

of eminent authority that New York is in almost constant danger of a water famine. In one of the recent reports of the Merchants' Association it is stated that "the existing storage is insufficient to carry the city over a protracted dry season unless the present rate of consumption be materially reduced. In 1899 and 1900 the city was dependent for 255 days on its stored water. At the present rate of consumption in case of continued drought the stored supply would be exhausted in 245 days. Before a new supply is available it is estimated that the draft on the storage during the dry season will have so increased as to exhaust it in 175 days."

At present the city of New York has eighty-two distinct sources of water supply, but this is quite insufficient. The work of procuring an additional quantity of water has already been entered on, but has met many grievous and unnecessary delays. . . . "by trifling with the work at Jerome Park reservoir, we have been tempting Providence for several years. The city under a special act of the legislature agreed to pay the contractor \$500,000 more than the contract price on the basis of an eight-hour day to finish the work by Sept. 1, 1904 (full performance of which was due under the original contract on Nov. 1, 1902), but the work is not yet done—in fact, only the westerly of the two reservoirs is completed, and that but recently." When completed, it is stated that the city's water system will have cost more than \$280,000,000. As a whole, the finished New York system will be one of the largest public works ever undertaken by any community in ancient or modern times.

There is one point brought out in the recent discussion of the New York situation to which attention should be directed. It is shown that the imminent danger of water shortage is due in large part to a waste of water through thievery, defective plumbing and carelessness, which is clearly preventable. The average daily consumption of water in New York, as in nearly all other large American cities, is at least three or four times as great as in European cities of the same class which are as cleanly kept and in which manufacturing industries dependent on abundant water supply are as numerous as in the American municipalities referred to. When an engineering authority computes the needless waste in New York City at from 50 to 75 gallons a day for each inhabitant, an amount greater than the whole per capita consumption in most German cities, it is plain that the situation is serious. This extravagant waste of water has a direct sanitary, as well as economic importance.

The necessity for some sanitary supervision over a great public supply is too obvious to require argument. The pollution of water on the various watersheds must be prevented, industrial nuisances abated, local systems of sewerage maintained, local filter plants established, and a rigorous sanitary patrol of the watersheds kept up unceasingly. The larger the amount of water to be provided, the more extended must be the area to be

supervised and the more imperious the necessity for constant vigilance. In other words, a needless increase in the quantity of water to be supplied to a given community throws a heavy burden on those responsible for the sanitary quality of the supply and increases enormously the danger of a breakdown in sanitary efficiency. Any measure, then, that tends to diminish that large fraction of the per capita water consumption in American cities which is pure waste deserves to receive the hearty support of all interested in municipal sanitation. The sanitary quality of a large water supply can undoubtedly be improved by reducing the amount of waste, and the efforts of the Merchants' Association of New York in this direction are worthy of general imitation.

THE ETIOLOGY OF CHOREA.

Chorea, as one of the most frequent nervous diseases of childhood, must always command interest, and this is increased by the mystery regarding its relation to rheumatism and its rather obscure pathology. While it is true that from time to time distinct brain lesions have been described, and while it is also true that certain writers have even regarded it as rheumatism of the brain, no such direct evidence as that of Poynton and Holmes¹ has hitherto been adduced. It will be remembered that Poynton has been working on the bacteriology of rheumatic fever for some years, and may justly be regarded as an authority on this subject. The view which he and his collaborator take of chorea is that it is in most cases rheumatic, and that it is directly due to an infection of the brain and meninges with the *Diplococcus rheumaticus*.

The evidence on which this hypothesis is based (Poynton frankly states that it is a hypothesis) is, we think, rather striking. It consists in the demonstration of the *Diplococcus rheumaticus* in the cerebral tissues of three cases of chorea, two of them ordinary rheumatic cases, the third a case of chorea gravidarum. In the latter case there was no rheumatism, but there was an associated acute endocarditis from which the same organism was obtained. In association with the micro-organisms were definite cerebral lesions, partly vascular, in the form of infiltration of the perivascular lymph spaces, thrombosis of vessels and areas of necrosis, and partly cellular, in the form of chromatolytic changes in the brain cells.

The authors regard chorea, then, as due to the toxins of the diplococcus acting on the nerve cells, an action which they compare to that produced by strychnin or tetanus toxin. The fact that in chorea the symptoms are mainly motor, while the degenerations are not confined to the motor areas, they regard as, so to speak, accidental. As they point out, symptoms other than motor ones may be observed, particularly the mental peculiarities of the disease, which, as is well known, may amount to

1. Lancet, Oct. 13, 1906, p. 982; abstracted in THE JOURNAL, Nov. 10, 1906, p. 1599.

actual insanity. They think that the toxin is of a rheumatic nature not only on account of the bacterial findings, but also on account of the frequent association of the two diseases and the resemblances in their natural history such as their tendency to relapse, their mode of onset, and their association with secondary lesions common to both. They are not as yet prepared to say that all cases of chorea are rheumatic. The chorea of pregnancy is also generally rheumatic, statistics showing that in a large proportion of cases the patients give a history of previous attacks of articular rheumatism.

While these researches are in many ways convincing, they do not prove the rheumatic origin of chorea. If it were admitted on all sides that rheumatism is due to the *Diplococcus rheumaticus* they might be considered to do so. But this is far from being the case. The results of cultures in acute articular rheumatism have been far from concordant. In many cases cultures have been sterile. These researches do seem to show that chorea is definitely associated with the presence of micro-organisms in the brain and meninges, and with definite anatomic lesions which are probably due to them, and this in itself is of great interest. Before it is definitely decided that these organisms are the true causal agent, the etiology of rheumatism must be cleared up, and so far this has not been done to the satisfaction of even the majority of those who are competent to judge.

A DANGER IN ORGANOTHERAPY.

A very interesting development of our knowledge of the effect of the various preparations of the suprarenal gland has been the confirmation from a number of observers in different countries of the fact that the use of considerable quantities, in animals at least, produces arterial degeneration. It is pointed out as a triumph of experimental pathology that at last we are in the position to be able to produce degeneration of arteries at will for purposes of study. It is rather disquieting news, however, for those who have been prescribing the remedy in considerable doses for some time and still more for those who have advised its employment over prolonged periods for the treatment of nasal conditions. The use of various preparations of the suprarenal gland in powder form for local applications in the nose has not been confined to physicians' hands; patients have been given powder blowers and have been counseled to use the substance rather freely at intervals of a few hours in order to have that freedom of nasal respiration, the absence of which in enlargement of the turbinates and in various conditions of hyperemia of the nasal mucous membrane is a source of so much discomfort.

We are not sure how much of the powder or of certain extractives may be absorbed into the system as the result of this application. Observation has shown, however, that there is a certain increase of blood pressure

from fifteen minutes to a half hour after the application and that occasionally also there is some increase in the rapidity of the heart action. The latter effect is probably only secondary to the increase of blood pressure. It is easy to understand that such effects if frequently repeated over prolonged periods would almost surely lead to the development of precocious changes in the arteries if not in the heart. Repeated doses would not produce the acute degenerations that are seen in animals from massive doses, but such use of the substance can scarcely be expected entirely to preclude the danger of gradually progressive changes in the direction of pathologic conditions. In a word, not enough is yet known with regard to the physiologic action of suprarenal substance or its extracts to justify us in advising its employment as a routine remedy for any length of time.

This is a typical example of the dangers that are involved in the application of the very limited knowledge we possess at the present time as to the ultimate action of most of the organo-therapeutic remedies. We know that they are often extremely active substances, sometimes very helpful in their immediate effects. Beyond this, however, our knowledge does not go. It could easily happen that pathologic processes—the real source of which would remain latent until the coincidence of a number of cases occurring under similar conditions would arouse suspicion—might unwittingly be initiated by their use. It would be sad, indeed, if our modern scientific medicine should have any such rude awakening from its dream of therapeutic progress as this would occasion. It at least behooves us to be reasonably careful in the application of such remedies and especially not to hand over the employment of them too freely to the public under such circumstances that they will be used over prolonged periods without proper safeguards and the careful observation of a trained medical mind.

NEWSPAPERS AND QUACKS.

Condemnation of the charlatan by medical men is often viewed with suspicion by the layman and subjects the physician to the unjust charge of jealousy and self-seeking. No such suspicion, however, can rest on the layman who shows up these fraudulent practitioners. Copies of the *Cleveland News* come to our desk, telling of a very interesting investigation made by a reporter for the paper, Charles F. Stuart, among "eminent specialists" of that city. He declares: "I have known some murderers, a few burglars, some pickpockets and a scattering assortment of other criminals, and until recently I held that the thief who robs the children's fresh-air-fund contribution box holds the record for combined cowardice and meanness in the art of theft. Since then, however, I have visited that colony of graft called 'quackdom.' Now I feel like taking off my hat to the fresh air fund sneak and telling him that he has not only an equal, but a superior." Being in perfect physical condition, Mr. Stuart first secured a thorough