

The Prophylaxis and Treatment of Diphtheria.

At the recent meeting of the American Medical Association, Washington, D. C., Dr. J. Lewis Smith, of New York, read a paper on this subject. The room should be disinfected by adding to one quart of simmering water one to two fluid ounces of the following mixture:

Oil of eucalyptus.....	3j.
Carbolic acid	3j.
Turpentine, q. s. ad.....	3vj. to 3vij.

Everything and every person not absolutely necessary for the comfort and management of the patient should be excluded from the sick room. Physicians undoubtedly conveyed the disease. They should always examine the fauces by standing behind or at the side of the patient, so that no ejected mucus may come upon them. After each visit they should wash thoroughly, in a sublimate solution, hands, face, and beard. Walking cases without fever, anorexia, or malaise diffused the disease. Daily inspection of the fauces of school children had been proposed. Convalescents should not mingle with healthy children for four weeks. He admitted the full claim of the Klebs-Loeffler bacillus to be the cause of the disease. It was a surface microbe—never penetrating the interior of the body, but attacking only mucous surfaces or cutaneous abrasions. It produces a ptomaine containing carbon, hydrogen, azote, sulphur, and oxygen, which, by absorption through both blood and lymph channels, causes the nephritis-granulo fatty degeneration of heart muscle and paralysis.

The treatment should embrace hygiene, diet, and alcohol. Rectal alimentation could be followed for a time. Failure of appetite rendered the outcome doubtful. Diet could embrace milk with sarco-peptones, beef tea, or meat juice, and the various predigested compounds. Large and frequent doses of alcohol were positively necessary. It is quickly eliminated, and often will save life unless blood-poisoning has actually set in. In the proportion of one to five it has been shown to have a destructive action on the growth of the bacillus.

Locally we should remember that normal epithelium was a barrier to the germ's entrance, and hence our remedies should be such as not to destroy the epithelial covering. Denuded or diseased surfaces were favorable starting points for the disease. Corrosive sublimate, 1 to 8,000; carbolic acid, 1 to 50; salicylic acid, 1 to 80; had proved of service in arresting the germ growth. Potassic chlorate was useless in this direction, and he had come to discard its internal employment entirely. It had undoubtedly caused nephritis in many cases. The corrosive sublimate could be given by nasal injection, gargling, and internally. Where the false membrane was very thick and tenacious, equal parts of tincture of iron and glycerine should be given three or four times a day. Loeffler himself uses a mixture of carbolic acid, alcohol, and distilled water for the mouth. Our local remedies should be penetrating. Therefore, glycerine and water, never sirups and mucilages, should be our vehicles for all local applications. The official solution of iron chloride might be diluted three or four times for this purpose. While it undoubtedly contracted the vessels, it was often painful. It coagulates the mucus of the fauces. Carbolic acid, Monsel's solution, and glycerine could be advantageously used in this way. For nasal disinfection a saturated solution of boric acid was preferable.

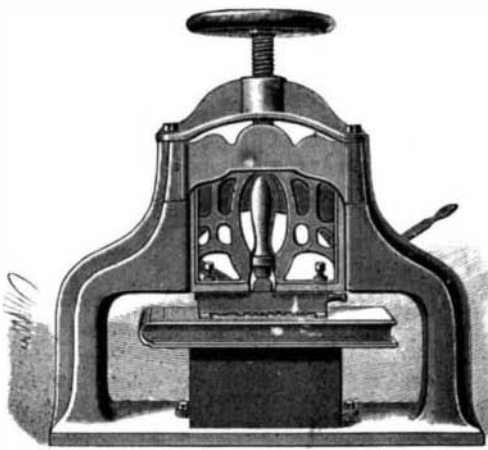
For internal treatment, iron assisted the anæmic condition. Vegetable tonics, including quinine, were probably useless, as were also quinine insufflations in the oral cavity. The main reliance was to be placed on the bichloride. He was in the habit of giving a two-year-old child $\frac{1}{8}$ grain every two hours; four years, $\frac{1}{10}$ grain; six years, $\frac{3}{8}$ grain; ten years, $\frac{1}{4}$ grain. His solution was made by dissolving the sublimate in alcohol and adding elixir of bismuth and pepsin. Sublimate solution, two grains to the pint, could be used for the nose. The mercurial should be continued at least one week, unless diarrhœa supervened, but not longer. Calomel had been suggested. Many gave an initial dose, and some continued it through the entire disease. It undoubtedly increased the anæmia. Of late it had been given in the New York Foundling Asylum by sublimation, from ten to forty grains being used, under a tent made over the patient's bed. The indication for its use was the supervention of hoarseness. The attendants had been salivated in several instances, but the patients were apparently not injured. It seemed to lessen the necessity for intubation. The process might be repeated in three or four hours. The percentage of recoveries from intubation where necessary was better in the calomel cases than in others. For the nephritis he gave iron, and for the paralysis tonics, strychnine, and electricity.

Dr. A. Seibert, of New York, remarked that we must see way down to the epiglottis in order to have our examination amount to anything. Children should not be allowed to kiss each other when there was any sore throat about, and very young children should not be allowed to creep around on the floor. They scraped up the dust with their fingers, which they would afterward

put in their mouths. Thus the germs which settled on the floor were conveyed to the sensitive membranes. The experiments of Gebhardt, of Bonn, had shown that false membrane could be dipped in a sublimate solution, and then, after drying and teasing, cause a bacillus development in a culture medium. It was, therefore, especially under the conditions of diphtheria, slow in germicidal action, but thorough if once brought into perfect contact with the affected areas. A five per cent solution of acetic acid had been shown to be quickly penetrating.

A BOOK FINISHER'S LETTERING MACHINE.

A machine to facilitate the placing of a design or title upon a book cover is shown in the accompanying illustration, and forms the subject of a patent which has been issued to Mr. George H. Reynolds, of No. 352

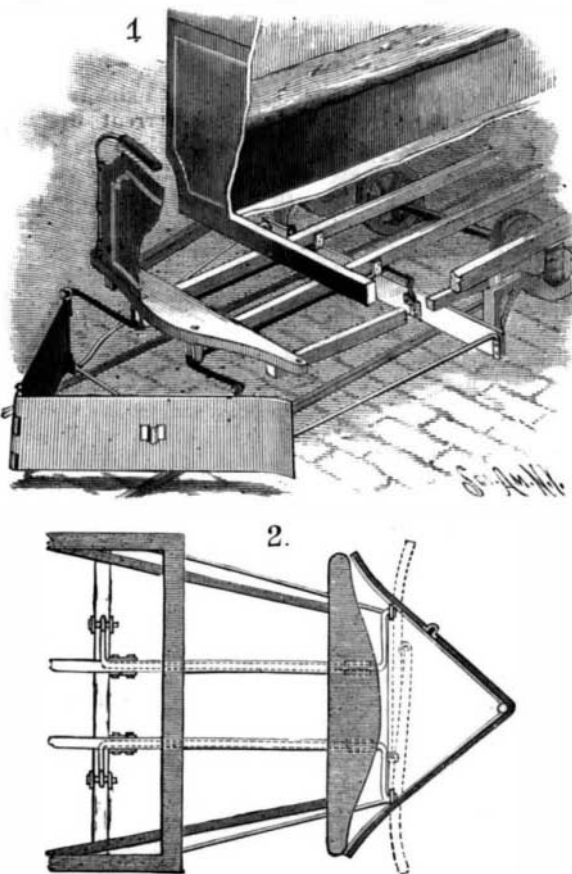


REYNOLDS' BOOK FINISHER'S MACHINE.

East Eighty-sixth Street, New York City. The standard has a vertical housing frame having opposite parallel guide grooves for the reception and support of a sliding head block, in two side limbs of which the pallet is adjustably held, the handle of the pallet extending upwardly in a central opening of the block. The head block is adjustably connected to the housing frame by a coarse-threaded screw, by the manipulation of a hand wheel on the upper end of which the block is vertically reciprocated in the guide grooves. The pallet or hand tool is of ordinary form, such as is used by bookbinders in finishing the backs of bound books to be lettered or ornamented by type impressions. After the desired name or type design is assembled and secured in the heated pallet frame, the pallet is secured in position between the limbs of the sliding block, when the required impression is given by turning the hand wheel. A guide is also provided, for regulating the placing of the book in proper position in the machine, and, to hold the book down in place, when the cover may be warped, or for convenience at any time, a simply operated hand lever is provided at the rear.

THE HITCHCOCK LIFE GUARD FOR ELECTRIC CARS.

The illustrations show a form of life guard or fender designed for use on electric street cars. The body of these cars is subject to violent oscillations, so that a



THE HITCHCOCK LIFE GUARD FOR ELECTRIC CARS.

fender attached to the end of the car vibrates up and down to such an extent as to be of little use. In the structure we describe, the weight of the fender is car-

ried by the motor guard or some other attachment of the truck. A pair of bars run longitudinally and each bar has two crank arms at each end. The straight portions of the bars are attached to the car body, being journaled thereto. The rear cranks have their outer ends attached to the motor guard or to some part that maintains a fixed level. The front cranks carry the fender by attachment to their outer ends. Thus arranged, although the car body may vibrate through a distance of seven inches or more, the fender never changes its level. At the same time its weight is carried without exercising any destructive leverage upon the truck. The construction is shown in perspective in Fig. 1, and in plan in Fig. 2.

Another feature of the fender is that it can be folded back so as to occupy no storage room in the car sheds. The center angle is a hinge joint. By withdrawing the hinge pin the wings fold inward, as shown in dotted lines in Fig. 2, and the car requires no additional room.

This fender is the subject of letters patent granted to Arthur B. Hitchcock and Charles S. Gooding, of Brookline, Mass., to whom inquiries for further particulars may be addressed.

American Armor Plates for American War Ships.

A new naval ordnance proving ground, which has been established at Indian Head, on the Potomac, will soon be the scene of a test of ship armor worthy to be ranked with the great trial of last September at Annapolis. In some respects it may be considered still more important, according to particulars given in an Associated Press account, since it is intended to definitely settle what kind of plates shall be put on our new war vessels.

The magnitude of the coming trial is further shown by the number of plates that will now be put in competition, each of the standard dimensions, 8 feet long, 6 feet wide, and $10\frac{1}{2}$ inches thick. All these are under construction by Carnegie, Phipps & Co., of Pittsburg. They will represent steel, steel with nickel alloy, steel treated by the Harvey carbonizing process, and nickel-steel treated by this process. Those that are to be hardened on the surface by the Harvey system will have it applied to them, it is said, at the Washington ordnance yard.

It will be seen that the forthcoming trial is to be of the same general character as the one which took place a few weeks ago on the Annapolis proving ground, but with the important difference that plates three and a half times as thick will now be used, and will be fired at by 6 inch and 8 inch guns. A further interest will be lent to the trial by the use of some American-made projectiles, as furnished by the Carpenter Steel Company, which is manufacturing them for the Navy Bureau of Ordnance on the Firminy system. As a competition in which American-made armor, guns, and shells are employed, it will have an unprecedented importance for this country at least.

An Improvement which Failed to Improve.

Mr. Metcalf, in a discussion at the late meeting of the American Society of Civil Engineers, concerning water supply, said: "We have had at times a great deal of trouble in getting a water supply for our establishment because of the floods in the Allegheny River, and a couple of years ago I thought I would make a great improvement. I had the Philadelphia Company send their dredge up and dredge a place some 10 or 15 ft. deep in the bed, and near the mouth of the Allegheny River. I then had a heavy timber crib built in the space thus dredged, and sunk our suction pipes into this crib. We got a beautifully clear water, and thought we had done a very great thing, but in a few days our whole concern was up in arms. A great many complaints were made, and they told me they could not get the boilers clean. The man in charge of the boilers said if he had to use that water he would give up the job, because he knew the result would be an explosion. Of course, I thought they were simply pumping out a little loose sand, but I had Professor Langley take up the matter and analyze the water to see if there was any real cause for trouble. The Allegheny River water is a very soft, delicious water, and we found that we had in that short distance of 12 or 15 feet struck a sub-river of lime water some 12 feet below the Allegheny, which contained thirteen times as much impurity as the muddiest river water we could get from a dirty flood stage in the river. So we were obliged to destroy the crib at considerable expense."—*The Railway Review*.

DOVER, N. H., is one of the few towns in New England, or, indeed, in the country, that operates its electric street railway system without the aid of a steam engine. The Salmon Falls River, which flows near the town, turns a 500 horse power water wheel, which supplies power for the dynamos that operate the street line, the electric lights in the place, and electricity for several neighboring towns as well. There seems to be no difficulty in obtaining a sufficient amount of power at all seasons of the year.