

IN A PICKLE!

TYPES OF FOOD PRESERVATION IN THE 19TH CENTURY

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[Author's Note: This article is only meant to offer an overview of food preservation methods used in the nineteenth century. A more comprehensive explanation of these methods will be found in the upcoming book, *Well Preserved: The Story of Food Preservation and Storage in the Nineteenth Century*. The book will contain more details for each preservation method and include documented recipes for each process. Stay tuned for the publication date.]

Before the age of commercial canning, freezing, refrigeration and freeze drying foods, food preservation was important to early man. They developed convenient ways to preserve fresh foods so that in the lean months they would have a relative constant food supply. In the beginning, drying, smoking, salting, fermentation, cold and potting were used. In later years, preservation using sugar, vinegar and alcohol were employed as preservatives. In 1809, the age of modern canning techniques dawned.

FOOD PRESERVATION BEFORE HEAT PROCESSING

An excellent period explanation of current food preservation appeared in the June, 1854 issue of *Godey's*. The article begins with, "THE various organic substances furnished by the animal and vegetable kingdoms, which constitute the food of man, are, from the nature of their chemical structure, liable to change and decay; they are also irregular in their supply; hence arises the necessity of storing up the abundance of one season to meet the deficiencies of another. The art of preserving food as much as possible in its original state is therefore of great importance; it has been improved by gradual steps, depending, in great measure, as in so many other cases, on chemical discovery and the diffusion of chemical knowledge among persons engaged in the useful arts; so that, at the present time, the deprivations suffered by our forefathers may be prevented; the commonest articles of food may be enjoyed at all seasons; and even the delicious fruits of our gardens may be made to contribute to our health and refreshment at a season when the trees which produced them are covered with snow. The mariner, too, is not now necessarily confined to salt meats; he may, on the longest voyage, and in the severest clime, as easily enjoy fresh meat and vegetables as when he is in port." The article described various ways to preserve meats, vegetables and fruit.

PRESERVATION OF ANIMAL PRODUCTS

AIR AND HEAT DRYING

Drying was one of the first methods used to preserve meats and fish. The flesh was exposed to heat of not more than 140° because at any higher temperature, the protein fibers hardened to a point that it could not be hydrated. The American Indians used dried bison and deer, mixed with dried berries and marrow, to prepare pemmican.

In the West Indies and in South America “jerked” meat was a variation of drying. The thinly sliced meat was dipped in sea-water or brine and then was dried in the sun. Occasionally, the dried meat was pounded into a paste and then packed into jars. In Brazil, the meat was sometimes mixed with cornmeal and packed into leather bags, which were used by travelers. Although air drying was a method of preservation, there were very few instructions, in American period cook books, for preserving meat in this manner.

Fish were dressed, slit down the middle and air dried. Smaller cod, haddock and other small fish could be preserved in this manner but salting was a more common method of preservation.

PRESERVATION BY COLD

People in cold regions have long recognized the usefulness of cold storage or freezing. Residents of the colder areas of Russia, Hudson Bay in Canada and other cold regions had long used freezing to preserve foods. It was noted that caution, was needed, in thawing the frozen meat. If the meat was thawed too quickly, it would spoil and freshly thawed meat had to be cooked immediately. It was suggested that the meat be thawed in cold water to prevent spoilage.

In addition to freezing to preserve foods for a longer period, ice was used to prevent the spoilage for a short period of time. Ice houses or ice-safes [refrigerators] were used for this purpose. Spring houses were also used to keep items cold in order to lengthen their shelf life.

SALTING

Sodium chloride, saltpetre, sal prunella (crystalline form of saltpetre) were all used in the salting of meat, of which there were two methods; dry salting and wet salting (corning, pickling or brining). With dry salting meat was packed in dry salt and or rubbed with a coating of salt but this method did not preserve the meat as long as wet salting. With wet salting, the meat was first rubbed with salt and salt was put between the layers of meat; then a brine was poured over the packed salted meat and was kept submerged in a brine solution. Pickling does not leave the meat as salty as in dry salting but it still needs to be pre-soaked, which removed excess salt, before cooking. Barreled salt pork is an example of pickling and there were varying grades of salt pork and the specified fat content and cuts of meat determined the grade of salt pork. Salt beef was prepared in much the same way.

Fish could also be dry or wet salted. Herring, cod, salmon, mackerel, sardines and anchovies were very familiar to nineteenth century consumers but were usually commercially processed rather than being done at home. In some cases, drying was employed with salting. The fish was salted for several days, then dried and for shipping, they were packed in boxes or barrels. Some fish were brined and then

shipped in barrels, similar to the barrels of salt pork and beef. Usually fish was commercially preserved rather than being done at home.

SMOKING or SMOKE DRYING

The process of curing often combined dry salting (sometimes with the addition of sugar and or spices) and smoking. Bacon, hams, some sausages and fish, such as salmon and herring were smoked. Heat from the smoke gave particular characteristics to the meat as well as a distinctive flavor. Cold smoking (smoked at a temperature of less than 85°F.) was sometimes used. It produced a mild smoke flavor but the meat or fish was not cooked and did not keep as long. Hot smoking (smoked at a temperature of over 130°) was the preferred method. The meat was partially cooked and the flesh developed a hardened surface, turned a brown or reddish brown color and had a stronger smoke flavor. The meat was partially cooked, it lasted longer.

VINEGAR

Vinegar was used occasionally for preserving meat but it was more suited for preserving vegetables. One meat that did use vinegar as a preservative was souse or head cheese. It was made from the scraps of pork, such as the feet, ears, noses, and heads. Also, recipes for pickled oysters and herring appeared in cookbooks. Other fish, such as cockles, mussels, and salmon preserved in vinegar were popular in some parts of the world.

ALCOHOL AND SUGAR

Most of us do not associate alcohol with meat preservation but it was a fairly common method of preserving meat. Minced meat, a mixture of chopped meat, raisins, currants, spices and brandy, was used in pies as tarts, just as it is used today. The modern version of minced meat is much sweeter and has much less meat in the mixture.

CONCENTRATED FOODS

The process to make portable soup was a variation of concentrating and drying. As lean meat was boiled, the gelatine [sic] dissolved and the water evaporated, leaving a thick gelatinous substance which was cut into chunks and dried. The “soup” was reconstituted and was used by travelers or as a convenience food, much like bouillon cubes are used today.

Concentrated meats were called “meat biscuits” and were introduced at England’s Great Exhibition in 1851. Gail Borden started manufacturing meat biscuits but abandoned that enterprise when it did not meet with success so he then turned to milk preservation.

POTTING

Potting of meat was a way to exclude the air from food which prevented oxidation and spoilage. Lean meat was cooked and either ground or chopped finely, and then it was made into a paste using a mortar. Salt and spices were added to the paste. Then the spiced meat paste was tightly packed in jars and then covered with a thick layer of melted butter or lard. Modern examples of potted meat are the Underwood deviled meat spreads but since they are processed, the layer of fat is not needed.

VEGETABLE AND FRUIT PRESERVATION

Some of the methods used to preserve animal products were be used to preserve vegetables and fruit. The most common methods used for the preservation of vegetative matter were drying, sugar, vinegar, salt or alcohol and a hot water bath.

AIR AND HEAT DRYING

Many kinds of vegetable and fruits may be dried. Beans were dried on the vine, then shelled and spread out to be completely dried. Small fruits were spread on the floor of a gently heated oven, in a warm dry place or placed in the sun and allowed to dry naturally. Often the larger fruits or vegetables, such as apricots, apples, peaches, plums, figs, pears, and pumpkins, were sliced before drying so that they would dry more evenly and quickly. Sometimes the slices would be strung on fine string, hung from beams and allowed to dry in that manner. Other fruits were left whole, such as grapes, currants, cherries, and etc. and then dried. Nuts and herbs were also air dried. After being thoroughly dried, the items were placed in paper, dry boxes or put up in wooden casks.

Another method of drying was to make a fruit leather or dry jam. Extremely ripe fruit was mashed and then was spread on plates to dry in a cooling oven or in the sun. When dry they were stored in paper bags and small pieces were cut off and soaked overnight in water when needed. The advantage of this method of preservation was that sugar was not needed to preserve the fruit because only very ripe fruit. Peaches, apples, cherries, and plums could be preserved in this manner. If the fruit was dried in a thicker layer, it was called a fruit biscuit.

SALTING

Vegetables, such as French beans, artichokes, olives, samphire, barberries, red peppers, turnips, cauliflower, beets, carrots and in some areas, kidney beans, could be preserved by salting. Four pounds of salt per gallon of water was used to make a brine and the vegetables must completely covered by the brine solution. Just as in sauerkraut, the vegetables fermented slightly which gave them a fairly strong taste.

SUGAR

Sugar was a preferred method for preserving fresh fruits and many examples of this processing method appear in period cookbooks. Those commercially processed were done in glass or cans. Fruits that were boiled in a sugar syrup and then dried, were confections, dry confects or candied fruit. After blanching the fruit or peel to remove the bitterness, the fruit was boiled in the sugar syrup until it was saturated with the sugar solution and then the peels were taken out of the syrup and dried. There were other forms of dry confects were called conserve or pastes. They were made by beating up the fruit with undissolved sugar which made a sweet paste and then it was cut into pieces and dried. Pastes could be made of quinces, apples, apricots, greengages (plums), raspberries, or strawberries.

Sweetmeats or liquid confects were fruits either left whole or cut into large pieces and preserved, first by cooking the fruit in a sugar syrup until it was tender and then stored by immersion in the transparent sugar syrup.

Marmalades were soft compounds made from the pulp which were beaten with sugar or honey but differed from conserves because they were not dried. Oranges, apricots, pears, quinces, pineapples, and berries were often preserved in this manner.

Jellies were made from the juice of the fruits, such as currants, gooseberries, apples, and many berries which were boiled with sugar until it reached a the desired consistency and after cooling formed a trembling jelly. Jams differed from jellies in that jams used the whole fruit to make the preserve.

Fruit juices were preserved with the addition of sugar. This was particularly done with lemon, orange, cherry or berry juices, especially when the fruits were in season. Preservation of the juices allowed people to have fruit drinks all year round and a number of recipes for fruit syrups were included in period cookbooks.

The containers used for jams and jellies were usually tumblers, glasses or crocks. Generally, they were not sealed with a cork; after filling the container with the jelly, papers that had been soaked in brandy were placed on the surface of the jelly and or tissue paper brushed with egg whites was placed on the top of the container.

The earliest reference directing the use of paraffin was in the 1887 edition of *The White House Cook Book*, by Mrs. F. L. Gillette. "Mold can be prevented from forming on fruit jellies by pouring a little melted paraffine over the top. When cool, it will harden in a solid cake, which can be easily removed when the jelly is used, and saved to use over again another year. It is perfectly safe and harmless."

VINEGAR

Vinegar was used as preservative either alone or combined with sugar and or spices. Whole, sliced, chopped or stuffed vegetables and fruits were preserved in this manner which also included relishes. Vinegar was also used to extract flavor from fruits, seeds, and vegetables and then it was used as a flavoring. Fruit flavored vinegars were also used as a refreshing beverage. Catsups also fall in this category since vinegar was usually a major ingredient.

Vegetables preserved in vinegar were called pickles. The vegetables were usually blanched and drained before the addition of the vinegar solution. Almost any vegetable could be pickled, either with a savory vinegar solution or a sweet one and some common vegetables and fruits that were pickled in vinegar were cucumbers, mushrooms, green beans, beets, cauliflower, carrots, onions, sweet and hot peppers, green tomatoes, red or white cabbage, melons, peaches, apples, cherries, artichokes, radishes, olives, garlic, shallots, beets, peppers and immature walnuts. Pickled hard-boiled eggs were also a popular.

Another form of a pickle was the mango and should not to be confused with the tropical fruit mango. Peppers, young melons, or peaches were often stuffed with a savory mixture of garlic, onion and spices. They were pickled in vinegar which were called "mangos" or "oil mangos,

Relishes also fall into the this category. Popular relishes that were made included piccalilli or India pickle (a combination of chopped or sliced vegetables in a spiced vinegar based solution) and chow-chow (a mixture of green tomatoes, white onions, pickling beans, green cucumbers, green peppers, and cabbage, seasoned with mustard, celery-seed, and salt mixed with vinegar and olive oil).

Fruit vinegars were made by steeping fruits, such as raspberries, cherries, blackberries, in vinegar and after straining, sugar was added and it was boiled to make a sweet/tart syrup. A small portion of the syrup could be added to water for a refreshing beverage in hot weather or for invalids. [See the archived article on Virginia's Veranda on "Do's and Don'ts for Hot Weather" for fruit vinegar recipes.]

Catsups may be placed in the category of vinegar preservation or in their own category. Since most were made with vinegar as the principle ingredient, they seemed to fit in best here. Various catsup recipes appeared in most nineteenth century cookbooks and the following are just a few examples. Oyster, liver, mutton chop, barberry, rum, lobster, mushroom, red or green pepper, anchovy, fish, red and green tomato, cranberry, currant, walnut, cucumber, blackberry, elderberry, celery, cucumber, gooseberry, grape, plum, peach, raspberry, lemon, whortleberry, apple, apricot and wine.

Pickles were always stored in stoneware or glass containers. The high acidity of the vinegar could dissolve the glaze on earthenware thus releasing the lead and poisoning the pickles or would rust the tinned cans which would ruin the pickles. Crocks, having large openings, were covered with tied bladder, corked and then sealed with wax or resin, none of which provided a watertight or airtight seal.

ALCOHOL

Alcohol was used as a preservative, especially with fruits. Brandied peaches, apples, pears, plums, grapes, cherries and other fruits were processed with this method. Fruit was packed in bottles or jars, covered with French brandy; after being corked, they were allowed to sit in the brandy for several days so that they absorbed the liquor, after which they were drained. Sugar and sometimes spices were boiled with the drained liquor and this mixture was poured over the fruit and the containers corked. The cork was covered over with tissue paper brushed over with egg or white or covered with wax, both of which provided an air tight cover.

Fruit cordials was an additional way to preserve fruits as well as providing a much used medicine. They were made by squeezing the juice from fruits, adding sugar and brandy or another liquor to the resulting juice. Blackberry cordial and cherry bounce are probably the most common recipes seen in nineteenth century cookbooks.

PRESERVATION BY DRYING AND PRESSURE

This method was developed by M. Masson and was introduced at the London Great Exhibition but the products were manufactured commercially, rather than at home. The process was described as “Cabbage, sliced turnips, apples, or whatever vegetable he selected, are dried in an oven at a certain temperature, so as to drive off from seven to eight per cent. of water: the drying must not be conducted too slowly nor too rapidly, but at a medium rate. After the drying, the vegetables are packed into a very small compass by the intense pressure of an hydraulic press; then squared and trimmed with a knife, packed up in tinfoil [This is much thicker than our modern tinfoil.], and lastly, stored in boxes.”

John Billings, in *Hardtack and Coffee* described desiccated vegetables as such, “... an ounce in weight and two or three inches cube of a sheet or block of vegetables... When put to soak for a time, so perfectly had it been dried and so firmly pressed that it swelled to an amazing extent, attaining to several times its dried proportions.... It seemed to show, and I think really *did* show, layers of cabbage leaves and turnip tops stratified with layers of sliced carrots, turnips, parsnips, with a bare suggestion of onions.... ‘*Desecrated vegetables*’ was the more appropriate name which the men quite generally applied to this preparation of husks.”

MISCELLANEOUS PRESERVATION METHODS

EXCLUSION OF AIR

Excluding air from preserved food had been used in conjunction with other methods for preserving many vegetables, fruit, nuts and eggs but the air was not drawn out of the container; the contents of the container were only protected from dust, dirt, and vermin. The container was merely covered with a bladder, leather, paper or cloth covered with cement or wax. This method was not the same as canning where the interior air was exhausted during processing or the later vacuum packing.



Stoneware crock covered with paper and dipped in wax

COOL STORAGE METHODS

The method of preservation was merely extending the shelf life of vegetables and fruit by keeping them in a cool place or covering them with sand, bran, straw, dirt, or ashes. There was no processing involved. Root vegetables such as potatoes, carrots, beets, turnips, parsnips, celery (with their roots covered with dirt) and fruits such as apples could be kept longer if they were stored in a cool place such as root cellar. The temperature was cooler and the air drier than room temperature. If packed in a barrel or box for storage, all the fruits or vegetables needed to be unblemished and unspoiled because one spoiled piece could destroy the entire barrel.

EGG STORAGE AND PRESERVATION

Chickens did not lay eggs plentifully all year round. According to an interpreter at Colonial Williamsburg, the laying pattern of chickens is affected by the amount of light available. The longer the day, the more eggs the hens laid and the optimum period for egg production was from April to September. For storing eggs for several months, eggs were coated with oil and buried in a sawdust, bran or other substance which would cushion the eggs and prevent breakage. For longer storage, eggs were also preserved in a bath of lime, salt and water and kept in a crock until needed. Recipes indicated that this would keep eggs for several years. The eggs stored in this manner could be used in baking but not prepared as eggs alone.

MILK PRESERVATION

Milk spoiled easily and many warnings appeared in print about keeping milk fresh in hot weather. Fresh milk was best to keep in a cool location such as a spring house or in a container submerged in cool water. In period cookbooks, there were several methods given to keep milk and cream longer; the milk was processed in a hot water bath or mixing it with eggs or sugar and then using a hot water bath.

Milk was also commercially preserved. Gail Borden first started experimentation with condensing milk in 1853 and was finally granted a patent in 1856. Using vacuum pans, like those used by Shakers to condense their herbal extracts, he mixed milk and sugar together to produce a thick sticky milk that was canned. Borden struggled until the Civil War when his product was finally recognized as a valuable product.

We don't usually think of butter and cheese being made to preserve milk but both are a form of milk preservation. Cream was skimmed from aged, slightly soured, the milk was churned, as action which formed the butter. After separating the butter from the buttermilk, the butter was washed to remove the milk solids and heavily salted. Before use, the butter again needed to be washed to removed the excess salt.

Cheese, another form of milk preservation, was made from very fresh milk. Rennet, from the stomach of a young calf that had been soaked in salt water for a specified period of time and produced an enzyme that separated the curds from the whey. The curds were used to make cheese by salting the curds, pressing out the excess whey and then allowed to age. Some period cheeses were Cheddar, English Dairy, Neuchatel, Cheshire, Single and Double Gloucester, Stilton, Roquefort (French), Gouda, Edam, Pineapple, Swiss, Parmesan, and sage.

THE AGE OF MODERN CANNING TECHNIQUES

Nicholas Appert, , a French confectioner, could be considered the father of modern food preservation. In 1795, Napoleon and the French government offered a reward to anyone who could devise an improved method for practical food preservation. For a number of years, Appert worked on his process and in 1806, he was given 12,000 francs as a reward. His process only contained only four steps; 1. Putting the item in containers for processing. 2. Corking or sealing the container. 3. Processing the filled containers in a hot water bath, with the processing time being determined by the contents. 4. Removing the processed containers from the hot water bath and cooling. This method is basically the canning method used today.

This process and was the birth of modern canning techniques. All sorts of foods could be sealed this way, such as beef, mutton, veal, poultry, fish, game, soups, vegetables, broths, creams, and custards. Meats generally had to be parboiled before the final processing.

The canning technology moved to America and gained a new name and, "hermetically sealing" was the name given canning. The term was derived from the Greek god, Hermes and meant "made perfectly airtight so that no gas or spirit can enter or escape." In 1812, Thomas Kensett and Ezra Daggett were the first to commercially can oysters, meats, and vegetables. At first they used glass but found that it unsatisfactory because glass was easily broken, was expensive and very difficult to pack for shipping. After trying for a number of years to obtain a patent for their process, they were finally granted a patent for "preserving animal substances" on January 19, 1825.

A description of the process was included in the 1854 *Godey's* article. "The dry and fresh-gathered fruits are put into strong, wide-mouthed glass bottles, carefully corked, and luted with a cement of lime and soft cheese, and bound down with wire. The bottles are then inclosed separately in canvas bags, and put into a kettle of water, which is gradually heated until it boils; the bottles are kept in this condition until the fruits are boiled in their own juice. The whole is then left to cool; after which the bottles are examined separately, and put away for store."

Most often glass bottles and jars, sealed bladders, paper, leather, or fabric, were used. Corks could be used with the smaller opening containers but must be tied on or sealed with wax or covered with paper or fabric. The same held true for stoneware and earthen crocks.

METAL CANS

Although glass containers were being used, metal canisters, made of tinned coated iron canisters, called “cans” were also utilized. Two skilled workers could make one hundred and twenty cans per day and it was not until 1847 that a machine was developed that could make as many as 1,500 cans per day. This considerably reduced the cost of the can which reduced the cost of the can of food.

World events took advantage of the increase in production of canned foods. The gold rush in California and the westward migration created a need for preserved food that could travel long distances. These early settlers carried with them, canned seafood, meats, vegetables fruits and pickles. The Civil War also contributed to the rise in canned foods. In 1860, five million cans of food were commercially produced and ten years later, over thirty millions cans of food was produced in the United States.

The cans of the nineteenth and early twentieth centuries were different to the cans we use today. They were “hole in the top” cans; the bottom and curved sides were attached and then a top, that resembled a flattened doughnut was attached and the seams were sealed with a half lead/half tin solder. The cans were shipped to the consumer and canneries in several parts; the can with the top attached and the “hole” which had a small hole punched in the center. After sterilizing the cans, the cannery or consumer filled the can and “capped” it with the “doughnut hole.” Air was exhausted from the can through the pin hole by placing the cans in boiling water for a specified period of time which depended on the contents of the can. After the air was exhausted, the small hole was “tipped” or sealed with the solder and then the cans were covered with boiling water processed in the hot water bath, The cans were cooled as quickly as possible and labels were applied.



Notice the round top with the “doughnut hole” in the center and the tipped pinhole in the center of the “doughnut hole”

Now that the food was in the can, it was not useful unless the can could be opened and the contents eaten. As indicated above, the food was processed and sealed in the can but no mention was been made of opening the can. Some cans of food came with opening instructions that read, “Cut around on the top near to outer edge with a chisel and hammer.” It was not until 1858 that Ezra Warner was granted a patent for a practical can opener which was a cross between a bayonet and chisel.

SELF-SEALING CANS AND WAX SEAL JARS

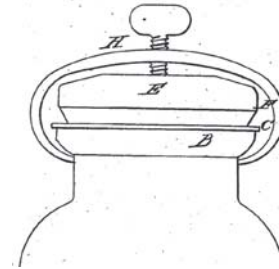
Metal cans were convenient, did not break during processing or shipping but did have their drawbacks. They could not be safely reused, were difficult to process at home, needed special equipment in addition to the container and presented the possibility of lead poisoning. It was noted by several authors that preserving foods in cans at home was not an ideal situation. The age of food preservation continued to change as technology improved and this opened the door for other inventors. The self-sealing cans and fruit jars entered the market and were often known as wax sealers because of the groove which held a cement or wax/rosin sealing agent.



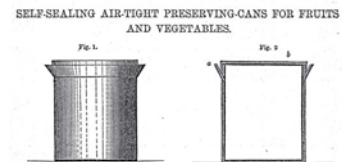
Stoneware wax sealer and glass wax sealer

On July 18, 1854 James Spratt was granted a patent for “Improvement in Hermetical Sealing.” Recognizing the problem of inexperienced people soldering the metal can tops and vent hole, he patented a that used a combination of a gum-elastic (rubber) gasket and cement in a trough. The lids were screwed down and tightened with a special wrench. His original patent was not well received but other inventors applied the same principle and produced a variety of containers with the trough around the top for a sealing agent.

Lid and clamp mechanism for glass wax sealer



Around the same time, Robert Arthur was granted patent for an “Improvement in Self-Sealing Preserve-Cans.” His invention made more of an impact on the mass market which was probably due to their exposure in *Godey’s*. His patent was dated January 2, 1855 and by April of the same year, *Godey’s* had a glowing report on the cans. They were described as follows: It [the container] is constructed with a channel around the mouth, near the top (a), into which the cover (b) fits loosely, as shown in fig. 2. This channel is filled with a very adhesive cement, prepared for the purpose, and allowed to harden. The vessel may be made in any desirable form, and of any suitable material, such as glass, porcelain, or pottery ware.



Arthur’s self-sealing cans taken from *Godey’s*, April 1855

In order to seal the vessel hermetically, it is only necessary to heat the cover slightly, and press it into place. It may be opened with as much ease as it is closed, by slightly warming the top. The ordinary tin cans, used for the same purpose for which this is intended, cannot be closed, as is well known, without the aid of a tinner; they are difficult to open, and are generally so much injured in opening, as to be useless for future service....”

Godey’s continued to sing the praises of Arthur’s patent but not all liked the new jars. Consumers liked the self-sealing cans but preferred using clear glass containers so that the contents could be seen. Several people were credited with the introduction of glass jars for food preservation but they were the still wax sealed containers. There were disadvantages in this design, the main one being that in removing the lid, a knife had to be inserted in the cement to pry up the glass lid, which often resulted in chipping either the jar or lid and prevented it reuse.

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THE MASON JAR

*J.L. Mason,
Glass Jar
No. 22,106,
Patented Nov. 30, 1858.*



Mason's jar patent,
November 30, 1858

John Landis Mason's invention the modern home canning industry was born. Mason, a New York tinsmith and metal worker, introduced a new jar design. The threaded neck for the glass jar and an accompanying lid enabled the jar to be opened with injury to either the lid or jar. This meant that the jar and lid could be closed if the contents were not used all at one time and the lid and jar could be reused again and again. His design employed a shoulder seal jar; a rubber gasket was placed, below the threads, on the shoulder of the jar and the lid was screwed on the threads.

On November 23, 1858 Mason was granted a patent for the mold for the glass jar and on November 30, 1858, the famous patent for the jar was issued and canning history was made. Mason only made the lids and commissioned the making of the jars at local glassmakers. The rubber gaskets, needed for the vacuum seal, were made by still another company. The tabs seen on modern rubber gaskets was patented by John Griffen on December 27, 1864 and prior to that, the rubber seals were round with no tab. There was one drawback with Mason's zinc lids; they produced a metallic taste to the preserved foods. The porcelain liner was patented on March 30, 1869 by Lewis Boyd.

In the 1870s and 1880s a new type of bottle and jar seal was introduced. The familiar wire-bail lid, known as the lightning seal was patented by January 5, 1875 by Charles Quillfeldt but his patent only applied to a bottle closure. In 1882 Charles Putman employed a variation of Quillfeldt's patent to the fruit jar and produced the Lightning Fruit Jar. Both of these jars still required the use of a rubber gasket. Alexander Kerr introduced, in 1915, the now familiar two piece lid that is still used today.

Instructions for using the newer jars did not start appearing in cookbooks until the 1870s, even though wax sealers and other fruit jars were being marketed. Some manufacturers included instructions with their jars but not all provided this service to their customers. The hot water bath process has changed very little from the time it was introduced in 1806.



Lightning seal jar and bottle

HOW TO DETERMINE THE APPROPRIATENESS OF A FRUIT JAR

Note: The author is not a professional fruit jar collector and can not provide appraisal information.

Often a period jar is needed for one's impression or exhibit and the question arises as to what kind of jar to use. It requires more research to determine the appropriateness of a particular jar than just relying upon the word of an antique dealer.

One will see numerous jars with the wording, “Mason’s Patent, November 30, 1858.” After Mason’s patents expired and were in the public domain, his name was exploited and some form of the “Mason’s Patent...” legend appeared on jars for the next seventy-five years. Books on dating fruit jars are abundant

In dealing the antique shop owners be aware that the Mason date or any other association with Mason on the jar is not an indication that the jar was made in 1858. A genuine 1858 Mason is so rare that none of the fruit jar references have a picture of an actual jar; only drawings or patent drawings are shown with a description of the jar.

Sometimes there is no name on the jar and then the shape may be used as an identifier of age; if a company name or logo is on a correctly shaped jar can be seen, make sure the company was manufacturing fruit jars for the desired time period. Notice the two shapes on the jars to the right. The pint jar on the left has square shoulders and the quart and half gallon have rounded, sloped shoulders, all of which are correct shapes for the 1860s.

The illustrated examples are the correct shapes of period jars, even if they may not be jars actually manufactured in the 1860s. One may expect to pay between \$10 and \$15 dollars for a pint jar with a zinc lid; \$8 to \$15 for a quart jar with a lid; and \$15 to \$20 for a half-gallon jar with the zinc lid. Ball jars tend to be the most common seen in antique shops some having the Mason’s legend or date and some are the correct shape for period jars, but the Ball name is a dead giveaway for a late nineteenth century date; the price range for Ball jars is usually between \$2 and \$5.



Pint, quart and half-gallon jars in correct shapes for an impression. All three have the Mason legend and patent date (not manufacture date). Paper has been inserted into the half-gallon to better illustrate the legend.

Sometimes one will see a reproduction jar offered as an original. One way to determine if a jar is a reproduction is to look at the seam lines; original jars usually have two seam lines and reproduction jars may have three seam lines. Sometimes the color of the jar is an indication of an original or a reproduction. Original jars were made in a number of colors but the most common colors are clear or a light aqua or blue-green.

After finding an appropriate fruit jar some consideration should be given for its use. Since the main purpose of these jars was for food preservation, it would not be advisable to use them as storage jars or canisters for flour, sugar, salt, cornmeal, dried fruit, macaroni, coffee, tea and etc. There were plenty of other storage containers for these items and in reading information on storing foodstuffs, fruit jars were not mentioned. If you need storage containers, consider using wooden pantry boxes like the Shaker boxes, Japanned tins, stoneware crocks other similar items.

CAUTION: While the jars would have been originally used for canning they **should not** be used for canning purposes today. Heat could damage the jar and it is more difficult to obtain a proper seal with a shoulder seal. They are wonderful to use as a display item or carry food in for a short period of time, such as for a period picnic.

BIBLIOGRAPHY

- Beecher, Catherine. *Miss Beecher's Domestic Receipt-Book*. Harper & Brothers: New York. 1858.
- Billings, John D. *Hard Tack and Coffee*. Corner House Publishers. Williamstown, MA. 1987. First published in 1887.
- Bryan, Lettice. *The Kentucky Housewife*. Shepard & Stearns: Cincinnati. 1839.
- Campbell, A. J. *American Practical Cyclopaedia*. Self-published: Cleveland. 1866.
- Child, Maria. *The American Frugal Housewife*. American Stationers' Company: Boston. 1836.
- Collins, James H. *The Story of Canned Foods*. Dutton: New York. 1924.
- Creswick, Alice. *The Fruit Jar Works: Volume I*. Self-published: Grand Rapids, Michigan. 1987.
- Gillette, Mrs. F. L. *The White House Cookbook*. L. P. Miller and Co. Chicago. 1887.
- _____. "Preservation of Food." *Godey's*. Louis Godey: Philadelphia. June, 1854.
- _____. *Godey's*. Louis Godey: Philadelphia. Various issues.
- Harland, Marion. *The Story of Canning and Recipes*. National Cannery Association: 1910.
- Haskell, Mrs. E. F. *The Housekeeper's Encyclopedia*. D. Appleton & Co.: New York. 1860.
- Hill, Mrs. A. P. Hill. *Mrs. Hill's New Cookbook*. Carleton: New York. 1867.
- Lea, Elizabeth E[illicott]. *Domestic Cookery, Useful Receipts, and Hints to Young Housekeeper*. Cushings and Bailey. Baltimore. 1853.
- Leggett, M. D. *Subject Matter Index of Patents for Inventions issued by the United States Patent Office from 1790 to 1873 Inclusive: Vol. 1, 2 and 3*. Government Printing Office: Washington. 1874.
- Leslie, Eliza. *Miss Leslie's Directions for Cookery*. E. L. Cary and A. Hart: Philadelphia. 1851.
- _____. *Peterson's*. Philadelphia: various issues.
- Powell, Ola. *Successful Canning and Preserving*. J. B. Lippincott Company: Philadelphia. 1917.
- Rodrigues, Arleta. *Fruit Jars: Canister to Kerr*. James Publications: Castro Valley, California. 1971.
- Shephard, Sue. *Pickled, Potted, and Canned: How the Art and Science of Food Preserving Changed the World*. Simon & Schuster: New York. 2000.
- Toulouse, Julian Harrison. *Fruit Jars*. Thomas Nelson, Inc.: Nashville, Tennessee. 1969.
- _____. United States Patent and Trademark Office. Washington D. C.
- Ward, Artemas. *The Grocer's Hand-Book and Directory*. Philadelphia Grocer: Philadelphia. 1886.
- Ward, Artemas. *The Grocer's Encyclopedia*. Self-published: New York. 1911.

Webster, Noah. *An American Dictionary of the English Language*. George and Charles Merriam: Springfield, Massachusetts. 1861.

Webster, T. and Mrs. Parks. *An Encyclopedia of Domestic Economy*. Harper & Brothers: New York. 1847.

Youman, A. E. *A Dictionary of Every-Day Wants: Twenty Thousand Receipts in Nearly Every Department of Human Effort*. Frank M. Reed: New York. 1878.