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# 80DA WATER.

POPULAR SUMMER BEVERAGE IS MADE.

Marble Dust and Oil of Vitriot the Chief Factors in Producing Soda Water - Process of Bottling.

Mater-Process of Bottling.
Soda water, as it is known both in
the popular idea and to the trade, is
plain hydrant water charged with
more or less pure carbonic-acid gas.
It derived its name from the old,
fashioned method of manufacturel
which was by putting a teaspoonfur
of sods into a tumblerful of waterand attring the mixture. Soda water thus made was a long-used remedy for minor stomach troubles, and its efficiency as such is acknow-

ledged to this day.

The "fizz" of a soda fountain is sods water proper, or "club soda," as it is technically known. Back of the marble slabs of the typical fountain of to-day is to be found a coptain of to-day is to be found a copper retort, wal shaped, except as to the end on which it stands, and varying, in height from two to five feet, according to the size of the fountain or the amount of trade carried on by its proprietor. These retorts contain from 200 to 1,200 glasses of "fizz," larger fountains using retorts which contain more. They are fitted with slops and valves, and are connected with the fountain by ordinary pipe connections. The pressure of the charged water on the retort at the time it is placed in position is about one hundred pounds to the square inch.

sition is about one hundred pounds to the square inch.
Factories which make "club soda" generally work in other lines of the business, such as putting up bottled soda and many varieties of charged water. All waters are charged in the same manner. The gas is formed from the chemical action of what is popularly known as oil of vitriol on marble dust and water. The marble dust in most factories in the West is bought by the wholesale of a Cincinnati house and is shipped in hogsheads. An amount of the marble dust sufficient for the charge desired is placed in a retort or "generator." dust sufficient for the charge desired is placed in a retort or "generator." about five feet long, oval-shaped and fastened firmly on its side in a metal framework. The generator is formed of a layer of lead on the inside to resist the vitriol, a layer of steel to withstand the pressure, and outside of beaten copper to prevent

Through the center of the retortuns a steel shaft on which are lead paddles so fastened that when the shaft is turned by a crank outside of the generator or retort the contents of the latter are thoroughly agitated, much as cream is agitated in a churn. Above the generator is a separate retort, termed the 'cooler,' in which is placed the oil of vitriol. The amount of the latter to be run into the generator is governed by an automatic gauge, the pulling out of a single lever performing the whole operation. Through the center of the retor

single lever performing the whole operation.

High pressure pipes connect the generator with one or two retorts formed like the generator except as to the vitriol "cooler." These retorts are filled with the water to be charged. After the marble dust and water are placed in the generator the vitriol is let in. The water in the generator is then agitated until the diluted vitriol reaches the marble to the hast advantage. The chemical action is very simple and the gas given off is carried by the high pressure pipes to the retorts containing the water. The water in these retorts is thoroughly agitated so that the water. The water in these re-torts is thoroughly agitated so that the gas is mixed with it perfectly, and the "club sods." process is com-plete, the drawing of the charged water into the rountain retorts being

water into the following with per-fect connections.

In the factories are put up those bottles of soda water which appear where fountains are not to be found and whose contents is known to the trade as "pop," 'cream beer' and the like. These productions are simply "club sods" mixed with a simply "club soda" mixed with a proper amount of flavoring syrup and bottled, the bottles, being small glass retorts capable of sustaining a presure of at least six atmospheres, or ninety pounds to the square inch. These bottles contain nine ounces of fluid, one and one-half ounces being, the flavoring syrup and the rest the "club soda."

"club soda."

The bottling process is the most interesting one about a soda factory. Into the neck of each bottle is fitted a patent stopper, so arranged that when the bottle is full the pressure when the bottle is full the pressure from within holds it in place. To open the bottle it is simply necessary to press down on the stopper. The bottling is done by a single workman. and an automatic feeder operated by two levers, one of which, managed by the workman's foot. controls the supply of charged water, and the other, managed by the operator's left hand controls the injection of left hand, controls the injection of

the syrup.

The feeder is fastened to a frame-Ane seeder is fastened to a trainic-work on a table, before which the operator grands. Above him on the lives are kegs containing the Syrups, and from the keg in use is a pipe connecting it with the feeder. The sode water is conducted to the feeder cancelled itself from the conshelves are kegs containing the syrups, and from the keg in use is a pipe consecting it with the feeder. The sode water is conducted to the feeder generally direct from the generator retort. The feeder, in controlling the syrup, acts on this print dings the syrup, acts on the print dings, wade and derfield to the nathember holding exactly the one and

one-half owners of syrup required for each bottle. The apprator pulls a lawer and late the full sharpher supty-libed finto the bottle; releasing the Italf into the bottle; releasing the lever pumps the chamber full of syrup for the next bottle. Then by pressure on the foot lever the heavily charged water is turned into the bottle, and when the latter is filled is deftly turned off, amid a large amount of sputtering on the part of the machine. As it is turned off and the foot lever is released a small hook at the point of connection of the bottle with the machine catches in the metal portion of the stopper in the metal portion of the stopper and pulls it into place—the entire operation with an expert operator being the work of but three or four seconds. An experienced workman can fill 8,000 bottles in a day.

# YOUNG GARFIELD.

Sen of the Late President to Ente

Politics. The nomination for State Senator of James B. Garfield, son of the murdered President, has aroused agreat deal of political interest in Ohio. He is a candidate from the Ohio. He is a candidate non-Portage Summitt District, compris-ing the same countles which in ing the same counties which in 1859 elected his father in the same

position.
The late James A. Garfield was 28 years old when chosen, and had been married to Lucretia Rudolph but one year. James R. Garfield is nom-inated at the same age, and he, too, has been married but little more

Another coincidence is that the



(the late President)
As State Senator in 1859.

nomination came to the younger Garnomination came to the younger car-field on July 2 anniversary of the date on which his father, fourteen years ago, was shot down by Guiteau. There is, however, no coincidence in the financial condition of the father and financial condition of the father and son at the time of their respective nominations. The "Jim" Garfield of 1859 was poor. His wife was poor also, but both were well educated, and both brave in the battle of life. The "Jim" Garfield who is entering politics in 1895 is really a rich man. The generosity of the nation made his mother one of the richest women of the Vestern Reserve. and

women of the Western Reserve, and young "Jim" married the daughter of a millionaire. Garfield the elder and Garfield the younger were hoth graduated from Williams College. graduated from Williams College. Young "Jim" is also a graduate of the Columbia Law School, though he was admitted by examination to practice before the Supreme Court of Ohio.



(the son)

As State Senater in 1895.

There will be no doubt of his There will be no doubt of his elec-tion, and from now on there will be another "Jim" Garfield in the poli-tics of Ohio. He is a young man of ambitious tendencies and is very proud of his father's name. He wishesto stand on his own merits and not to be held up for

FREAKS OF ICE IN THE ARCTIC

"I suppose that you have never heard of spinning tops on the ice." said Dr. Frank Boas. "It is a sport quite popu-lar among the Esquimes in Baffin land, where I spent some time a few years ago. Baffin land, as you probably know, is to the westward of Baffin's bay. The tops used by these Esquimos are not like ordinary peg tops, but rather resemble teetotums, being disks of lvory, with pegs stuck through them. Of course, in that severe climate the ice in winter attains a thickness of five or

six feet sometimes and is exceedingly

"I need hardly say that the top-spin-ning is done on fresh-water ice, from which the high winds have blown away the snow. It would hardly be possible to spin tops on the sait-water ice, which is always rough. When the sea ice is forming in the fall of the year, the motion of the waves breaks it up constantly, so that it is really an agglomeration of small particles. The sait oozes out of it and melts the snow that falls on top. This process is continued many months, so that there is no sharp dividing line between ice and snow. It would not be possible to skate on the sea ice. However, the Esqumos do not indulge in the amusement of skating, because the cold is too severe the snow. It would hardly be possi skating, because the cold is too severe

skating, because the cold is too severe to make such sport agreeable.

"Perhaps the oddest phenomenon of freezing in Arctic regions is what might be called the sea wall of winter. Ice forms along the shore, and the bulk of it is added to at every floodtide. Thus veritable mountains of ice are built up along the coast, so that a landing from the sea is practically impossible account. the sea is practically impossible except at flood. No description that I could give you would convey to your mind an adequate notion of the spectacle ex-hibited by this ice barrier extending

along the ocean front. "The biggest piece of ice I ever saw was seven miles long and three miles wide. It was a berg, its height above the water being about sixty feet. sequently its total thickness must have been at least 500 feet. I had a narrow escape from losing my life on account of it, for my boat got becalmed on the lee side of it, while the great mass bore steadily down upon me, being pushed along by an undercurrent. Fortunate-ly it ran aground before it reached us. and so we escaped. I know of no more beautiful and impressive specmore beautiful and impressive spec-tacle than a great leeberg, showing prismatic tints in the sunlight, while cascades of water run down its meiting sides, in which huge caverns yawn."— St. Louis Globe-Democrat.

Cause for Embarrassment. "What," asked the indulgent hus

band, "are you going to do with an in-consistent woman, and how are you going to teach her never in the most provoking circumstances to make

All of which means that his wife had een felling them something that amus ed them, but not her. She has not lived in her present house long. One of the things that she believes in-and a very good belief it is, many husbands will say—is that the woman who is at the head of the house should do her own marketing. She dropped in at her butcher's in the afternoon, when she was on her way to a matinee at the opera, and gave an order. Another of her principles is to pay spot cash for everything she buys and to run no accounts, but on this day she had for-

gotten her pocketbook
"I did not ask them to charge it to
me," she said. "I did not want them to do that. I explained that I had forgot-ten my pocketbook, and that they were to send the purchase to my house, and on the next day when I came again I would pay them. And would you be-lieve," she said, opening her eyes, "that

they refused? And I said to them:
"'Very well, then, send it around, collect, and I shall not come here to buy any more.'"

the most innocent smile in the world, "that I went there the very next day, and have been going there ever since, because it's the best shop and the most convenient. And they looked very fun-ny when I came in and gave my orders as usual. I think they must have been embarrassed.'

Some Schoolboy Answers.

Here are some school boy answers to

examination questions: "A point," wrote one boy, "is that which will not appear any bigger, even if you get a magnifying glass," "Two straight lines cannot inclose a space unless they are crooked." said another who may have had Irish blood in the reforhave had Irish blood in his veins meet at the far end of infinity," is equal to some poetry. "Things which are impossible are equal to one another," is common sense, even though it is not exactly mathematical.—Living Church.

A. Cash Business

A boy at a crossing begging some thing of a gentleman, the latter told him that he would give him something as he came back. "Your Honor," replied the boy. "you would be surprised it you knew how wuch money? I lose by giving scedit that way." Household words. Highest of all in Leavening Power. - Latest U.S. Gov't Report

# BSOLUTELY PURE

Cost of Pullman Cars.

The total cost of an ordinary Pullman coach, finished in oak or cherry, and equipped with a vestibule, about \$\$0.000, and the weight of it is over \$80.000 pounds. The weight of a sleeping car is about \$0.000 pounds, and the cost is from \$15.000 up. Some of the most recent ones, which are divided into attacooms, have cost Some of the most recent ones, which are divided into staterooms, have cost as high as \$40,000. A large percentage of this cost is, of course, spent on the interior in hand carving and hand embroidery, all the seats and curtains being richly embroidered by hand. It is extremely doubtful, however, if future cars will be made as elaborate in the interior finish, as the tendency now seems to be toward plainer cars. This, without doubt, is a step in the right direction, as it is simply a useless expenditure of money. The elaborately carved and grill work is very hard to keep clean, and every one will certainly admit that even such elaborate decorations are not very handsome when covered are not very handsome when covered with dust and dirt.

### India s Great Pest.

Professor T. R. Fraser, of the Uni-Professor T. R. Fraser, of the University of Edinburgh, has communicated to the Edinburgh Royal Society an account of his experiments, extending over six years, in rendering animals immune against the venom of the cobra and other serpents. The professor, by administering to ruinea pigs, white rabbits and cats successive non-lethal doses of venom, has again and again made and cats successive non-lethal doses of venom, has again and again made them perfectly indifferent to a lethal dose from ten to fifty times as large as the normal one. His discovery, which will be completed when he has experimented on human beings, is regarded as an important one to India, when the ten really determined. where the yearly destruction of life is 20,000.

## No Death Warrants in England.

The Queen of England does not sign death warrants. The judge who passes the sentence writes in the margin of the indictment: 'Left for execution.' and the sheriff fixes the day, which must be after the lapse of fourteen clear days from the date

Made Diminutive Watches.

Abraham Dehuff, who died recentiy at York, Penn., a watchmaker by trade, received in 1855 a gold medal at the Pennsylvania State Fair for making a gold watch the size of a three cent piece. He afterwards made two similar watches, one of which was presented to President Buchanan and the other of which was purchased by the Prince of Wales during his tour in this conn-Wales during his tour in this coun-

There are 13,000 medical students in the United States, according to the latest es-



LEAVES ITS MARK

every one of the painful irregularities and weaknesses that prey upon women. They fade the face, waste the figure, min the temper, wither you up, make you old before your time.

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nervousness, brings refresh restores bealth and strength. LOOK for our amountement in NEXT issue of this

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How it looks.

to the women who wash with Pearline, when they see a woman washing in the old-fashioned way with soap—rubbing the clothes to pieces, rubbing away her strength, wearing herself out over the washboard! To these Pearl-ine women, fresh from easy washing, she seems to "wear a fool's cap unawares. Everything's in favor of Pearline-

easier work, quicker work, better work, safety, economy. There's not one thing against it. What's the use of washing in the hardest av. when it costs more money?

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