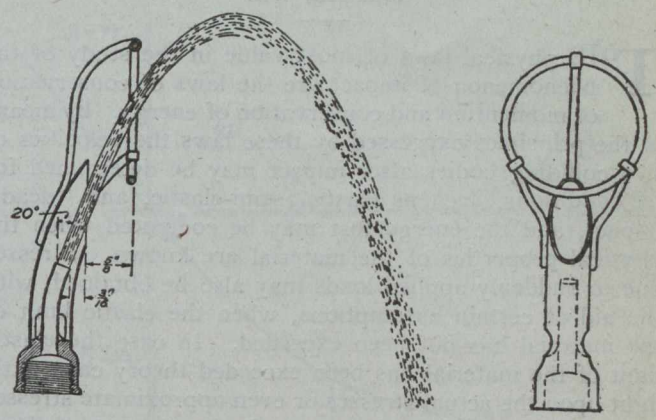
than 1 inch in 40 per cent. of the fountains. Many of the fountains are subject to contamination by the consumer, either directly by the lips or by water falling back from the lips onto the jet or the surrounding parts. Certain of these types have closed receptacles around the point of discharge, which retain a part of the water discharged from the outlet. Coloring matter added to these receptacles was not entirely removed for long periods of time.

The bacteriological examinations of the water supplied to 18 university buildings show consistently low bacterial counts, and B. coli and streptococci were not found present in 100 cubic centimeter amounts. The results on water discharged from the fountains show higher bacterial counts in a few instances, and the presence of streptococci in 11 per cent. of the fountains examined, but B. coli was not found present in 100 cubic centimeter amounts in any case. The examinations of the swabs show the presence of streptococci on the parts exposed to the lips of the consumer in 80 per cent. of the fountains. To summarize these results, they show: (*a*) That a large proportion of the fountains were infected with streptococci, which it is reasonable to assume came from the mouths of the consumers as these organisms were not found in the water supplying these fountains; (*b*) that streptococci were actually present in the water discharged from the fountains and could be transmitted to the mouth of a consumer, even though the lips were not touched to the infected parts. These facts suggest the possibility of the fountains being a factor in the transmission of certain communicable diseases, and that certain changes should be made in their construction to eliminate this danger.

The principal defect in construction was the vertical discharge of water from the fountain. This made it necessary for the consumer to place the mouth directly over the point of discharge, and the majority of persons drank with the lips touching the discharge nozzle of the fountain. This was especially true where the water jet was low, but even when it was high enough to avoid this practice the average consumer placed the mouth over the jet and then lowered the head until the lips touched the discharge nozzle or adjacent parts of the fountain.

Experiments were conducted with various types of fountains which were designed with the view of correcting the defects noted in those already in use. It was found that the most practical construction to obviate the principal defect mentioned was to discharge the water from the fountain at such an angle that the consumer could drink without approaching the point of discharge, thus eliminating the possibility of water falling back from the mouth onto parts of the fountain at or near the point of discharge. This principle was suggested previously by Pettibone, Bogart, and Clark following an investigation of drinking fountains at the University of Wisconsin.

It was found necessary in a practical design to entirely protect the point of discharge and to guard the nozzle against the approach of the consumer. The nozzle shown in the accompanying illustration fulfils these requirements, and can be substituted for the nozzle used on practically any of the common types of drinking fountains. This type of nozzle protects the point of discharge by inclosing the small discharge tube in a larger tube which is cut at an angle with its upper surface extending beyond the outer extremity of the inner tube. The wire muzzle prevents the consumer from approaching the point of discharge. This nozzle can be used on the constant or intermittent flow type. In cases where the water pressure varies to a large degree, pressure regulators should be installed. Doubtless there are many other mechanical possibilities of accomplishing the same result, but the one



A Protected Type of Drinking Fountain Nozzle

shown is simple and inexpensive, and it can be attached to practically any fountain.

Summarized Results of Investigation

Number examined		77
Number of types		15
Height of water jet:		
Continuous—		
Minimum	inches	0.1
Maximum	inches	3.0
Intermittent—		
Minimum	inches	0.4
Maximum	inches	12.0
Bacteriological examination:		
Swab from fountains—		
Streptococci positive	per cent.	80
Water from fountains—		
Streptococci in 100 c.c. positive	per cent.	11
Bacteria per c.c. average		6
B. coli positive—		
1 c.c.		0
100 c.c.		0
Water from buildings—		
Streptococci in 100 c.c. positive		0
Bacteria per c.c. average		2
B. Coli positive—		
1 c.c.		0
100 c.c.		0

Results on Drinking Fountain with Improved Nozzle

Number of examinations	3
Bacteriological examination:	
Swab—Streptococci positive	0
Water from fountains—	
Streptococci in 100 c.c. positive	0
Bacteria per c.c. average	3
B. coli—	
1 c.c.	0
100 c.c.	0
Water from buildings—	
Streptococci in 100 c.c. positive	0
Bacteria per c.c. average	0
B. coli—	
1 c.c.	0
100 c.c.	0