

Plain Talk About Piles.

Don't you believe that experience is better than hearsay? If you suffer from piles, just try Zam-Buk. You can do so at our expense. So assured are we of the result that we will send you a free trial box if you send to our Toronto offices full name and address and a one cent stamp to pay return postage.

Scores of people daily acquaint us with the benefit they have derived from the use of Zam-Buk for piles. Mr. F. Astridge, of 3 St. Paul St., St. Catharines, Ont., says: "For five years I have suffered untold agony with protruding piles. The pain was so great at times I would almost scream."

"I lost weight and had no appetite, I tried everything I ever heard of for piles, as I was willing to take anything to get relief. It was useless, however, and I almost gave up in despair."

"One day a friend gave me a sample of Zam-Buk and told me of a friend of his who had been cured. I decided to try Zam-Buk, and the relief I got was encouraging. I used three boxes, and at the end of that time I was completely cured. I wish I could have got Zam-Buk years ago; it would have saved me a great deal of misery."

Zam-Buk will also be found a sure cure for cold sores, chapped hands, frost bites, ulcers, blood poison, varicose sores, scalp sores, ringworm, inflamed patches, babies' eruptions and chapped places, cuts, burns, bruises, and skin injuries generally. All druggists and stores sell at 50c. box, or post free from Zam-Buk Co., Toronto, upon receipt of price. You are warned against harmful imitations and substitutes. See the registered name, "Zam-Buk," on every package.

Canal Lost one Hundred Men Each Year.

(From the New York Sun.)

In four years of canal building in the Panama zone 395 employes have lost their lives by accidents, but it must be remembered that never less than 26,087 and as many as 29,684 men have been employed on the work. The greatest number of men employed during the French regime was about 11,500 and the minimum about 2,700. There are no figures of casualties for that period. The presumption is that the percentage of fatal accidents among the workmen was higher than it has been under the supervision of Col. Goethals, probably much higher.

When sacrifice of life is spoken of in connection with canal digging in Panama, death from disease must be excluded; and what a difference in the mortality under French and under American control there has been! At one time during the French occupation the death rate from fever was 60 in a thousand through the year. Even in the five years from 1892, to 1897, when there was practically no yellow fever on the isthmus, the death rate was high compared with the rate under the medical administration of Col. Gorgas.

In 1912 the number of men at work was 28,533. Not one succumbed to the fever.

Electric power will soon displace the gasoline engine, as that has the win mill.

THE TINY HUMMING BIRD.

In One Species Its Bill is Nearly as Long as Its Body.

All humming birds, though varying much in size and color, exhibit the same form of wing, legs and feet, the wings being strong (considering the small size of the birds), while the legs and feet are remarkably weak and delicate, a clear indication that these little creatures are intended to spend almost all their time in the air.

In accordance with this we find that humming birds are never seen on the ground; that even when feeding they seldom trouble themselves to alight, but suspend themselves in the air before the flower on whose juices they mean to feed, the rapid vibration of the wings causing them to appear like two fans of fine gauze and producing at the same time that peculiar humming sound from which these birds derive their popular name.

The beak of most humming birds is long, delicate and slightly curved to enable it to reach the inmost recesses of the trumpet shaped flowers which abound in the tropical regions, but the shape of the beak is very variable, probably on account of the particular flower on which the bird feeds.

In some instances it is nearly straight, and in one species, the sword bill humming bird, it is very nearly as long as the rest of the body.—St. Louis Globe-Democrat.

Bismarck's Mystic Number.

Bismarck held, with Pythagoras, that not 18, but 3, was the great and perfect number. Bismarck's associations with 3 were remarkable. He had served three masters. He had three names—Bismarck, Schoenhausen and Lauenburg. The arms of his family are a clover leaf and three oak leaves. He was concerned in three wars and signed three treaties of peace. In the Franco-Prussian war he had three horses killed under him. He brought about the meeting of three emperors and was responsible for the triple alliance. He had three children. His family motto was "In Trinitate Robur" ("Strength in Trinity"), and contemporary caricature pictured him with three hairs on his head. Three was the beginning, the middle and the end of Bismarck.

He Got Along Fine.

Thomas had never been able to carry a tune, and after he had been for awhile in a class where singing was obligatory his mother felt curious to know how he managed to keep up with the singing.

"Thomas," she inquired, "how do you get along in your singing class?"

"Fine," declared Thomas.

"Why, that's lovely," said his delighted and mystified mother. "What does your teacher say about it?"

"She says," replied Thomas cheerfully, "Now, Thomas, if you don't feel like singing you needn't!"—Chicago Record Herald.

Putting it to Good Use.

"I s'pose you've been very careful about th' books you let your children have."

"Oh, yes, indeed! There's our Jim—we intend him for a statesman. Jim was raised on the Congressional Record."

"The Congressional Record! Well, well!"

"Yes; we let him sit on it for years so he'd be raised enough to eat from the table."—Cleveland Plain Dealer.

JOHNSON'S ANODYNE LINIMENT

Used 102 years for internal and external ills.

A sure relief for coughs, colds, sore throat, cramps, cholera morbus, diarrhea, cuts, burns, bruises, sprains, etc.

25c and 50c everywhere
L.S. JOHNSON & CO., Boston, Mass.

The Soldier's Song

"Give us a song!" the soldier cried,
The outer trenches guarding,
When the heated guns of the camp allied
Grew weary of bombarding.

The dark Redan in silent scoff
Lay grim and threatening under,
And the tawny mound of the Malakoff
No longer belched its thunder.

There was a pause. A guardsman said:
"We storm the forts to-morrow;
Sing while we may; another day
Will bring enough of sorrow."

They lay among the battery's side,
Below the smoking cannon;
Brave hearts from Severn and from Clyde
Aad from the banks of Shannon.

They sang of love, and not of fame;
Forgot was Britain's glory;
Each heart recalled a different name,
But all sang "Annie Laurie."

Voice after voice caught up the song
Unti it tender passion
Rose like an anthem, rich and strong,
Their battle eve confession.

Fear girl, her name he dared not speak,
But as the song grew louder,
Something upon the soldier's cheek
Washed off the stains of powder.

Beyond the darkening ocean burned
The bloody sunset's embers,
While the Crimean valleys learned
How English love remembers.

And once again a fire of hell
Rained on the Russian quarters,
With scream of shot and burst of shell
And bellowing of mortars!

And Irish Nora's eyes were dim
For a singer dumb and gory,
And English Mary mourns for him
Who sang of "Annie Laurie."

Sleep, soldiers! Still in honored rest
Your truth and valor wearing;
The bravest are the tenderest,
The loving are the daring.

—Bayard Taylor.

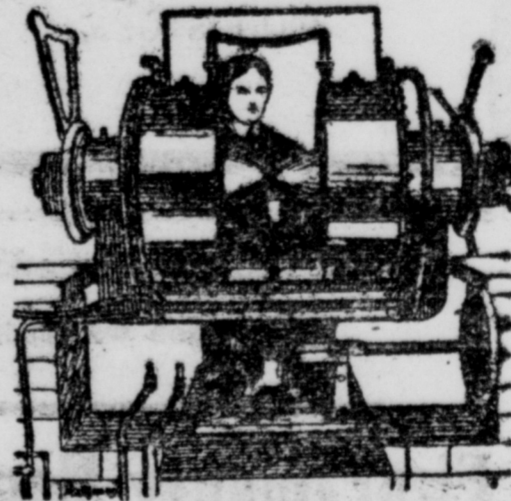
The public of New York has been invited to view J. Pierpont Morgan's \$50,000,000 collection of paintings, including his latest purchase.

THE LARGEST MAGNET.

Most Powerful in the World Owned by Uncle Sam.

In the accompanying illustration is shown one of the most interesting feats performed by a remarkable electromagnet—the most powerful in the world—recently constructed especially for the United States government and installed for experimental work and tests at the bureau of standards at Washington. In the picture there is seen suspended from the pole pieces of the magnet in inverted position a heavy glass bowl or dish of slightly larger size than the ordinary finger bowl, and this glass receptacle is held in this position by means of the attraction exerted by the magnet (through the glass) upon a small piece of iron placed inside the dish.

The new magnet, which was made in Switzerland from the specifications of the United States government at a cost of \$1,200, is capable of continuous



WORLD'S LARGEST MAGNET.

use with an electric current of 125 amperes. This is accomplished by the substitution of copper tape for the ordinary insulated wires. This copper tape is surrounded by insulating oil. Through the oil there are run coils of copper tubing about half an inch in diameter, through which cold water is circulated to carry off the enormous heat developed. The windings and cooling apparatus are enclosed in large brass cases two feet in diameter. In order to obtain magnetic fields of any desired intensity the current in the coils is controlled by means of a massive specially designed resistance, or rheostat, which permits such control ranging from one-half to 125 amperes. The distance between the pole pieces of the magnet can be varied accurately and readily by the turning of a hand wheel on the end of the magnet.—Popular Mechanics.

Vitality of Microbes.

There is a popular impression that microbes and germs of all kinds are killed by intense cold. Experiments in the laboratory of Dewar, the man who solidified hydrogen, show, however, that this impression is erroneous. Many forms of bacteria were subjected to the tremendous cold of liquid air for an entire week without interruption, yet afterward they developed as vigorously as they would have done if they had not undergone so frosty an experience.

Macfadyen and Rowland reported to the Royal society that bacteria subjected to the temperature of liquid hydrogen for ten hours showed no alteration as regards vitality. The temperature of liquid hydrogen, they say, is about one-quarter that of liquid air, just as the temperature of liquid air is about one-quarter of the mean temperature of the atmosphere. This result is obtained by considering that liquid hydrogen is about 20 degrees C. above absolute zero, liquid air about 80 degrees above, and ordinary air, on the average, about 300 degrees above.

Protecting Water Pipes.

It is well known that underground pipes are injured, not when stray currents enter them, but when they leave them. Such being the case, the city of Karlsruhe, in Germany, has used a system which will prevent a stray current from leaving the pipe. A set of plates and pipes are buried close to the water pipe at the points where electrolysis is liable to occur and these are connected to the positive pole of a storage battery or generator, while the water pipe is connected to the negative pole. As the voltage of the stray currents that produce electrolysis is usually quite low, the expenditure of power required to maintain the requisite current in the water pipe is not costly. So far this system has proved very efficient.

CRYSTALLINE QUARTZ.

Material Extensively Used in Various Industries.

The production of crystalline quartz, quartzite not used in building and flint in 1910, according to Edson S. Bastin of the United States geological survey, showed a decrease of 63 per cent in quantity and of 22 per cent in value as compared with 1909, the total quantity produced in 1910 being 63,577 short tons, valued at \$193,757. These figures do not include the large amount of quartz in building, molding and glass sand, building stone, etc. Quartz of the kinds mentioned is used for a great variety of purposes, principally in the manufacture of wood filler, pottery, paints and scouring soaps. In pottery quartz serves to diminish shrinkage in the body of the ware; it

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CHASE & SANBORN, MONTREAL.

is used also in many glasses. Quartz for these purposes should be nearly free from iron bearing minerals. Finely ground quartz is used in paints to increase the resistance of the paint to the weather. In scouring soaps and polishers ground crystalline quartz is preferred to silica sand not only because of its greater angularity, but because of its superior whiteness. Massive quartz, crushed and graded to various degrees of fineness, is extensively used in the manufacture of sandpaper and sand belts, as a scouring agent, with sand blast apparatus, etc. Much ground quartz is used in filters, and some of the most finely pulverized grades are used in tooth powders and in place of pumice as a cleaner by dentists.

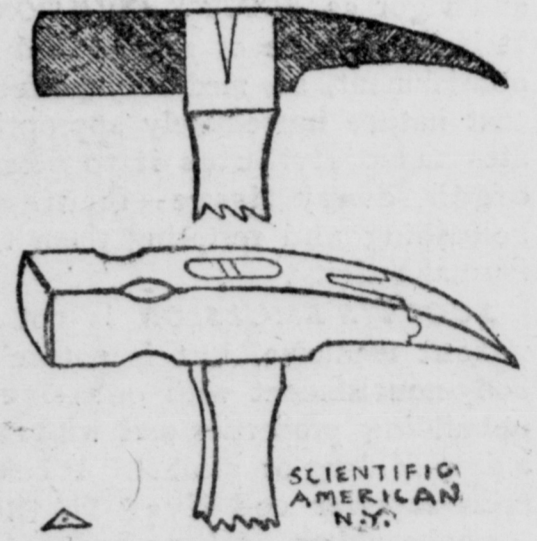
Within recent years crystalline quartz and also sand have been used to some extent in the manufacture of silicon and of alloys of silicon with iron (ferrosilicon), copper and other metals. Ferrosilicon is largely made in the electric furnace by using coke to reduce the quartz to the metallic state and some iron ore or scrap iron to alloy with the silicon. Ferrosilicon has been employed in the manufacture of steel as a deoxidizer and to prevent the formation of blowholes in steel ingots. Quartz may also be fused in the electric furnace to make tubes, crucibles, dishes and other articles which can be used for certain purposes in the chemical laboratory instead of porcelain and platinum wares.

BRICKLAYER'S HAMMER.

Improved Tool is Provided With Detachable Peen.

That part of the bricklayer's hammer with which the bricks are chipped off, and which is known as the peen of the hammer, is liable to wear out before the rest of the hammer does. For this reason an inventor has devised a hammer in which the peen is made readily removable.

The way in which this is done is clearly shown in the illustration, a



SCIENTIFIC AMERICAN N.Y.

locking joint being provided between the peen and the hammer, which will stand the thrust when the peen is in use. The peen may be made of high carbon steel so that it will wear for a great length of time, while the rest of the tool may be made of an inexpensive low carbon steel. When the peen wears out it may be detached quickly and replaced with a new peen.

The Song Bird.

They say the birds are tired. Great heavens, to be so small and lovely in a world of hawks and snakes and yet dare to sing as if the gods were good! In all the wide creation there is nothing braver than the heart of a singing bird.

TRY A BARREL OF "REGAL FLOUR"

the next time you buy. Every barrel of this flour is sold with a guarantee of "money back if not satisfactory." Only the very highest grade hard wheat flour made in America could afford to give such a quality guarantee as this. Why not try a barrel?