

traffic equal to nearly ten times that which destroyed the Great Northern rails above referred to in three years. The result of this trial was to induce the London and Northwestern to enter very extensively into the employment of steel rails, and we learn from Mr. Webb that in a short time arrangements will be made at Crewe for the production of three hundred and fifty tons of steel per week, of which three hundred will be used for rails; and that at the present time there are about fifty miles of steel rails in use on the line, and three thousand tons of steel-headed rails."

THE DOMESTIC SOURCES OF CHOLERA AND THE MEANS OF AVOIDING THEM.

At the present time, when the influences of this terrible pestilence are manifest in all sections, the above subject is one of the most important that can engage the attention of the people. We observe that the members of the medical profession are at variance in their opinions as to the contagiousness of this fearful disease, but they are unanimous as to its local causes, and the measures necessary to prevent it. These latter may be summed up in these three words—*Cleanliness, Pure Air, and Disinfection.*

The history of the epidemics of cholera, in almost every quarter of the world, demonstrates most decidedly that where these preventive principles have been scrupulously attended to, there the disease has been greatly diminished in degree, and in some places wholly avoided, and that it invariably displays its power most vigorously where they are neglected.

The first of these, cleanliness, is an idea which the most ignorant can comprehend in its fullest extent, implying as it does, simply, the careful removal of all kinds of dirt and filth from the premises and persons of the household, and the keeping of every thing about the house sweet and clean.

The matter of pure air involves the principles and practice of ventilation, which is a subject rather less understood by people generally, though of equal importance with the others, and easily attainable by various means. The removal of foul air, and the supply of fresh, pure air, are the points involved therein, for which various methods have been suggested—a further allusion to which we may make on a future occasion.

In many respects the practice of disinfection is the most important of all these preventive measures. It is universally admitted by those best informed upon the subject that the foul gases, generated by the putrefaction of animal and vegetable matters, are the most active and abundant causes of this disease and of many others. To prevent the decomposition of all such substances, and thus avoid the production of the poisonous gases, is therefore a matter of the very first importance. Modern chemistry has happily supplied us with materials for this purpose, which are easily obtained, and when properly applied are certain in their action.

It is a singular fact, that among the most active sources of the poisonous gases alluded to are the exhalations and excrements of our own bodies. Thus we are told by the Council of Hygiene of the New York Citizens' Association, that "Careful observation has established the fact that neglected and putrescent excrements and the effluvia from privies serve to localize the outbreak of cholera, and more fatally than almost any other class of nuisances."

The Consulting Physicians of the City of Boston tell us in a recent public document, "Among the causes which act upon the human system to induce the disease (cholera), are exhalations from the bodies of human beings in crowded residences, and unremoved excretions."

Dr. Greenhorn, of London, an eminent sanitarian, says, "An atmosphere impregnated with the products of fermenting excrements is at once the most obvious and most constant concomitant of cholera."

Dr. E. M. Snow, the distinguished Superintendent of Public Health, of Providence, R. I., tells us:—

In some conditions of the atmosphere, particularly when there is excessive heat and moisture, and when there is any epidemic influence prevailing, the impure air arising from these collections of swill and house offal is a most injurious nuisance and a prolific source of diseases. The danger is still greater when, as is frequently the case, the swill and offal are deposited in cellars or are thrown into privy vaults.

We might multiply to an indefinite extent the evidence of this singular fact, that these results of the vital operations of our bodies are a powerful cause of our own sickness and death, but our readers will doubtless be satisfied with the above extracts, and the question then arises, how are these consequences to be avoided? The answer is equally plain—by cleanliness and disinfection; and we are pleased to be able to state how the latter operation can be most effectively performed.

Among the rules laid down by the Council of Hygiene of the Citizens' Association, for the prevention of sickness in general, and cholera in particular, is the following: "Avoid and prevent effluvia from excrementitious matters, sewers, privies, and chamber vessels. Frequently and thoroughly disinfect these sources of fever poison." How to do it is therefore the important question.

The following is a list of the substances at present regarded by chemists and sanitarians as the most available and effective for the purpose.

Common lime is useful as an absorbent of moisture, and a preventive of the decomposition of some substances.

Freshly-burned charcoal is a powerful absorbent of noxious gases, and to a certain degree a preventive of decomposition. It is well known that wooden stakes, whose surfaces have been charred by fire, when placed in the ground, will be preserved a long time.

A combination of these two substances, lime and charcoal, has recently been introduced with good effect, when finely ground together, in the proportion of one pound of charcoal to four of lime. This has received the name of "calx powder."

Carbolic acid, a product of coal tar, in the form of crystals, when pulverized and sprinkled over foul matters, is highly recommended. It may be used in solution also.

Sulphate of iron, commonly called copperas, when used in the same manner, is also a valuable disinfectant and antiseptic. It may also be used in solution, in the proportion of an ounce to a quart of water.

Chloride of lime has achieved a high reputation as a disinfectant, but for domestic use it is less available than those mentioned above. Its value for this purpose depends almost wholly upon the chlorine gas which it gives forth. This is not only in itself a very offensive substance, but as a gas it is only useful in decomposing other gases, with which it must come in contact after they have escaped into the air. This is like trying to catch a thief after he has run away. The other disinfectants will prevent the escape of the noxious gasses.

We here make no mention of any of the numerous advertised disinfectants, because their compositions are kept secret, and are, no doubt, chiefly made up of the substances herein mentioned, in great part, if not wholly, and are got up solely for the purpose of making money.

There is one combination, however, which is no secret, and which we have personally proved to be one of the very best compositions known for the purpose. It is called the "Ridgewood Powder," and being made up of several of the substances previously enumerated, it combines their deodorizing and antiputrescent properties in a very remarkable degree.

How and where to apply these poison preventives, is the question next in importance. In their report on epidemic cholera, the Council of Hygiene informs us, when speaking of domestic hygiene, that:—

In every private residence, tenant domicile, hotel, boarding house, public school, and place of resort, there should be a thorough examination of the local and house drainage—the stench traps, the cellars, the vaults, the cesspools, and privies. Immediate cleaning and disinfection should be enforced, and proper precautions against every source of domiciliary impurity should be adopted; and all privies, water-closets, sinks, and excrementitious matters should receive scrupulous care and thorough disinfection.

To facilitate this most important and essential sanitary measure, so that disinfectants may be applied in all the places indicated, without trouble or delay, and without exposing fecal or other foul matters to the air, an instrument has recently been introduced which may be used in any locality and by any person, even by a child, without the possibility of mistake or danger. It is called the "Ready Disinfecter,"

and may be attached to any chamber vessel, water closet, privy seat, swill pail, or other vessel containing house offal, and the disinfecting powder applied by it without exposing their contents to the air.

This apparatus, the "Ready Disinfecter," is a very simple and easily managed instrument. It has been approved by the New York Academy of Medicine, by which it was unanimously recommended to the consideration of the Metropolitan Board of Health.

The vast extent of the beneficial effects derivable from the general use of such an instrument may be comprehended by one fact, viz, that if employed for the disinfection of all water closets, chamber vessels, slush buckets, privies, etc., in cities like New York, Philadelphia, and Boston, not only would there be no odor arising therefrom in any dwelling, but all the sewers would likewise be completely deodorized, whereby one of the most potent causes of cholera, and many other diseases, would be entirely removed.

Any further information of the subject, either of disinfectants, or the mode of applying them, may be had by addressing Mr. John H. Keyser, No. 158 Ninth street, opposite the Bible House, New York.

It is not for the prevention of cholera alone that these sanitary measures should be universally adopted, but as against fevers of almost all kinds, especially those of the typhoid character, many disorders of the lungs, erysipelas, diarrhoea, cholera morbus—in fact, all diseases derived from atmospheric impurities, which are known to medical men as zymotic diseases. There is no doubt that the enormous mortality of infants, which occurs everywhere, might be greatly reduced by careful attention to these ideas.

The Brazilian Exhibition.

We are indebted to Counselor Azambuja, Minister of Brazil, for the following particulars relative to this exposition, which is to be opened in Rio de Janeiro on the 19th of October, in the present year.

By the regulations and instructions of the managers, it appears that foreign machinery and implements are admitted and must be labelled "Foreign," and accompanied by the name of the manufacturer, and inventor, with the cost of the machine. They may be worked by the exhibitors, but may not compete for the premium, the space and steam power required being furnished free of expense; but machinery requiring any special construction will not be admitted. The cost of transportation must be paid by the exhibitors. No machinery can be taken away without a special permit, and if, after the closing of the exhibition, they are sold, they will be subject to a duty of 1½ per cent ad valorem; but if re-exported will be free of duty. Free passes are furnished to the exhibitors. All persons wishing to exhibit must give due notice to the Minister of Brazil in New York, with full particulars of their machines.

The Minister informs us that the Empire of Brazil, is a field which our manufacturers of agricultural implements cannot afford to neglect.

The Rebuilding of Charleston.

The Charleston City Council has referred to a special committee the following proposition to rebuild the city. It is proposed to issue bonds of the city, drawing seven per cent interest, to all who may wish to rebuild, upon the following basis:—

When a lot is valued at \$10,000, and the parties owning the same wish to build a store, warehouse, or dwelling, worth \$15,000 upon it, it is proposed to issue to the parties \$15,000 of city bonds at par, the city to take a bond and mortgage with insurance policies assigned for security, and as an additional safety and security for the city, the interest is to be paid semi-annually, and the parties borrowing the city bonds are to be required to pay the interest in advance, so the city can be sure of meeting the interest on these bonds. This would increase the revenue of the city taxes in the following proportions: A lot now valued at \$10,000, yielding \$175 taxes, would, with a building valued at \$20,000 erected upon it, yield \$525, or from \$300 to \$350 increase over the present tax.

CABLE BUSINESS.—There were twelve messages received at the New York Telegraph office for Europe in one day, for which the sum of \$1,313 in gold was paid.