



## Herbal root beers and root tonics

fall 2017

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Glen Nagel, ND

Herbal Mixologist

## M.E.E.T The Herbs My herbal philosophy

- Medicine making is a medicine.
- Experience is the best teacher, make it something to remember and experience
- Everyday practice your craft, your art.
- Taste is the teacher, the new active ingredient is Taste, smell, sight.

Smoking Kava drink



# Herbal Mixology: The New Paradigm

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- The problem with herbal medicine
- The problem with mixed drinks
- Taste is the active ingredient
- Alcohol as medicine?
- Organoleptics: the way of senses
- Herbs as medicine
- The bitters



## Herbal Mixology: Defined as

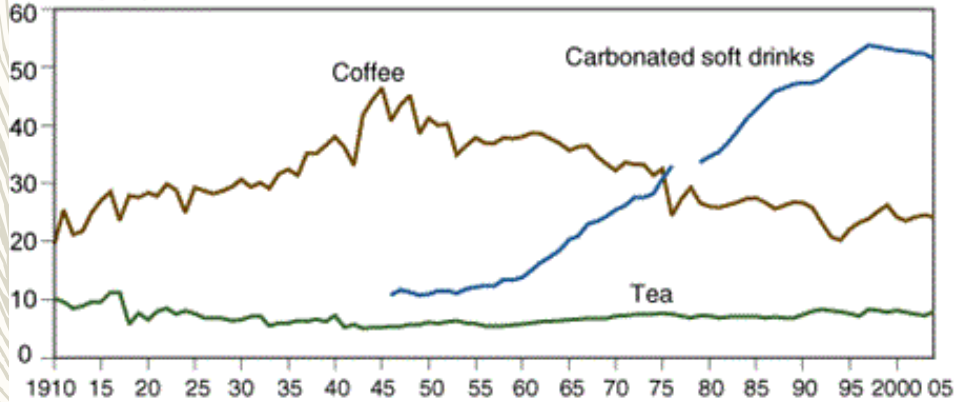
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- **The power of herbal phytochemicals driven into the blood stream by alcohol and wrapped in an organoleptically rich sensual experience: This is the magic and power of Herbal Mixology.**
- The art and science of adding medicinal value and action to the world of tasty alcoholic drinks
- Bringing the value of medical tonics back to the roots of botanical medicine
- My path as an herbalist, naturopathic doctor
- Making medicine is medicine, DIY



### Coffee availability in the United States peaked in 1946

Gallons per person

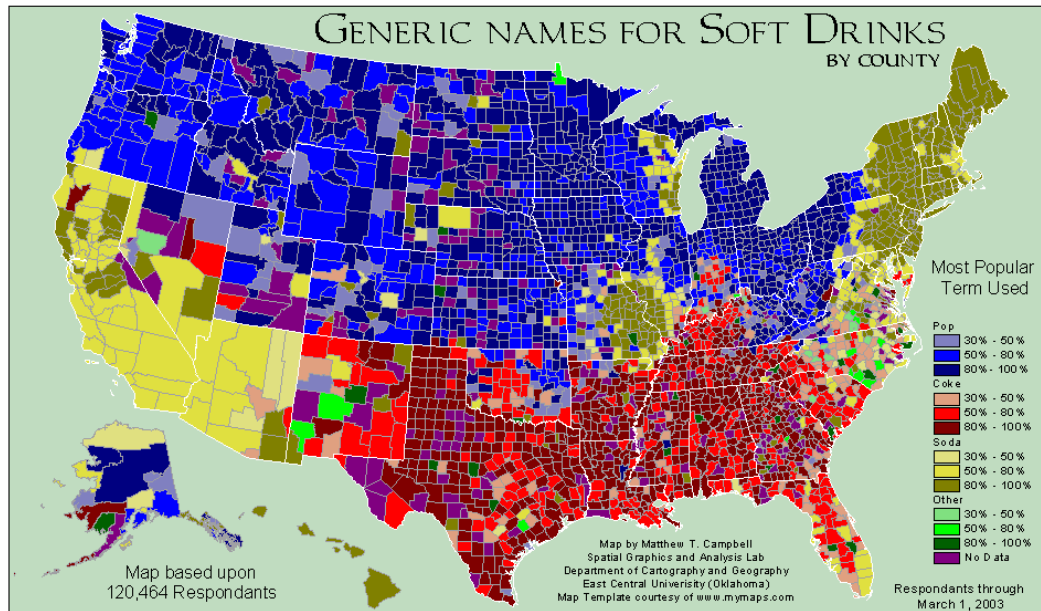


Sources: USDA, Economic Research Service using data on carbonated soft drinks from the Bureau of the Census for 1947-77 and the Beverage Marketing Corporation for 1980-2005.

## Historical Background of soft drinks



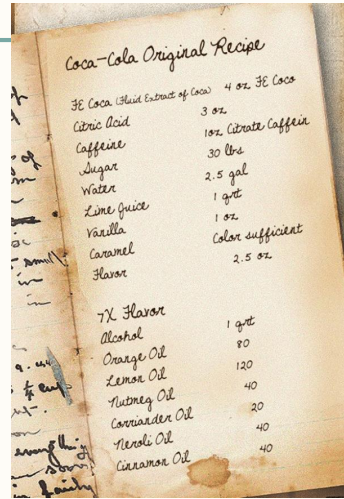
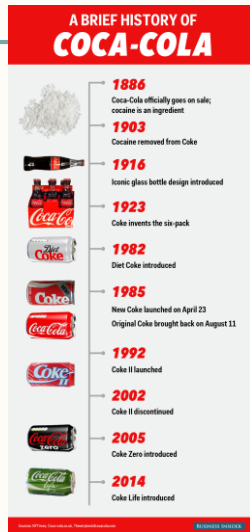
- The first soft drinks were simply natural effervescent water from natural springs
- In Europe, the spread of cane sugar from West Indies plantations arose the use of lemon juice sugar.
- Carbonation is discovered in 1790s by Jacob Schveppes in London.
- Early carbonated beverages were sold in bottles sealed with porcelain stoppers which, when pushed in, released the carbon dioxide with a loud pop. Thus leading to the expression "Soda Pop"



## Famous soft drinks

- **Coca Cola:** 1886 John Pemberton (pharmacist, Atlanta), adopted French doctor, Angelo Mariani idea of using coca leaves, started selling Pemberton's French wine coca in Jacob's pharmacy as medical aid. 1888 (Asa G. Candler bought company, 4 years later Coca Cola sold in every state, memorabilia ideas begin. 1904 (caffeine added to replace the cocaine) for safety. 1919 E. Woodruff (Atlanta took over. 1930s: Coca Cola invent modern day Santa Claus (dress code to match company colours), 1982 (Coca Cola launch Diet Coke first brand extension). 2010 Diet Coke sold 927 million cases.
- **Pepsi:** 1899 first made in North Carolina by Caleb Bradham (sold it from his drug store called it Brad's drink), marketed as a digestive drink (contained pectin and some say Pipsissewa). 1901 renamed Pepsi Cola.
- **7-up:** 1929 originally used as a hangover cure for hospital and home use titled 'Bib label Lithanted Lemon Lime Soda'. 1930 7-up joined 600 lemon and lime drinks in the marketplace. 1986 taken over by Pepsi Cola Company.

# History of Soft drinks in USA: Coca Cola



# What are Root Beers?



# What are Root Beers?

Generally non alcoholic drinks made with:

- sugar syrups, root extracts and flavorings;
- carbonated water;
- often acids like phosphoric or citric acids.

Commercial drinks are generally not healthful.

Movement back to real root beers, low sugar, high in herbs, carbonated.



# History of Root Beer

- Sassafras root beverages were made by indigenous peoples of the Americas for culinary and medicinal reasons before the arrival of Europeans in North America, and European culinary techniques have been applied to making traditional sassafras-based beverages similar to root beer since the 16th century. Root beer was sold in confectionery stores since the 1840s, and written recipes for root beer have been documented since the 1860s. It possibly was combined with soda as early as the 1850s, and root beer sold in stores was most often sold as a syrup rather than a ready-made beverage.
- The tradition of brewing root beer is thought to have evolved out of other small beer traditions that produced fermented drinks with very low alcohol content that were thought to be healthier to drink than possibly tainted local sources of drinking water, and enhanced by the medicinal and nutritional qualities of the ingredients used. Beyond its aromatic qualities, the medicinal benefits of sassafras were well known to both Native Americans and Europeans, and druggists began marketing root beer for its medicinal qualities.



## History of Root Beer

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- The flavor of these beverages may vary from typical North American versions. While no standard recipe exists, the primary ingredients in modern root beer are filtered water, sugar, and artificial sassafras flavoring, which complements other flavors.
- Common flavorings are vanilla, wintergreen, cherry bark, licorice root, sarsaparilla root, nutmeg, acacia, anise, molasses, cinnamon, sweet birch, and honey. Soybean protein is sometimes used to create a foamy quality, and caramel coloring is used to make the beverage brown.



## Root Beer History

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- Pharmacist Charles Elmer Hires was the first to successfully market a commercial brand of root beer. Hires developed his root tea made from sassafras in 1875, debuted a commercial version of root beer at the Philadelphia Centennial Exposition in 1876, and began selling his extract. Hires was a teetotaler who wanted to call the beverage "root tea."
- However, his desire to market the product to Pennsylvania coal miners caused him to call his product "root beer," instead. In 1886, Hires began to bottle a beverage made from his famous extract. By 1893, root beer was distributed widely across the United States. Non-alcoholic versions of root beer became commercially successful, especially during Prohibition.

# Herbs for Root Beers

- So many choices of herbs. Classic is sassafras and birch bark or wintergreen
- Generally used are tonic roots with alterative and cleansing action
- Base Ingredients: Sassafras root, birch bark or wintergreen, licorice
- Foaming agents: Smilax ( sarsaparilla), soapbark or Yucca root
- Secondary spice herbs: Dandelion, burdock, pipsissewa leaf, anise seed, fennel, cinnamon.
- Sugar, sweetener
- Coloring agent: natural or caramel coloring

# Traditional Herbs for Root Beer

- **Base Herbs**
  - *Sassafras albidum* – sassafras roots and bark containing the aromatic oil safrole (or an artificial substitute)
  - *Smilax regelii* – sarsaparilla, *Smilax glycyphylla* – sweet sarsaparilla
  - *Piper auritum* – root beer plant or hoja santa
  - *Glycyrrhiza glabra* – licorice (root)
  - *Aralia nudicaulis* – wild sarsaparilla or "rabbit root"
  - *Gaultheria procumbens* – wintergreen (leaves and berries)
  - *Betula lenta* – sweet birch (sap/syrup/resin)
  - *Betula nigra* – black birch (sap/syrup/resin)
  - *Prunus serotina* – black cherry
  - *Picea rubens* – red spruce, *Picea mariana* – black spruce, *Picea sitchensis* – Sitka spruce
  - *Arctium lappa* – burdock (root)
  - *Taraxacum officinale* – dandelion (root)
- **Foaming Herbs**
  - *Quillaja saponaria* – soapbark
  - *Manihot esculenta* – cassava, manioc, or yucca (root)
  - *Smilax regelii* – sarsaparilla, *Smilax glycyphylla* – sweet sarsaparilla
- **Spices/flavor notes**
  - *Pimenta dioica* – allspice
  - *Theobroma cacao* – chocolate
  - *Trigonella foenum-graecum* – fenugreek
  - *Myroxylon balsamum* – Tolu balsam
  - *Abies balsamea* – balsam fir
  - *Myristica fragrans* – nutmeg
  - *Cinnamomum verum* – cinnamon (bark), *Cinnamomum aromaticum* – cassia (bark)
  - *Syzygium aromaticum* – clove
  - *Foeniculum vulgare* – fennel (seed)
  - *Zingiber officinale* – ginger (stem/rhizome)
  - *Illicium verum* – star anise, *Pimpinella anisum* – anise
  - *Humulus lupulus* – hops
  - *Mentha* species – [mint](#)



## *Arctium lappa* (Burdock)



## *Arctium lappa* (Burdock)

- Etymology: *Arctium* = bear, *lappa* = to seize
- Common name: Burdock, gobo root
- Family name: *Asteraceae* (compositae) or sunflower family
- Medicinal parts: All parts have been used historically. Root and seeds considered the most potent.
- Dosage: 20-100 gtts tid. May be used long term.
- Collection: Seeds collected in the fall of the second year.
- Taproot may be dug in the fall or very early spring of the second to fourth year.
- Storage: Fresh tincture or dry for decoctions.



## *Arctium lappa* (Burdock)

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### Chemical constituents:

- *Inulin* - may comprise 20-40% of the root in the fall.
- *Sesquiterpene lactones*
- *Organic acids* - some have antibiotic actions.
- *Phytosteroids* - stigmasterol and phytosterol
- *Tannins*
- *Mucilage*
- *Flavonoids*
- *Alkaloids*
- *Vitamin A*
- *Calcium*
- *Sodium*
- *Macrominerals* somewhat dependant on soil



## *Arctium lappa* (Burdock)

### Actions

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- Alterative
- Diuretic
- Demulcent
- Diaphoretic
- Nervine
- Relaxant
- Anti-bacterial
- Anti-fungal
- Increases glucose tolerance
- GI stimulant
- Balances hormones

## *Arctium lappa* (Burdock) Indications

- Skin disorders
  - Seeds as well as root are indicated.
  - Use internally and externally
- Menopause
- PMS
- Arthritis
- Gout
- Diabetes
- Chronic indigestion, esp. when secondary to liver stasis
- Lymphatic congestion - with chronic nodal swelling
- Kidney weakness - with tendency towards stones
- UTI
- Cancer - use all forms and gobo root as food
- Fever and sore throat
- Preeclampsia

## *Arctium lappa* (Burdock)

### Specific Indications (Felter)

- Feeble cutaneous circulation
- Dry, scaly skin eruptions
- Aphthous ulcers
- Recurrent boils and styes
- Urinary irritation
- Psoriasis



© 2004 Janet Novak

## Arctium: Dosing

- **Pharmacy:** Tea: 1 tsp. root/cup; 1 cup TID for several weeks (Children one glass daily). 1 tsp. seed/couple oz. water TID ic for several weeks. (Children 1/2 tsp. seed/ 2 oz. water)  
These decoctions can be used undiluted as a poultice.
- 1:5 tincture- 2-4 ml TID
- **Contraindications:** Brinker speculates that excessive doses be avoided in pregnancy due to empirical oxytocic effects and uterine stimulant effects.

## *Chimaphila umbellata*: Pipsissewa

- **Family:** Ericaceae
- **Common name:** Pipsissewa, some sources will also refer to this princes pine. *Chimaphila* means “Winter Love”
- It may be the secret ingredient in Pepsi
- **Habitat:** Europe, Asia, Siberia, N. and S. America. Protected species in Germany.
- Love moist soils



Foto: Anne Wiederberg

## The princess of the pines

- My name is chimaphilla , a gentle woodland plant, With a mission to get you pissin, a Pipsi like you.

Bud Kovalchik

I am the secret ingredient in a sugary cola drink,  
You stole my name  
A Pipsi like you

**PEPSI**



## *Chimaphila umbellata*: Pipsissewa

- **Medicinal actions:** astringent, alterative, tonic, diuretic, antiseptic
- The principal action of *Chimaphila* is upon the kidneys, to improve water excretion, the renal tract generally, to remove "congealed fluids" such as pus, catarrh and sediment in the urine, **and upon the lymphatic/glandular system, to remove stagnant lymph and swollen glands.** It acts particularly strongly upon the prostate, in which these two systems are combined.

(Wood)



*Chimaphila umbellata*: upper part of flowering stem.

## Chaga Mushroom: *Inonotus obliquus*

- *Inonotus obliquus*, commonly known as **chaga mushroom** is a fungus in the family *Hymenochaetaceae*. It is parasitic on birch and other trees. The sterile conk is irregularly formed and has the appearance of burnt charcoal. It is not the fruiting body of the fungus, but a sclerotia or mass of mycelium, mostly black because of the presence of massive amounts of melanin. The fertile fruiting body can be found very rarely as a resupinate (crustose) fungus on or near the clinker, usually appearing after the host tree is dead.



# Dandelion: Earth Nail



# Taraxacum officinale

- **Family:** Asteraceae
- **Habitat:** Found throughout most of the world, particularly the Northern hemisphere
- **Collection:** The roots are best collected between June and August when they are at their most bitter. Split longitudinally before drying. The young leaves may be collected at any time, although those collected in the spring are less bitter.
- **Part Used:** Root and/or leaf
- **Taste:** Bitter, salty, sweet
- **Temperature:** Cold
- **Channels:** Liver, gallbladder, spleen, bladder



# Taraxacum officinale



- **Actions:** Diuretic (leaf), hepatorestorative, hepatoprotective, choleric, cholagogue, anti-inflammatory, anti-rheumatic, gentle laxative, alterative, anti-hypertensive, stomachic, tonic, bitter.

# Taraxacum officinale

- Root is for liver, leaves are for kidney
- Leaves are a potassium-sparing diuretic and contain potassium. Useful in hypertension
- Root is a choleric and cholagogue. Useful for liver and biliary problems of all kinds.





# Taraxacum officinale

## Preparations & Dosage:

- Decoction: put 1-3 tsp of the root into one cup of water, decoct for 10-15 minutes.
- If using leaves, infuse rather than decoct for 10-15 minutes. This should be drunk three times a day.
- The leaves may also be eaten raw in salads or steamed as a spring green.
- Juice of the pureed leaves; sig up to 20 ml/ day
- Tincture (1:5 25%): 3-10ml of the tincture up to qid. Root and/or leaf.
- Fluid extract (1:1 30%): 2-8ml TID

# Birch bark: *Betula lenta*

- *Betula lenta* (sweet birch, also known as **black birch**, **cherry birch**, **mahogany birch**, or **spice birch**) is a species of birch native to eastern North America, from southern Maine west to southernmost Ontario, and south in the Appalachian Mountains to northern Georgia.



## Smilax off. And other species Sarsparilla

- **Parts used:** Roots, rhizome
- Sources: Mexican *S. medica*, Ecuadorian, *S. febrifuga*, Jmacian: *S. regelii*,
- **Constituents:** Steroidal saponins (smilagenin, sarsasapogenin, sarsaparilloside); Glycoside saponins [parillin (sarsaponin), smilasaponin (smilacin)]; B-sitosterol, stigmasterol glycosides; Oxalic acid, Fatty acids, Iodine, Mineral salts, Starch
- **Medicinal actions:** Alterative, antiinflammatory, antipruritic, antiseptic



## Smilax Species

- **Medicinal use:**
- *Smilax spp.* have been used throughout the last three centuries. Its reputation has ranged from granting inner strength and virility to curing syphilis. It has also been used as a flavoring agent in beverages. Current popular use by body builders for its hormonal influence is somewhat unfounded. Smilax does contain steroidal molecules, some of which may be metabolized into testosterone or act as phyto-testosterone, however there is no evidence to suggest that the plant contains testosterone or progesterone.

## Sassafras albidum

- **Parts used:** root bark, collected in autumn
- **Constituents**
  - Volatile oil (6-9%): chief components safrole (up to 90%), 5-methoxyeugenol (up to 30%), asarone (up to 18%), camphor (up to 5%)
  - Isoquinoline alkaloids: of the aporphine and reticuline type (less than 0.1%)
  - Lignans: sesamin, desmethoxyaschantin; Tannins; Sitosterol and other sterols; Alkaloids: aporphine, benzyloisoquinoline derivatives; Resin
  - *PDR for Herbal Medicines*. Medical Economics Company Inc., Montvale, NJ. 2001

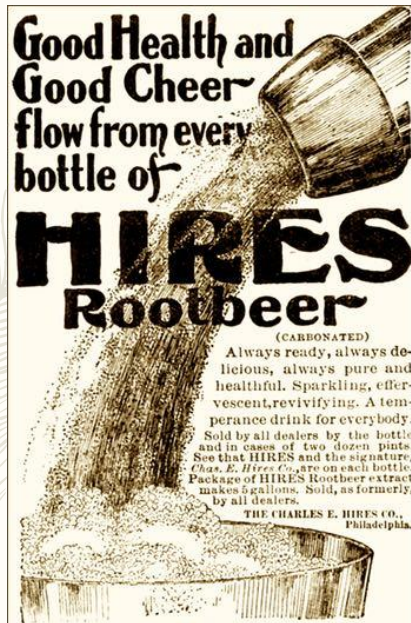


## Sassafras albidum

- **Medicinal actions:** Carminative, diaphoretic, antiseptic, antirheumatic, alterative
- **Traditional Medicinal Use:**
  - Sassafras has been used for hundreds of years as a medicinal agent for chronic diseases and sassafras was considered to be an alterative with efficacy in chronic inflammatory disorders of the skin and joints. .
  - Cook added that Sassafras is an aromatic relaxant and stimulant with the warm infusion being a fair stimulating diaphoretic and nervine. He described the oil as among the best of the nervine stimulants and relaxants.
  - Cook, WM. "The Physio-Medical Dispensatory: A Treatise on Therapeutics, *Materia Medica* and Pharmacy." Eclectic Medical Publications, Sandy, OR 1985

# Sassafras albidum

- **Pharmacy:** It is recommended to use this plant externally only. Internal: 2.5 g (3/4 tsp.) dried root bark/cup/day; hot infusion for 10 min.; strain and drink.
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- **Contraindications:** Sassafras should be avoided in early pregnancy due to emmenagogue properties and prolonged use (daily for a year) of forms containing the essential oil component should be avoided.
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- **Toxicity:** In large doses and/or prolonged use, lowered body temperature, exhaustion, tachycardia, and collapse may occur.
- Safrole inhibits hepatic microsomal enzyme function, prolonging hexobarbital induced necrosis in animal studies.
- 
- Brinker, F. Herb Contraindications and Drug Interactions. Eclectic Medical Publications, Sandy, OR 1998. p. 119



# Fleishmann's Root Beer (1915)

*This vintage carbonated beverage recipe is one of the best. It was first published around 1915, and afterwards it appeared in numerous publications. Fleischmann's is a registered trademark of ConAgra Foods.*

1 cake compressed yeast; 5 pounds sugar; 2 ounces sassafras root bark; 1 ounce hops or gingerroot; 2 ounces juniper berries; 4 gallons water; 1 ounce dandelion root; 2 ounces wintergreen.

Wash roots well in cold water. Add juniper berries (crushed) and hops. Pour 8 quarts boiling water over root mixture and boil slowly 20 minutes. Strain through flannel bag. Add sugar and remaining 8 quarts water. Allow to stand until lukewarm.

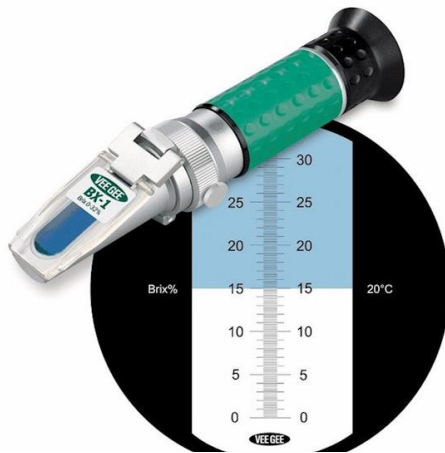
Dissolve yeast in a little cool water. Add to root liquid. Stir well. Let settle and then strain again and bottle. Cork tightly. Keep in a warm room 5 to 6 hours, and then store in a cool place. Put on ice as required for use.

## Soft Drinks and Carbonated Beverages

### Historical Background of Soft Drinks and Carbonated Beverages

- The first soft-drinks enjoyed centuries ago, were simply the effervescent waters from certain natural springs.
- **Lemon juice and scurvy:** Lemon juice was discovered as a good antidote to scurvy, (this is brought on by a lack of vitamin C in the diet).
- **Spread of soft drinks in Europe:** growing availability of sugar from the new plantations in the West Indies a fashion arose for lemon juice sugared and flavored with water. 17<sup>th</sup> century French government created the Compagnie de Lemonadiers allowing these tradesmen to gain a monopoly; eventually these tradesmen set up shops and were popularly known as "Lemonadiers".
- **Carbonation is discovered:** (1790s) Jacob Schwebbe and Nicholas Paul developed the manufacture of their carbonated waters in London (1799) A.R Thwaites and Company of Dublin develop single and double strength soda water (1886) in Atlanta, Georgia Dr. John Styth Pemberton formulated syrup, which went on sale at Jacob's Pharmacy for 5 cents a glass, originally promoted as an "Intellectual Beverage and Health Drink" known today as Coca Cola .
- Early carbonated beverages were sold in bottles sealed with porcelain stoppers which, when pushed in, released the carbon dioxide with a loud pop. Thus in the 1890's era of gleaming marble soda fountains the expression "**soda pop**" was born.

## Brix Meter : How to use



- **Degrees Brix** (symbol °Bx) is the sugar content of an aqueous solution. One degree Brix is 1 gram of sucrose in 100 grams of solution and represents the strength of the solution as percentage by mass.
- If the solution contains dissolved solids other than pure sucrose, then the °Bx only approximates the dissolved solid content.
- The °Bx is traditionally used in the wine, sugar, carbonated beverage, fruit juice, and honey industries.
- With Sodas, less than 10 is about 10% sugar,
- Traditional soda is a brix of 16

## Why do we love carbonation in fluids?



- Bubbles add a liveliness and fun
- Naturally found only in past in brewing
- Make mild flavors more bold
- Mix well with sharp alcohol
- Taste is prickly, like salty and sour at the same time



## Health benefits of carbonated water

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- High levels of minerals contained in the beverage aid in the function of the digestive system relieves stomach pains, diarrhea and constipation. Since a majority of the population was living under poor conditions, they were often exposed to food and water contamination, causing stomach pains and problems in the digestive system.
- Since carbonated water was rather cheap at the time (costing 5 cents or less), they used the beverage as a remedy for pain relief.



## Health benefits of carbonated water

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- In a small but double-blinded randomized trial, patients with frequent dyspepsia or constipation were assigned to drink either still or sparkling water for 15 days. Then they were given a series of tests. Both conditions improved in the people drinking sparkling water and showed no improvement in those **drinking tap water**.
- If you drink a lot of sparkling water you might find you feel bloated, but researchers in Japan have found that this side-effect could be put to good use. They had a group of women fast overnight and then slowly drink either still or sparkling water. They found that 900ml of gas was released from just 250ml of water, so not surprisingly the women's stomachs distended slightly and they had the perception of feeling full, **even though they hadn't eaten**. They didn't feel uncomfortable and so fizzy water has been suggested as a way of avoiding overeating, because it makes you feel fuller.



## Health benefits of carbonated water

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- Are mineral waters safe for long term drinking?
- But in 2001, the Birmingham team examined seven different brands of mineral water, again pouring them over extracted teeth to see what happened. **They found sparkling waters** had a pH of between 5 and 6 (so not as acidic as some cola drinks which can be as high as 2.5), compared with still water, which was neutral at 7. In other words, they are a weak acid, as suspected. But when it came to the erosive potential of that weak acid on the teeth, the effect was 100-times less than that of some other kinds of fizzy drinks. Of course the mouth itself is a different environment from a jar, but so far the evidence for harm doesn't seem to be very strong.
- So if you want a change from plain old water, then although it's mildly acidic, so far there isn't strong evidence to suggest that it's harmful to your bones, your stomach or your teeth. But if you want to play safe and keep it away from your teeth, when you answer the question "still or sparkling" perhaps you should also ask for a straw.



## Mineral water/ Seltzer water

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- Sparkling mineral water comes from a natural spring which contains various minerals, like salts and sulfur compounds. It's defined by its "constant level and relative proportions of mineral and trace elements at the point of emergence from the source." Minerals aren't added to this water and neither is carbonation (with the exception of San Pellegrino, which has additional carbonation added by the bottler). That means that the bubbles in these bottles are completely natural. You would typically drink this water as is (not mixed in a cocktail), since it's a tad expensive and has a slight mineral-y taste.
- Seltzer water is just plain water that has been artificially carbonated. This water, which contains no sodium salts, gets its name from the German town of Selters, which was renowned for its natural springs. Seltzer water was first introduced as a cheap alternative to sparkling mineral water — and it still is an economical option today.



## Club Soda and Tonic Water

- **Seltzer water and club soda** are very similar, but there *is* a notable difference between the two. Unlike seltzer, mineral-like ingredients are added to club soda to enhance the flavor. If you look on the list of ingredients, you'll likely see potassium bicarbonate and potassium sulfate listed. Regardless, you could still swap one for the other without really being able to pick up on a difference of taste .
- **Tonic water** has a distinct flavor and it certainly can't be swapped out (or in) for carbonated water. Tonic water is a bitter drink (a result of the addition of quinine) which pairs particularly well with gin. Also unlike the other waters, Tonic contains calories most often from high fructose corn syrup

## History of tonic water



Tonic water was first enjoyed in 1825 when ingenious (or hard drinking, depending on how you look at it) British officers in the Indian Army improved their bitter anti-malaria medicine—Peruvian quinine extract—by mixing it with soda water, sugar, and gin. Instead of drinking the medicine with their troops at dawn, the officers figured out how to enjoy it at cocktail hour. The original gin and tonic was born, and it soon became the quintessential drink of the British Empire.

Tonic water's story begins two centuries earlier, in 1638. The wife of the Spanish Viceroy in Peru, the Countess of Chinchon, had fallen violently ill with malaria. Her husband begged the local Incas for an antidote. In a show of generosity, the Incas instructed her to drink a potion containing the ground bark of the native "Quinquina" tree, which grew on the slopes of the Andes. The potion worked and she quickly recovered. In her honor, the Spanish renamed the Peruvian tree the "Cinchona" tree. They also killed off the Incas, stole their gold, and colonized their land.

## Tonic water labels



## Carbonation basics

- Remember the three C's
- **Clarity:** You will have problems carbonating anything that is not clear, no solids or sediment because they cause nucleation sites.
- **Coldness:** the closer to freezing the more CO<sub>2</sub> they will hold, heat drive the bubbles out rapidly.
- **Composition:** When mixing, lower alcohol will hold more CO<sub>2</sub>, higher does not, avoid lots of natural foaming agents like eggs, etc.
  - Up the surface area to get more CO<sub>2</sub> into liquid or shake frequently.



## Carbonation by Whipper

Use 500 ml Whipper by ISI which is best made brand

Also makes 1000 mls

Do not over fill, there is a line on the inside

Do not over pressurize one or two cartridges max

Shake well and keep cold.

You can buy NO2 but must be 21, (nitrous oxide is laughing

CO2 anyone can buy.

Clean and dry well,

Consider buying the extraction kit for making instant tinctures



## Carbonation by soda stream

- Brings CO2 to everyone
- Uses small CO2 bottles
- Can be used for more than soda
- Do not use anything besides water unless you know what you are doing.
- Under \$100
- For water follow instructions, make sure water is cold
- For Alcoholic drinks, don't add more than 11 oz or 165 mls, to prevent foaming
- Pressurize and release many times to get a good blend



## How much CO<sub>2</sub> in drinks

- For practice weigh the bottle with cold water and no top before adding CO<sub>2</sub>
- Add 3-5 grams per liter for average drink
- Weight after charging and see the difference.
- Keep near freezing for best retentions
- Pour into clean glass

Style Carbonation Ranges			
Style	Vol CO <sub>2</sub>	Style	Vol CO <sub>2</sub>
American Ales	2.4 - 2.8	American Lagers	2.5 - 2.8
British/Scottish/Irish Ales	1.2 - 2.2		
European Ales	2.2 - 2.7	European Lagers	2.3 - 2.7
Belgian Ales	1.9 - 2.5	Wheat Beers	3.0 - 4.0
Belgian Lambics	2.5 - 4.5	Belgian Wit	2.1 - 2.6
Soda	6 + *	Sparkling Fruit Juice	3 + *
Root Beer	5 + *	Sparkling Mead	3.5 - 6 + *
Cider	1 - 4	Sparkling Wine	3.7 - 6 + *
Water	4 - 6		


\* Never carbonate above the pressure your container can safely handle!

## Rosemary Gladstar's root beer

- This tonic makes a delicious beverage and also soothes and nourishes the body. Try this amazing blend, and you'll be surprised to see how fast it will become a family tradition that you will want to pass down for years to come. It is simple as adding tea to seltzer water. In this recipe, 1 part = 1 Tablespoon. If you want to make twice as much, just make the part = 2 Tablespoons, and so on.
- You'll need.... 3 parts Sassafras bark 3 parts Sarsaparilla root 2 parts Birch bark 1 part Dandelion root 1 part Licorice root 1 part Fennel seed 8-10 Anise Star pods (handful) 1/4 part Ginger root (cut and sifted, not powdered) 2 parts Burdock root 1/2 teaspoons Stevia leaf (powdered) Make Stevia approximately 5% of formula if you make more. 4-5 cups Water Seltzer Water. A third or more of your final root beer amount. In this recipe, approximately 1 ½ to 2 cups) (plain or flavored) 1/2 Lemon (sliced)

Favorite Homemade Root Beer - LearningHerbs

Read more at <http://learningherbs.com/remedies-recipes/homemade-root-beer/>



## Traditional root beer with sassafras and other roots

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- Ingredients:
- 10 liters water
- 40 g powdered Chaga
- 100 g Jamaican Sarsparilla
- 100 g Birch Bark
- 100 g Sassafras
- 680 g organic cane sugar
- 100 g blond coconut sugar
- 4 TB molasses
- 3 TB vanilla
- 12 drops wintergreen Essential oil
- Brix about 6



## Dandelion Burdock Beer

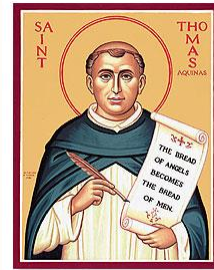
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- Dandelion & Burdock is a rather traditional British drink that could fall into the category of root or small beer; a low or no alcoholic drink. Its American cousin is the popular root beer.
- The earliest record of a Dandelion & Burdock drink is from 1265, from an account of St. Thomas Aquinas, who prayed to God for inspiration as he walked into the countryside, where he made a drink with the first plants that he found: dandelion and burdock.

## Dandelion Burdock Beer



- Fast forward to 1871 and the founding of Ben Shaw's, a soft drinks manufacturer. Around this time, carbonated water was becoming popular and it not was long before other sparkling soft drinks turned up.
- Ben Shaw's started making Dandelion & Burdock in 1898 and it remained a favourite throughout the 1940s; this likely makes them the oldest continuous producer of Dandelion and Burdock.. In 1959 they were the first company Europe to package their soft drink in cans.



## Dandelion / Burdock Root Beer



- **Ingredients**
- 600 ml cold water.
- 1 tsp ground burdock root.
- 1 tsp ground dandelion root.
- 2 cm piece ginger, sliced.
- 1 whole star anise, crushed.
- 1/2 tsp citric acid.
- 300 g granulated sugar.
- soda water.
- Decoction of burdock and Dandelion roots 2 hours
- Strain