

How Railroad Men are Made

Training the Men Who Run Big Railways

By P. Harvey Middleton

IN 1912, with our railroads forming a gigantic network of 240,000 miles, representing an investment of twenty-two billions of dollars, earning for their owners over a billion dollars every year, carrying a billion passengers and two billions of tons of freight in the twelve months, necessitating the employment of 1,700,000 persons—more than twelve times the combined strength of our army and navy—the requirements of railroad men of all grades, from track walker up to president are exacting in the extreme. Professional training, a clear head, steady nerves, and strong muscles are some of the requisites, but training is the most important of all. The old style of railroad man who could not read a blue print or make a free-hand sketch, would be as useless a cog in the mighty wheels of our transportation system as the superb courage of the Mahdi's troops was when opposed to discipline and breechloaders.

From this it may be seen that the education of apprentices on a twentieth century railroad is the most important problem of the company. Just as the United States Government has a West Point and an Annapolis for the training of its future admirals and generals, so our great railroad systems all have training schools for the production of educated workmen, foremen, and superintendents—academies where the raw recruit is initiated into all the mysteries of railroading, from the making of drawings to the assembling of locomotives, which later grow before his eyes from nondescript heaps of metal and pass out into active service. He helps to build these leviathans of the rails, and to repair them when they come limping back, strained from overwork or torn to pieces by collision.

Let us follow the various stages in the career of one of these novices during his four years apprenticeship in Railroadville. We will call him William Smith. He has applied to the general manager of the road, John Brown, for admission as an apprentice. Brown sees that he is an intelligent-looking chap and cross-examines him as to his mental and moral fitness.

"We have two grades of apprentices," says Brown; "special and regular—all of whom stay here three years. The boy with a public school education is drafted into the regular class, to train for the rank and file. The special must be a college graduate, and qualify for the higher positions. Take my advice, Smith, graduate from your college, and we will admit you as a special. But remember this; it is four years of solid hard work and precious little play. Ten hours a day, 304 days a year, you will have to work in the shops. You will work under the superintendent of the motive power department, and do whatever he orders—crawl into the warm fireboxes of locomotives, sweat in the glare of a white-hot furnace, wield a hammer in the ear-splitting din of the boiler-room, or paint the interior of a parlor car. It's all in the day's work. The reward? Well, it depends on your ability. The salaries of railroad men range all the way from \$500 to \$50,000 a year. When you have had your training, it's up to you."

"I'll come when I graduate next year," replies Smith, quickly.

And a year later Smith gets out at Railroadville with his grip. That preliminary talk with Manager Brown has prepared him somewhat for the simple strenuous life. He hires a small room in a boarding house kept by the widow of a railroad man. For the first day or so the meals and the drab atmosphere of the place induce a severe attack of homesickness. But the antidote of hard work soon replaces that with an appetite which the *habitué* of the foremost restaurants might well envy.

On his first week in the shop he is sent to the erecting room, where he studies the different parts of a locomotive and is taught the work they perform. When he has proved that he has thoroughly absorbed this knowledge, an old hand takes him inside a defective boiler, and under the experienced man's direction he repairs it.

After six months of this sort of work his hands have become so rough and calloused, and his general appearance so dusty and grimy, that it is hardly probable that the girls back home would recognize their dancing partner in this hardy son of toil; and his fellow apprentices in the special class—one a senator's son, another the son of

ship; for he is called upon to work amid the din of hundreds of hammers smashing against the iron ribs of great boilers, a deafening and distracting turmoil which results in some sleepless nights for Smith until he becomes accustomed to it—as he soon does.

The next class room in this strenuous schooling is the car department, where four months are spent in the freight shop and two in the passenger car shops, where Smith thoroughly masters the building of everything on rails, from a hand car to a Pullman. Then come four months in the roundhouse—the garage of the railroad—where locomotives in active service come in between the runs to be inspected and cleaned. Then Smith's apparently endless mechanical training is brought to a close by three months' duty as fireman on the road.

Now for the final year, to be spent in the cleaner but none the less strenuous business departments. Shedding his jumper and overalls, Smith enters the office of the shop clerk, and for two months he studies the ordering and distributing of supplies. Graduating from this, he places himself at the disposal of the motive power clerk for another two months, learning the elaborate system by which locomotives are built and dispatched to the various important points.

Five months must now be spent in the testing room, where he watches the railroad chemist testing the steel alloy used in the construction of axles, tires, boiler plates, and frame plates. His apprenticeship winds up with three months in the drawing room, and Smith becomes the proud owner of an honestly won diploma, which enables him to obtain an executive position from which he can climb to the highest salary in the gift of the road. He is a railroad man in the truest sense of the word, of the stuff that presidents are made of.

Where are these railroad academies? Well, the Pennsylvania Railroad has one at Altoona, Pa., the Santa Fé system has twenty-four schools, the New York Central has schools in nine of its shops in the United States and one in Canada. The Grand Trunk, Erie, D. L. & W., D. & H., Jersey Central, and Chicago Great Western all have similar schools.

The Union Pacific has a very extensive educational system. In addition to the correspondence work, a station training school has been established at Omaha to prepare men to enter the station service of the company. This station school is equipped similarly in all respects to a regular station of medium size, and is under the direction of one of the company's experienced agents. All men entering station service on the system are required to pass through this station training school before being employed.

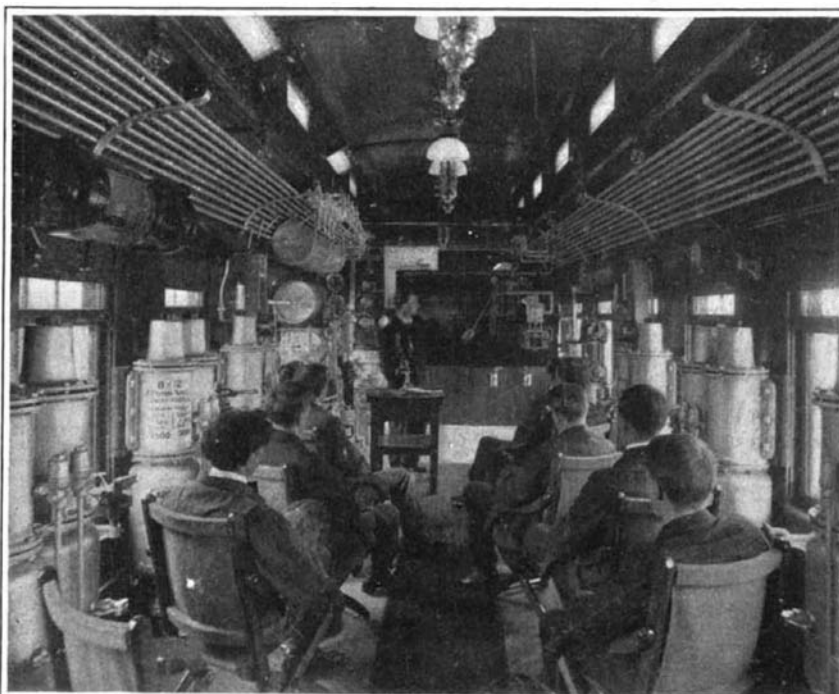
In the regular classes applicants are required to state their previous education and experience; whether they are subscribers to any technical magazine; whether enrolled with any correspondence school; in what line of work they wish to advance; and to what position (in reason) they are ambitious to attain.

The Canadian Pacific, at its Angus works in Montreal, has also recently inaugurated a new system of training employees; and in order to encourage deserving apprentices, the company donates each year a scholarship to the best ten apprentices, consisting of complete courses in mechanical or electrical engineering. The railroad also awards two scholarships, tenable for four years at McGill University, Montreal.

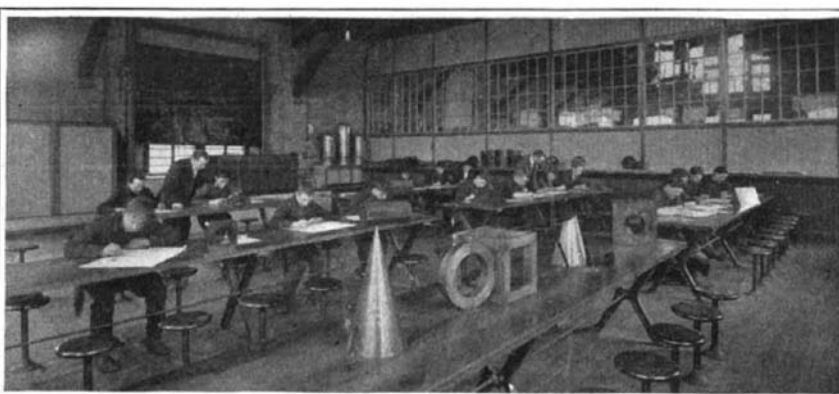
The young clerks in the general and other offices at Montreal have equal opportunities with the apprentices in the shops for equipping themselves for their life work. Schools of telegraphy and shorthand have been in operation for some time, and the advantages they offer are being eagerly seized by a number of ambitious youths. There are two terms each year, and the classes meet three evenings a week, when the students of telegraphy are instructed in the mysteries of the key, taught how to dispatch trains, etc.



Railroad employees are taught first aid to the injured.



Apprentices in instruction car learning the mechanism of air brakes, steam heating and safety appliances.



Drawing class of railroad apprentices.

SCENES IN THE SCHOOLS OF RAILWAY MEN

the president of the road—are similarly disguised.

Smith now goes to the machine shop for six months, in order to learn how to operate the great lathes which are used to shape the steel—powerful yet delicate pieces of mechanism which cut the steel to the required form as easily as a planing mill shapes pine boards. Then come three months in the vise shop, where instruction is given in the fitting and polishing of driving rods and the finishing and adjusting of valves. This is followed by two months in the air-brake shop, and two months more in the blacksmith shop, where he is taught the working of the big steam hammers, the heavy sledges, and the giant forges.

A course of two months in the foundries, casting and molding, is followed by two months in the boiler shop—and this latter is the most trying period of his apprenticeship.