Car Drivers' Maladies.

While assistant sanitary inspector of the New York Board of Health, Dr. A. McLane Hamilton made a special study of the maladies incident to the work of street car drivers. The most common, though not the most serious, of car drivers' maladies was found to be chilblains, from which not one in ten of the Third Avenue drivers escaped. The car driver invariably stands at his work, and his feet and legs are inevitably chilled by inaction and exposure. The impeded circulation of the blood due to long standing brings on a train of symptoms to which chilblains are a trifle. Even in warm weather a few weeks' driving is almost sure to bring on a swelling of the legs, with persistent pains in the feet, followed by numbness in the legs and ultimately by partial paralysis.

The doctor finds two immediate causes for this lamentable state of things: first, the constant gravitation of the blood and other fluids to the lower extremities; second, the drivers' habit of standing with their weight thrown on their heels.

The result is, says Dr. Hamilton, that the perpetual jar and jolting of the car are transmitted by direct vibration along the bones of the leg and thigh to the spinal column that continues and rests on them. In the first stages of the disease resulting from this source the man becomes irritable and nervous without being able to assign any reason for it. A little later he has dull pains in the lumbar region, and an intolerable sense of weight in the legs. The immediate cause of these symptoms is congestion of the spinal cord and its meninges, the disease being, in point of fact, a species of meningitis that seldom proves fatal in itself, but is the precursor of other nervous maladies of a more serious complexion.

In the course of a pretty careful canvass among car drivers, to test the correctness of Dr. Hamilton's statements, a writer for the New York *Times* says that he found scarcely a single driver of five years' standing who did not confess to wearing bandages, or to being subject to very considerable inconvenience from the symptoms of varicosity and spinal irritation, and medical men who have the largest practice with people of this class, express doubts whether a car driver's average term of service exceeds seven years.

We are confident that it would be no difficult thing to devise a seat for car drivers, with a brake lever, so that they could drive and manage the car while sitting. With the utmost consideration the car drivers' position will be severe enough. It is sheer cruelty to subject them to needless discomforts.

Disinfection by Cold.

In a letter to the Congressional committee on the subject of epidemic diseases, having special reference to yellow fever, Mrs. Elizabeth Thompson states that the designs for a refrigerating steamer by Professor John Gamgee, of London, England, are far advanced at the Navy Yard, but it will require at least three months from the date of signing contracts to construct this life-saving ship and its machinery.

It is intended that this steamer shall proceed to New Orleans, as the port most threatened, and there try the effect of extreme cold in the disinfection of ships coming from infected ports. Mrs. Thompson says:

"The Board of Experts [authorized by Congress to investigate the yellow fever epidemic of 1878] declare that 'ships are especially dangerous,' and 'remain sources of infection for months after having been infected with the poison;' that 'yellow fever poison is not able to withstand the influence of frost, and when exposed to a freezing temperature it is rendered innocuous and is probably destroyed;' that 'if the apparatus and experiments now projected for the utilization of extreme cold for this purpose should be found to be of practical application to the disinfection of the holds and other parts of vessels, their success would prove to be a sanitary acquisition of inestimable value.'

"The losses to this country by yellow fever 'have been variously estimated at sums ranging from $100,000,000 to $200,000,000,' and it has been computed that New Orleans alone suffered to the extent of $15,335,000. Millions have been spent in ships of war, and I earnestly hope that the opportunity we now have of testing nature's great preventive for yellow fever—cold—may be taken advantage of with promptitude and liberality."

The experiment would seem to be worthy of a trial, and, properly conducted, would be comparatively inexpensive. In the hands of a practical Yankee an ordinary tug-boat could probably be fitted out with refrigerating apparatus sufficient to test the question inside of a fortnight.

Transmission of Power at Rock Island Arsenal.

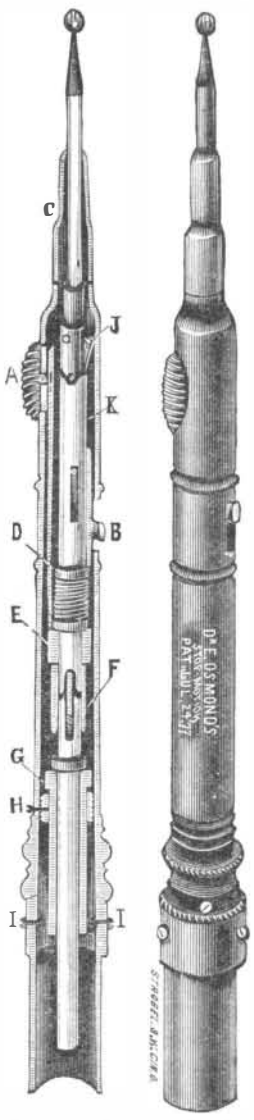
The experimental line of water power machinery with cable transmission, devised by Col. D. W. Flagler, for the Rock Island Arsenal, is said to work admirably. The full plans of Col. Flagler embrace 40 65-inch turbine wheels, working on two separate shafts, 20 wheels to a shaft. But now only four of these turbines are in place; the shaft is 9 inches in diameter, and 100 feet long. On the shore end of the shaft there is a driving pulley 15 feet in diameter, which receives a wire rope three fourths of an inch in diameter, which ascends to a tower and continues on to the shops. There are six spans of transmission, each span 400 feet in length, making the distance from the dam to the south row of shops 2,400 feet, almost a half mile. The ends of these spans are station towers of trestle work, each 40 feet high, these stations consisting of receiving and driving pulleys, each 15 feet in diameter. On one of the towers the cable turns at right angles by means of bevel gears. The four turbine wheels now being tested yield 240 horse power; and there was not a hitch in the whole length of the cable and machinery. This force will be used this winter for the shops. The great dams, the water power canal, and the minor parts of the work, have cost about $1,000,000. The pen stock is entirely of iron; and the turbines are so placed on the shaft that the stoppage of one by driftwood or otherwise will cause no derangement of the others.

The Adirondack Survey.

The reorganization of this survey, made necessary by legislative action last winter, has been successfully carried out; and the work accomplished during the past season is reported to be more than usually extensive and satisfactory. Many valuable scientific and geographical results have been obtained. A large number of the higher peaks have been measured with level and rod, and hundreds of miles of levels have been completed, covering the portions under survey with stations and permanent rock bench marks. The corners of counties have been marked, and county and town lines located. The chief rivers and lakes of the wilderness have also been surveyed throughout their whole extent.

STOP MOTION HAND PIECE FOR DENTAL ENGINES.

The advantage of being able to instantly stop the revolution of a dental burr, drill, or disk, must be obvious to every operator. Since the introduction of dental engines it is an easy matter to cut away the substance of the tooth so as to expose a nerve or unduly enlarge a cavity. To obviate such accidents, Dr. E. Osmond, of Cincinnati, O. (S. E. corner 8th and Elm streets), has perfected a stop motion hand piece for dental engines.



This instrument was recently patented and is now being brought to the notice of the dental profession. The hand piece is shown both in perspective and in section in the engraving.

The button, A, when pulled by bending the fore or middle finger, moves the arm, D, and the ring, E, which carries the clutch, F, downward out of engagement with the notched upper portion of the shaft, instantly breaking the connection and stopping the burr or drill. On removing the finger the parts regain their normal position and the drill is again set in motion. The instrument has a simple and effective drill holder, provided with a retaining spring, J, which may be exposed to view by drawing back the trigger, B. By pulling back the finger piece, A, and trigger, B, simultaneously, the drill may be changed while the engine runs.

Any of the well known dental engines may be used in connection with this instrument. Suitable means are provided for compensating for wear, and the finish is consistent with the use for which the tool is designed.

Chlorophyl as a Coloring for Preserved Vegetables.

At a recent meeting of the French Society to Encourage National Industry an important paper was presented by M. Personne on a process now being used in France for the preservation of vegetables in their natural green color, the process being based on the substitution of chlorophyl for the poisonous salts of copper formerly employed for this purpose.

The present process of preserving vegetables is that of Appert, made known at the beginning of this century. The industrial application of this process requires two operations, the first called washing, and the second, boiling. Washing consists in immersing the vegetables in boiling water for about five minutes, and then suddenly plunging them in cold water. Boiling is effected by placing the washed products in earthen vessels (or, better still, in hermetically sealed tin boxes) and exposing them to a temperature of 120° in steam boilers. It is readily seen that, after the operation, although the vegetables still retain their natural taste, they have lost their natural color and have become of a yellowish tint. The consumer, however, is not satisfied with the preservation of the taste alone; he also desires the additional satisfaction of having his eye pleased with the beautiful green color that the fresh vegetable possessed. As the export trade in these products is immense, it becomes absolutely necessary to accede to this demand, and so an artificial coloration has hitherto been effected by means of the salts of copper—principally the acetate and sulphate—added to the water in which the vegetables are washed. To the use of these metallic salts, however, there are many grave objections; and not the least of these is that of their poisonous nature. To find some means of doing away with the use of these toxic agents, by the substitution of some harmless matter, became the object of long and serious study to Professor Guillemore, of the University. He found at length, by experiment, that the less the quantity of chlorophyl in the vegetable the more rapidly and completely did it disappear on boiling; and that the fibers of the vegetable put in contact during boiling with soluble chlorophyl become saturated with it at a temperature of 100°; and finally, that the vegetables saturated with this chlorophyl, during the operation of washing, preserve and retain this color thereafter during boiling. After many experiments, the following has became the industrial process of fixing this chlorophyl coloring in a definite manner:

Spinach treated with a solution of soda gives up to the alkaline solution the chlorophyl, which it contains in large quantity; this alkaline solution is neutralized by hydrochloric acid added to the water in which the vegetables are to be washed. The chlorophyl, set free, unites with the vegetables, and this addition to the color which they naturally possess allows them to preserve their deep green tint, which otherwise would be destroyed by the boiling. The process, which is simplicity itself, has the immense advantage over the old one, that it introduces no injurious element into the preserved vegetables; indeed the products employed—chlorophyl and chloride of sodium—are such as make part of our daily food supply.

A Novel Temperance Society.

An association has been incorporated in this city, to be known as "The Business Men's Society for the Encouragement of Moderation." The purposes avowed by the society are to encourage moderation in the use of alcoholic beverages, to promote a knowledge of science and statistics relative to the manufacture and sale of alcoholic liquors, to disseminate among the people useful information regarding the principles of moderation and the means of carrying such principles into practical effect.

The society is also to exert its influence to induce retail liquor dealers to provide for teetotalers stimulating and nourishing beverages which contain no alcohol, and to encourage the establishment of places of cheap recreation and amusement where no intoxicating liquors shall be sold.

The pledges to be provided by this society are of three sorts: A total abstinence pledge, operative for one year, and renewable thereafter at the will of the pledger; a moderation pledge, binding the person who takes it not to drink during business hours; and finally, a unique engagement meant to prevent the person taking the pledge from partaking of intoxicating liquors at the expense of another person, and from extending an invitation to any other person to drink at his expense.

Utah Mineral Wax.

The great deposit of mineral wax, or native paraffine, lately discovered in Southern Utah, is described by Professor J. E. Clayton, of Salt Lake City, as occupying an area 60 miles long by 20 miles wide, and in some places forming a bed 20 feet thick. It contains more or less clay in seams and layers; but this is readily eliminated by melting, the earthy matter settling and leaving the paraffine nearly pure. It is quite black in the mass, but the sections are translucent. The quantity is said to be enormous; so great, indeed, that it cannot be controlled by any individual or company, but must prove a source of wealth to whole communities.

Professor Henry Wurtz pronounces the mineral to be zietriskisite, and says that it differs from paraffine by being insoluble in ether, and otherwise. Professor J. S. Newberry finds the specimens brought by him from Utah to be true ozokerite, and similar in all respects, except color, to that from Galicia; a true paraffine, melting at 60° C., and being soluble in ether.

As to the origin and geological relations of this remarkable bed of paraffine—which, so far as known, is without parallel in quantity in the world, and is as much of a "wonder" as our basins of petroleum—Professor Newberry cannot speak with any confidence until he has visited the locality where it occurs, as he hopes to do in a few weeks. He suspects, however, that it will be found to be an evolved product, the distillation of beds of cretaceous lignite, and the residue of a petroleum unusually rich in paraffine.

Coal Bunker Defenses.

The British naval authorities have been making experiments for some time with the view of testing the power of resistances to heavy shells of coals in the bunkers of men-of-war. The latest tests at Portsmouth seem to indicate that loose coal is the most effective means of protection yet discovered, and in the case of light, unarmored, or only partly armored vessels, the bunkers are built around the machinery. In the case of the Oberon it was proved by actual experiment that a shell from a sixty-four pounder at two hundred yards would neither penetrate the coal nor set it on fire.

High Temperatures.

By concentrating the electricity from a 13 horse power machine into the space of half an inch by inclosing carbon points in a block of lime, Mr. Edison claims to have produced the highest temperature ever reached by artificial means. When dropped into the flame, pieces of iridium, one of the most refractory of metals, volatilized immediately. A small screw driver passed across the flame would be cut in two, the part touched by the heat melting instantly. Even parts of the lime crucible fused under the intense heat.