draw water, but work positively under a head of one foot. They have been applied to hoisting and winding engines, where they start and stop with the engine. This style of injector, with the addition of a small jet of live steam to help the exhaust, is used upon locomotives in Europe, with very satisfactory results. On one English railroad a saving of ten per cent in coal is claimed for this injector over the usual apparatus.

Σ. M. E. Excursion.

The second annual excursion of the Σ. M. E. Society has been arranged for the mid-winter vacation. The complete success of the excursion of last year, and the very kind reception given to the excursionists at each place visited, have given an increased interest to the project for this year, and the coming excursion promises to be fully as enjoyable as the first.

A committee appointed by the society, consisting of Prof. Whitaker, Messrs. Gale, Rotch, and Dewson, have had general charge of arrangements, and the schedule given is that made out by them. The latter is still open to revision at a meeting of the society, but will in the main be followed.

It was at first intended to include a visit to Altoona, Penn., and the Pennsylvania Railroad locomotive and car shops established there, which are perhaps the finest in the country; but, on account of the great distance and time required for the journey, the plan has been given up, and the time will be devoted to other interesting establishments at Chester, Penn., and New York.

The excursion will probably be in charge of Raymond's Excursion Bureau, whose careful arrangements contributed in no small degree to the success of the excursion of the preceding year.

The SCHEDULE.

Leave Boston by the Norwich Line, at 6 or 6.30 P. M., on Monday, Jan. 22, for Philadelphia. Arrive at Philadelphia about noon on

Tuesday. Quarters will probably be at the Girard House.

Tuesday afternoon, visit The Southwark Foundry (Porter-Allen Engine Works).

Wednesday forenoon, visit Wm. Sellers & Sons, manufacturers of machine tools, shafting, etc.

Wednesday afternoon, visit John Roach's ship-yard at Chester, leaving Philadelphia by the 1.32 P. M. train, and arriving in Chester at 2.12 P. M. Leave Chester at 5.48 (possibly 6.36, preferably 5.48).

Thursday morning, visit the Baldwin Locomotive Works.

Thursday afternoon, visit I. P. Morris & Co.'s Iron Works. Manufacturers of pumping engines, sugar machinery, ice machinery, steam and gas pipe fittings, etc. Supper at Philadelphia.


For Friday and Saturday, in New York and vicinity, the arrangements are not yet completed. Among the many places which it would repay the excursionists to visit, are mentioned Edison's Laboratory, at Menlo Park, N. J.; The Stevens Institute of Technology, at Hoboken, N. J.; The Electric Light Company's Works, at Newark; The Edison Station, in New York; The Station of the Steam Supply Company, etc.

Leave New York for Boston on Saturday, in season to arrive in Boston at about 6 P. M. on Saturday.

About twenty members of the society will probably go on the excursion, and they may expect a very pleasant reception at each of the places named. The managers of the Porter-Allen Engine Company have especially expressed the pleasure it will give them to receive the students, and extend to them every opportunity for examination of the company's work and methods.

Prof. Whitaker rejoices in the possession of a type-writer.