possibly through their utilization by microorganisms or the enzymatic systems of the meat tissues. The meat industry uses an estimated 35 million pounds of starches and flours annually for their power to retain moisture during processing and storage of sausages and other prepared meats. They may also serve to stabilize the emulsion of moisture, fat, and protein.

The meat industry is also watching closely recent experimental results which indicate that feeding of sugar shortly before slaughter increases the quality of beef and pork. Higher dressing percentage, better color, and even better flavor have been reported by several investigators.

Flavor and protection are the biggest reasons for the large consumption of sugar by the frozen food and canning industry, which together with the jams, jellies, and preserves, used over 14 billion pounds of sugar in 1950. The frozen food industry is using less sugar than previously, especially in bulk packing, because more rapid freezing and lower temperatures have reduced the hazard of microbiological storage. In retail packs, sugar is used also for its flavor and consequently the ratio of sugar to fruit is about the same—4 parts of fruit to one of solid sugar or three parts fruit to one part liquid sugar.

In canning, recent developments have been toward increasing acceptance of the starch hydrolyzates in combination with sugar. This was necessary during wartime sugar shortages and the industry has continued to make use of them.

The sweetening agents used in preserves, in addition to flavor properties, increase osmotic pressure to prevent spoilage, contribute to high viscosity for desirable spreading properties, and help to preserve color.

Browning, a sugar reaction that is not yet completely understood, is important to the baking industry in formation of crusts. Since sucrose does not enter into Maillard reaction while invert sugar does, the food technologist can avoid or minimize inversion of sucrose where color is not wanted and promote it where color is desired.

Industry

Supreme Court Refuses to Review Bread Standards

THE SUPREME COURT'S refusal on April 6 to review the Bread Standards case gave Atlas Powder Co. another setback in its attempts to get its bread emulsifier listed as an optional ingredient in bread making. In effect, the Supreme Court's denial of the Atlas appeal upholds the standards of identity for bread as announced by the Federal Security Administrator.

Isaac Fogg, president of Atlas, says that his company will continue to sell its emulsifier MYRJ 50 pending a legal decision on a similar polyoxyethylene monostearate emulsifier which is manufactured by Research Products Co.

Mr. Fogg's statement follows.

"We at Atlas regret that the Supreme Court has declined to review the decision of the Third Circuit Court, which supported the Federal Security Administrator in our legal action regarding certain sections of the FSA Bread Standard Order.

"In this litigation the company had sought to require FSA to reopen the bread standard proceedings—which closed three and one-half years ago—to consider new evidence concerning MYRJ 45, an emulsifier manufactured by Atlas and proposed as an optional bread ingredient.

"Essentially, the company views this matter as a scientific—and not a legal—decision of the Third Circuit Court, which supported the Federal Security Administrator in our legal action regarding certain sections of the FSA Bread Standard Order.

"Essentially, the company views this matter as a scientific—and not a legal—issue. We introduced MYRJ 45 to the baking industry in 1947, after scientific experts, on the basis of testing methods then accepted, had assured us that it was safe for such use. Since that time, test criteria have been expanded and Atlas has continued its research program in accordance with these newly defined procedures.

"Fully cognizant of our responsibilities to the consuming public, we at Atlas have spent hundreds of thousands of dollars for research at leading universities and other independent laboratories to assure the safety of our products used in foods. We are confident of the integrity of these products.

"During more than six years of usage, when billions of bread loaves containing MYRJ 45 have been consumed, there has never been the slightest evidence of injury to any individual—a point which the Food and Drug Administration concedes. Bakers throughout the country have hailed the technological usefulness of MYRJ 45.

"An abundance of fresh evidence on safety has been developed since the bread hearings ended in September 1949. As these data became available, we have sought repeatedly to bring them officially into the bread record. Rebuffed in this effort by the former Federal Security Administrator, Mr. Oscar R. Ewing, Atlas, out of obligation to its customers as well as its stockholders and employees, reluctantly resorted to legal action.

"The FSA Bread Order, issued on May 15, 1952, was scheduled to take effect last August. The U. S. Court of Appeals for the third circuit, however, granted Atlas a stay of the order insofar as it applied to MYRJ 45, pending conclusion of the legal proceedings. On Dec. 22, 1952, the Third Circuit Court ruled, in effect, that Mr. Ewing had acted within his legal authority in refusing to reopen the record. The Supreme Court today declined to review that decision. As a result, the stay granted Atlas by the Third Circuit Court, permitting the company to sell MYRJ 45 to its customers for use in bread, has been terminated.

"In this connection, Research Prod-

ucts Co. of Kansas City, Mo., manufacturer of a polyoxyethylene monostearate emulsifier similar to MYRJ 45, also has taken legal action regarding the bread order. The U. S. Court of Appeals for the Eighth Circuit also has granted a stay on polyoxyethylene monostearate, pending its decision. Today's ruling by the Supreme Court does not affect that stay, which continues in operation.

"A grossly unfair competitive situation, of course, would arise if another manufacturer of a polyoxyethylene monostearate emulsifier were permitted to continue serving the baking industry, while Atlas is prevented from doing so.

"A statement of the Food and Drug Administration with respect to enforcement of the Bread Order was made recently by Associate FDA Commissioner M. R. Stephens. Speaking to the Society of Bakery Engineers on March 4, 1953, in Chicago, Mr. Stephens stated: 'Pending a final adjudication of the petitions for review filed in the appellate courts, legal action against breads containing polyoxyethylene monostearate is not possible.'

"Meanwhile, the National Research Council, a foremost scientific organization, is now actively considering all available studies and evaluations on the safety of MYRJ 45, including important new evidence completed since the bread hearings closed in 1949. NRC has announced it expects to issue reports concerning the safety of all emulsifiers used in foods.

"Under all of these circumstances, Atlas will continue, until further notice, to sell MYRJ 45 to bakers who desire to use it. We are following this course in the hope that, with the additional time available, a definitive scientific solution to the problem can be reached in the fairest manner to all concerned."

Constructions to Increase IM&C Fertilizer Supply in Tenn. and Ky.

Current high demand for plant foods in Kentucky and Tennessee and anticipated increases are leading International Minerals & Chemical Corp. to expand its Somerset, Ky., plant and to build a new plant at Clarksville, Tenn.

The Clarksville plant will produce complete plant food mixtures on a 32-acre tract north of Clarksville, facing U. S. Highway 41 and extending east to the Tennessee Central Railroad. According to Maurice H. Lockwood, the new plant will place IM&C in a better position for supplying present customers and for serving a more extensive part of western Tennessee and western Kentucky. IM&C plants at Somerset, Ky.; Greenville, Tenn.; Florence, Ala.; and Tupelo, Miss., have been serving this area.

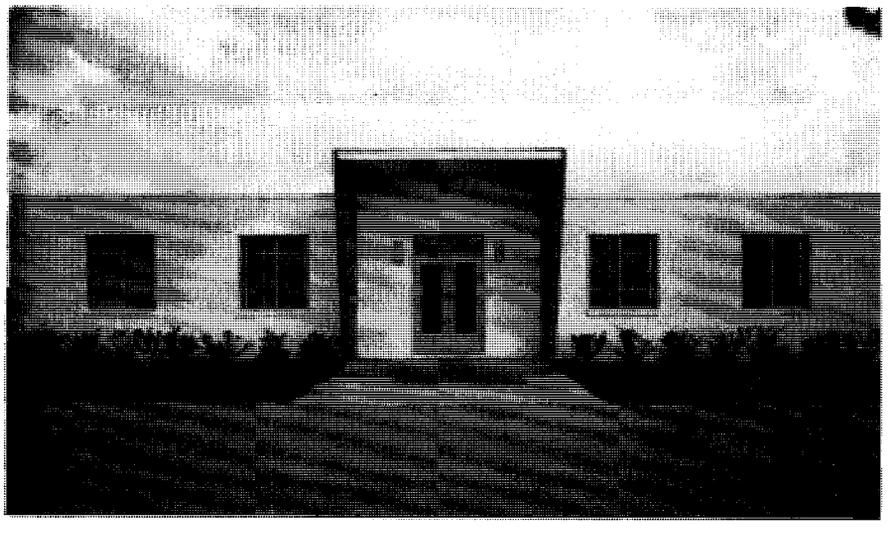
The Somerset factory will be more than doubled, marking a second expansion of this plant since it was built in 1948.

Minute Maid Dedicates Research Lab to Norman V. Hayes

Minute Maid Corp. dedicated its new research and development laboratory building recently and named it for one of the pioneers in the field of concentrates and frozen foods, the late Norman V. Hayes.

The fireproof, air conditioned, concrete block building is located in Plymouth, Fla. Among those present for the dedication in Plymouth were Mrs. Vincent J. Hayes of San Francisco, mother of Dr. Hayes. She and the Florida Commissioner of Agriculture, Nathan Mayo, participated in the formal opening.

New Norman V. Hayes memorial research and development building of Minute Maid Corp., Plymouth, Fla.



Dr. Hayes, as a member of the staff of National Research Corp., went to Florida in 1944 to set up a pilot plant and later full-scale operations for producing orange powder. In 1946, just as Minute Maid was beginning to open its first production season, Dr. Hayes was electrocuted at the age of 28 when he accidentally touched a high tension wire with a steel rod.

Norman V. Hayes

Each of the main laboratories in the building contains 700 square feet of floor space. The laboratories are equipped with a Beckman and a Coleman spectrophotometer, a semimicro analytical balance, and Orsat gas analysis apparatus. A small bacteriology laboratory, a chemistry laboratory, a food technology laboratory, and a soil and plant section are all included in the building. Facilities for special projects are also provided on the building's roof.

Foreign

British Evaluating Gas Works' Waste As Source of Fertilizer

The British Ministry of Agriculture is conducting a series of experiments this year to evaluate the use of crude gas works waste as a source of nitrogenous fertilizer. There are about 800 small gasworks in southern England and Wales which do not have sulfate installations. Many of these plants have had difficulty in disposing of crude ammonia liquor which contains from 1 to 2 % of ammonia. For many years continental farmers have used the gas liquor as a direct fertilizer and recently the idea has been extensively tried in England.

The Southern Gas Board disposed of 984 thousand gallons of the material for farm purposes last year. To obtain more direct, exact knowledge, the gas liquor is being tried this year in direct comparison with ammonium sulfate in each of the 12 provinces of the National Agricultural Advisory Service. If the studies prove favorable to the gas works waste the British believe that 15,000 tons or more of nitrogen could be made available for land improvement.

French Potash Imported Duty-Free by Chile

Chile and France have completed negotiations to continue for another year the exemptions from basic import duties granted to potash fertilizers of French origin. Duty-free treatment for French