to gauges. In short, every bolt about the engine is made to a gauge, and every hole drilled and reamed to a templet. In all the departments specimens of good work are accessible to the workmen, and no deviation from them is allowed. In the boiler shop the riveting is done by steam, hydraulic, and hand power, and some of the flanging is also done by hand. There were engines in various stages of construction. A ten-wheeled "consolidation" engine for the Lehigh Railroad had cylinders twenty by twenty-four inches and weighed one hundred and four thousand pounds. Near by were small narrow-gauge engines, probably for some mine. Since 1876 the firm has built street-car motors.

The 5,000th locomotive, built in 1880, was for fast passenger service on the Bound Brook Route, and was designed to run with a light train at sixty miles per hour and to burn anthracite coal. It had cylinders eighteen by twenty-four inches, and one pair of drivers six and one half feet in diameter. What a contrast to the "Old Ironsides," which was nearly a year in building! The present capacity of the works is ten locomotives per week, and 563 were built last year. We saw No. 6,581, half finished. Nine acres of ground are occupied by the various buildings and yards, and 3,000 men are employed. All parts of locomotives and tenders, except the boiler and tank plates, the steel tires and steel forgings, chilled wheels, boiler tubes, and some of the furniture, are here made from the raw material. The plant consists of nearly 800 machine tools and drawings, and patterns for over 500 different sizes or styles of locomotives, for all existing gauges and every description of service, are included in the working lists.

A. L. R.

On Thursday evening the excursionists left Philadelphia for New York, where Friday and Saturday were spent, with headquarters at the Grand Central Hotel.

THE NEW YORK STEAM HEATING COMPANY.

The very interesting works of this company were visited on Friday morning. The steam which is at present consumed by its customers is supplied by six Babcock & Wilcox boilers, of 250 horse-power each; and it is the intention of the company to ultimately afford a capacity for 8,000 horse-power from thirty-two boilers, which are to be conveniently arranged with eight on each of the first four floors of their very solid and well-constructed building.

The coal to be used under these boilers is carried to the top of the building by an elevator, and stored in bins, so arranged that it may be delivered through perpendicular chutes near the door of each furnace, and only as fast as it is needed. In connection with the furnaces is an immense chimney, 220 feet high, 32 feet 6 inches by 13 feet at the base, and 27 feet 10 inches by 8 feet 4 inches at the top.

The great difficulty of providing for the expansion and contraction of the street mains has been overcome by means of patent expansion joints which admit of considerable play in either direction and still preserve a steam-tight joint. The condensed steam which collects in the mains is drawn off and forced back to the boilers by two powerful pumps in the basement of the station.

As an instance of the efficiency of the system, we were shown through the kitchen of a very large restaurant, which "feeds more people than any other in the world," where the cooking is all done by steam supplied by station "B" of the Steam-Heating Company's works.

We also visited a Weston electric light station, whose 18" x 24" double Corliss engine was driven very satisfactorily by steam from the same source.

D. M'R.

THE STEVENS INSTITUTE.

The Stevens Institute of Technology, at Hoboken, N. J., is distinctively a school of mechanical engineering, and afforded especial interest to the members of the excursion. Upon their visit, Friday afternoon, they were kindly received and conducted through the buildings by Prof. Robert H. Thurston, Professor of Mechanical Engineering. In the museum are preserved many articles of scientific and historic interest.