

A Primer on Fruit Jars

by Dave Hinson. (Originally published in the December 1996 edition of *Bottles and Extras*.)

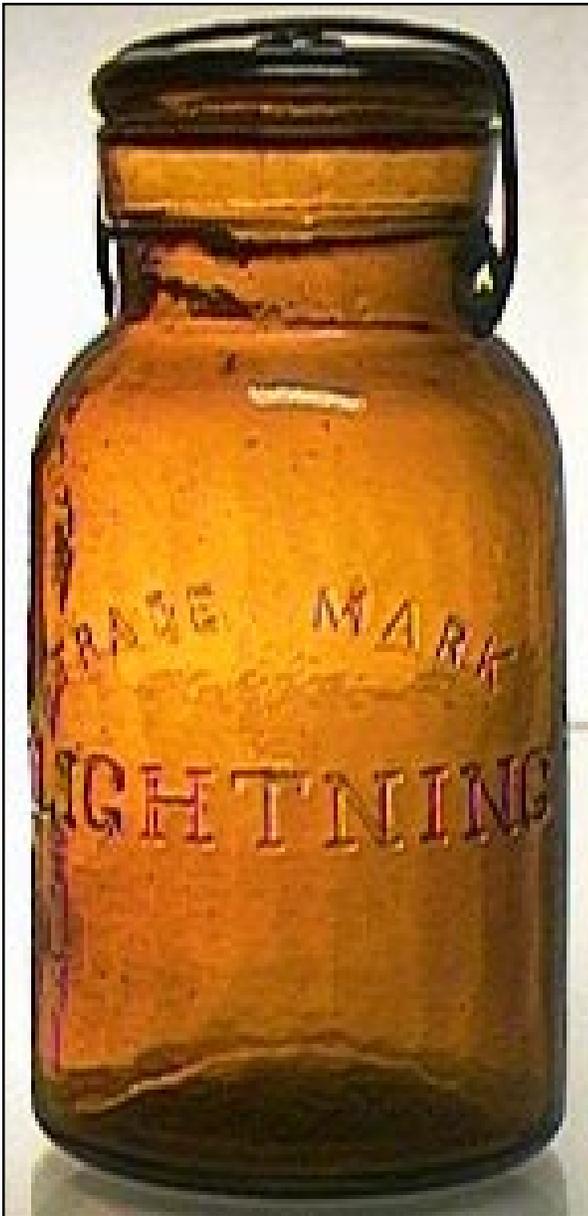
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HOW IT ALL BEGAN

The discovery that fed our troops became the discovery that helped pioneer our nation!

The hermetic preserving of food... This revolutionary invention allowed families to prepare for the winter by “putting up” what they had in abundance in the fall. Families often traded a jar of this for a jar of that, preparing for the lean season with relative abundance. The invention of the fruit jar, or mason jar as it was called, made life a little easier; best of all it made Winter meals far more nutritional and palatable.

Imagine that you live in a different place. This place has none of the modern essentials to which you are accustomed. There are no fast food restaurants, there are no grocery stores, there are no super-highways and there is no electricity. Everyone works hard.



In this mythical place you save and use everything. Nothing goes to waste. Life is simple, but the problems you face are varied and challenging. In many parts of the nation winters are often harsh and bitter cold; there is no forced-air heating to keep your family warm. In order to survive the winter, you must prepare for it beforehand.

You aren't rich, so the few material goods that you own are used over and over again. The tools you own are few and therefore have many uses. Every container, every scrap of metal, every bit of wire has a purpose.

This is the household of the 1800s. Someday, life will be better, easier - but not today. Despite the hardships of the time, most still look to the future with great optimism. Men and women are learning how to master their environment through the invention of machines. Many have made their fortunes by using their creative ingenuity and inventing something new.

Some of the greatest advancements in science have come about as a result of the necessities that wars and hardships create. One of the greatest challenges that armies faced in the early nineteenth century was feeding troops. It was through this need, generated by war, that the hermetic preserving of food came about.

In order to give French troops the competitive edge, Napoleon, in 1809, offered 10,000 francs to the man who could come up with an idea to assure delivery of wholesome food to soldiers. Nicholas Appert - a French chef of the time - is generally credited as the father of hermetic preserving. Appert won Napoleon's challenge by introducing the concept of preserving food hermetically. In 1810, Appert published his discovery in a book entitled *L'Arte de Conserver les Substances Animales et Vegetables*.

Despite a great need, however, home canning didn't become commonplace until the latter half of the nineteenth century. Until someone invented better containers, fifty years later, around the time of the civil war, homemakers used crude glass and earthen-

ware vessels sealed with corks, plugs or parchment. This method didn't work well, but it was better than the alternative of the time — using tin cans and soldering them closed!

The term fruit jar may predate the invention of what we know today as the modern mason or canning jar. Colonial bottle maker Thomas Dyott is credited with coining the term - possibly referring to the vessels sealed with corks and parchment mentioned above.

In 1861, Louis Pasteur wrote that microorganisms in un-sterilized food were responsible for food spoilage. Up until this time, even though people boiled the vessels in which they canned their food, few understood why it worked. The common belief was that air caused spoilage and hermetic sealing of food and removal of air from vessels prevented spoilage. However, once Pasteur's discovery was understood, scientists, manufacturers and food preparers began developing more reliable means of food preservation by sterilizing the food as well as the container.

THE INVENTORS

In 1855, pioneer Robert Arthur had an idea for a better vessel in which to preserve food. Originally produced in metal, his patent called for a wax, (commonly called cement,) which the manufacturer poured around the mouth of the container. All the food preparer had to do was heat the lid and press it into the cement. A few others patented similar techniques of sealing tin cans without soldering.



However, these metal cans didn't fare well with homemakers because one couldn't use the cans over and over again. They were big, heavy and bulky, and cost a lot of money. The acids in foods reacted with the metal, and the results were somewhat less than tasty. If you're lucky enough to find an original example of one of these containers today, however, it would be worth several hundred dollars.

Glass made the revolution in canning complete. Sealed with a tin lid and wax, the all-glass wax sealer, cement jar, or "standard" fruit jar remained popular throughout the remainder of the 19th century. The jar would seal fairly reliably when the user poured wax over a tin lid resting in a groove in the jar's lip. The "wax sealer" is a later variation of the first fruit jars which used corks covered with wax. Wax sealers were, of course, made of glass, (avoiding the problems with metal containers above) reusable and much more economical.

This jar was not without its drawbacks. Opening the wax sealer was difficult because you either had to chip the wax away or melt the wax off of the jar's top. The first wax sealers date back to the 1850s, and probably as early as the 1830s. Despite the imperfections, wax sealers enjoyed a long life - glassmakers produced the jars as late as 1912.

The familiar term mason jar came after its inventor Mr. John L. Mason, (26 years of age at the time he filed his famous patent,) a tin smith from New York city. Like the wax sealer, the mason jar is reusable. The improvement was in the sealing design, a glass container with a thread molded into its top and a zinc lid with a rubber ring, effecting a seal between the lid and the jar. This jar carries the familiar embossing: "Mason's Patent Nov. 30th. 1858."

The mason jar is historically important because it freed farm families from reliance on inferior containers, and from using

pickling, drying, and smoking food to prepare for the winter. The ease of use and affordability of Mason jars helped promote home canning across the nation. Urban families used Mason jars to put up garden food, especially tomatoes, fruits, relish, and pickles.

Collectors often find jars carrying the classic 1858 embossing, along with other monograms, numbers, letters, and styles. American manufacturers, and others world wide produced these jars with the characteristic 1858 embossing as late as about 1920. Historians believe Crowleytown's Atlantic Glass Works, Crowleytown, New Jersey made the first of this long series of mason jars.

In 1859, Mason sold five of his early patents, including the mason jar, to Lewis R. Boyd and Boyd's company - The Sheet Metal Screw Company. Boyd is most famous for patenting a white "milk-glass" insert for zinc screw lids to theoretically lessen the chances that food would come in contact with metal. In 1871, for a brief period of time, Mason became a partner with Boyd in the Consolidated Fruit Jar Company. Consolidated hired other glass makers to blow their jars, including the Clyde Glass Works, Clyde, New York, the Whitney Glass Works of Glassboro, New Jersey, and the A. & D. H. Chambers Company of Pittsburgh, Pennsylvania. Even after Mason's patents expired, the manufacture of these jars continued for well over half a century. The companies that produced the Mason jar between 1859 and 1910 are too numerous to mention.

OTHER POPULAR 19TH CENTURY CLOSURES

Dating back to the time of the civil war, (patents related to this jar date from 1861,) manufacturers used a "thumb screw clamp" and glass-lid design on several different jars. The large yoke-shaped cast metal clamp holds down a glass lid which fits over a grooved mouth or into the jar neck. Around the lid the user laid an India rubber gasket which effected the seal. The Millville Atmospheric Fruit Jar, patented by John M. Whitall, Philadelphia, became popular after the Civil War. Again, this jar is significant in that metal never touches the food.

Patented in 1863, the Kline Stopper remained popular through the 1870s. A gasket sealed the jar between the solid glass stopper and the inside of the jar mouth. As the jar cooled a vacuum formed, pulling the stopper into the mouth of the jar. Needless to say, this system proved frustrating when it came to pulling out the stopper. Adam R. Samuel, at his Keystone Glass Works in Philadelphia, manufactured many of the jars employing the Kline patent.

On May 10, 1870, Mr. Mason was issued another patent (102,913) for a new kind of threaded-top jar. This time, the jar employed a glass lid and a screw band. As in the "thumb screw" jars above, the glass lid avoided the problem of food reacting with bare metal. Many of these jars were produced by the Consolidated Fruit Jar Company of New York and of New Brunswick, New Jersey.

In 1882, Henry William Putnam of Bennington, Vermont, invented a new kind of fruit jar by adopting a bottle stopper patent by Charles de Quillfeldt. The Lightning jars became popular because the glass lids prevented food contact with metal, the metal clamps were cheap to produce and the lids themselves were much easier to seal and remove. The name Lightning suggested that the jars were quick and easy to use. Variations of the glass lid and wire-bale scheme of the Lightning jar were produced for home canning into the 1960s and are still found on novelty jars today.

The earliest advertisements for the Lightning jar date back to the year 1885. Mr. Putnam was the man behind the marketing of the Lightning jars and making them popular. Mr. Putnam held exclusive ownership of the patents for many years.



POPULAR CLOSURES OF THE 20TH CENTURY

In March of 1924, the University of California College of Agriculture put out a booklet on home canning. Figure 3 on page nine of that booklet included pictures of popular jars of the time including the following four jars below.

The Atlas E-Z Seal and Atlas Strong Shoulder jars: The Atlas E-Z Seal is a variation of the Lightning seal jar already described. The “Strong Shoulder” jar is a variation of the old shoulder seal mason jar. However, this jar sealed on a raised lip to help keep the jar from cracking - a common problem with shoulder seal jars. This concept led to the term “Strong Shoulder” as used by the Atlas company for their jars. The Hazel-Atlas Glass Company, makers of the E-Z Seal and Strong Shoulder jars, was in business from the late 1800s until 1964. These two jars date from the 1920s. The Hazel-Atlas company specialized in producing fruit jars.

One of the most significant advancements in the history of home preserving came with the invention of the Economy and Self Sealing jars. Alexander H. Kerr founded the Hermetic Fruit Jar Company in 1903. Mr. Kerr arranged for the production of the Economy jar utilizing patents, (two 1903 patents held by another man, Julius Landsberger of San Francisco,) calling for a metal lid with a permanently fastened composition gasket.



The lids were easy to use and inexpensive. The Economy jars had wide mouths and were easy to fill. In August of 1915, Mr. Kerr invented a smaller, flat metal disk with the same permanent composition gasket attached. The lid sealed on the top of a mason jar; a threaded metal ring held the lid down. Now the homemaker could re-use her old canning jars while taking advantage of the easy-to-use Kerr lids. (The Illinois-Pacific glass company made the early Economy jars from 1903 to 1909.)

THE BALL COMPANY

A history of fruit jars wouldn't be complete without mentioning the Ball Company. Although the company did not necessarily advance the technology of home canning, per se, it did make a major contribution to the industry by becoming the most prolific producer of jars.

In the early 1880s, William Charles Ball, 35, and his brothers Lucius, Lorenzo, Frank C., Edmund Burke, and George Alexander began making wood jacketed tin cans at Buffalo, New York, for the storage of oil, lard and paints. In 1883 the brothers switched to glass oil “cans” and then, three years later, to fruit jars. After fire destroyed their plant in Buffalo, the brothers moved their operations to Muncie, Indiana, where natural gas had been discovered. The city offered free gas and a generous amount of land to rebuild the company.

The Ball Brothers seemed to possess all of the talents we associate with successful business people today.

They built a fruit-jar empire by mass producing and distributing train-loads of jars across the country. They aggressively took over several other smaller companies in order to maximize their hold on the industry. One good example was in 1909 when Ball took over the Greenfield Fruit Jar and Bottle Company in order to gain control of the Owens automatic bottle making machine license, a significant business opportunity they passed up some years before in favor of their own jar making machine. After all, factory automation significantly reduces labor costs, even back then. The Owens machine did just that by cutting labor costs and dramatically increasing production. (Refer also to the October 1996 Bottles and Extras article “The Three Rivers Glass Company.”)

WORLD WAR TWO AND THE EVENTUAL DECLINE OF HOME CANNING

As part of the war effort, home canning became vital during the Second World War. On the home front the government encouraged Americans to grow and can their own food. Home canning reduced the consumption of steel and tin, vital to the war effort. As the public became more self sufficient, government and industry could funnel more resources into winning the war.

Dr. Julian Toulouse was put in charge of allocation of all metal used in making lids for jars and bottles. Dr. Toulouse was at that time the chief chemist for the major Owens-Illinois glass Company of Toledo, Ohio. (He was also the producer of such famous fruit jars such as the Presto, Good House Keepers Mason and others.) Dr. Toulouse spent thirty-seven years as chief chemist for the corporation.

In an effort to cut down on the unnecessary use of metal, glass lids temporarily replaced the tin and zinc lids which had been used up until 1941. This era also saw the popularization of the smaller "63" closure which cut the size of the jar mouth, again conserving metal. The "63" lid also allowed homemakers to re-use coffee and other packing jars, further conserving resources to aid the allies in the war. The following illustration is from the Office of War Information, Farm Security Administration, showing stacks of home-canned food. The motto of the time: "be prepared."

The decline of home canning began after the end of the war. Home canning declined as large, more profitable farms began to replace the small farm in America. Fewer small farms meant fewer farmers and fewer people to work the farms. The 1950s and 1960s saw the rise of the supermarket, the fast food restaurant, and the frozen TV dinner. As we move into the final years of the 20th century we find that the art of home cooking itself, let alone the art of home canning, is quickly disappearing from the popular culture.

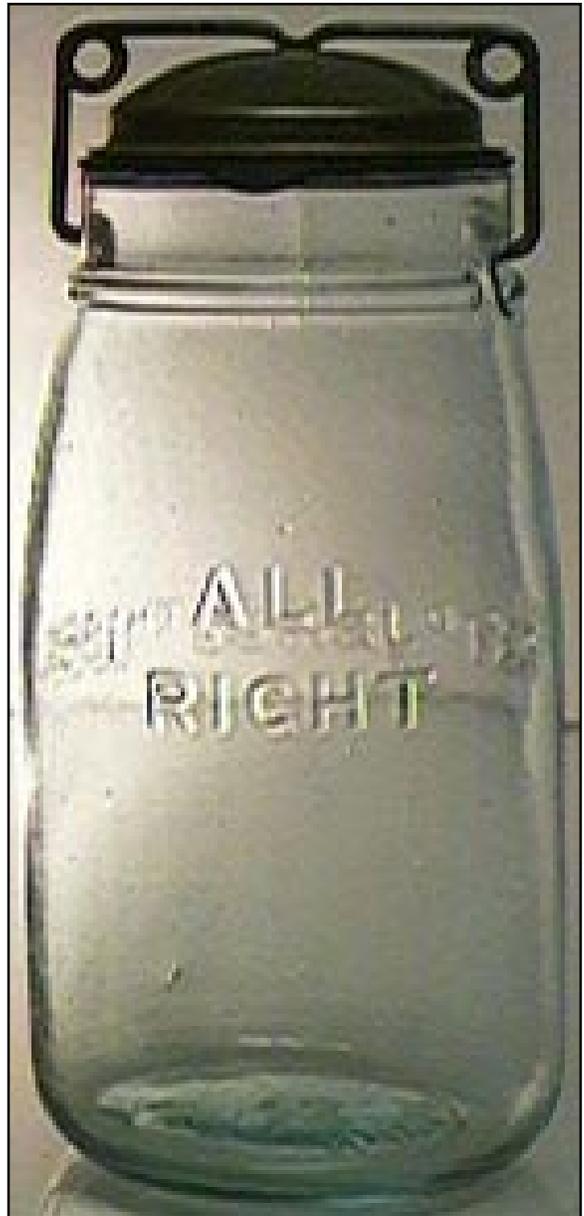
TIPS ON COLLECTING

Dating jars.

There are several ways to date an antique jar or bottle. Probably the most important is the presence or absence of a pontil scar. The pontil scar - a ring of glass or a black and red iron-like indentation on the base of a bottle or jar - indicates that a glassblower held the item on a pontil rod (when the glass was hot) while the neck and/or lip was shaped and finished by hand. Typically, American pontil scarred bottles predate 1855 or so.

Another age determiner is the presence of mold seams. Many of the earliest bottles or jars were freeblown (that is, blown without the aid of a mold) therefore have no mold seam. Seams which stop short of the lip indicate that the bottle was blown into a mold then finished by hand by adding a top or tooling the lip into shape. Machine-made jars (dating after about 1915) have mold seams extending from the bottom up to and across the top of the jar.

Another way to tell the general age of a jar is to examine it from top to bottom. Is the top smooth to the touch or is it rough and ground off? Look at the base of your jar. If the base of your jar has a round ring in it and the lip is smooth, your jar was probably machine made sometime after the turn of the century but probably before the 1930s. If the jar has a large, rough and jagged ring on its base, it was probably made between 1900 and 1930 when the Owens machine was in popular use. Machine-made jars after the 1930s have a more modern look and frequently have small scars on



the bottom indicating they were made on more modern, sophisticated machines.

Most jars with rough ground tops were made before 1900. The ground lip resulted when the glassmaker ground the top to eliminate the “blow-over.” The blow-over was a gob of glass at the top of a jar that the glassblower used to attach a blow pipe when the jar was blown by hand into a mold. The blow-overs were removed and the top was then ground flat.

Purple glass

When manufacturers produce glass, chemicals (clarifying agents) must be added to clarify the batch in order to turn it from its original color of aqua-blue or green to clear. Prior to the start of the First World War, manufacturers used Manganese Dioxide as their chemical agent of choice to clarify glass. When a jar or bottle turns purple from sunlight, manganese dioxide is the substance in the glass that reacts with sunlight to cause the color change. Russia was the primary source of this chemical.

When the First World War broke out, our source of manganese dioxide was cut off by German blockades. This sudden loss left glass manufacturers in a quandary and forced them to use another chemical, selenium, to clarify glass. After the close of the war, manufacturers did not return to the use of manganese dioxide. Selenium does not cause glass to react to sunlight like manganese does, thus glass clarified with selenium does not turn purple. Knowing this fact and the history above, collectors have another way to date their glass collectibles. If your jar is purple, it is a pretty good bet it was made before W.W.I.



Buying damaged jars or jars with reproduction closures.

When you are thinking about purchasing a jar, look at the jar carefully. Look at the lip of the jar and its base. Turn the jar around, preferably in the light, and look for any scratches, nicks, chips, or dings. Keep in mind that damage reduces the value of the jar.

Many jars have reproduction closures; reputable dealers will mark their jars so fitted. Sometimes, however, people selling jars (dealers and others) forget to indicate that a jar has a reproduction closure or simply don't realize that the wire bale or clamp is not original. Unless you are experienced, it may be difficult to tell if a clamp is original or not. Here are a few tips that may help:

Examine the clamps for unevenness or marks left from pliers or other implements. Does the clamp fit correctly or does it seem to fit awkwardly on top of the jar? Original clamps are usually made of heavy material and are frequently rusty or show marks from wear. Reproduction clamps or closures frequently look new. If in doubt, simply ask the dealer about the closure.

Usually, jars with reproduction clamps sell for less than those with original closures. There are a few exceptions, since some types of original clamps or lids sometimes simply don't exist. Generally, jars are best with original closures.

LOOK OUT FOR IRRADIATED JARS!

One of the most regrettable things that has happened in recent years is the introduction of irradiated jars into the market. Altered artificially by modern technology, these jars come in dark browns and purples and are sometimes sold for large amounts of money. Some collectors have been fooled into buying these jars thinking the colors are genuine. Collectors are becoming hesitant to buy amber and other colored jars for fear someone has altered them.

In industrial facilities, radioactive substances are available that some people have used to expose old glass in an effort to change its color. Since the radiation in these substances can be especially potent, the change in color may be astonishingly deep.

If the jar contains manganese dioxide, when irradiated it will turn a deep (in some cases almost black) purple. If the jar contains selenium, it will turn an opaque brown color. Sometimes these deep brown jars are sold, either inadvertently or intentionally, as real amber jars. If you have any doubts, ask an experienced collector. One way you can tell if a jar has been irradiated is to bake it in an oven. A collector in Michigan set an irradiated jar in a 200° oven for 2½ hours and the color disappeared. (Placing your valuable old jars in an oven could cause them to crack, so be careful!)

SUMMARY

Fruit-jar collecting can be interesting, fun, sometimes profitable, and always challenging. In this article you have read some of the basics of fruit jar history and noted some pointers which can make your collecting more interesting and successful. This is just the beginning; finding out the rest is up to you...

The Midwest Fruit Jar and Bottle Club puts on a bottle show twice a year featuring many great jars and usually a “fruit-jar get together” where collectors come to share jars, stories and information. There are several good books out on the pricing and history of fruit jars and Dick Roller of Paris, Illinois, edits a monthly Fruit Jar Newsletter.

Fruit-jar people are friendly, helpful and responsive. If you would like more information about fruit jars, the next time you are at a bottle show, look up a few - you will be glad that you did. You can also email this author at glassman@qnet.com or drop a note at Bottles and Extras.

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For information on the **Federation of Historical Bottle Collectors** please write to Treasurer Kevin Sives, 1485 Buck Hill Drive, Southampton, PA 18966. <http://www.fohbc.com>