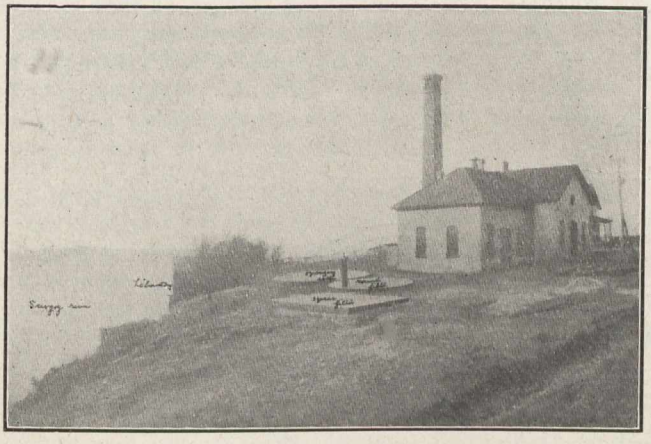
and some of the bacteria from the water, and 2, the ozonizing section for generating and applying ozone to the filtered water.

The filters are of the type called rough mechanical filters. No coagulants are used in connection with these filters.

These two units filter about half a million gallons of water per day.

The water runs by gravity from the river into the filters, upon which a head of from one and a half to three feet is maintained, the head depending upon the level of the river. The filtered water is received through Irwin patent sand valves, which seemed to have worked very satisfactorily, into pipes which carry it into the filtered water chamber. Here the water flows through the aspirators and is supposed to entangle a sufficient amount of ozone to purify itself.



B.—General View of the Lindsay Plant Looking Up the River Towards Scugog Lake.

The apparatus for generating and delivering the ozone is situated in the pumphouse. In the transformer room there is a blower which is supposed to draw the air from outside and blow it through the ozonizers, two in number, placed in an adjoining air-tight compartment. The current is received at 110 volts and is transformed to 8,000 and 10,000 volts. This current passing through the ozonizer in the form of the "Silent Discharge" transforms the oxygen of the air into the active form of ozone. From this room the ozonized air is led by a six-inch pipe to the aspirators, eight in number, through which the filtered water is flowing.

The falling water entangling this ozone carries it down to the bottom of a well, 22 feet deep, and then flows backwards and forwards through a box containing baffles of perforated plates, to the surface of the well. In this travelling together for about 85 feet the ozone is supposed to part with its active atom and destroy the organic matter, including the bacteria, in the water. The water is then pumped from this receiving well into the town mains and stand-pipe.

The gas generated is without doubt ozone and answers to all the ordinary tests.

The action of the ozone and filters on the water should be clearly shown by the physical and chemical changes produced in it. Samples were taken from the raw river water as it came into the filters, from the filtered water well, from the ozonized water well and from the town supply, usually from the hotel tap, and analyzed. The following table speaks for themselves.

Average Composition of 7 Series of Lindsay Waters, Parts per Million.

Specimen	Free NH_3.	Albuminoid NH_3.	Nitrites and Nitrates.	Total solids.	Total hardness.	Temporary hardness.	Permanent hardness.	Oxygen consumed.	Color (true).	Chlorine.
Raw	.022	.238	.129	.0212	195	140	55	5.6	25	1.5
Filtered .	.023	.227	.194	.0212	200	142	58	5.7	25	1.5
Ozonized.	.023	.228	.163	.021	206	140	66	5.6	25	1.5
Tap	.018	.224	.190	.024	202	140	62	5.0	25	1.5

SUMMARY OF FERMENTATION REACTIONS,

Showing number of Positive and Negative Fermentations and Colon Reactions in each of the quantities of the several waters tested.

Water.	No. of samples.	1 c.c.			5 c.c.			10 c.c.			15 c.c.			20 c.c.			30 c.c.			40 c.c.			50 c.c.		
		F.	C.	R.	F.	C.	R.	F.	C.	R.	F.	C.	R.	F.	C.	R.	F.	C.	R.	F.	C.	R.	F.	C.	R.
		−	+		−	+		−	+		−	+		−	+		−	+		−	+		−	+	
Raw	108	30	78	43	65	16	92	35	73	7	101	10	98	5	103	9	99	3	105	6	102	2	106	2	106
		3	105	4	104	1	107	3	105																
Filtered ...	109	23	86	64	45	21	88	49	60	8	101	15	94	4	105	8	101	3	106	10	99	3	106	8	101
		7	102	12	97	2	107	9	100																
Ozonized ..	109	34	75	68	41	26	83	52	57	9	100	17	92	6	103	13	96	2	107	11	98	2	107	8	101
		2	107	10	99	2	107	10	99																
Tap	92	29	63	58	34	19	73	45	47	8	84	13	79	5	87	11	81	4	88	10	82	3	89	12	80
		2	90	9	83	1	91	5	87																

F. = Fermentation. C. R. = Colon Reaction.

If the water were being ozonized properly one would expect a decrease in the free ammonia, albuminoid ammonia and oxygen consumed, with a disappearance of the color and an increase of the nitrites and nitrates from oxidation of the free and albuminoid ammonia. These changes we proved by analysis did take place when we pumped ozone through the town water by means of a force pump.

A glance at the above table will show that the raw, filtered and ozonized water contain the same quantities of free ammonia, and that there are equal amounts of albuminoid ammonia in the filtered and ozonized waters, a small amount having been removed from the raw water by filtration. There is little change in the total solids, hardness or oxygen consumed, and the color and chlorine are unaltered.

From these analyses it will be seen that ozone has done absolutely nothing, not even removing the color in the slightest degree. The generally accepted idea of the townspeople is that the water has been rendered colorless by their new system. Several laboratory men have been enlisted to compare these waters with the standard water colors and all made readings in harmony with our own. When one looks at the brown water in the river and then at a glass of water from