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WHEN IS A CUP NOT A CUP?
DEMYSTIFYING NINETEENTH CENTURY MEASUREMENTS
AND HOW TO MEASURE INGREDIENTS

By
Virginia Mescher © 2006

Nineteenth century cookbooks provide valuable information about the lives of people during that time. By looking through the earlier cookery books and recipes, we are able to become familiar with the foods that were available and the methods of food preparation — but then we run into a couple of problems. Many recipes look fascinating and exciting to prepare, but in reading the recipe, we may be mystified with the measurements and ingredients. Some of the ingredients are unfamiliar or unavailable in today's market but that is a topic for another article. The next problem is understanding the method of measurements and that is the topic for this one.

Sometimes the measurements sound as if they were written in a foreign language and most are not the ones we learned in elementary school. There are gills, scruples, butter the size of a walnut or egg, salt-spoons, table-spoonful, tea-spoonful, dessert-spoonfuls, tea-cupful, coffee-cupful, wine glassful, tumblers, or tin cups and the modern cook is sometimes at a loss as to how to interpret these measurements.

In today's world, we are accustomed to standard measurements when a cup means eight ounces and teaspoon and tablespoon are all standard because we have sets of measuring spoons and cups that are accurately marked, so it is not always easy to understand the various terms or unusual measuring devices that were used in the nineteenth century. Some modern cookbooks that interpret period recipes have converted the original methods and standard measurements but otherwise if we are working from an original recipe, we have to unravel the recipe ourselves.

Early cookery books did not provide much assistance for the cook in way of measurements except for weights of ingredients of obscure measurements. The following examples were taken from early cookery books.

“Pound Cake. One pound sugar, one pound butter, one pound flour, ten eggs, rose

water one gill, spices to your taste; watch it well, it will bake in a slow oven in 15 minutes.”

- *American Cookery* (1796)

The recipe for a pound cake has not changed much in over two hundred years except for the rose water but I expect that the cooking time was a misprint since pound cakes would take much longer to cook than the stated fifteen minutes, especially in a slow oven. A scale would have been necessary for weighing the ingredients.

“*A Common Cake.* Mix three-quarters of a pound of flour with half a pound of butter, four ounces of sugar, four eggs, half an ounce of carraways [sic], and a glass of raisin wine. Beat it well, and bake in a quick oven. Fine Lisbon sugar will do.”

- *A New System of Domestic Cookery* (1806)

The cook would need scale to measure most of the ingredients but what size glass was used for the raisin wine? Too much liquid would cause the cake to fall and too little would cause the cake to be too dry.

Almost thirty years later, the writing of recipes was not much improved. Lydia Child included the following recipe:

“Cup Cake. Cup Cake is about as good as pound cake, and is cheaper. One cup of butter, two cups of sugar, three cups of flour, and four eggs, well beat together, and baked in pans or cups. Bake twenty minutes or more.”

- *The American Frugal Housewife* (1833)

A scale was not needed for this recipe but what size cup was used? At least, no matter what size cup was used the proportions were the same so hopefully the cake would be successful.

Some cookery book authors combined standard measurements but still relied on the cook's own judgement for measuring some ingredients. A simple recipe for muffins illustrated the use of standard amount such as quarts, undetermined cup sizes and no specific amounts of some ingredients – in fact no mention of any flour at all! The success of this recipe depended a great deal on the skill and experience of the cook.

“Muffins. One quart of milk, four eggs, small cup of butter, some yeast, to be made stiffer than pound cake, bake it on a griddle in drops.”

- *The Cook not Mad* (1830)

Recipes, similar to the ones above, continued to use a combination of measures in weights, standard and non-standard volume amounts. Measurements utilizing tea-cups, coffee-cups, tea-spoonsfuls, table-spoonsfuls, butter the size of an egg or a walnut were all common but in the latter part of the nineteenth century, there was a movement to establish some type of standardization for measurements in the kitchen. There has been no lack of the use of standard weights and measures in the medical and scientific fields as well as in everyday life and tables for these were found in household books, technical books, text books, and even in children's penmanship books. These tables included troy, avoirdupois, apothecaries, and diamond weights, land, long or linear, coal, solid or cubic, surveyors's,

square or surface, cloth, dry, liquid (wine, ale and beer) measures. Weights and measures used in the kitchen were taken from the most commonly used ones and others were added for the ease of the cook; in some instances, the authors also explained how the cook should measure certain ingredients.

Although some cookery books included tables explaining the measurements used in that particular book they did not necessarily apply to another cookbook written by someone else. To compound the problem of accuracy of measurements, the writers or printers of these cookbooks make mistakes. Then their mistakes were copied by others and the inaccuracies continued to appear for a number of years. When one is reading the following tables, take note of some of mistakes that continually reappear. For example, for a number of years, one pound of butter was noted to equal a quart but suddenly in 1860, a tea-cup of butter [$\frac{1}{2}$ cup] weighed $\frac{1}{4}$ pound but it was not until 1876 that 2 cups of butter consistently started weighing a pound. Was this a mistake or were there really four cups of butter in a pound until 1861 and 1876? The number of drops in a teaspoon also changed in several of the tables. Catherine Beecher and Fanny Farmer also make mistakes in their tables as did other authors. [Beecher indicated that there eight ounces in a pint. Farmer wrote that there were two cups of flour in one pound.] Rather than list all the mistakes found, try to find all the inconsistencies in the tables and form your own conclusions.

Although other cookery books had used standard measures such as quarts, pints, pounds, ounces, etc., one of the first cookbooks attempting to explain standard measures was Dr. William Kitchiner, In 1822 he published *The Cook's Oracle* and suggested the use of apothecary measurements in the kitchen.

“TABLE OF WEIGHTS AND MEASUREMENTS.

To reduce our Culinary Operations to as exact certainty as the nature of the process would admit of, — we have, wherever it was needful, given the Quantities of each article.

The WEIGHTS are *Avoirdupois*.

The MEASURE, — the graduated of the Apothecaries; this appeared the most accurate and convenient; — *the pint* being divided into sixteen ounces, *the Ounce* into eight drachms. A middling-sized *Tea-spoon* will contain about a Drachm: — four such *Tea-spoons* are equal to a middling-sized *Table-spoon*, or half an Ounce; — four *Table-spoons* to a common-sized *Wine-Glass*.

The specific gravities of the various substances being so extremely different, we cannot offer an auxiliary standards* for the WEIGHTS, which we earnestly recommend the Cook employ, if she wishes to gain credit for accuracy and uniformity in her buisness: these she will find it necessary to have as small as the quarter of a drachm Avoirdupois, which is equal to nearly seven grains Troy.

GLASS MEASURES (divided into Tea and Table-spoons), containing from
Half an Ounce to Half a Pint,

*A large Table-spoonful of Flour weighs about half an Ounce. ”

- *The Cook's Oracle*

This was just the beginning of the long process of establishing standardization of measuring ingredients in cookery and in recipes. According to Dr. Kitchiner, the cook only needed a scale and apothecary glass measures but weighing out each ingredient was awkward and time consuming. Although it was a more accurate method for measuring, cookbook authors tried to alleviate this problem by creating volume equivalents. These equivalents tended to become very complicated and could be confusing to the home cook.

In order to show how ingredients were measured and what changes occurred over the years, the references include cookery books dating from 1822 to 1896. There is repetition of entries and some parts of the entries do not pertain to cookery. The author wished to retain the integrity of the sources in order to illustrate how some of the authors copied from other sources (mistakes and all) or differed in their inclusions and interpretations of the weights and measures tables. Each entry was transcribed exactly as written. The reference follows the entry and full bibliographic information for the entry will be found in the bibliography.

“Table of Weights and Measures.

By which persons not having scales and weights at hand may readily measure the articles wanted to form any receipt, without the trouble of weighing. Allowance to be made for any extraordinary dryness or moisture of the article weighed or measured.

Weight and Measure.		
Eggs	ten eggs are	one pound
Brown sugar	one pound, two ounces, is	one quart
White sugar, powdered	one pound, one ounces, is	one quart
Loaf-sugar	one pound is	one quart
Butter when soft	one pound is	one quart
Indian meal	one pound, two ounces, is	one quart
Wheat flour	one pound is	one quart

Liquids.

Four large table-spoonfuls are	half a gill
Eight large table-spoonfuls are	one gill
Sixteen large table-spoonfuls are	half a pint

A common-sized wine-glass	half a gill
A common-sized tumbler holds	half a pint”

- *The Cook's Own Book* (1832)

“Table of Weights and Measures

By which persons not having scales and weights at hand may readily measure the articles wanted to form any receipt, without the trouble of weighing. Allowance to be made for any extraordinary dryness or moisture of the article weighed or measured.

Weight and Measure		
Wheat flour	one pound is	one quart
Indian meal	one pound, two ounces	one quart
Butter, when soft	one pound	one quart
Loaf sugar, when broken	one pound is	one quart
White sugar, powdered	one pound, one ounce is	one quart
Best brown sugar	one pound, two ounces is	one quart
Flour	eight quarts are	one peck
Flour	four pecks are	one bushel

Liquids

Sixteen large table-spoonfuls are	half a pint
Eight large table-spoonfuls are	one gill
Four large table-spoonfuls are	half a gill
Two gills are	half a pint
Two pints are	one quart
Four quarts are	one gallon
A common-sized tumbler holds	half a pint
A common-sized wine-glass holds	half a gill
Twenty-five drops are equal to one tea-spoonful	

- *The Good Housekeeper, or the Way to Live Well, and to Be Well While We Live* (1841)
- *The New England Economical Housekeeper* (1845)
- *Mrs. Hale’s New Cook Book. A Practical System for Private Families in Town and Country* (1857)

“Weights and Measures.

For most preparations, it is easier to measure than to weigh.

Solids.

Butter, when soft	one pound	is one quart
Eggs	ten	are one pound
Flour	one pound	is one quart
Meal, Indian	one pound two ounces	is one quart
Sugar, best Brown	one pound two ounces	is one quart

Sugar, white, powdered	one pound, one ounce	is one quart
Flour	four quarts	are half a peck
Flour	sixteen quarts	are half a bushel

Liquids.

Four spoonfuls are	half a gill
Eight spoonfuls are	one gill
Two gills, or sixteen spoonfuls are	half a pint
Two pints are	one quart
Four quarts are	one gallon
Twenty-five drops are	one teaspoonful
Four spoonfuls are	one wine-glassful
Twelve spoonfuls are	one teacupful
Sixteen spoonfuls, or half a pint are	one tumblerful

Whenever the word *spoonful* or *spoonfuls*, is used in the work, a large, or *tablespoonful*, is meant. But as measures of the same name differ in capacity, it will require judgement and practice to be familiar with due proportions.”

- *The Improved Housewife. Or Book of Receipts with Engravings and Marketing and Carving.*
(1842)

“*With respect to quantities in preparations of the still-room or kitchen*, it is very important to have a certain precision, and in some cases is absolutely essential. Instead of the frequent ill-defined directions of a bit of this, a handful of that, &c., Dr. Kitchener [sic] particularly recommends that cooks should accustom themselves to use weights and measures more frequently. There should be a measure for a gallon, quart, a pint, and half a pint. Graduated glass measures are sold at the chemists, which save much trouble. Of these, containing a wine pint, is divided into sixteen ounces, and the ounce into eight drachms of water, by which a certain weight, which is mentioned in a receipt, can be measured out. Measures of this kind are easily made by weighing the waster, and scratching a mark on any tall glass for the space it occupies. A file will do to make with.

A Table-spoonful is often mentioned as a measure or quantity in a recipe or prescription as given by medical men, or in books. By this is generally meant and understood a measure or bulk equal to what would be produced by half an ounce of water.

By *Dessert-spoonful* is meant the half of a spoonful; and a teaspoonful is a quantity equal to a drachm of water. This is best adjusted by a graduated glass measure, sold at the glass shops, for spoonfuls.

A drop is the name of a vague species of measure, so called because the liquid is dropped from the mouth of a bottle; but the quantity of a drop may vary, depending upon the consistency of the liquid, and upon the size and shape of the mouth of the bottle from which it proceeds. The London College of Physicians have fixed the

quantity of a drop to one grain, sixty drops being a fluid drachm.”

- *Encyclopedia of Domestic Economy* (1847)

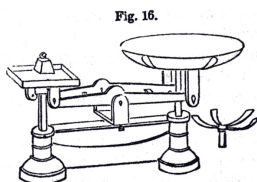
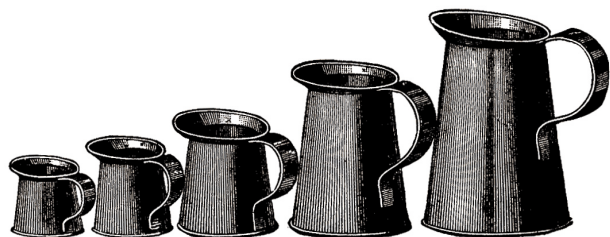


Fig. 16.
Balance Scales from
*Miss Beecher's
Domestic Receipt Book*

“Weights and Measures.

We recommend to all families that they should keep in the house a pair of scales, (one of the scales deep enough to hold flour, sugar, &c. conveniently,) and a set of tin measures; as accuracy in proportioning the ingredients is indispensable so success in cookery. It is best to have the scales permanently fixed to a small beam projecting (for instance) from one of the shelves of the store-room. This will preclude the frequent inconvenience of their getting twisted, unlinked, and otherwise out of order; a common consequence of putting them in and out of their box, and carrying them from place to place. The weights (of which there should be set from two pounds to a quarter of an ounce) ought carefully to be kept in the box, that none of them may be lost or mislaid.

MEASURES.



	Planished Copper.							Planished Copper, U. S. Standard.					
Quarts, -	1/4	1/2	1	2	4		1/8	1/4	1/2	1	2	4	
Inches, -	-	-	-	-	-								
							Per Dozen,	\$8 00	8 50	12 00	17 00	23 00	30 00

Standard Measures from William Frankfurth Hardware Company

A set of tin measures (with small spouts or lips) from a gallon down to a half a jill will be found very convenient in every kitchen; though common pitchers, bowls, glasses, &c. may be substituted. It is also well to have a set of wooden measures from a bushel to a quarter of a peck

Let it be remembered, that of liquid measure —
 Two jills are half a pint.
 Two pints — one quart.
 Four quarts — one gallon.

Of dry measure —

Half a gallon is a quarter of a peck

One gallon — half a peck.

Two gallons — one peck.

Four gallons — half a bushel.

Eight gallons — one bushel.

About twenty-five drops of any thin liquid will fill a common sized tea-spoon.

Four table-spoonfuls or half a jill, will fill a common wine glass.

Four wine glasses will fill a half pint or common tumbler or a large coffee-cup.

A quart black bottle hold in reality about a pint and a half.

Of flour, butter, and most articles used in cakes and pastry, a quart is generally equal to a pound avoirdupois, (sixteen ounces.)

Avoirdupois is the weight designated throughout this book.

Ten eggs generally weigh one pound before they are broken.

A table-spoonful of salt is generally about one ounce.”

- *Miss Leslie's Complete Cookery: Directions for Cookery* (1851)

- *Miss Leslie's New Cook Book* (1857)

“Weights and Measures.

It is good to plan to have a particular measure cup kept for the purpose, and after one weighing all those receipts that are given by weight, to *measure* the quantity by this cup, and then write the measures in your receipt book, and keep the cup only for this purpose. The following is some guide in judging of the relative proportion between measures and weights.

A quart of flour, or of sifted loaf sugar, or of softened butter, each weigh a pound. The flour if sifted, must be heaped.

A pint equals eight ounces.

One gill equals two ounces.

Half a gill equals one ounce.

One great spoonful of flour, loaf sugar, or of melted butter, equals a quarter of an ounce of the same. It should be heaped.

Four spoonfuls equal an ounce, or half a gill.

Eight spoonfuls equal one gill.
 Sixteen spoonfuls equal half a pint.
 Spoon differ so much in size that this is an uncertain guide.
 A medium-sized teaspoon holds sixty drops of water.
 Ten eggs usually weigh a pound.
 Four gills make a pint.
 Two pints make a quart.
 Four quarts make a gallon.
 Eight quarts make a peck.
 Four pecks make a bushel.

Avoirdupois Weight

Sixteen drachms make an ounce.
 Sixteen ounces make a pound.
 Twenty-eight pounds make a quarter
 Four quarters make a hundred.
 Twenty hundred make a ton.

Apothecaries' Weight

Twenty grains make a scruple.
 Three scruples make a drachm.
 Eight drachms make an ounce.
 Twelve ounces make a pound."

- *Miss Beecher's Domestic Receipt-Book* (1858)

"Tables of Weights, Measures, Etc.

Ale or Beer Measure, used for Measuring Milk, etc.

2 pints	make	1 quart (qt)
4 quarts	make	1 gallon (gal)
36 gallons	make	1 barrel (bar)
54 gallons	make	1 hogshead (hhd)

Dry Measure, used for Measuring Coarse Vegetables, and in some Markets Berries

2 pints	make	1 quart (qt)
8 quarts	make	1 peck (pk)
4 pecks	make	1 bushel (bu)
36 bushels	make	1 chaldron (ch)

Avoirdupois Weight, used in Weighing Tea, Sugar, Butter, etc.

16 drachms	make	1 ounce (oz)
16 ounces	make	1 pound (lb)
25 pounds	make	1 quarter (qr)
4 quarters	make	1 hundredweight (cwt)
20 hundredweights	make	1 ton (T)

Troy Weight, used in Weighting Gold, Silver, etc.

24 grains	make	1 pennyweight (pwt)
20 pennyweight	make	1 ounce (oz)
12 ounces	make	1 pound (lb)

Apothecaries Weight, used in Preparing Drugs, etc.

20 grains	make	1 scruple
2 scruples	make	1 drachm
8 drachms	make	1 ounce
12 ounces	make	1 pound

Miscellaneous

12 units	make	1 dozen (dz)
12 dozen	make	1 gross (gr)
12 gross	make	1 great gross
20 things	make	1 score
100 pounds	make	1 quintal of fish
196 pounds	make	1 barrel of flour
200 pounds	make	1 barrel of pork
18 inches	make	1 cubit
22 inches	make	1 sacred cubit
14 pounds of iron or lead	make	1 stone
21 ½ stones of iron or lead	make	1 pig
8 pigs of iron or lead	make	1 fother
A sheet folded in 2 leaves is a folio.		
“ ”	4 “	quarto, or 4to
“ ”	8 “	octavo, or 8vo
“ ”	12 “	12 mo
“ ”	16 “	16mo
A sheet folded in 24 leaves		24 mo
“ ”	32 “	32 mo
24 sheets of paper	make	1 quire
20 quires	“ ”	1 ream
2 reams	“ ”	1 bundle
5 bundles	“ ”	1 bale
1 quart of flour	weighs	1 pound
1 quart of powdered loaf-sugar		
	weighs	1 lb. 1 oz.
1 common size teacup of hard		
butter	weighs	1/4 pound

8 large table-spoonfuls measure 1 gill
 25 drops fill a common teaspoon
 4 common table-spoons fill a wine-glass
 A common wine-glass holds half a gill
 A common tumbler holds half a pint.”

- *The Housekeeper’s Encyclopedia or Useful Information for the Housekeeper in all Branches of Cooking and Domestic Economy* (1861)

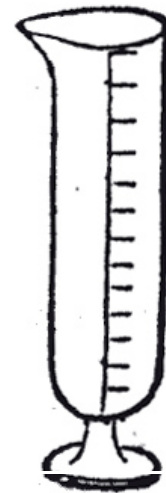
“With a desire, also, that all ignorance on this most essential part of the culinary art should disappear, and that a uniform system of weights and measures should be adopted, we give an account of the weights which answer to certain measures.

A TABLE-SPOONFUL is frequently mentioned in a recipe, in the prescriptions of medical men, and in medical, chemical, and gastronomical works. By it is generally meant and understood a measure or bulk equal to that which would be produced by *half an ounce of water*.

A TEA-SPOONFUL is equal to a *drachm* of water.

A DROP. — This is the name of a vague kind of measure, and is so called on account of the liquid being *dropped* from the mouth of a bottle. Its quantity, however, will vary, either from the consistency of the liquid or the size and shape of the mouth of the bottle. The College of Physicians determined the quantity of a drop to be *one grain*, 60 drops making one fluid drachm. Their drop, or sixtieth part of a fluid drachm, is called a *minim*.

Graduated glass measures can be obtained at any chemist’s and they save much trouble. One of these, containing a wine pint, is divided into 16 oz., and the oz. into 8 drachms of water; by which any certain weight mentioned in a recipe can be accurately measured out. Home-made measures of the kind can readily be formed by weighing the water contained in any given measure, and marking on any tall glass the space it occupies. This mark can easily be made with a file.”



Graduated Measure from Webster’s *Encyclopedia of Domestic Economy*

- *The Book of Household Management* (1861)

“WEIGHTS AND MEASURES

Avoirdupois Weight

16 drams	1 ounce
16 ounces	1 pound
28 pounds	1 quarter of hundred
4 quarters or 112 pounds	1 hundred
20 hundred	1 ton

A quart of flour weigh just one pound; a quart of corn meal, on pound two ounces; a quart of butter, one pound one ounce; a quart of loaf sugar, on pound; a quart of white sugar powdered, on pound one ounce; a quart of best brown sugar, one pound two ounces; ten eggs weigh one pound; sixteen tablespoonsful make a half pint; eight make a gill; four, half a gill, &c.

Liquid Measure

4 gills	1 pint
2 pints	1 quart
4 quarts	1 gallon
63 gallons	1 hogshead
2 hogsheads	1 pipe or butt
2 pipes	1 tun

Dry Measure for Grains, Fruit, and Potatoes

2 pints	1 quart
8 quarts	1 peck
4 pecks	1 bushel
8 bushels	1 quarter”

- Mrs. Goodfellow's *Cookery as it Should Be* (1865)

“TABLE OF WEIGHTS AND MEASURES*"

1 quart of wheat flour (if sifted, heaping)	weighs	1 lb.
1 “ Indian Meal	“	1 lb. 2 oz.
1 “ Soft butter	“	1 lb 1 oz.
1 “ Loaf sugar	“	1 lb
1 “ White powdered sugar	“	1 lb 1 oz
1 “ Best brown sugar	“	1 lb 2 oz
10 eggs average size	“	1 lb
8 eggs large size	“	1 lb
1 pint granulated sugar	“	1 lb
2 good sized cups of soft butter	“	1 lb
1 pint flour	“	8 oz
1 large tablespoon (a very rounded of flour, loaf sugar, or butter)		1/4 oz.

LIQUIDS

- 1 pint contains 16 fluid ounces (4 gills)
- 1 ounces contains 8 fluid drachms (1/4 gill)
- 1 tablespoon contains about 1/2 fluid ounce.
- 1 teaspoon contains about 1 fluid drachm.

A teaspoonful is equal in volume to 45 drops of pure water (distilled) at 60 deg. Fah. Teaspoons vary so much in size that there is a very wide margin of difference in their containing capacity.

- 4 Teaspoonfuls equal 1 tablespoonful or ½ fluid ounce.
- 16 Tablespoonfuls “ ½ pint.
- 1 Wine glass full (common size) equal 4 tablespoonfuls or 2 fluid oz.
- 1 Teacupful equals 4 fluid ounces or 1 gill.
- 4 Teacupfuls 1 quart.
- A common sized tumbler hold ½ pint.

AVOIRDUPOIS WEIGHT

Used in weighing coarse and heavy articles and groceries.

- 16 drams (dr.) make 1 ounce (oz.)
- 16 ounces make 1 pound (lb.)
- 25 pounds make 1 quarter (qr.)
- Four quarters make one hundred weight (cwt.)
- Twenty hundred weight make one ton (T.)

LIQUID MEASURE

- Four gills (gi.) make 1 pint (pt.)
- Two pints make one quart (qt.)
- Four quarts make one gallon (gal.)

* Allowance to be made for extraordinary dryness of the article to be weighed or measured.”

- *Centennial Buckeye Cookbook* (1876)

“TABLE OF WEIGHTS AND MEASURES.

- 1 quart of sifted flour (well heaped) weighs 1 lb.
- 3 coffee-cups flour level weigh 1 lb.
- 4 tea-cups sifted flour (level) weighs 1 lb.
- 1 quart unsifted flour weighs 1 lb. 1 oz.
- 1 pint soft butter (well packed) weighs 1 lb.
- 2 tea-cups soft butter (well packed) weigh 1 lb.
- 1 ½ pints powdered sugar weigh 1 lb.
- 2 coffee-cups powdered sugar (level) weigh 1 lb.
- 2 ¼ tea-cups powdered sugar (level) weigh 1 lb.
- 1 pint granulated sugar (heaped) weigh 1 lb.
- 2 tea-cups granulated (level) weigh 1 lb.
- 1 pint coffee ‘A’ sugar weighs 12 oz.
- 1 ¾ coffee-cups coffee ‘A’ sugar (level) weigh 1 lb.

- 2 tea-cups coffee 'A' sugar (well heaped) weigh 1 lb.
- 1 pint best brown sugar (level) weigh 1 lb.
- 1 3/4 coffee-cups best brown sugar (level) weigh 1 lb.
- 2 1/2 tea-cups best brown sugar (level) weigh 1 lb.
- 2 3/4 coffee-cups Indian meal (level) equal 1 qt.
- 3 1/3 tea-cups Indian meal (level) equal 1 qt.
- 1 table-spoon (well-heaped) granulated 'coffee A' or best brown sugar, 1 oz.
- 2 table-spoons (well-rounded) of powdered sugar or flour weigh 1 oz.
- Soft butter the size of an egg weighs 2 oz.
- 7 table-spoons granulated sugar (heaping) equal 1 tea-cup.
- 5 table-spoons soft butter (well heaped) equal 1 tea-cup.
- 3 table-spoons sweet chocolate grated equal 1 oz.
- 2 tea-spoons (heaping) of flour, sugar, or meal, equal 1 heaping table-spoon.

LIQUIDS

- 1 pint contains 16 fluid ounces (4 gills).
- 1 ounce contains 8 fluid drachms (1/4 gill).
- 1 table-spoon contains about 1/2 fluid ounce.
- 1 tea-spoon contains about 1 fluid drachm.
- A tea-spoon (for brevity, tea-spoon is used for tea-spoonful in recipes in this book) is equal to 45 drops of pure water (distilled) at 60 deg. Fah. Teaspoons vary so much in size that there is a wide margin of difference in containing capacity.

AVOIRDUPOIS WEIGHT

- 16 drams (dr.) make 1 ounce (oz.)
- 16 ounces make 1 pound (lb.)
- 25 pounds make 1 quarter (qr.)
- 4 quarters make 1 hundred weight (cwt.)
- 200 weight makes 1 ton (T.)

LIQUID MEASURE

- 4 gills make 1 pint (pt.)
- 2 pints make 1 quart (qt.)
- 4 quarts make 1 gallon (gal.)”

Buckeye Cookery and Practical Housekeeping (1880)

“NOTE:

“The following is a table of measures and weights which will be found useful in connection with the recipes:

One quart of flour	one pound
Two cupfuls butter	one pound
One generous pint of liquid	one pound

Two cupfuls of granulated sugar	one pound
Two heaping cupfuls of powdered sugar	one pound
One pint of finely-chopped meat, packed solidly	one pound



Quart Measure.

The cup used is the common kitchen cup, hold half a pint.

The quart measure for milk is the best for common measuring. Being divided into half pints, the one vessel answers for all quantities. A kitchen should be furnished with two measures, one for dry and the other for liquids.”

Quart Measure from *Miss Parloa's New Cook Book and Marketing Guide*

- *Miss Parloa's New Cook Book and Marketing Guide* (1880)

“Measuring.

It has been said that ‘good cooks never measure anything.’ They do. They measure by judgement and experience; until *you* have a large share of both of these essential qualities, use your spoon and cup or scales.

Measures, in preference to weights, are used in nearly all these receipts, as they are more convenient for the majority of housekeepers. When measured and estimated by the Table of Weights and Measures on page 30, the cup and spoon may be used as accurately as the scales.

Flour, meal, sugar, salt, spices, and soda should always be sifted before



A variety of spoons. From the left: a modern tablespoon, a modern teaspoon, two modern teaspoons from England, a plastic English teaspoon of the same capacity as the second metal English spoon, and a demitasse spoon. Note different sizes of “teaspoons.”

measuring. Any other materials that have been packed, like mustard and baking powder, if not sifted, should be stirred, and broken up lightly. One tablespoonful of solid mustard taken carelessly from the box has been found equal to three tablespoonfuls measured after sifting.

The saltspoons, teaspoons, and tablespoons used in those receipts are the silver spoon now in general use. Iron mixing spoons vary much in size, but there is a size which holds exactly the same as a silver tablespoon. Be careful to use this size in measuring. The cup is the common kitchen cup holding half a pint. Those with handles are more convenient.

To measure a teaspoonful of dry material, dip into the sifted material, and take up a heaping spoonful, shake it slightly until it is just rounded over, or convex in the same proportion as the spoon is concave. *An even or scant teaspoonful* means the spoon is filled lightly and levelled [sic] off with a knife. *One half teaspoonful* is most accurately measured by dividing through the middle lengthwise. When divided across the width the tip is smaller than the lower half. *A heaping teaspoonful* is all the spoon will hold of any lightly sifted material. *A teaspoonful of liquid* is the spoon full to the brim.

Tablespoonfuls are measured the same way.

A cupful of dry material should be filled and heaped lightly (not shaken down), then levelled off even with the top. A small scoop should be kept in the flour or sugar to use in filling the cup. *A heaping cupful* is all the cup will hold. *A cupful of liquid* is *not* what you can carry without spilling, but what the cup will hold without running over; full to the brim. Place your cup in a saucer, while filling it, or in the bowl in which the liquid is to be poured. *Half a cupful* is *not* half the distance from the bottom to the rim. Most cups are smaller at the bottom, for which allowance must be made. Take two cups of the same size and shape, fill one with water, then pour the water without spilling into the other cup until it stands at the same level in both cups. This gives you the half-cupful exactly, which in the cups used here is two thirds of the height, or within an inch of the top. The *quarter* and *three-quarters* measures may be found in the same way. *A scant cupful* is within a quarter of an inch of the top.

'*Butter the size of an egg,*' is a very common expression. This equals about one quarter of a cupful, or two ounces, or one *heaping tablespoonful*, either of which is more easily written than the first expression. Place an egg in one tablespoon, then pack butter in another till it fills the spoon in the same proportion as the egg, and you will easily carry it in mind. . . .

A tablespoonful of *melted butter* is measured *after* melting. A tablespoonful of *butter melted* is measured *before* melting.

Table of Weights and Measures

4 saltspoonfuls of liquid	= 1 teaspoonful
4 teaspoonfuls of liquid	= 1 tablespoonful
3 teaspoonfuls of dry material	= 1 tablespoonful
4 tablespoonfuls of liquid	= 1 wineglass, or $\frac{1}{2}$ gill, or $\frac{1}{2}$ cup
2 gills	= 1 cup or $\frac{1}{2}$ pint

16 tablespoonfuls of liquid	= 1 cup
12 tablespoonfuls of dry material	= 1 cup
8 heaping tablespoonfuls of dry material	= 1 cup
4 cups of liquid	= 1 quart
4 cups of flour	= 1 pound or 1 quart
2 cups of solid butter	= 1 pound
½ cup butter	= 1/4 pound
2 cups granulated sugar	= 1 pound
2 ½ cups powdered sugar	= 1 pound
3 cups meal	= 1 pound
1 pint milk or water	= 1 pound
1 pint of chopped meat packed solidly	= 1 pound
9 large eggs, 10 medium	= 1 pound
1 round tablespoonful of butter	= 1 ounce
1 heaping tablespoon of butter	= 2 ounces, or 1/4 cup
Butter the size of an egg	= 2 ounces or 1/4 cup
1 heaping tablespoonful of sugar	= 1 ounce
2 round tablespoonful of flour	= 1 ounce
2 round tablespoonful of coffee	= 1 ounce
2 round tablespoonful of powd. sugar	= 1 ounce
1 tablespoonful of liquid	= ½ ounce
1 bottle S. M. Wine	= 3 cups or 48 tablespoonfuls
1 bottle brandy	= 1 ½ cups or 24 tablespoonfuls
1 small bottle Burnett's extract	= 1/2 cup scant, or 3 tablespoonfuls
1 small bottle Burnett's extract	= 12 tablespoonfuls
1 flask olive oil	= 1 ½ cups or 20 tablespoonfuls"

- *Mrs. Lincoln's Boston Cook Book: What to Do and What Not to Do in Cooking* (1884)

“HOW TO MEASURE

Correct measurements are absolutely necessary to insure the best results. Good judgement, with experience, has taught some to measure by sight; but the majority need definite guidelines.

Tin measuring cups, divided into quarters or thirds, holding one half-pint, tea and table-spoons of regulation sizes, —which may be bought at any store where kitchen furnishing are sold, — and a case knife [table or place knife], are essentials for correct measurements. Mixing-spoons, which are a little larger than tablespoons, should not be confounded with the latter.

Measuring Ingredients. Flour, meal, powdered and confectioner's sugar, and soda should be sifted before measuring. Mustard and baking-powder, from standing in boxes, settle, there fore should be stirred to lighten; salt frequently lumps, and these lumps should be broken. A *cupful* is measured level. To measure a cupful, put in the ingredient by spoonfuls or from a scoop, round slightly, and level with a case knife,



Measuring Spoons from Farmer's Boston Cooking-School Book

care being taken not to shake the cup. A *tablespoonful* is measured level. A *teaspoonful* is measured level.

To measure tea or table spoonfuls, dip the spoon in the ingredient, fill, lift, and level with a knife the sharp edge of the knife being toward the tip of the spoon. Divide the knife lengthwise of spoon, for a half-spoonful; divide the halves crosswise for quarters, and quarters crosswise for eighths. Less than one-eighth of a teaspoonful is considered a few grains.

Measuring Liquids. A cupful of liquid is all the cup will hold. A tea or table spoonful is all the spoon will hold.

Measuring Butter, Lard, etc. To measure butter, lard, and other solid fats, pack solidly into cup or spoon, and level with a knife.



Graduated Cups and Measuring Spoons from Farmer's Boston Cooking-School Book

When dry ingredients, liquids, and fats are called for in the same recipe, measure in the order given, thereby using but one cup.

TABLE OF MEASURES AND WEIGHTS

2 cups butter (packed solidly)	= 1 pound
2 cups flour (pastry)	= 1 pound
2 cups granulated sugar	= 1 pound
2 2/3 powdered sugar	= 1 pound
3 1/2 confectioner's sugar	= 1 pound
2 2/3 cups brown sugar	= 1 pound
2 2/3 cups oatmeal [steel cut]	= 1 pound
4 3/4 cups rolled oats	= 1 pound
4 1/3 cups rye meal	= 1 pound
1 7/8 cup rice	= 1 pound
4 1/2 cups Graham flour	= 1 pound
3 7/8 cups entire wheat flour [whole wheat flour]	= 1 pound
4 1/3 coffee	= 1 pound
2 cups finely chopped meat	= 1 pound
3 teaspoons	= 1 tablespoon
16 tablespoons	= 1 cup
2 tablespoons butter	= 1 ounce
4 tablespoons flour	= 1 ounce"

- Boston Cooking-School Book (1896)

Fanny Farmer, author of *Boston Cooking-School Book* is usually given the credit for the development and introduction of standard measurements used in cooking but as one can see from earlier entries, she was not the first to adopt standard measurements. Miss Farmer not only offered her version of

standard measures but a new approach to recipes; she dressed up simpler recipes and offered the home cook a way to make more elaborate dishes from simple recipes with the additions of garnishes and added novel approaches to dress up foods. A combination of her philosophy of measuring and cookery appealed to the Boston Cooking School students and the public so her book became very successful and quickly was reprinted a number of times.

Miss Farmer did not invent or even introduce the graduated measuring devices (cups marked in graduated increments, teaspoons and tablespoons); they had been available in stores for a number of years. In her cookbook, she incorporated the standard measurements we use today but it took awhile for the individual measuring cups and spoons that we use today to reach the market.



GRADUATED CUPS.

1 pint45
1 quart48



LIPPED.

$\frac{1}{4}$ pint40
1 "48
1 quart85
2 "	1.25
4 "	2.00

MEASURES.



GRADUATED AND LIPPED.

1 quart50
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NOVELTY GRADUATED, LIPPED AND MARKED.

1 pint38
1 quart48
2 "88

Measuring Cups from Hollander's Catalogue

In period cookery books that listed recommended convenient kitchen equipment, the only measuring devices listed were balance scales, bushel, peck, gallon, quart, pint, half pint, and gill measures. The tablespoons, teaspoons, dessert-spoons, and saltspoons were the same ones used at the table. No graduated metal or glass measures were found in the cargo on the Steamboats Arabia or Bertrand, which sunk in the Missouri River in 1856 and 1865, respectively. In viewing general and dry goods store ledgers measures in gills, pints and quarts were sold as well as tea spoons and tablespoons but no pictures were available of the cups. Tin cups were also sold but no volume for these cups were given. By the 1880s, marked graduated measuring cups could be purchased in stores but the individual smaller incremented measuring cups, that are used today, in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, and 1 cup sizes and measuring spoon sets did not appear until after the turn of the twentieth century.

If one is going to cook at an event and use period style utensils and methods, one does not need to worry about the lack of modern measuring devices or scales. All you need is one generic cup and a large and small spoon. As Miss Beecher and Mrs. Lincoln suggested, calibrate the cup to determine how much it holds and do the same with the spoons and remember the capacity of each and use that cup for measuring each time you need to.

In the final table, the author has compiled a list of common measurements used in period recipes and converted them to modern equivalents. Some of the measurements are approximate but remember a

great deal of measuring in cooking is approximate. Success in cooking depends upon, not only on measuring but the humidity of the air, the amount of moisture in the ingredients, the quality of the ingredients, the temperature of the air and temperature of the cooking surface are just a few of the variables. If possible, practice beforehand.

Keep in mind that the most important concept in period cooking is to have fun; don't let the recipes, ingredients, cooking utensils, cooking environment deter your efforts. If something does not turn out the first time remember that nineteenth century cooks were not perfect either. Just as they learned from their mistakes, you can learn from yours. Almost everything you cook will taste fine even if it doesn't look the best and consider it a learning experience. You will do better the next time and people do appreciate your efforts.

CONVERSION TABLES FOR NINETEENTH CENTURY MEASUREMENTS

1 gill (jill) = 1/2 cup or 4 ounces or 8 tablespoons
2 gills = 1 cup or 8 ounces
1 coffee-cup = 1 cup or 8 ounces
1 small coffee-cup = 3/4 cup or 6 ounces
1 tea-cup = 3/4 cup or 6 ounces
1 small tea-cup = 1/2 cup or 4 ounces
2/3 teacup = approx. 1/2 cup or 4 ounces
1/3 teacup = approx. 1/4 cup or 2 ounces
1 tin cup = 1 cup or 8 ounces
1 tumbler = 2 cups or 1 pint
1 common tumbler = 1 cup or 8 ounces
1 wineglass = 1/4 cup or 1/2 gill or 2 oz.
1 claret wineglass = 1 gill or 1/2 cup or 4 ounces

1 tablespoon = 1/2 ounce or 3 teaspoons or 15 ml.
4 large tablespoons = 1/4 cup of 1/2 gill or 2 oz.
1 teaspoon = 1 scant modern teaspoon or 1/8 oz. or 3.5 ml.
25 drops = 1 scant teaspoon
1 dessert spoon = 2 teaspoons
2 dessert spoons = 1 tablespoon
1 salt spoon = 1/4 teaspoon
1 pennyweight = 1/20 ounce or 24 grains
1 fluid drachm (dram) = 1/8 oz. or 1 teaspoon, or 60 grains
1 scruple = 20 grains, or 1/24 ounce, or a generous 1/4 teaspoon
3 scruples = 1 drachm
1 small pinch = 1/6 teaspoon
1 large pinch = 1/8 teaspoon
1 dash = 1/8 teaspoon

Lump of butter = 1 tablespoon or 1/2 ounce
Butter the size of walnut = 1 tablespoon
Butter the size of egg = 2 tablespoons or 1/8 cup
1 teaspoon butter = 1/6 ounce
2 cups butter = 1 pound

1 egg in a period recipe = 1 modern medium egg
1 raw egg (no shell) = 3 tablespoons
12 small eggs (no shell) = 1 pound
10 medium raw eggs (no shell) = 1 pound or 2 cups
9 large raw eggs (no shell) = 1 pound
1 cup eggs = 4 large eggs, 5 medium eggs, 6 small eggs or 8 whites

4 cups white flour = 1 pound
1 ounce flour = heaping 3 tablespoons
3 1/2 cups whole wheat flour = 1 pound
4 cups broken loaf sugar = 1 pound
2 cups granulated sugar = 1 pound
2 1/4 cup brown sugar = 1 pound
2 cups milk = 1 pound
4 cups cornmeal (fine) = 1 pound 1 ounce
3 cups cornmeal (course) = 1 pound
1 cup molasses or honey = 12 ounces
4 cups ground suet (loosely packed) = 1 pound

1 ounce salt = 2 tablespoons
1 ounce gd. allspice = 4 1/2 tablespoons
1 ounce gd. cloves = 4 tablespoons
1 ounce gd. nutmeg = 3 1/2 tablespoons
1 ounce gd. ginger = 5 tablespoons
1 ounce gd. pepper = 3 1/2 tablespoons
1 ounce grated chocolate = 1/4 cup

2/3 cup liquid yeast = 1/2 cake yeast or 1 package yeast or scant tablespoon

A slow or slack oven = 275 - 300 degrees
A moderate oven = 325 - 375 degrees
A hot oven = 400 - 425degrees
A quick oven = 450 degrees

To determine the temperature of an oven or Dutch oven, the following guideline may be helpful. If a hand is held near the cooking surface for 20-25 seconds, the oven is a quick oven; 35-45 seconds is a moderate oven; and 45-60 seconds the oven is slow.

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[With a few exceptions, as noted, the only cookery books used in this article were ones that contained tables or charts of weights and measures or instructions on measuring. Although many other books contained ingredients in standard amounts, if there were no tables or measuring instructions were not included, those books were not used as references.]

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