

Z Process Quick Freezing Collection

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c.1917-1937



Title Statement

Z Process Quick Freezing CollectionZ Process Quick Freezing Collection, c.1917 - 1937 Ms.2024.055

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Profile Description

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Descriptive Summary

Unit ID

Ms.2024.055

Unit Date

c.1917-1937

Language

Materials in this collection are in English.

Abstract

The Z Process Quick Freezing Collection consists of pamphlets and a photograph album. The pamphlets contain information on the quick freezing method developed by Mikhail Trofimovich Zarochentsev. The photograph album consists of images related to the freezing methods and equipments. The quick freezing method acted as a sanitary method to freeze seafood, meats, fruits, and vegetables and to maintain their nutritional values and taste.

Extent

0.3 Cubic Feet 1 box

Repository

Special Collections and University Archives, Virginia Tech

Administrative Information

Conditions Governing Access

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Source of Acquisition

This collection was purchased by Special Collections in July 2021.

Processing Information

The processing, arrangement, and description of the Z Process Quick Freezing Collection was completed in May 2024.

Preferred Citation

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Scope and Content

The Z Process Quick Freezing Collection consists of pamphlets and a photograph album. The pamphlets contain information on the quick freezing method developed by Mikhail Trofimovich Zarochentsev. The photograph album consists of images related to the freezing methods and equipments. The quick freezing method acted as a sanitary method to freeze seafood, meats, fruits, and vegetables and to maintain their nutritional values and taste.

The pamphlets consist of three pamphlets, which are listed on the bibliography in the folder. The pamphlets explain how Zarochentsev created the Z Process, with details on his methodology. One article tells of his experience developing the method, how he uses "three of the known methods of heat transfer--radiation, conduction, and convections," and his successful work in Europe and the U.S. Another pamphlet describes the advantages of the Z Process over other freezing processes.

The photograph album contains 186 photographs that illustrate the refrigeration process, fishing vessels, packaging, animals, meats, and more. Most photos include captions.

According to the original sale document:

"This souvenir sales photo album, and accompanying literature document the extraordinary advancement in quick-freezing technology and food preservation by this pioneering Russian-American engineer. Zaronchentsev had developed a technique of placing all of the products to be frozen on mesh metal shelving which would then be sprayed with a calcium chloride brine solution as a mist, which speeded the freezing process. This method was entirely different from the flash freezing methods developed by Clarence Birdseye, whose innovations involved holding packaged food between two metal belts chilled to -45 degrees Fahrenheit, or under pressure between two hollow metal plates chilled to -25 degrees Fahrenheit through evaporation of ammonia, freezing items from 30-90 minutes. Zaronchentsev (b. 1879) who had pioneered refrigeration engineering while studying at the Institute of Transportation in Moscow prior to the Russian Revolution, later oversaw the construction of numerous packaging houses, cold storage facilities, and thousands of refrigerated railwar cars. From 1922 to 1927 he had become the general manager of the Estonian packing house A/S Kulmetus, with many of the photos here showing his work in Estonia, and across Europe during the period. In 1928, he contracted with the British firm H. Smethurst & Co. in Grimsby which used his technology to freeze, package and market frozen salmon rolls, fish ovals, fish cakes, and others, shown here in the photos, but three years later decided he would have to move to the U.S. for financing and build the company.

"In New York, he contracted initially with the Francis Metal Door & Window Corp. in Rochester, NY to build his specialty freezers, and equipment, and incorporated as the American Z Corporation, with branches in Brooklyn, NY and other locales. He also began setting up test farms to grow vegetables, fruits, and poultry, especially duck, to develop a whole line of locally sourced frozen goods using his equipment. The carefully annotated photographs show the many different products frozen and being frozen including green peas, frozen shrimp in pans and cartons, pork chops, ham and pork bellies, pork brains in cartons, lamb chops, duck, fish fillets, and sausages, including those in cellophane display cartons. The patented 'brine-fog-' method together with applied pure cane sugar prevented fruit from losing their colour, as well as preserving

aroma, nutrients, and essential vitamins. By 1938, the Japanese firm Nippon Suisan had tested the devices, and methods of cold storage facilities and production facilities in Misaki, Nemuro, and Takao (Taiwan), focused primarily on farm shrimp marketed as Horai Shrimp in Japan, and frozen swordfish exported across the Pacific."

Keywords

History of Food and Drink

Food Technology and Production

Rights Statement for Archival Description

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Arrangement

The collection is arranged by document type.

Description of Subordinate Components

Pamphlets

box-folder 1

Container 1 (folder)

Bibliography

"The Frick System," August 1932, vol 4, no. 2 "Frozen Foods: Dealing with Every Phase of the Quick Freezing of Perishable Foods -- Preparation Packaging, Freezing, Storage, Distribution," September 1936
"The Z Processes for Quick-Freezing and Quick-Chilling Food Products," c. 1930s

Photograph Album

box-folder 1

Container 2 (folder)