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CHAPTER TWO

Refrigerator cars

A Pacific Fruit Express mechanical car stands out among Santa Fe and PFE 40-foot ice-bunker cars in this early 1960s train. Mechanical cars were developed for frozen goods but began hauling more fresh produce by the 1960s, eventually pushing ice cars out of service in the 1970s. *J. David Ingles collection*

The ice-bunker refrigerator car was the primary method of hauling perishables from the 1800s through the heyday of fruit and vegetable transport by rail. Ice reefers evolved significantly through the 1950s, with mechanical cars taking over from the 1960s through today, **1**.



2

California Fruit Express was an 1890s private car operator. This all-wood Wickes Patent car, built in 1892, was 36 feet long with a 30-ton capacity and held 7,500 pounds of ice. *Trains magazine collection*

Although the idea for an ice-cooled car was no longer novel by the late 1800s, railroads of the period were reluctant to invest money in them. Railroads had substantial fleets of boxcars and did not want to invest in rolling stock designed for specialty commodities.

Not only were refrigerator cars more expensive to build than boxcars, they required extensive icing stations and ice supplies to keep them cold. They would spend half of their service lives running empty, returning to their owners, and since perishable traffic was seasonal, cars would sit idle for extended periods each year. In addition, perishable traffic spoiled easily, required constant care, and resulted in higher and more frequent damage claims than other freight.

The result was that private owners and leasing companies soon became the largest owners of refrigerator cars. By 1900, almost 80 percent of reefers in service (54,000 of 68,500) were privately owned. The largest early private owner was Armour, the meatpacking giant. At the turn of the 20th century, Armour owned about

20,000 cars, the majority of which were actually leased to carry perishable traffic (mainly from the West). The company also owned icing stations throughout the country.

Railroads soon found the way to acquire refrigerator cars was to form separate subsidiary companies to own and manage them (more on this in chapter 3). In 1906, Pacific Fruit Express was formed, co-owned by the Union Pacific and Southern Pacific. Other major refrigerator car owners included American Refrigerator Transit, Burlington Refrigerator Express, Fruit Growers Express, Merchants Despatch Transportation, Northern Refrigerator Line, Santa Fe Refrigerator Department, Union Refrigerator Transit, and Western Fruit Express.

Early construction

Although ice-cooled cars—converted boxcars with insulated walls and ice chests—were first used in the 1850s and 1860s, the first patent for a refrigerator car was awarded to J. B. Sutherland in 1867. His design called for ice tanks inside each end

of a car, with vents above the tanks providing air circulation to the interior. The basic design—with modifications and upgrades—would last through the end of the ice-bunker era.

A number of companies and individuals began building cars, and among the most common early cars were the Tiffany Patent and Wickes Patent cars, **2**. The Tiffany car had an overhead ice bunker running the length of the car. The Wickes car was more conventional, with ice bunkers at each end and overhead hatches at each corner (two per bunker) for adding ice. Variations of this design became popular. As cars proved themselves capable of carrying perishables long distances, reefer ownership grew dramatically: from 6,000 cars in 1885 to 23,000 by 1890 and 68,000 in 1900.

At the turn of the 20th century a typical refrigerator car was 32–36 feet long, with all-wood construction, a truss-rod underframe, and archbar trucks, **3**. Car capacity ranged from 20–30 tons, with a light weight around 37,000 pounds and an ice bunker capacity of about 7,000 pounds.



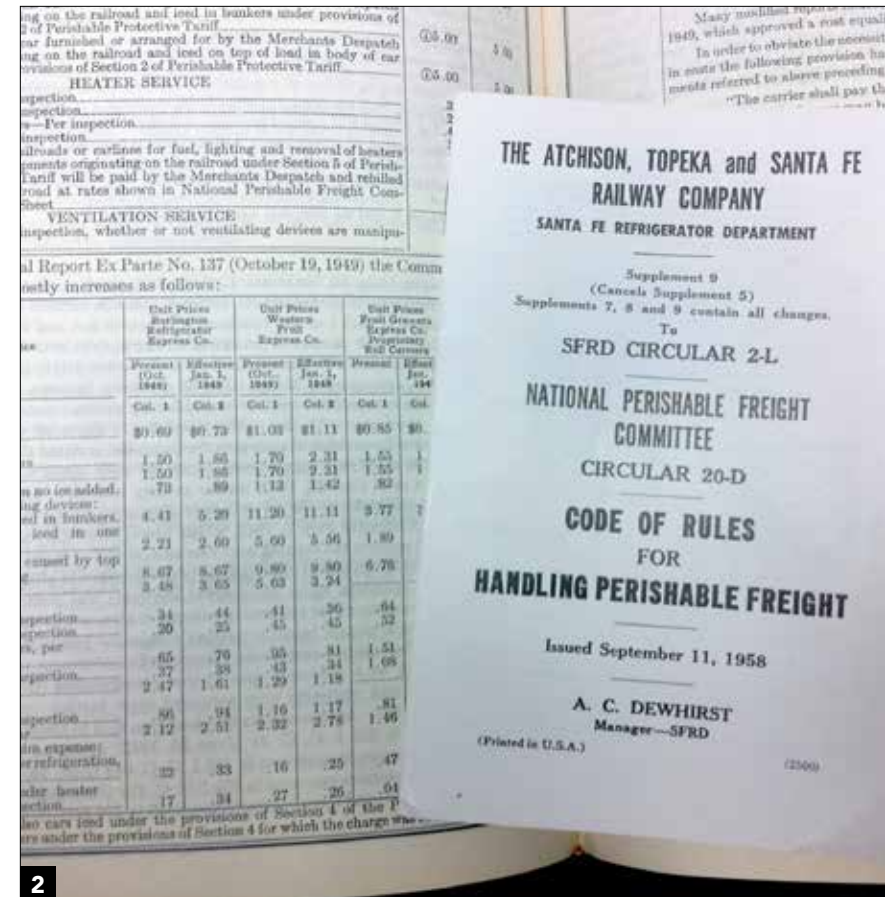
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CHAPTER FIVE

Perishable operations

A Santa Fe Alco switcher is busy delivering refrigerator cars to Kern County, Calif., packing sheds as the potato rush gears up in a late spring in the early 1950s. *Santa Fe*

Fruits and vegetables have limited shelf lives, so speed is the key to getting them to market with as much freshness remaining as possible. Into the 1960s, railroads did this by operating solid trains of reefers on expedited schedules or by operating large blocks of reefers in other priority freight trains, **1**.



2

The National Perishable Freight Committee issued rules and instructions for handling perishables. This 1958 Santa Fe guide is a supplement to the main publication.

We'll look at railroad operations from the early 1900s onward, concentrating on the classic era through the 1950s and closing with a look at how perishable traffic declined and what traffic still moves by rail today.

Extensive markets

About 85 percent of fruits and vegetables are produced (or imported) south and west of Chicago, while a majority is consumed north and east of Chicago. The distance between producers and consumers means perishable traffic has always involved long hauls—the average perishable shipment was about 1,400 miles in 1941.

California is the country's major producer of fruits and vegetables, with a wide variety also coming out of Florida, Texas, and Arizona. Many other states and regions produce specialty products at various times of the year, including Maine potatoes,

Washington apples, South Carolina peaches, and Louisiana strawberries. At any given time from January to December, *something* is being harvested *somewhere*.

Under the Interstate Commerce Act, when a shipper contacted a railroad with perishable goods to transport, the railroad was required to provide refrigerator cars and provide the charges for shipping and for protective services.

As chapter 3 explains, railroads sometimes did this with their own cars but most often with cars of a contracted subsidiary or leasing company.

Protective services

A key in refrigerator car traffic is providing protective services, making sure goods are transported at the proper temperatures to keep them from spoiling. Shippers could choose from a number of options depending upon the product and season.

U.S. refrigerator car loads by type, 1943

Perishables	Carloads
Potatoes	260,657
Vegetables, N.O.S.*	170,591
Oranges/grapefruit	150,863
Apples	42,867
Bananas	38,524
Onions	30,309
Fruits, N.O.S.**	27,076
Tomatoes	25,302
Cabbage	24,801
Watermelons	17,763
Grapes	18,687
Limes/lemons	15,960
Cantaloupes/other melons	15,119
Peaches	12,129
Tropical fruits	3,103
Berries	1,663
Nonperishables	
Canned food products	336,335
Beverages	201,005

*Not Otherwise Specified: includes lettuce, spinach, carrots, celery, and others
 **Pears, plums, apricots, and others
 List does not include meat or dairy products
 Source: *Railway Age*, February 10, 1945

For ice-bunker cars, this meant a combination of precooling, icing (including initial icing and re-icing), ventilation, and heating. Instructions and rules for protective services were covered by the Perishable Protective Tariff, summarized in the National Perishable Freight Committee's Code of Rules for Handling Perishable Freight, which was updated periodically to reflect new technology and services, **2**.

It's important to understand the various terms for protective services and the options that were available to shippers with ice-bunker cars.

Icing is the process of filling a car's bunkers with ice (details can be found in chapter 6).

Pre-icing means icing the car prior to delivering the car to the shipper for loading.

Initial icing is the first icing done after the car is loaded.

Re-icing means adding ice to replenish earlier ice that has melted.



1

CHAPTER SEVEN

Produce terminals and final customers

The Chicago & North Western's Chicago "potato yard" covered 60 acres and could receive more than 500 refrigerator cars for its daily auctions and sales. It served more than 20,000 cars each year. Cars from nine owners or lessees can be seen in this 1957 view. *Chicago & North Western*

Where do all those fruits and vegetables go? Many are shipped to individual customers such as food wholesalers, supermarket chains, and food processing companies.

Through the 1940s and 1950s, tens of thousands of cars went to large terminals where produce was auctioned or sold directly, 1.



2

Two Pacific Fruit Express reefers and one from American Refrigerator Transit await unloading at a Roanoke, Va., produce wholesaler around 1950. *Trains magazine collection*

Private buyers

As with other freight, a shipper might sell a carload of fruits or vegetables directly to a buyer. This could mean a wholesaler in a large or small city, a canning or processing company, a supermarket chain (or food-buying co-op of independent store owners), or a hotel or restaurant chain, 2–5.

Most canneries and food-processing companies were located near harvest areas to minimize transportation costs. This was true for most canned and frozen vegetable and juice (including frozen concentrate) producers. Railroads often carried finished products from these factories, but most inbound produce was a short haul handled by trucks.

An exception was large-scale food processors that made a variety of products. One example was baby-food company Gerber, 6. Gerber's products used a variety of fruits and vegetables, not all of which were available locally. Their factory, located in Fremont, Mich.,

received inbound shipments of produce by rail—photo 6 shows a steam switcher moving a cut of three ice-bunker cars into position.

Another example was food giant Campbell's, maker of soup and many other canned food products. Huge companies like Campbell's would often sign contracts in advance for products and then fill additional needs as necessary through wholesalers and brokers.

Campbell's did this with tomatoes through the 1940s, contracting with growers in the Lancaster, Pa., area to have carloads shipped via the Pennsylvania Railroad to Campbell's factory in Camden, N.J. The factory canned all of its tomato soup (its most popular product) for the year in the July-to-September harvest season, up to 10 million cans per day. To serve this, the Pennsy delivered blocks of cars daily, 30–40 cars at a time. Campbell's also received inbound vegetables by truck and ship.

Independent buyers might receive refrigerator cars at their own docks or use team tracks at local railroad yards, stations, or sidings and off-load products directly into trucks, 7.

Produce terminals

Large produce terminals were located in almost every major city: Chicago, New York, Philadelphia, Boston, Baltimore, Atlanta, Pittsburgh, Cleveland, Indianapolis, and others. Many of these terminals and markets still exist, albeit now served by trucks instead of rail.

Into the 1960s, however, railroads were the primary method of serving these markets. Local suppliers might also bring in products by truck, and terminals in coastal areas also often offered imported produce as well, taken directly from ships. The exact logistics, size, and scope of operations varied among individual markets and terminals, but the basic operations and functions were similar at each.