

The Engine Test in the Lowell Laboratory.

For some years past it has been the custom of the Department of Mechanical Engineering to run a boiler test soon after the return of the Senior Class from their Christmas vacation. This year the installation in the Lowell Laboratory of two large direct connected units enabled the department to supplement the usual boiler test with an engine, dynamo, and cooling tower test.

The methods pursued in testing these three pieces were as follows:

The boiler test, which we will describe first, requires to be run a considerable time, in order that the data may be as accurate as possible. In this case the boilers were run continuously for seventy-two hours, requiring nine shifts of four men each, working eight hours per shift. Of these men, the first weighed all the water fed to the boilers, the second analyzed the flue gases and observed the draft in the stack and the temperature of the gases in the stack; the third weighed all the coal fired and the ashes taken away, while the last man determined the amount of moisture in the steam by means of a calorimeter.

The engine which was tested is what is known as a tandem compound, directly connected to an alternating current generator. The horse-power developed was obtained by means of four indicators placed one on each end of the cylinders, and operated by four men, one for each instrument. Another man recorded the number of revolutions per minute, and these results when properly applied to the dimensions of the engine gave the indicated horse-power, that is, the energy which would be supplied to the generator, were there no friction losses.

The output of the generator was absorbed by wire resistance coils, water-cooled, while suitable instruments on the main switchboard, read at frequent intervals, gave the output of the machine in kilowatts. These same instruments enabled the load to be kept constant, a necessary condition in this work.

There yet remains the cooling tower, which stands just back of the lunch-room, at the right of the door of the Lowell Laboratory.

The function of this tower is to cool by evaporation the water used in condensing the steam used by the engine. The tower has its lower portion lined with brick, with a concrete pit beneath; the upper portion is filled with drain pipe, and a motor-driven fan blows air upward through the tower. Water drawn from the pit at the bottom by a large duplex pump alongside the engine is pumped through the condenser, and after condensing the steam and becoming heated passes up to the top of the tower and is there sprayed out over the drain pipe.

It then falls through these cool obstructions and losing its heat finds its way into the pit, to be again pumped through the same circuit. To cause this cooling, evaporation is necessary, and consequently the loss must be made up from the city main. This water, called "make-up water," was weighed on the floor of the laboratory and supplied to the suction main of the pump, keeping the water in the pit at a constant level.

The large duplex pump which circulates this water has its steam cylinders in the middle and while one end acts as a circulating pump, the other end pumps the condensed steam from the condenser into weighing tanks, from which it is supplied to the boilers through a feed water heater in the boiler-room.

A. GARDNER.

Shall Technology Move?

The subject of the debate of Wednesday, Jan. 6, was:

Resolved: That the removal of the Institute to the suburbs is of advantage to the students.

The affirmative began by stating that arrangements are practically complete and that the only question is one of advisability in respect to studies. They held that college life is necessary to broaden a man and that in this fact lay the most potent reason for leaving the city. The affirmative also referred to the present unhealthy conditions of living under which many students live, and argued that a normal growth of our athletics is to be desired.

The negative replied that Technology is a scientific school, and that being such, social life would be detrimental to the scientific education. They affirmed that the changes against the conditions of health were absurd. The last speaker for the negative took up the disadvantages of moving from the present helpful environment, and held that there must be a relapse from our present high standards if we move.

The Tech Hop.

The third annual Tech Hop given under the direction of the Freshman Battalion took place at Paul Revere Hall, on Tuesday, Jan. 12. The committee in charge of the affair consisted of the following men: Boles, Chairman, Bancroft, Sec., Gammons Treas., Rood, McGregor, Chase, Hudson, Christy, Packard, Walsh, Otis, Sage, Ashenden.

The matrons were Mrs. Rand, Mrs. Tyler, and Miss Burton. Profs. Tyler, Burton and Mr. Rand were also present. Representatives of most of the suburban high schools were present, and their various uniforms made a very pretty picture. The grand march was led by Capt. Boles with Miss Mills.