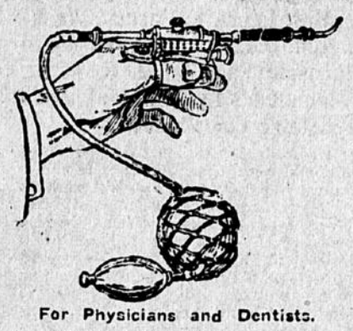
POPULAR SCIENCE

Improved Hot Air Syringe.

Dentists and physicians frequently have use for a device for heating air or vaporizing medicaments, the former for drying cavities in the teeth previous to filling them, and the latter in treating catarrh and diseases of the ear. There has been in use for years a simple instrument for this purpose, consisting of a rubber bulb and nozzle, through which the hot air is drawn from the flame and dis-



For Physicians and Dentists.

charged into the cavity. In the illustration we show an improvement over this arrangement, in which the air is heated by a flame in conjunction with the tubing, through which the jet of air passes before being discharged to accomplish its purpose. The portion of the device which is grasped between the thumb and finger is used as a reservoir for the storage of alcohol or other volatile liquid, with a wick tube lying beneath a coil of pipe to heat the air in its passage. The flames and heated coil are surrounded by a non-conducting shield to protect the hand. To force the air through the heating and drying coil a rubber bulb is compressed in the hand, and in the picture we show a reservoir below the bulb, arranged to contain a liquid medicine to be vaporized and discharged from the nozzle by compression of the rubber bulb. The apparatus was designed by a Californian.

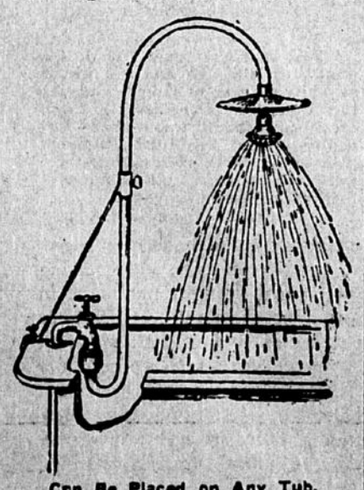
Electrical Fish.

In a recent lecture Dr. F. Gotch, a professor of Oxford university, dwelt upon the subject of electrical fish and pointed out that no such fish existed in British streams. They were comparatively rare objects, he said, and were possessed of singular interest. There were at least four groups of electrical fish in which an extraordinary organ had been developed. Some of these fish could give shocks strong enough to knock a man down, and if the current they were capable of generating could be maintained, it would be sufficient to light a whole town. The electrical eel and the torpedo fish were alluded to as species possessing this remarkable phenomenon. The lecturer described the electrical organ found in the tail of the common skate. Physiologists, he said, had been dissecting this fish for years, but had generally passed over the tail as an abject unworthy of study. It is here, however, that the interesting structure is situated, immediately below the skin. It consists of a whole series of columns, which have taken the place of muscles. These columns contain translucent material and in the fresh state are most beautiful objects. The columns are crossed by lines which divide them into compartments including a most wonderful arrangement of nerves. The electrical discharge occurs as the result of a nervous impulse communicated to the fish to the nerve ends, causing an electrical charge. An electrical organ may include as many as 2,000,000 of these compartments.

The lecturer continuing said that a formidable species of electric fish which inhabits the rivers of North Africa, including the Nile, belongs to the genus gymnotus and is capable of giving a very powerful shock. An easily recognizable picture of this fish has been discovered in an ancient Egyptian tomb. These electric organs were the most remarkable examples of nerve mechanism known to exist. They had been developed as a means of defense—the first consideration for the maintenance of any species—and also as a means of attack.

Simple Shower Bath Outfit.

Most people are apt to regard the shower bath apparatus as an expensive luxury, not to be afforded in every home, but a Chicago inventor has sought to devise a means for



Can Be Placed on Any Tub.

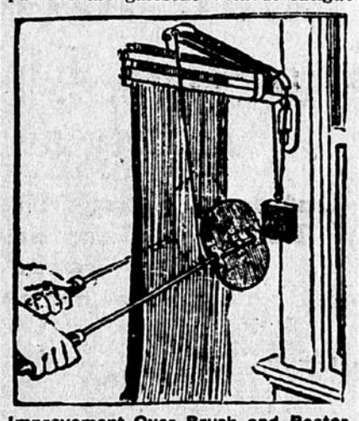
placing the cost of the outfit so low as to be within the reach of many who could not before afford it. How well the man has succeeded is shown in the illustration of the apparatus presented herewith, the mechanism being easily placed in position for use on any ordinary bath tub. The simplicity of this attachment also recommends it, there being no complicated system of pipes and valves, auxiliary to those which supply water direct to the tub. As will be noticed, the pipe through which the water flows to the sprinkler head may be connected direct to the faucets at the end of the tub, and the temperature of the shower is thus as easy to regulate as is that of the tub bath. To aid in supporting the pipe and sprinkler a bracing rod is clamped to the edge of the tub, and provision is made for suspending a water proof curtain from the canopy above the shower rose should the bather so desire, the brace and pipe together being rigid enough to carry the additional weight without additional supports attached to the walls or ceiling.

Whips Dust From Garments.

As is well known, there are certain kinds of cloth in which the nap is easily injured by frequent brushing to remove the dust, and the use of a beater for this work is about as harmful, since the blows may fray the garment if much force is exerted. It is the object of the device here presented to remove the dust from garments without injury from either of the above causes, the invention being devised by Winfield Harbough of Santa Barbara, Cal.

As will be seen, the apparatus consists of a pair of flat metallic plates, suspended by two cords from a bracket attached to a door post, window frame or any convenient point, the cords leading along the bracket and ending in a weight to counterbalance the plates. The bracket also serves as a clamp in which the garment to be cleaned is secured in such a manner that it hangs vertically between the beating plates. These plates have handles, which are grasped in either hand to clap the beaters together on the garment, effectually expelling the dust and dirt without chafing the fabric or injuring the nap.

As the beaters are perfectly counterbalanced the operator may readily move them for contact with every part of the garment without fatigue



Improvement Over Brush and Beater.

incident to the use of the single beater, the weight of which must be supported during the operation.

Egyptian Paint Palettes of 5,500 B. C.

Prof. Petrie has recently described some of his discoveries at Hierakonpolis in Egypt among the tombs of the first pre-dynastic kings about 5,000 to 6,000 B. C. Among the finds are paint palettes used by the royal ladies for grinding face paints. The artistic execution of the carving is excellent and shows very high skill. Curiously enough the carvings are of interest to zoologists as they exhibit animals long since extinct in Egypt—the hartebeest, etc. The warriors are bearded, and are armed with bows and arrows, feathered on two sides, with spears, javelins, double-headed axes and with weapons like boomerangs. Two have lassoes. That the race who made these objects had very high artistic taste and a knowledge of technique which proves long practice is apparent from an inspection of the objects themselves, which are eminently superior to any later Egyptian work.

Progress of Invention.

Successful experiments have been made for obtaining alcohol and sugar from pine and birch sawdust.

French cabinet makers have learned a way of preparing sawdust and making it into articles of ornament that resemble carved woodwork.

A Canadian inventor claims to have invented a system of telephoning between stations, utilizing the railroad tracks instead of a line of wire for the transmission of messages.

The Automotor Journal, London, describes a new traction engine called the "pedrail," which literally "walks upstairs with the stride and surefootedness of an elephant" and hauls loads far in excess of those the wheeled traction engine can move.

Advantages of New Lamp.

It is claimed for the mercury vapor lamp, which illuminates by the incandescence of mercury converted into vapor in a vacuum tube by electricity, that it will take but one-third the energy required for the arc light and but one-eighth the energy used by the incandescent filament.

Invents a Wireless Piano.

A resident of Bloomington, Ill., has invented a wireless piano. He first constructed a five octave comb reed of steel, placed it upon a bridge and soundboard and by degrees discovered a way to make a very fine harp note. He has been working for eighteen years on his invention.

You can not absorb so much wisdom that you have a monopoly of it.

HUMOR OF THE DAY

A Lesson on Ethics.

"My darling," said a mother, taking leave of her newly-married daughter, "in wedded life there is much to bear and forbear; but remember this—never hit your husband with the paste-roller or potato-masher. The presence of hair on your pastry or mashed potatoes would lower you in the esteem of your friends. If occasion arises the poker is quite as effective and more ladylike."

Exacting.

"So you had to close the show?"

"Yes," answered the manager with the plaid vest.

"What was the trouble?"

"To much craze for realism. There was a counterfeiting scene, and the actors said they couldn't go through with it unless they could see what money looked like once in a while."

In the Country Church.

The Village Parson (preaching)—I tell you, brethren, fast horses are ruining our young men.

Deacon (just waking up)—No, it ain't. It's ther slow ones.

The Same Old Game.

"And who," whispered a member of the legislative committee, "is to get the hot end of this deal?"

"The people," wildly exclaimed the irate member who was floating with the reformers.

"Oh, well, then, go ahead," said the first member, in a relieved tone. "I didn't know but what it was to be one of us for a change."

The Cheerful Idiot.

"What is the difference," asked the Cheerful Idiot, "between the sultan of Turkey and a travel-tired continental tourist?"

The victim didn't even bat an eye.

"Because," resumed the uninterruptible, "one is the 'sick man of Europe' and the other is the man sick of Europe. He-he-he!"

Perfectly Hopeless.

"I don't believe that man ever deceived anybody in his life," said the enthusiastic friend.

"And yet," said Senator Sorghum, "you want me to give him employment. You don't suppose I have time to teach him the rudiments of business, do you?"

The Same Way.

"I see that the skull of a monkey a million years old has been found in Wyoming."

"Now our professors can treat the Indians' ancestors as they have treated ours."

"How's that?"

"Make monkeys of 'em."

Jealousy.

Mazie—He told me that he'd never seen me looking so well as I do now.

Daisy—Why, the rude thing!—New York Sun.

Slip of the Tongue.

"I am going to have a number of friends to dinner to-night, and I will want some lobsters," said the citizen, rushing into the fish market.

"Yes," replied the fish dealer, rubbing his hands; "how many lobsters are you going to have?"

"Sir!"

"I mean how many lobsters will you require."

Was Worth More.

Count (to his fiancee's father, who is a rich banker)—You will only give $100,000 to your daughter as a dowry! I would have you remember, sir, that four-and-twenty ancestors will turn in their graves when I marry a commoner.

GAMBLING PROFITS ARE BIG.

Man Who Controls Game in a Mexican State Makes $2,000,000 a Year.

Did you ever hear of the man who broke the bank at Camanea?"

Possibly not, as the Camanea gambling resort has not attained the fame and prestige which is given to Monte Carlo. The bank is there and it equals if it does not exceed its better known rival in the domain of the prince of Monaco.

Frank L. Proctor is the ruler of this gambling territory. In extent it is far greater than the territory of the prince. It occupies an entire state in Mexico. Frank Proctor has absolute sway over the state of Sonora. The government of Mexico has given him a long term lease on the gambling privileges.

Camanea is the richest and largest mining camp in Mexico. It is the center of Proctor's gambling principality. Not many years ago, Proctor, now prince of Camanea, was a cowboy in Arizona, not extremely well fixed in this world's goods.

Not many years ago W. C. Green married a daughter of Proctor and afterward managed to attract some eastern capital to mining schemes he had on foot in Sonora. To-day he owns a $30,000,000 copper mine. Through Green, Proctor was provided with the gambling privilege in the state. The concession gives him the income of a multi-millionaire.

Over the gambling tables at Camanea it is said that $20,000 passes every night. Some days the total amount has run up to $200,000. It requires 500 men to operate the tables, and a profit of $2,000,000 a year is derived from that place alone.

Not only does Proctor control the gambling of Camanea, but also that of Hermosillo, Guaymas and Alamos. When it is understood that the population of Sonora would rather gamble than eat it may be appreciated what an enormous sum passes into Proctor's hands annually.

MAKING CANES TO ORDER.

Fashions Change in This as in All Things Else.

"Fashions change in canes, as they do in everything else," said a manufacturer who knows all about the fashionable trade. "Last year our customers were calling for rough wood in its natural state, without any ornamentation. They wanted canes made almost as thin and as light as whangees. So many cheap imitations had been made of silver-mounted smooth-wood canes that men of fashion would not look at them. This year we are returning to silver mounts, but in designs made to order that it will be almost out of the question for importers of cheap German silver to imitate. In umbrellas the large handles of rough wood still hold favor with the men. It is no longer fashionable to decorate them with initials. A man likes an umbrella that he can pick out at sight from a bunch of others at his club or elsewhere. Some men will have the crooked handle so that they can hang their umbrellas on a hook in a hat rack, and we have to manufacture a few of them to meet the demands of the trade. Women always go in for something odd, and usually expensive."

Good Night, Brief Day.

So little done, so little done,
And soon comes setting of the sun

So little said, so little said,
And blue skies deepening to red.

So short a time to backward gaze—
The sky is filled with purple haze.

So short a time to look afar—
The veil has fallen from a star.

Good night, brief day, adown the dark
Float dewy memories, and, hark!

To you and me fair angels call
Beyond the moonlit, dreamland wall;

And thou with Time and I with Sleep
A happy, holy tryst shall keep.

Strange Company of the Dead.

In the near future the almoners of Christ's hospital, London, will carry into effect their intention to remove the human remains that are interred within the precincts of that ancient institution. A strange crowd—four queens, lords and ladies, knights and monks, and many persons of high and low degree—rest there, where once the Gray Friars placed their dead and many old Blues sleep beneath the cloisters, having been buried there, so was the custom, by torchlight. Also there lie the body of Isabella of France, the wife of Edward II, with her murdered husband's heart upon her breast. Her ghost was always said to haunt the cloisters. So also do two rapacious favorites of Richard II and Dame Alice Hungerford, who brutally murdered her spouse in the year 1523.

Dr. Hedin a Wide Traveler.

Dr. Anders Sven Hedin, the illustrious traveler, who lately returned from a wonderful Asiatic journey, was born at Stockholm on Feb. 19, 1865. Stockholm, Upsala, Berlin and Halle contributed to his education and his first expedition was through Persia and Mesopotamia in 1885-86. In 1890 he was a member of King Oscar's embassy to the late shah of Persia, and in the same year began a journey through Khorasan and Turkestan. In 1893 he started on what proved to be a four years' expedition through Asia from Orenburg to Pekin, via Lop-nor and Thibet, and his late journey through much of the same country and including severe trials in the Gobi desert was begun in 1899 and ended only last year.

About the Size of it.

She—I have noticed that the man who whistles seldom swears.

He—That's right. It is the people who are compelled to listen to him that do the swearing.

to serve them so well. There we have our many piquant sauces and our spicy herbs for garnishing. When the platter is set before us at home the steak is fit for any king. Now this steak will taste flat to me. It has all the possibilities of the real Mexican article, but the chef knows less than any senorita in our land about tempting the palate. In a moment I could improve this steak 500 per cent."

"I have heard of the Mexican steaks," said the Chicagoan. "Will you serve it as you choose? Let us have it after your own liking if you can fix it."

The Mexican ordered tabasco sauce, cayenne pepper, half a dozen spices, and some red peppers. First he literally buried the meat under a covering of cayenne, then drowned it in tabasco and garnished it with the red peppers.

"Now we will wait until the flavors strike into the meat," he said as he leaned back into his chair. A few moments later he handed the Chicagoan a plate with the steak a la Mexican. The Chicagoan looked at it a moment, cut off a diminutive bite, and placed it fearfully between his teeth. Instantly his face turned red, the tears came into his eyes, and his hand went out to his water glass. He swallowed the bit of meat, clutched his throat and an instant later clapped both hands over the second button on his vest. Then he choked, buried his face in his napkin, and fought the internal flames for five minutes.

Meantime the Mexican was devouring his share of the steak with the utmost satisfaction.

"How can you do it, man?" asked the Chicagoan.

"Ah, now it is fine; almost as good as we get in Mexico," he answered. "You people of the North will never learn the value of spices. Do you not like the flavor?"

The Chicagoan pushed back his plate, and sat watching the man opposite him during the rest of the dinner. He declared the steak was hotter than fire, and that it would fuse boiler plate. But the Mexican said it really lacked something to give it zest. When the two had finished dinner the Chicagoan said: "I believe I prefer the ordinary Chicago article. If this fire within me ever become extinguished I will be satisfied to let experiments alone."

"It was delightful, delightful," said the Mexican. "I feel better than at any time since I crossed the Texas border."—Chicago Inter Ocean.

Stories of Wolves' Ferocity.

A terrible encounter with wolves took place recently near Folksham, in Moldavia, Roumania, recently. A party of seven peasant carol singers were set upon close to the little station of Sihlea by a pack of wolves furious with hunger. The young fellows, who were unarmed, except for their sticks, fought with the courage of despair, and one after the other was dragged to the ground and horribly mangled, until three alone were standing badly mauled, but still struggling. At this juncture a train steamed up, the passengers rushed to the aid of the apparently doomed trio, and succeeded with shouts and sticks in driving off the terrible beasts of prey. At no great distance from the spot several peasants who were sleighing to the market with a litter of pigs only escaped by abandoning their living freight one by one, and only reached their destination as the last pig was thrown to the wolves.

A Natural Slip.

Prof. Knight of St. Andrew's university, in a volume of personal recollections, tells a story concerning Prof. Henderson, who filled the chair of Pathology in Edinburgh university for twenty-seven years.

"When his colleague, Prof. Trail, the Encyclopaedia Britannica editor, one day objected to a candidate for graduation (who was a native of Ceylon) on the ground of false spelling, Trail said: "Why he actually spelt 'exceed with one "e."' 'Oh,' replied Henderson, in a moment, 'you should remember that he came from the land of the Singalese!'"

The joke, we are told, saved the candidate.

"The school was convulsed with laughter, and David was permitted to speak his piece with one hand in his trousers pocket."—Milwaukee Sentinel.

PASSION AND THE HEALTH.

Some Emotions Tend to Prolong and Others to Shorten Life.

"The passions' effect on the health is not sufficiently regarded," said a physician. "The passion which is best for the health is avarice. It keeps one cool, encourages regular and industrious habits, leads to abstemiousness and makes against all excess. And hence, the avaricious, the misers, live to a great age. The misers of history were all noted for their longevity. Rage is very bad for one. This passion causes an irregular, intermittent beating of the heart, and the intermittency in time may become chronic. Hatred creates fever. If we hate we grow lean. This hot passion eats us like a flame. Fear is bad for the nerves, the heart and the brain, and, therefore, we should never permit ourselves to be afraid. But the strangest effects of all have been caused by the passion of grief. The medical books record cases where, coming suddenly, in a violent shock, it has caused a loss of blood from the lungs in one person, paralysis of the tongue in another and a failure of sight or temporary blindness in a third."

How to Obtain Sleep.

If you fear a sleepless night undress in the dark. Light stimulates and arouses the activities. Darkness is supposed to produce drowsiness. Put some chopped ice in a rubber bag and place it at the lower extremity of the spine. This is particularly quieting to the nerves. Do not use anything but a rubber bag or you will merely have a damp cloth and rheumatism by morning. Do not use a pillow. Relax every muscle so far as possible. Sprawl over the bed with arms and legs stretched out. Take a sponge bath with tepid water just before going to bed. Lie on your face instead of your back. That is the way babies sleep and their methods are scarcely to be improved upon in this particular. All pressure is removed from the spine by this means and a delicious feeling of restfulness ensues. Make up your mind that you won't keep awake long enough to hear someone come in to outline the next day's work. You will drop asleep immediately.

The Trim Parlor Maid.

Lady Aberdeen in a recent lecture in London on women in Canada told an anecdote of her experience there while Lord Aberdeen was governor-general. He and his wife when they were making a journey across the dominion dined one night at a house "remarkable even among Canadian homes for its charm and beauty, presided over by one of the most attractive mistresses." They were waited on by so trim a parlor maid that Lord Aberdeen felt constrained to compliment the hostess on the result of her training. "Oh," said the lady, "I am so glad you think Jane did so well—I should like you to tell her so presently." And when that "presently" came, said Lady Aberdeen, what should he discover but "Jane" arrayed in evening dress and proving to be the daughter of the house, who, in consequence of the unexpected departure of the servant, had not only to wait on the table, but cook the meal with the assistance of her mother.

Weight vs. Wait.

"Our grocer," remarked Mrs. Sloboy, "seems to be giving us short weight in everything lately."

"Oh, that's all right," replied Sloboy, "I suppose he's trying to get even on account of the long wait I give him for his money."

Slight Misunderstanding.

"If," said the druggist, "you will give this new tonic a trial I'm sure you will never use any other."

"Excuse me," rejoined the customer, "but I prefer something a little less fatal."