C.

2" Galvanized iron pipe. Gauge 28.

Diameter	2"
Thickness	0.016"
Length.	35.3" contains 4 lbs. water.
External surface	1.54 sq. ft.

D.

2" Bright tin pipe. Gauge 26.

Diameter	2"
Thickness	0.018"
Length.	35.3" contains 4 lbs. water.
External surface	1.54 sq. ft.

E.

2" Lap-Welded Charcoal Iron Boiler Tube. Black.

Inside diam	1.810"
Outside "	2.000"
Thickness	0.095"
Length.	41" contains 3.805 lbs. water.
External surface	1.784 sq. ft.

G.

1" standard but welded stem pipe. Galvanized.

Inside diam	1.048"
Outside "	1.315"
Length.	0.134"
Thickness	4.25 contains 1.58 lbs. water.
External surface	1.463 sq. ft.

A. and G. were filled with warm water and exposed under a shed to a temperature of from 16° to 20° F., and the rate of cooling is illustrated in accompanying diagram (Fig. 1).

A. B. C. and E. were filled with warm water and exposed in the open air on a very still day (no perceptible wind blowing) to a temperature of from 7° to 10°F. The rate of cooling is illustrated in Fig. 2, which also illustrates the rate of cooling of pipe B., exposed to a wind at low temperature.

A. B. C. D. E., were filled with warm water and submerged in still water under the ice, and the experiment was repeated in a current of water at 32° flowing at 1½ feet, per sec., and the results are shewn in figs. 3 to 7. Fig. 8 shows the rate of cooling in G in the current. In all cases the pipes wereexposed in a vertical position sheltered from the sun.

All of the diagrams show irregularities which may be attributed to inaccuracies in reading the fine division on the thermometer and to possible irregularity in circulation of the warm water while cooling in the pipes. Apart from these irregularities the differences between figures 1 and 2 are interesting.

In the following table the writer compares the loss in B. T. U.'s per sq. ft., of external surface from the different pipes under the differing conditions.