## THE SOOTHING WEED.

How the High-Toned Smokers of Gotham Stocked Up on Havanas to Escape the New Tariff.

TOBACCO'S EFFECT ON HEALTH,

A New Self-Lighting Cigar and a Pipe That Can be Cleaned With a Little Puff of Breath.

SMOKING THE PIPE ON THE STREET.

A Detroit Man Who Has Been Grinding Up Stubs Into a Very Marketable Souff.

The rush for Havana cigars just before the new tariff law went into effect, writes Charles T. Murray from New York to THE DISPATCH, was something wonderful. While the bulk of the sales made by the big wholesale houses was made to retail dealers, a considerable amount was taken by individual customers. The firms of Acker, Merrill & Condit and Park & Tillord sold in two days 75,000 and 100,000 imported eigars, respectively. This embraced about everything they had on hand, not only the surplus accumulated in apticipation of the change in the duty, but all of their old

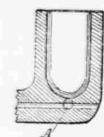
Much of the latter was really unmarketable-that is, it would have been unmarketable except to an excited crowd of buyers, who thought they were getting a good thing cheap. It was a pretty good thing for the wholesalers. As for the buyers, they flocked Men bought eigars they didn't need, and went away apparently happy with brands they had never before smoked and of which they knew nothing.

One would think that men who can afford to pay and do pay from \$25 to \$75 a hundred for cigars would care very little for a lew dollars more per thousand; that they would at least buy with some discretion and caution. But there are a good many men in New York who smoke from 25-cent to \$1 cigars who begrudge a waiter a 10-cent tip, and are extraordinarily careful when it comes to paying more than I cent for a news paper. It some of these swells got badly often on their recently acquired stock of eigars nobody will ween for them.

SELF-LIGHTING CIGAR.-Another povelty in eigars has been patented by Thomas West, of Deentur, Ala., and Ephraim M. Turner, of Fort Worth, Texas, consisting of a device by which each eigar is readily ignited without matches or spills. The idea is a disk of paper impregnated with saltpeter, which covers the end of the cigar, and through which is inserted a match head arrangement for the purpose of ignition. The whole is secured to the cigar by wire legs, which are pushed into the cigar, When used the match lights the paper, which smolders and lights the cigar.

There are several objections to be raised, says Tobacco: The first is the deleterious flects of the saltpeter fumes on the throat, the tendency of the cigar tip to break in striking the match and so be rendered unsmokable, and the beating of the wires, which are liable to burn the clothes if falls on them, or the finger if the ash is

A NOVEL PIPE,-There have been many pipes placed on the market fitted with de-vices for cleansing the stem when desired, but all have had some drawback or other, not perceived until in actual use. Charles Angus, of Albany, N. Y., says Tobacco, now seems to have a good idea. The novelty is a small plug, which passes transversely through the bowl. This plug is shown at It will be seen that the portion of the plug directly under the bowl of the pipe is cut away on one side, and that the stem draught of the pipe extends from the mouthpiece, straight



through to the back of the bowl. When the pipe is to be smoked, the plug is turned so nat the solid part of the plug stops the tension of stem to admit the smoke from the bowl to the mouth. When the pipe is to be cleaved a half turn of the plug brings the salid part round to stop up the hole at the base of the bowl, and opens the stem draught right through, as shown in the illustration, so that it may be easily and instantaneously

SMOKE IN THE NOSE .- There is no denying the fact that tobacco smoking, when carried beyond a certain limit, injures the eyesight, says a writer in the Boston Herald. It is also capable of destroying the sense of smell. These results are hastened if the induiger blows the smoke through his nose, as is the custom with those who are habitunted to the use of eigarettes

Such people in time suffer from a dryness of the throat and back part of the nasal passages; they also have a stuffiness in the nose, rule, the sight is more or less impaired; so, too, is the sense of smell.

Unless these defects have existed for a long time, if the habit of amoking is dis-continued, they will disappear, at least in a very great degree, if not entirely. ng tobacco smoke or forcing it out through the nose is therefore most unwarrantable, and it intensifies greatly the in-jury of the smoking habit. Besides affecting the sense of smell and the eyesight, it also threatens the hearing power. In some instance the latter declines before the other

EFFECT OF THE TARIFF.-The other day, says Columet in Tobacco, I was walking with a eigar manufacturer, and he said: "I want to make a call here; a man who ed to work for me has started in business for himselt."

We went into a neat little store and factory and had a conversation with the pro-prietor. There were two bales of Sumstra tohacco just being put into the factory, and my triend said: "Glad to see you so prosons, Tom; that Sumatra means money. "Not a bit of it," was the reply, "that cost me nothing."
"Wisy, how's that?"

"Oh! I paid \$1 95 for it last week; now the duty on it is \$2, so you see I got it for nothing and have 5 cents a pound for taking

Who says McKinley is not a public bene-

ILLICIT SNUFF FACTORY-For some time past the steady increase in the snuff output has attracted the notice and comment of the trade, but although everyone has heard of Illicit whisky stills, so one, with one exception, has contemplated running an illicit snuff mill. The one exception is an old man called Andrew Aranofski, a Pole,

living at 510 East Willis avenue, Detroit, and dumps in search of stems thrown out by the factories, and between times picked stubs in the streets, and this trash he would dry in the sun and pound in a mortar made of a beer keg lined with metal. For a pestle he had a rude rammer made of oak, rounded and fitted to a cross piece by way of hanthumping are best attested by the fact that the hard-worked handles are worn into

grooves where his fingers used to press. Having reduced the tobacco to a coarse powder, he then dipped it out into an earthpowder, he then dipped it out into an earth-en dish, and with a piece of an oaken wagon tongue, four feet long, very heavy, round and tapering, he still finer ground it, using the smaller end, and holding the bowl between his knees. It was finally si ted and preserved in a stone jar. He used no flavors, but by his crude, painful method, managed to make a fair sample of snuff, which he would sell at a very low price to his Polish neighbors, who use great quantities of snuff, smearing it over the backs of their hands, and forcibly inhaling it. They bought enough of the product to enable him

Information has been lodged before the sioner of Internal Revenue, and it is expected that he will act in the premises

When oft the sails hang useless in the air,
But idly shaken by the long ground swell,
And white clouds drift across the heaven fair,
Ah! then, my pipe, I love thy fragrance well.
But more than this when, on a summer night,
As perfumed zephyrs softly kiss the trees,
Upon my back I lie in half moonlight
And hear sweet music wafted on the breeze,
Or gentle rustling, sighing of the wind
Through foliage thick with leaves and flowers
of June,
Or murmuring through the vines and trees
entwined,

entwined.
A far-off, dreamy, melancholy tune—
Ah! then I love to lie in the solitude
And watch thy curling smoke in peaceful
—Outing.

SMOKING IN THE STREET.-The doctrine of the eternal fitness of things in general, says an editorial writer of the Philadelphia Press, finds an illustration in the fact that just as the price of imported cigars is increased by the new tariff bill, young men of about like a crowd of women at an auction good social position, and of apparent refineor around a bargain counter. The clerks ment, have taken to pipe smoking on the couldn't serve their customers fast enough. street. It is not to be supposed, however, that they are actuated in this by any motives of economy, but rather because "they do it in London, you know." Nevertheless, it is to be remembered that the class of men seen smoking pipes in public in that great English city are not representatives of culture, nor any particular cult, unless it is the

The sight of a man with the outward mien of a gentleman striding along Chest-nut street, emitting volumes of smoke from a briarwood, is calculated to make people with old-fashioned ideas of propriety open their eyes in amazement if not admiration. Indeed, a man who can smoke a pipe on a crowded thorough/are and look like eman in the act owes a great debt to nature for his makeup. Good clothes alone will not save him.

The question naturally arises, will a wellbred man smoke at all on the street? Reasoning from the premise that a gentleman will always avoid making himself obnoxious to his neighbors, public smokers are certainly open to criticism. Even to a smoker himself clouds of smouldering tobacco unexpectedly wafted into his face from the mouth of a passing stranger are intensely disagreeable. Much more annoying, thereore, is the same experience to a woman or child. The street smoker's indifference to the sensibilities of other pedestrians implies not only his selfishness to the comforts of others, but is a practical admission of his inability to restrain his desire for tobacco until he can reach the seclusion of his office, clubhouse, or home. Distinguished looking youths, who consider public pipe-smoking "good form," must go through a peculiar mental process to arrive at that conclusion.

LIGHT AND CIGARS-A cigar dealer is the show cases here, except some gilt-collared ones that no one ever buys? I should say not. Those in the case we simply put there not. Those in the case we simply put there a confirmed victim of the habit. It was a striking likeness between some of the habit. It was a striking likeness between some of the formal of the habit. It was a striking likeness between some of the formal of the formal of the formal of the habit. It was a striking likeness between some of the formal as a sign, just as I have these lithographs on the walls. A cigar should never be exposed to the light. If you do so the cigar is a goner for the American trade. The cigar to sell in this country must be not to say moist, but certainly not dry. Now, they tell me that over in England it is just the reverse. The dryer you can get a cigar the better My Lord Tom Noddy likes it.

There are strange things in this business A man who could afford to do better insisted upon smoking a showy-looking 10-center, with a Sumatra wrapper. I told him that the Sumatra wrapper smelled bad. He guessed not. I peeled a wrapper off and set is on fire. "Great smoke! Burning blankets is nowhere!" he cried, and since then he is particular about getting a clear Havana

A QUESTION OF SNUFFERS .- A "moder ate" minister called upon a Free Church elder and met with a cold reception. At length he drew his snuff box from his pocket and invited the elder to make trial of its contents. A decided thaw set in immedistraight stem draught at the back of the bowl, and the cut-away part forms the exately. "Oh, ye tak' snuff, do ve?" said the afraid lest the admission might lead him into trouble. "I take souff, but what of

"Weel," said the elder, with a look of satisfaction to which probably the excellent snuff contributed its full share, "that's the

first sign o' grace I've seen about ye."
"Sign of grace?" rejoined the minister,
with no little surprise, but glad that a promising vein of conversation had at length been opened. "How do you make out that the habit of taking snuff is a sign of grace?"
"Nothing easier," said the elder, with a
knowing twinkle in his eye. "Don't you remember that in the temple of old the snuffers were of pure gold, which denotes the best of all qualities?"

MONEY IN THE WEED .- A New Yorker fresh from travels in the North Carolina tobacco belt, says the New York Star. and occasionally one nostril seems to be par-tially stopped up. With these signs, as a mortgage-ridden farmers of New York painfully conscious of their unhappy state. Meeting an old friend, a banker, during his

journey, the New Yorker inquired as to the nature of banking in that region. "We have nearly \$750,000 in mortgages in three counties here," said the banker.
"Farmers pretty hard up, then?" suggested the New Yorker.

"Not at all," was the response; more than \$2,000 is on farm lands. In fact most of the money is lent by tobacco farmers to manufacturers just starting in busi-

PRESERVES THE TEETH - While think, says a dentist in the New York Herald, that the use of tobacco in any form is a filthy habit, it cannot be denied that smoking usually preserves the teeth from decay. This is partly due, perhaps, to the heat of the smoke, as heat is our best germicide, and partly to the fact nicotine is a good germicide. Teeth, however, may be preserved without recourse to tobacco. In the majority of cases cleanliness is all that

While I have admitted that smoking is preventive to decay, I must warn the smoker that he is paving the way to other diseases in the mouth equally disastrous to the teeth. I have seen gums which looked as though parboiled. The teeth in such mouths, deprived of the support and nutrition which they receive from the gums and surrounding bone gradually loosen and fall out. Then there is pyorrhea alveolaria, that dreadful disease which causes suppuration around every tooth, absorption of the gums and bone and loss of the teeth by wholesale. There is no doubt whatever that it may be superinduced by nicotine poisoning. Again, the continued sucking produces an excessive flow of saliva and an

excessive accumulation of salivary calculus THE SHUGGLER'S ART-The smoke-

stacks of steamers from the West Indies, says the New York Tribune, have been known on several occasions to yield up many hundred dollars' worth of cigars. In tact the smokestack is a favorite place for hiding smuggled goods. This sort of smuggling is done by the crew, who work under the double disadvantage, as a rule, of hav-ing to evade the watchful eyes of both the officers of the steamer and the customs offi-

Once a dead horse floated up on the beach at Coney Island. When people went to re-move the carcass they found that the in-testines had been removed and the interior of the dead animal filled with Havana cigars. The earcass and its cargo had probably been thrown overboard from some steamer and the confederates who were to have towed the argosy ashore at some se-cluded place had missed connection.

Poor Kemmler's Fate-A new practical application of electricity is an apparatus to light eigars. The machine is connected by a wire with one of the ordinary light currents, and by touching a button a small but bright electric spark is produced, at which one can ignite the ordinary rod saturated with alcohol. One of these apparatus had just been placed upon the eigar counter of a big downtown restaurant a few days ago, says the New York Star. Its use is somewhat unfamiliar to the habitues of the place, and I was told to watch them. As various gentlemen finished their lunch thev usually approached the cigar stand to light their weeds. In several cases they hesitated to apply the rod to the electric spark even after the process was ex-plained to them, although the handle of the rod was evidently composed of hard rubber or some other insulated material.

Finally an elderly gentleman approached the machine, and on being told how it worked, insisted on holding the point of the rod about two inches away from the light, giving as an explanation his disinclination to "monkey with electric currents." A bystander had finally to light it for him. This goes to show that the public is somewhat afraid of live wires.

HOLMES ON THE WEED .- Dr. Oliver Wendell Holmes touches on the subject of tobacco and alcoholic stimulants in a recent contribution to the Atlantic. The older he grows, he says, the less use he makes of alcoholic drinks. Occasionally he takes a glass or two of champagne, which agrees with him better than any other drink containing alcohol. An old doctor whom he remembers, who lived to be a hundred, used in moderation a mixture of water, cider and rum. Those who are aged require less food, especially animal food, but the doctor does not blame them for being dainty, since the pleasures of the palate are among the last gratifications of the senses allowed them.

the doctor. "I cannot begrudge an old man his pipe, but I think tobacco often does a good deal of harm to the health—to the eyes especially, to the nervous system generally, producing headache, palpitation and trembling. I myself gave it up many years Those who might fancy that the wise and penetrating old doctor offers any encouragement for the indulgence o: dangerous habits get this parting shot from him: "Philosophically speaking, I think self-narcotiza-

tion and self-slooholization are rather igno-

ble substitutes for undisturbed self-con-

sciousness and unfettered self-control."

'What do I say as to smoking?" continued

A MONKEY THAT SMOKES-A downtown eigar store, says the Philadelphia Inquirer, has a monkey named Jocko. Like most of his kind, Jocko is very imitative. When he first came to the store he watched the actions of the customers closely, and was especially interested in the use to which they put the swinging eigar lighters. Before many days had passed he was seen to quoted in the St. Louis Globe-Democrat as showcase, climb up to the eigar lighter and steal a paper eigarette from a box on the follows: Do you see any cigars exposed in light the cigarette. After a few puffs the leared that this propensity would lead him into drinking and pool playing circles, but he has never been guilty of purther transgressions upon the bounds of good breeding.

> LORD WOLSELEY LOVES IT - Lord Wolseley is a great smoker. "He told me," says Mr. Stead, of the Pall Mall, Gazette, "that from a boy he had smoked constantly, and that for many years he always smoked from 6 in the morning till he went to bed at nigh', smoking nothing but big cigars. When he was worried and troubled there was nothing in the world that soothed him as much as a cigar. He had always kept himself well in hand, and kept the habit under control by every now and then ceasing to smoke entirely fo: a week or a fortnight at a time. He has now given up smoking altogether, and seems to feel no i Kebir he had never smoked at all, but when he battle was won, as he stood on the bridge of the canal at the camp, he lit his first eigar, and smoked six, one after another, as hard as he could—a kind of tobacco debauch, as he said."

> A PARAGRAPHER'S IDEA.-The rise in price of tobacco gives propriety to the adoption of the Spanish style of offering presents, says the New York Sun: If a gentleman extends a cigar with the polite invitation that it is "at the disposition of your worship," politely but firmly refuse it. We must not be too hard on our friends.

UTILIZING THE STEMS-By accident, says a writer in the St. Louis Globe-Democrat, I discovered a unique industry that is prospering right among us, and one that attracted my attention wonderfully. The proprietor is making a sheep-wash from tobacco stems that is shipped to Australia in a concentrated form and there diluted done in the electric circuit, the electric enwith water. He has a contract with some or all of the tobacco factories to take all

Before used for the sheep-wash they are run through a machine he has perfected and all the fragments of the leaf that will adhere to the stem, for all the best strippers care, are removed. These tiny bits are re-sold to the factories and used for smoking tobacco. The accumulation is larger than would seem possible. No one but himself knows the detail of the machine—not even his most trusted employe. It is in a secure box, with a combination lock, of which he alone has the key. It has not been patented, as he does not wish to disclose the idea, as he would have to do. But it does the work perfectly, is the only thing of the kind in e, as I understand it, and pays him handsomely.

### POLICEMEN'S BELTS.

Like Tight Lacing in Women, They Are Blamed for Much Suffering.

Brooklyn Citizen.] There is much complaint among policemen at being forced to wear tight belts while on duty. A number claim that their livers are affected, and in consequence thereof they are put to much expense in doctoring themselves. A policeman in conversation with a reporter yesterday said that the belts policemen are compelled to wear so tight is the cause of the sickness in the de-

partment. "A man who is in the least stout," said he, "suffers the most. In every station house you will find men on sick leave. If you investigate you will come to the conclusion that the belt and fancy club are at the bottom of the trouble. The late Dr. Malone, when he was the department surgeon, did away with it. He saw it was a detriment to the men, physically. During his time he investigated the complaints of illness and traced them first to the tight belt and then the club that is attached to it. The weight of the club in time will cause suffering."

# STRIKING PARALLELS

That Can Be Drawn Between Electricity and Every-Day Water.

HOW THEY ARE MADE TO DO WORK. Each Has Its Dam and Its Flood, Its Fric-

tion and Its Leakage. INSTRUCTION PUT IN A NOVEL WAY

[WRITTEN FOR THE DISPATCH.] Energy is a condition of things having the capacity to perform work, and it, like matter, is indestructible. It can be transformed from one condition of things to another, and in this way change its character. But energy cannot be truly lost or created through any human agency. Our greatest and almost only source of energy is the Sun. Its energy is transmitted to the earth in the shape of light and heat, and from this condition it is transformed into countless other forms, ever ready to slave for mankind in various capacities.

The heat of the sun will evaporate water and form the clouds. The heat energy of the sun has thus been transformed into energy of position; that is to say, clouds epresent energy by virtue of their position n that the earth and clouds have a strong attraction for each other, and when they come together, in the shape of rain, the rain water will reproduce the exact amount of energy expended in vaporising it. Again, the heat energy of the sun can be transformed in a most wondrous way and enter into the chemical construction of wood and coal, and then, in a minute or in an hour, this solar energy, that had been accumulat-ing for years and perhaps centuries, can again be transformed into heat, as may be daily seen in any wood or coal fire. The energy taken out is in every case equal to the energy absorbed.

ENERGY THAT IS LOST.

When we speak of lost energy we mean that some of the energy has escaped without doing useful work. For example, let us follow energy through various transformations and see what becomes of it. Starting with the solar heat we next find it in coal or wood, and, this being burned, it is again transformed into heat, having a more useful form than solar heat. This artificial heat can then be made to expand water. The energy here is due to the strained condition of the water particles, which we call steam. The steam can then drive an engine and thus give us the energy of a moving mass, and with this we can drive the armature of a dyname and once more transform the energy, this time into the condition known as electricity. But the electric energy that we now have

is a very, very small proportion of the solar energy that we started with. Without going into figures it will at once be evident that a arge proportion of the heat energy went up the chimney, while steam was being generated; another large proportion was radiated from the boiler into the air, and certainly no small amount was trans ormed from the matter of fact, it is simply switched off, so to speak, and left behind. It is only lost is far as dollars and cents are concerned Although the exact nature of electricity is but imperfectly understood, it is very certain, as we have just seen, that he electric current represents a form of energy; that is, a condition of things capable of performing work, and that it can be generated from other forms of energy and again transformed at will.

AN INSTRUCTIVE COMPARISON.

Such expressions as "electric current" characteristics of an "electric current" and the flow of water through pipes. Both can have reservoirs, dams, conductors, quantity pressure and drop in the pressure along the pipe or wire, as the case may be. Both can leak out through imperfections in their respective conductors, and electricity, as well as water, can, by the giving way of the dam—if I may be allowed the expression be the cause of disaster as great as that of the Johnstown flood.

A dynamo, so long as its armature is kept in motion, is a reservoir of electricity, and in it there is generated both pressure in volts and quantity in amperes, according to the construction of the dynamo. The product of the pressure into the quantity gives the energy in watts, and 746 equivalent to one horse power. With water this energy is represented by the product of its weight in pounds and height in feet The product is called so many foot-pounds, For a fortnight before Tel-el- and 33,000 toot-pounds per minute is equivalent to one horse power. Here it must be understood that 33,000 pounds raised one foot represents the same amount of energy as one pound raised 33,000 feet. tricity, as with water, we must have a closed circuit to generate power. Water to generate power must fall or flow, and to fall it must rise. In other words, water come from the clouds, passes over the falls, and in so doing generates power; then it flows into the ocean, and is finally drawn by evaporation back into the clouds, closing the circuit. And so it is with electricity-there must be a closed circuit to

generate power. WORK FROM THE CURRENT. A closed electric circuit is obtained when the two wires or poles of a dynamo are brought in contact. If there is resistance in the circuit, such as arc or incandescen lamps, the current will do useful work just as a flow of water will when it overcome the interposed resistance of a water wheel If, however, there is no useful work to be ergy is all converted into heat, due to friction along the line. With water it is the same. Ningara Falls might be made to do useful work, but as it is, its energy is all transformed into heat, and so the temperature of the water below the falls is greater than it is above. If there is very little re-sistance in the electric circuit—the resist-ance being what I would call the dam—and if the reservoir or dynamo is great enough, a tremendous flow of current will be the result. So it is again with water. If the dam or resistance, keeping the water back is removed, there will be a rush of water corresponding to the capacity of the reservoir, and resisted only by the friction An electric circuit having very little re-

sistance is called a short circuit. The likeness between an electric current and a flow of water can again be found with regard to the "drop" in the pressure along the wire or pipe. A pipe having a flow of water in it under pressure will show a decreased pressure all along the pipe according to the distance of the pipe from the reservoir at which the pressure is measured. That is, the flowing water will not exert as muc after flowing through a mile of pipe as it will at a point much nearer the reservoir, or starting point. This loss or drop in the pressure is due to the friction of the water along the sides of the pipe, and is a so-called loss of energy, having been trausformed into beat.

ENERGY CONVERTED INTO HEAT. It is exactly so with an electric current, the pressure in volts being always less the further it is measured from the dyname, or reservoir, and consequently the loss of electric pressure or energy is greater the longer the circuit, other conditions remaining the same. And in this case, as with water, the loss of energy representing the drop in the pressure is converted into heat. If the "drop" is great the heat will be If the "drop" is great the heat will be great, and can then be felt with the hand. In fact, if the current is sufficiently strong, the wire can readily be brought to a white heat and fault. heat and finally melted.

If now we carry the likeness still further.

with regard to leaks, the electric leak will

be readily understood. Water leaking from a pipe will reach the ground and be evap-orated, and so, taking a short cut, will reach the clouds and thus close its portion of the circuit. If there is a short cut through the ground, that is, if there are two points on the circuit having electrical communication with the ground, a portion of the current will leak from the wire to the ground, and, taking a short cut to the other leak, instead of flowing through the entire circuit and doing useful work, will close its portion of the circuit. It will now be seen that a short cut or complete "short circuit" in a dynamo corresponds to a flood with water. One causes destruction by fire, the other by vio-lence and drowning. And thus it requires energy to do and energy to undo. In each case the energy is transformed and changes its character, but the sum total is ever the

### THE ELECTRIC WORLD.

same, for energy cannot be either created or destroyed. Scire Facias.

Deaths by the Current Not Frequen Enough to Count for Much-Little Leaks From Ocean Cables-An Electric Ghost and a Real Estate Deal. Captain Brophy, referring to the opposi

tion to electric light and power, says, re

cently: "The electric light, the electric motor and the electric car have come to stay. Like all other great inventions they have their faults, and they are not free from danger. What form of energy is? Like the steam railroad, the steamboat, illuminating gas, and many other great improvements, they have met with stubborn resistance, but in time this will all cease. When railroad trains leaves the rails and crush the human form into a shapeless mass, the public do not ask for the abolition of such roads. When swinging gas jets start a conflagration, or some unsophisticated person blows out the light and lies down and passes into eternity, no one demands the abolition of gas works, Why, then, should an unreasonable outery be raised against the electric light and power industry when this subtle fluid leaves the path chosen for it, and causes accidents to persons and property? From my own observation and an intimate knowledge of the difficulties that it was necessary to over-come, I am astonished at the small number of accidents that have occurred since the ntroduction of high potential currents. While the business of electric lighting has grown tremendously, accidents of all kinds resulting from its use have steadily de-creased. This, in itself, is sufficient evidence of the improvements made and the care exercised by those engaged in this business."

THE immense importance of excessive care in the insulation of an ocean cable is shown by Herbert Laws Webb in the October Scribner. He describes how, after the cable has been taken on board the vessel to which is to be entrusted the task of laying it, it is kept cool and free from strain or any adverse influence in the ship's tank, where it is submerged in water. When the time comes for paying out and the cable is straightened and has to bear a strain of several tons as it leaves the ship's stern, then any slight imperfection will be revealed, and, although it may consist merely of a minute bubble of air which has burst and made a puncture in energy of a moving mass into heat, due to the gutta-percha into which a fine hair the friction of the machinery used. In such could not be introduced, although it may be cases the energy is said to be lost, but as a only a crack so imperceptible that it would not admit of the insertion of the corner of a cigarrette paper, yet the current would es-cape, and, like the insignificant stream which trickles over a dam, would gradually widen the breach, until the cable was electrically "broken down" and entirely useless for communication.

more into connection with photography. It is or in the northern part of Asia. now used in lighting studios, and for securing artistic effects of light and shade in the subject to be photographed. In order to and "electric fluid" are often heard, and, avoid dark, hard shadows, the light is protric light is also used for printing by enlargement, and for balloon and kite photography. In the latter, the camera is at-tached to a kite. When the desired height has been reached, the exposure is made by electric current, and pictures are thus secured which it would be impossible to obtain by any other means.

THE attempt made at Christ Church. Birmingham, England, to transmit the church service by telephone to London, Manchester and other distant points, has been attended with very fair success. Some of the difficulties which have to be overcome before people can listen in comfort at their own fireside to the voice of their favorite minister, may be gathered from the follow ing description of the experiment by one

who took part in it: When the morning service commenced there was what appeared to be an unseemly clamor to hear the services. The opening prayer was interrupted by cries of 'Hello there!' 'Are you there?' 'Put me on to Christ Church.' 'No, I don't want the church,' etc. But presently quiet obtain and by the time the Psalms were reached we got almost unbroken connection, and could tollow the course of the services. could hear little of the prayers—probably from the fact that the officiating minister was not within voice-reach of the transmitter. The organ had a faint far-away sound, but the singing and the sermon were distinct success."

THE excellent results attained by Prof. Barrett, the electrician of the electrical department of the city of Chicago, in the prevention of explosions in the subways of that city by the adoption of a system of thorough ventilation have been commended by a New York paper to the attention of the Board of Electrical Control, which, from time to time, has been much exercised with the frequent explosions that have taken place in the subways on Broadway and elsewhere. It is shown that the ventilation f the downtown subways through the City Hall chimney is perfect, and that the elec-tric light posts furnish sufficient ventilaation at other points. It is also urged that the city of New York can derive much benefit by taking heed to the example of Chicago, which has ordered the electric prevent explosions.

An instance of the advantages attendant on the use of the electric light is reported from London. Systematic robbery of the yard of a railway station had been carried on for a long time. The manager of the yard shrewdly fited up the yard with are lights, and now, not only is three times more work accomplished at night than under the old conditions, but the depredations have entirely ceased, and the saving thus effected has already paid for the cost of the installation.

A STORY which, whether true or not, is at all events "well found," is told in a New York paper. A contractor, under the stress of financial tightness, sold a house very much under its value. Puzzling his wits to recover his property, he hit on the idea of working on the superstitious fears of the new owner. Every night the purchaser heard rappings and other strange noises, but the tenants were not disturbed. The noises had, at last, such an effect on the nerves of the frantic owner that he was in the act of dashing himself from the root to the ground in a fit of insanity, when some of the neighbors came on the scene and pre-vented him. An examination of the buildrented nim. An examination of an electrical knocker, which had been hung over the roof nd made available for operation on any desired point. This was the bogey which had driven the new owner out of his wits, and the contractor, on being confronted with the facts, confessed that he had adopted this method of frightening him into giving

### EVERY DAY SCIENCE.

Successes and Probabilities in the Rapid Transit Problem.

BALLOON TRIP TO THE NORTH POLE

No Single Test is Reliable in Proving the Extinction of Life.

RECENT PROGRESS IN PHOTOGRAPHY

PREPARED FOR THE DISPATOR. The action of Boston, in essaying to effect on an elevated railway, the same successful and profitable developments of electrical traction which it has accomplished on its surface lines, is regarded with much interest by electricians all over the country. One of the greatest objections to elevated railways has always been the use of steam locomotives, with their disagreeable accompaniments of noise, and smoke and cinders. With the heavy locomotives, too, required for steam traction a very cumbrous structure was needed, but with the use of electric cars, lighter and more ornamental construction can be adopted. This new departure of Boston seems likely to inaugurate in city trayel an era long desired. It is now mentioned as a fact that a mile an hour bettime is made in Boston by the surface electric cars than in New York by the steam cars of the elevated roads.

Among the prominent systems which involve the perfecting of modes of traveling by electricity is the portelectric. The exploiters of this system have been steadily ploiters of this system have been steadily of the supposed dead person a scarlet time carrying on operations for some time at their would be apparent where the fingers touched experimental station in Dorchester. Prof. Dolbear, the electrician of the Portelectric Company, save that although, theoretically, the car can travel on the tracio at the rate of two miles a minute, the difficulties of the existing conditions prevent the acquirement of such a speed. At a recent test, to which members of the electrical press were invited, the force of these difficulties were made manifest. A serious hin-drance has been the adapting of the car to the compound curve, made of a grade and a curve of short radius, and on the day of the test, besides the unfavorable conditions of track and bearings, defective insulation, coils of too low a resistance and excessive humidity had to be contended with. In spite of these, however, a speed of 60 miles an hour was obtained, and, in all probability, these drawbacks will all disappear in actual work. The portelectric gives ex-cellent promise of displacing the pucumatic system, especially for long distance work, and when the technical difficulties referred to have been overcome, there can be little doubt of the commercial success of the system.

A Trip to the North Pole. The belief in the possibility of successful aerial navigation still retains its hold on the minds of many intelligent men. A French scientist now proposes to make a scientific expedition to the North Pole. He proposes to construct a balloon of lined silk, 30 meters in diameter, and having a cubic capacity of 14,121 meters. The balloon will be covered with a special varnish, which will insure its absolute imperviousness. It will be filled with pure hydrogen, and its car will be constructed on a novel plan especially suitable for a Polar expedition. It is calculated that this aerial journey will seless for communication.

last four or five days. It is proposed to start from Spitzbergen, and it is hoped it will end on the North American continent, This is by far the most important journey

which has yet been attempted in a balloon and if successful, it willteneh many lessons not only in aerial navigation, but also in Mr. Hargrave holds to the feasibility of a flying machine in which screw propellers or flapping wings are used, and in his latest attempt he used as prime mover a Brotherhood engine driven by compressed air, which was found to give a trustworthy source of power. These experiments have raised a doubt as to whether the balloon is even a step in the right direction of solving the aerial problem. They, at all events, have demonstrated, from the facts they have brought out as to the flight of birds, that we have still a great deal to learn as to the law of animal life, and their further investigation opens up a wide field alike to the physicist and the mechanician.

Progress in Photography.

Remarkable success has been attained by Prof. Ahn, of Breslau, in applying photography to fix the indications of different diseases of the eye. Another contribution to one of the newest departments of science are Prof. Fischer's photographs of cultivations of luminous bacteria, which were photo-graphed by their own light—the views giv-ing evidence of the constant movement in which the tiny organisms are unceasingly engaged. One of the greatest anthropologists of the century, in Paris, has been making a collection of the various types of mankind, and he does it by means of the photograph. He inclines to the opinion that the type or origin, the race to which the party originally belonged, is better pre served among women than among men. He has therefore made his collection from among women, and to increase its attractive-ness and value, he has announced his intention to choose only beautiful women for his types. Apropos of this idea, a prominent photographer proposes to appeal to photographers for selection and contribution of photographic reproduction of the representative woman whom they consider the most beautiful; so that a collection can be made which will be handed down to poste representing the standard types of beauty in he nineteenth century.

Smoking Arrangements for Trains.

Quite a change appears to be taking place in the general opinion as to the best arrangement of smoking room accommodations on some classes of passenger trains, light, telephone and telegraph companies to ventilate all their subways in order to smoking car will, before long, cease to form a part of the better class of trains. Quite a number of railroads have constructed their chair cars with smoking rooms of sufficient capacity to provide accommodations for the occupants of each car. The practice of thus furnishing a smoking room for each car is rapidly extending to the common day coaches, and a number of very prominent roads are putting a smoking compartment in nearly every car that they are building. some even fitting up the second-class day coaches in this manner.

Protector for Fire Hose.

The stoppage of travel in the vicinity of fires caused by the lines of fire hose crossing the streets, has long been a source of complaint, and it has been wondered that no practical means of running hose across a roadway so as not to interfere with the sage of vehicles has not been devised. Such a device has been brought out by an architect of Chicago. It consists of a temporary bridge upon which the hose can be carried over the street at a height permitting the passage of street cars and general travel. It is said to have worked well, both in San Francisco and Denver.

A new meat chopper for domestic use is distinguished by the fact that the meat is nature. cut by an action like that of a pair of scissors and is not torn apart; neither is it cround into a greasy pulp. The forcing cerew feeds the meat up to a knife with eight radial blades, revolving between a fixed two-bladed knife and a cutting plate of novel construction. The plate has a number of grooves converging toward a central

perture, the ribs between the grooves hav ing sharp cutting edges. The work is well and rapidly done, A medium-sized machine will produce four pounds of filled sausages

In the sham fight at Portsmouth in honor

The Smokeball in War.

of the Emperor William, an advancing column was so affected by the fumes of the smokeball which was used to raise a cloud of impenetrable obscurity under which they could advance, that the men had to keep their hands to their noses to avoid suffocation. It is now proposed that the smoke-ball shall receive a further development. It has occurred to some military men that instead of half suffocating their own troops, it would be better to follow the example of the Chinese pirates with their stinkpots, and asphyriate the enemy. A Vienna scientist has accordingly invented a bomb of such power and virulence that everyone who is within a certain radius of it when it explodes is rendered unconscious. Devices such as these would soon m-dify the art of war, and probably the next development will be an anti-asphyxiating bomb, whose fumes will neutralize those of the other." It is said that many years ago a scheme based on the throwing of poisonous gases over a tract of country, was put before the war office in England, for the purpose of devastating the country in the face of an invading army, but the agency employed was so terrible in its effects, that it was not made public, and was consigned to the secret records of the

The Diaphanous Test of Death.

It has been recently stated that a prize of fered some years ago for the discovery of some means whereby the inexperienced might at once determine whether in a given case death had or had not occurred, was won by a physician who had discovered that if a light were placed behind the hand each other if life was not extinct; and tha if no red glow was visible death had taken

Dr. B. W. Richardson has written an essay in which he states that although this test has its value, it is not by any means to be trusted as an unfailing indication of life or death. He gives the case of a person in a state of syncope to whom the test was most carefully applied. Not the faintest sign of red coloration between the fingers could be traced, yet the recovery of the syucope was complete and was effected without any artificial aid. Dr. Richardson regards it as a good test, but is of opinion that more certain proofs are: the pulsation: the respiratory murmur; pressure on veins; the electric test for muscular irritability; the ammonia hypodermic test; coagulation of blood in the veins; rigor mortis, and de-

Irregular Working in Machinery.

A simple method has been devised by means of which, in the midst of a busy workshop full of machiney in motion, any special noise, even though slight, can be distinguished and its origin traced. The apparatus consists of an ordinary india rubber gas tube about a yard in length; the length may, however, be varied to suit the nature of the investigation. The tube is unprovided with ear piece or bell. One end is applied to the ear of the observer while the other is moved about in order to explore the seat of the irregularity. Since the free orifice of the tube is comparatively small and is applied as closely as possible to the vi-brating surface, it practically receives only those sonorous vibrations which are emitte by this surface. Those who have to do with machinery will find it especially useful for observing noises due to irregularities in the working of small parts of machines, which may be either difficult or dangerous to ar proach in any other way.

Grease From Cotton Waste.

Until lately cotton waste has been cleaned and reused, but the grease extracted from it has been thrown away. It is now found that the oil thus extracted can be made, after very simple treatment, to yield first class printing ink. A ton of this spent waste will yield about 1,400 pounds of oil. from which ink of a superior quality can be manufactured at a very reduced price. The cotton waste is placed in steam chambers, and a solution of bisulphate of carbon is numped into the vessels. This disengage the oil and grease, which is then passed into FLESH WORM PASTE, per jar ..... a series of heated coppers, from which it emerges as varnish, from which the printing

Search for a Name. To end the long dispute which has been waged with reference to the right designstion of the metal which is now assuming such importance, it is urged that the largest producers in the world favor the form greater brevity, and that therefore foreign scientific journals and scientific men should follow the example of American journals and call it once for all alluminum, instead

Improvement in Window Glass.

One of the recent improvements in the manufacture of window glass is the introduction of a process of dipping the sheet into a mammoth bathtub, containing a mixture of various liquids. Its results are instantly seen. It removes all dirt and de ection, and the class becomes as clear and pure as it was before it went through the flattening oven.

OUR MICROSCOPIC GUARDIANS.

The White Blood Corpuscles Which Pursue and Devour the Microbes.

Newcastle, England, Chronicle, ] The revelations of the microscope as to the existence of myriads of microbes in our bodies as well as in all that we cat and drink, has caused timid people much anxious wonderment as to why these creatures are not more injurious and destructive than they actually are. Writing in the Speaker Sir Henry Roscoe explains now it is that even the deadliest of these microbes may be found in the mouths or other parts of the body, and yet their host be perfectly healthy. The question is not one of the mere presence of these organisms in the system, out entirely one as to whether or not the find their way into the blood. If they do not all is well, if they do the most serious

Working with the microscope in M. Pas teur's laboratory in Paris, a Russian physician, M. Metschinikoff, has been able to discover the secret of the impotence of the microbe to penetrate into the blood. These most recent investigations show that there are certain cells contained in the blood of all the higher animals, termed phagocytes, and identical with the well-known white blood corpuscies, which are endowed with the power of independent motion, and not only wander inside but even make their way outside the tissue and pursue, devour and digest any bacilli, whether poisonous or not, with which they come in contact. This is in reality the true battle of life which, though hitherto unknown and unobserved,

though hitherto unknown and unconserved, is constantly going on within the body.

These phagocytes, which are the watchful guardians of the body, attack and annihilate the bacili before they can penetrate the blood tissues. So long as they remain on guard the body if safe from attack, but should they from any cause relax their vigi-lance, then the invading army of parasites would pass into the system and destroy life either by the numerous mechanical which it produces, or by the poison which it secretes. This apparently independent life of the cell within the organism is one of the most marvelous revelations of mod-ern science, as well as a remarkable illustration of the extreme nicety of the balance

Pensions for Teachers The question ot a pension fund for teachers in elementary schools of England is be ing revived by the Executive of the Nation Union, who have outlined a bill by which it is proposed to give effect to their scheme. HOW WESTINGHOUSE TRAVELS.

Enthusiastic Statements From a New

York Paper About Him. George Westinghouse, of the Westinghouse Air Brake Company, probably travels more than any other millionaire, says the New York World. His business is scattered all over the country and requires a great deal of personal attention, and he has a special car and steam vacht for rapid and convenient transportation. Neither car nor yacht is used for pleasure trips. In fact, Mr. Westinghouse would as soon think of taking a pleasure trip as he would of giving away one of his thirty odd millions. However, no expense is spared to make the busi-ness trips easy and pleasant.

The special car the "Gien Eyre" is in constant use. The yacht, besides conveying its owner on his business trips, has another use. It is an experiment boat. All the Westinghouse inventions and improvements are tried on this yacht. It is a standing joke with his friends that the yacht never has the same engine for three weeks. The engine has been taken out and replaced within a week. If Mr. Westinghouse sappens to think of an improvement while business trip he has it tested immediately.

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