also a very remarkable man. He began life under many bitter disappointments and disadvantages, but rose superior to them all and achieved a high position among mechanicians. His father was a shoemaker in an obscure village in Nor h Wales. For some reason Richard was never sent to school. At an early age he went to work at a slate quarry, subsequently he was employed in a canal boat, and later he held the position of servant to a gentleman in the neighborhood. It was while in the last position that the youth's latent talent was awakened. His employer was an amateur turner and the boy became fascinated by the lathe, seizing every opportunity of practicing on it until he became an expert turner. Step by step he advanced until he became an expert machinist. He then sought to improve his condition in a wider field, and walked all the way from Manchester to London, where he succeeded in obtaining employment in Mandslay's famous establishment. Soon after he established a business for himself, and ultimately became a partner in one of the most important engineering firms in Manchester. It was as a member of this firm that he effected his well-known improvements on the locomotive engine, and invented the self acting mule. Before entering into this firm he invented a gas meter; the slide lathe; the slotting machine and other engineering tools which acquired for him a high position in the world. One of his biographers, referring to that early period of his life, says: "His fly-wheel was in the cellar and his lathe upstairs in a bedroom. The strap passed through the living room of the ground floor and the power that turned the fly wheel was his wife." In the United States likewise how many examples we could point out to you of men who, from small beginnings, have achieved success by merit. For instance the case of Aaron French, who served as a blacksmith at Pittsburg, Wisconsin, and who afterwards became the proprietor of the great railway car spring manufactory, which in the year 1872 sold two thousand tons of springs.

A mechanic to succeed in life must show zeal and energy in the trade he is learning, he must have ambition likewise, and feel an interest in his work. Nothing is more common than for a lad to imagine that he can learn to be a machinist, carpenter, smith or painter, by serving two or three years in the capacity of an apprentice, and yet nothing is more false. It is work and perseverance alone that wins the golden apple—work both of brain and muscle. Whatever you have to do make it a rule in life to do it well. If you heartily wish to succeed, put into your work the same heart and life you would into a game of lacrosse or other youthful sport, it will pay you in the end. You may often feel tired and dispirited over your work; you may feel that your employer does not appreciate your efforts to improve yourself and perform his work well above an adler and careless workman at the bench beside you, but never be discouraged, all those who have gone before you and have risen to eminence and wealth, have had all these discouragements and disadvantages to contend against, therefore feel assured that by serving your employer well and faithfully, you are not only doing your duty in life, but building up profit to yourself. A good workman will always obtain employment in hard times in preference to the uncompetent and untrustworthy.

And here let me say a few words about *shop manners*. Much will be gained at the start if a youth is not only patient under provocation and uniformly good tempered, but also pleasant and agreeable in his manners. It costs nothing to be polite and politeness makes friends. We know of no place where it will pay better to show the instincts of a gentleman than in the workshop, and here we feel it our painful duty to speak of the coarseness and vulgarity which so often abounds there. He who exhibits ill-breeding while at his daily task will exhibit it wherever he goes, and it will place a mark upon him wherever he goes. We thoroughly believe in the dignity of labour, and no matter how grimy a man's trade may be, he can always be a gentleman in spirit, and as Burn's says, "a man's a man for a' that."

As the Editor of the SCIENTIFIC CANADIAN, it has been my endeavour to do my utmost, in my limited capacity, to improve through the columns of the magazine the status of Canadian mechanics. The donation of Illustrated Supplement sheets of Technical Instruction to such of our subscribers who follow trades, is an evidence of this, the value of which we trust they will appreciate. It is my desire as Editor to afford you every information within my power, and knowing how difficult it is in Canada for mechanics' to obtain trade manuals and other useful works, he will afford you every information upon application and obtain the books for you at the published price whenever practicable, all he asks in return is that you would take that interest in the work which it surely now deserves, by affording to the publishers by your subscription the means wherby to maintain a work which, under the most favorable circumstances, can only expect to obtain a limited remuneration for some years to come, that is until our English reading population is more than doubled.

PATENT INVENTIONS.

The *Scientific Canadian*, being a monthly journal cannot afford space in its columns for notices of Patent Inventions. Occasionally, however, when we have met with one of really practical utility to Canadian Mechanics, we have given an illustration or description of the same. We do not in fact consider it fair to our readers to appropriate the pages intended for their special reading to descriptions of inventions of very little practical use, although we have frequently been solicited to do so as an advertisement.

But, as a new feature to the Magazine, this we will do. We will print one or more extra pages if required, immediately preceeding the *Patent Office Record* and use them entirely for illustrations and descriptions o useful inventions taken out in Canada. Only patents of real practical use will be noticed in these pages. The cost of this method of advertising we will, on account of the benefitit may be to our readers, make very low. Inventors desiring to advertise in this form will please communicate with the Company or the Editor, who will inform them of the rate of charges.

A GREAT CONSERVATORY.—Possibly the largest private conservatory in the world is that recently completed for the King of Holland in the Schlos Park, adjoining his favorite country residence. It contains about 46,000 cubic yards of space, while its glass dome is 95 feet in height and 180 in diameter. This is flanked by two lofty towers resembling Turkish minarets in shape, which given an Oriental character to the whole structure. The hot-water pipes laid down for its heating are 15,000 feet long.