

Notes on Science and Industry.

SEWER VENTILATION.—In a recent address before the Royal Institute of Architects of Ireland, Sir Charles Cameron not only expressed his doubts of the commonly assumed necessity for sewer ventilation—based upon the hypothetical risk of the sewer air or gases, as they are termed, attaining sufficient pressure to force the traps of house drains connected with the sewer—but proposed a system of ventilation as a substitute for the aspirating shafts. Experiments had been made, said the lecturer, to ascertain whether gas pressure actually exists in sewers, but he had never been able to determine the fact beyond the most trifling amount when all the ventilators on considerable lengths of main sewers were closed. A new means of ventilation is proposed, seemingly adequate to meet the necessities of the case—one which depends upon the principle of the diffusion of gases through porous materials—certain pottery manufacturers making the apparatus required, which is in the form of cylinders inserted in the crown of the sewer, an arrangement which, it is claimed effectually bars the passage of the microbe.

LIGHTNING WORK.—"Pantalooning" has been reduced to a great science in the big factories, both here and in the North," said a New Orleans clothing dealer. "I refer, of course, to the cheap garments that in this section are sold almost entirely to the negroes. A pair of 'pants' that grade contains twelve pieces, the outlines of which are represented by the slits in the top of a heavy table. Twenty-four sections of cloth are laid on the table and a revolving knife like a buzz saw, travels through the slits. As it does so it cuts the fabric into the exact patterns. The whole thing is done with incredible swiftness and the pile of cloth is scarcely deposited when it is fully cut. The pieces are then sent upon an electric carrier to the sewing machines which are also run by motor. Each operative has only one thing to do. The first one will put in the leg seams, the second will sew up the body, the third will put on the waistband and a fourth will attach the straps. The button-holes are worked by machinery and as a rule the buttons themselves are of the automatic staple variety and are secured by a single motion of a sort of punch.

It is very interesting to watch the garment passing from hand to hand and it reaches the inspector all complete with a celerity that nearly takes one's breath away. It is then ironed by being pressed between a

series of gas heated rollers and is ready to be ticketed and placed in stock. Under the present system the outputs of some of the large factories have been quadrupled during the last four or five years.

A CURIOUS FRUIT has been discovered growing wild in Batavia, and a sample has been sent to a French professor of botany at Paris. It appears, says the Scientific American, to be a species of bean resembling a cigar both in form and color, though only about an inch in length. But it has a peculiar characteristic which renders it a very unique and interesting object, and this is the exceedingly energetic manner in which it scatters its seeds. If one of these little fruits be thrown into a basin of water, it will rest quietly on the surface for from one to five minutes, then it will explode with violence, hurling most of its contents into the air with a noise and a splash like a small torpedo. It is hardly necessary to say that this phenomenon is caused by the pressure of the elastic substance of its interior overcoming the resistance of its hard outer shell. The fruit, usually splits open lengthwise. If plucked before maturity and allowed to ripen in a warm spot, it opens gradually from apex to base, making, as it were, a pair of diverging horns starting from the same point. If left to ripen on the plant, since the process is quicker and the internal moisture greater—the opening is sudden and accompanied by a slight noise, though this is much less than that which takes place when it has been placed in water. In this case the dry but porous tissue of the surface of the fruit quickly absorbs the liquid, especially at the grooves caused by the junction of the two valves or outer shells of the fruit. The internal tissue, being very elastic, exerts upon the latter a tension which soon results in the violent bursting already described. The curious property of explosion is given the little plant for the dissemination of its seeds, which would otherwise stand a poor chance of propagating its species.

ICED CHLOROFORM, says the Medical Times, has been used as an anesthetic in Professor Storburt's clinic in the Julius Hospital, at Wurzburg, Bavaria. It was employed in over fourteen thousand cases with immunity from unpleasant results in all. This preparation of chloroform, it is claimed, is quicker in action, comparatively free from danger and does not induce nausea and depression.

CHATS WITH THE FARMERS.

ABOUT PLOWMEN.—Any person who will take the trouble, this fall, to attend the plowing matches in the surrounding country, will have no difficulty in discovering the truth contained in the following remarks: "What has become of the old-time plowmen? I ask a correspondent of the Country Gentleman. Are they all dead, or have their hands forgotten their cunning, and their eyesight grown dim? With the improved plows of to-day it would seem that any one of moderate strength and average intelligence could do a good job of plowing, but not one out of ten who profess to hold the plow do so good work, and among those hired on the farm not one in fifty know how to do this work well.

"During the last three years," the writer says, he has had considerable plowing done, both by the day and by the acre, by men who professed to know how, but they were all about the same. Anything to get over the ground, cut and cover. If the plow was thrown out there was no backing up, the unbroken soil being left for the next furrow to partially cover. They had but little idea of adjusting the plow in changing the draft, etc., and plowed the same depth for every kind of crop.

KILLING TOADS.—It is a well known fact that in our country districts, there is no reptile more detested than is the toad. Of course it is only rarely that the toad makes his appearance in daytime; but whenever he hops out he runs the risk of being smashed before he can hop in again. Yet it is a great mistake to kill toads—at least on a farm. It is true that the little creature is very repulsive in appearance, and that he creates for himself a kind of natural antipathy; nevertheless he is of greater use than people imagine. The Massachusetts experiment station has summarized the evidence in regard to the economic value of the toad, as follows:

- 1. It feeds on worms, snails, and sow bugs, common green-house pests.
2. It devours a large number of myriapods, which damage greenhouse and garden plants.
3. It feeds to some extent on grasshoppers and crickets.
4. It destroys large quantities of ants, insects often injurious and usually obnoxious.
5. It consumes a considerable quantity of May beetles, rose chafers, "click beetles," potato beetles, cucumber beetles and weevils, all more or less injurious to crops of various kinds.
6. It feeds on tent caterpillars, gypsy moths and other fruit tree pests.
7. It is a prime destroyer of cut worms and army worms, common pests which often cause great damage.
UNFAVORABLE.—1. It destroys scabid beetles, insects of a highly beneficial character.
2. It devours an occasional ichneumon fly and "lady bird," beneficial insects.
3. It feeds to a small extent on spiders, generally considered to be valuable as insect destroyers.

4. It devours carrion beetles, insects indirectly helpful to man. To recapitulate, 11 per cent. of the toad's food is composed of insects and spiders beneficial or indirectly helpful to man; 80 per cent. of insects and other animals directly injurious to cultivated crops or in other ways obnoxious to man. Further comment upon the valuable services of the toad would seem unnecessary.

HARD OR SOFT FOOD.—For persons who raise a number of fowls the following few suggestions may not prove unhelpful: Experience shows that hard food is better than soft food for poultry, not that it contains more nutrition, but because hens are tempted to eat more than they should of soft food. It also supplies the wants of the fowl more readily than the hard food and the inducement to work and scratch (so essential to its health and thrift) is lessened. When giving soft food, too, the poultryman, by mixing several kinds, is liable to give more of one kind than may be desired, while with the hard grains the fowls have a greater privilege of selection of that which they prefer. With mixed soft food they eat almost everything of which it is composed, all or none and thereby surfeit themselves. It is proper to give soft food, so as to feed some needed substances, but we believe three times a week to be sufficient. Give whole grain, and scatter it far and wide, or mix it with litter, thus compelling each hen to hunt and scratch for all she receives, which will keep her in health and promote egg production.

FEEDING CALVES.—D. H. Otis, writing in the New England Farmer, draws attention to the error which is almost general regarding the feeding of grain and milk to calves. Experience shows that it is almost impossible to keep calves fat and healthy when the milk is mixed with corn or rather grain; but the reason is not as generally known. It is that Mr. Otis—who is an authority, both on account of his study and of his practical experience—explains the case: "Never put any grain in the milk for calves. The starch of corn has to be changed to grape sugar before it is digestible. This change only takes place in the presence of an alkali and is done chiefly by the saliva of the mouth. When corn is gulped down with the milk the starch is not acted upon by the acids of the stomach but remains unchanged until it comes in contact with the alkaline secretion of the intestines. With hogs the stomach is small and the intestines long. This allows starchy matter to be digested in the stomach. The opposite is true with the calf, the stomach being large and the intestines short. Unless the starchy matter is largely digested by the saliva of the mouth complete digestion will not take place in the intestines and the calf sours."

DIVERSIFIED AGRICULTURE.—The wheat experiment in Georgia is spreading in the South, and I would not be surprised if our planters engaged in this culture extensively next year, says the Southern Correspondent of the Catholic Columbian. Mr. Walker, of Georgia, who is a prize winner recently in wheat-raising competitions, publishes in elaborate detail his method of farming the cereal, and in answer to the question, "Does wheat-raising pay?" he says most emphatically that it does. On seven acres of land last year, Mr. Walker raised 350 bushels of wheat, which he sold at \$1 a bushel; twelve tons of straw, at 30 cents per hundred; 872; fourteen tons of hay, at \$10, \$14.00. Total \$592, or an average of \$86.28 per acre, and the land was he calculates, in 20 per cent. better condition than it was before. The expense of cultivating these seven acres was: Seed wheat \$11, preparing land \$7, fertilizer, cotton seed meal and seed \$17.50, barnyard manure \$52.50, harvesting \$10, threshing \$35. Total expense, \$136, leaving \$456 profit, and, as Mr. Walker puts it, "seven months to play and one to work."

MRS. CHARLES ST. JOHN.

A Well-Known Dressmaker in Providence, R. I., is Well and Strong Again, After Being So Weak that She Could Not Walk Without Help.

Four out of five women in America are not perfect women in the sense of being perfectly healthy. Nearly every one has some peculiar ailments of the menstrual organs. Just look around when you go along the street. You will see the pale, the weak, the run-down and the sorrow-faced everywhere. Some of these girls and women are rich and don't have to work. Others are poor and must toil for a living. The poor are most to be pitied. They must work away with their heads, backs and sides aching. They must toil regardless of their paleness, weakness and nervousness. Day after day the drains of leucorrhoea sap away their strength and life becomes a round of misery. Women can be healthy if they wish. No doubt about it. They can be well, strong and rosy-cheeked. Read the following as proof: Mrs. Charles St. John, 255 Charles St., Providence, R. I., testifies as follows: "For six years I suffered from female weakness, headache, pains in the back and in the legs. At times I was so weak that I could not walk without help. For two months I was under special treatment in the hospital, but came out as pale and as weak as I was when I went in there. Having seen so many women cured by Dr. Coderre's Red Pills, I tried them, and was at once greatly benefited. My doctor afterwards told me to keep on taking them. I am a dressmaker, and am well known to many women in Providence, who have frequently remarked how much better I am now looking." (Signed.) MRS. CHARLES ST. JOHN, 255 Charles street, Providence, R. I.



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a medicine with such a remarkable number of cures to its credit. While taking these pills it is well to follow certain health rules under reliable professional advice. All women ought to get such advice by mail from our celebrated French specialists. Simply write us a letter, and full advice will be sent you free of all charge. For personal consultation, call at our Dispensary, 274 St. Denis St., Montreal. Be very careful about getting the genuine Dr. Coderre's Red Pills at the drug store. They are always sold at 50 cents a box—fifty pills in a box—or six boxes for \$2.50. There are many harmful imitation red pills sold by the dozen, the hundred, or at 25 cents a box. Beware of them. It is not quantity that you want. It is good health you are looking for, and you will find it if you take Dr. Coderre's Red Pills. A 50-cent box lasts longer than a \$1 bottle of liquid medicine, and the pills cure. It is the druggist's business to give you what you ask for, not to substitute something else for the sake of his profits. Honest druggists sell Dr. Coderre's Red Pills. Or you can send the price in stamps, or by registered letter, money order or express order to us. We mail them all over the world. No duty for you to pay. The best woman's doctor book is called "Pale and Weak Women." A free copy can be secured by sending your name and address on a postal card asking for it. Send now. All letters should be addressed to The Franco-American Chemical Co., Medical Department, Montreal, Canada.

reached as it is to-day, the driver was almost as much an object of attraction as the horse, and it was recognized that only a man who made his business was capable of extracting that speed, but now people desire to see something more than speed and a lot of strapped-up waddlers trying to reach a definite point first. They want to see style and action as well as speed, and the first club to give prizes for style as well as speed will not only increase its receipts but will deserve the everlasting blessing of both breeders and the public. The way to success in everything is through elevation, but there is no elevation in driving, or racing or in the development of the horse in the use of all manner of straps and checks. A good horse, driven with neat and light harness and as little of it as is consistent with safety, is a thing of unexcelled beauty, but with legs, head and body, crossed and re-crossed, so that his action is restrained this way or that, is an abomination. Appliances that neither detract from his beauty nor give him pain are all right, but when his life is endangered, as well as his beauty destroyed, by a system of bracing or tying, he becomes not only a mere track machine of no value outside but a handicap to the best interests and improvement of his kind. I quite agree with the veteran driver who recently said: "I've been driving race horses all my life, and I'm no 'springer.' I tell you this hopped horse game is no account. Any old driver can handle a hopped horse, and it takes no knowledge to train them. Without straps they're no good for any use. No, sir, the business of hoppers makes cheap horses, and worse yet, cheap drivers."

is almost certain to throw the sufferer, man or beast, into spasms. The only way of transmitting hydrophobia is by inoculating that virus by the introduction of the virus into the skin or the mucous membrane. The most usual way for this rare event to occur is, of course, through the bite of a rabid dog, cat or other animal. But not every bite, even of a genuinely mad dog, is followed by hydrophobia. If the animal's teeth, for instance, have passed through a man's trouser leg, or boot, the saliva which contains the virus, may be wiped away from his teeth—From the Youth's Companion.

THE RARITY OF HYDROPHOBIA.

It has been asserted by many friends of animals, who rigidly object to the annual torture and slaughter of dogs, and even by some physicians, that there is no such disease as hydrophobia, or rabies, as it is more correctly called. Those who have studied the subject carefully, however, are certain that there is a disease of dogs which is communicable by one suffering from it to other animals and to man. But this disease is very rare, and probably not one person in a thousand bitten by dogs is in any danger of it, and not one dog killed among five hundred supposed mad dogs is really mad. The word hydrophobia is a misnomer, for a mad dog has no fear of water, and will run through a shallow pool without the slightest hesitation; the fear is that of drinking water or of swallowing anything, either fluid or solid, as the attempt

When a boy turns his bulging pocket inside out we marvel at the quantity and variety of articles. The boys stowed away, odd lengths of string, marbles, a horse-brush, a top, brass nails, hickory-nuts, an apple, and many more articles are garnered by this "snapper up of unconsidered trifles." We think the collection must be hard on a boy's pocket. And it is. But do we ever think of the variety and miscellany of the substances we put into the pocket of our stomach? There's the apple and the nuts, and things besides that are indigestible as brass nails and with no more food value than so many marbles. And yet we wonder that the stomach "gives out." When the stomach breaks down under the strain of careless eating and irregular meals it can be perfectly and permanently restored to health and strength by the use of Doctor Pomeroy's Golden Medical Discovery. The action of this medicine on the stomach, and other organs of digestion and nutrition is so marked, that relief from disease is at once experienced, and the headaches, liver trouble, kidney disorders, skin eruptions and other symptoms of a diseased stomach are quickly cured. Whenever the use of a laxative medicine is indicated, use Dr. Pomeroy's Pleasant Pellets. They act in harmony with the "Discovery," and assist its action by purging the bowels of foul accumulations.

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