rate of this movement being ascertained, it was found that with relatively light winds the movement of the water down to a depth of five feet amounted to about three per cent. of the wind movement, while at lower depths this water movement diminished to as low as three-quarters of one per cent. of the wind movement. Thus, to quote from the figures of Mr. Ackerman, who made these tests, with a wind movement of six miles per hour the percentage which the water movement was of the wind movement was as follows: At 5 feet depth, 3.2 per cent.; at 10 feet depth, 1.74 per cent.; at 15 feet depth, 0.87 per cent.; at 20 feet depth, 0.75 per cent.

With a higher wind velocity the water also travelled with greater velocity, but its movement was then not so large a percentage of the wind movement. Thus, with a wind blowing 17 miles an hour the water movement at a depth of five feet amounted to but one and a quarter per cent. of that of the wind. From these data it was easy to calculate that pollution entering the head of the lake could make the trip to the foot of the lake in three days or less.

Knowing, as we do, from Dr. Houston's experiments, that cold water below 50° F. will favor the longevity of the typhoid fever bacillus, it is easy to see how entirely possible it would be for living germs to reach the intake in dangerous condition.

It will be noted how striking is the resemblance which some features of this case bear to the classic instance of the outbreak of typhoid fever at Plymouth, Pa., where the whole trouble came from the dejecta of a single individual being thrown out upon a hillside where it froze and accumulated for weeks and finally, upon the coming of the thaw of spring, was washed into a stream tributary to the city reservoir. This sudden washing of accumulated fecal material furnished in both of these instances a volume of pollution out of all proportion to the amount which would be daily derived from the contributing population during ordinary times of fair weather, and as a result it overtaxed and broke down nature's ordinary means of purification and protection.

There is no question but that this particular case, showing, as it does, the dangers that may arise from such winter accumulation, and showing further the possibility, under favorable conditions, of the transportation of such material over considerable distances in a lake, will cause many of us to materially amend our notions about the dependence to be placed upon lake and reservoir storage as a means of protection against the evils following water pollution. We should not trust to simple storage without a thorough knowledge of just how it is being accomplished. The writer has in mind an instance of a large lake some five miles in length which has a stream entering within one mile of a city intake, and, because of the entering water having a low specific gravity, there is a possibility of its flowing over the surface of the lake toward the intake whenever the wind is in the right direction. The great length of that lake is, under such circumstances, of small value for purification purposes.

All of this certainly goes to show that we should be cautious about banking too strongly upon the efficiency of reservoir purification under all circumstances, and it demonstrates the necessity of our being well acquainted with the conditions surrounding each individual case before venturing an opinion on the matter.

It should be noted here that, in judging of the bacterial efficiency of lake or reservoir storage, the interpretation of the results of an examination may be obscured by an increase in the total count of bacteria reported due to the disturbing influence of the spring or autumn "turnover."

In conclusion, permit a word to be added concerning the value of storage as a protection against spreading disease through the use of an "emergency" water supply. The underwriters very properly insist upon a sufficient fire service, which shall be available in the event of a temporary breakdown of the regular distribution system. It too often happens that upon such occasions a very inferior water is supplied by the "emergency intake," and as a result of its use there follows an outbreak of typhoid fever. Commonly, some old intake is allowed to remain in place for "emergency service," when pollution of the former supply has so grown in intensity as to force the authorities to seek a new source for public water.

Further fouling of this old supply goes on progressively as population increases, until after some years the water becomes practically dilute sewage. Suddenly some accident to the regular water system induces the authorities to open the old gates, and the result may be imagined.

Such has been the history of typhoid epidemics in a number of cities.

Storage for a sufficient length of time, supplemented, if necessary, by an appropriate dose of bleaching powder, will render even a poor water acceptable for emergency uses, and the reservoir capacity for such storage need not be large.

MILL CONSTRUCTION FOR ABITIBI PULP AND PAPER COMPANY.

It is proposed to have ready for occupancy by June 1 the paper mill building of the plant of the Abitibi Pulp and Paper Company at Iroquois Falls. It will be 500 feet in length and nearly 300 feet in width, being much larger than any of the other buildings now clustered around the edge of Iroquois Falls. It will be like the other buildings, of solid concrete construction, absolutely fireproof. Forty thousand cords of pulpwood are piled on the banks of the Abitibi and Black Rivers and tributaries waiting to be floated down the rivers to the falls when the ice leaves. It has been decided to keep a gang of 250 men at work in the bush during the summer months cutting wood on the large reserve of the company. The total now cut awaiting the spring freshets will be increased by thousands of cords of settlers' pulp, to be shipped in by rail. At the plant at Iroquois Falls 475 men are now employed, with 250 men in the bush and at the Couchiching Falls dam.

Contracts are being signed for the equipment of the paper mills, while contracts for the paper machines have already been signed. These will consist of one 204-inch machine, manufactured by Walmsley, of London, England; two 188-inch and one 158-inch machine, manufactured by Pusey and Jones, of Wilmington, Delaware.

American copper mines turned out 218,579,133 pounds last year, or 1,901,380 pounds less than in 1911, but the value ($36,065,556) was $8,505,482 greater.

The London *Standard* states that a new alloy of exceptional lightness, considerable mechanical strength, and freedom from electrolytic action, is stated to be gaining popularity in British engineering circles. It is named "Ivanium." This alloy, obviously one of aluminium with one or more metals occupying positions, relatively near aluminium in their electrochemical properties, is only 2½ per cent. heavier than pure aluminium. It is stated to have the property of retaining its hardness after being subjected to heat, and of being non-magnetic. When polished, the surface remains bright indefinitely. Castings made in ivanium are stated to be equal in finish to the finest gun-metal. The alloy does not clog a file, and it can be screwed, tapped, milled and soldered with ease. Joints soldered together are stated to be as strong as the original metal. The melting point is low, about 300° C., and the alloy is claimed to be a useful deoxident.