

"After many trials a material was produced combining great strength with hardness, but the puzzling and apparently paradoxical result was discovered that, although steel, if it may be so termed, with 4 to 6 per cent of manganese, and less than $\frac{1}{2}$ per cent of carbon, was so brittle that it could be powdered under a hand-hammer, yet by adding twice this amount of manganese, just the contrary effect was produced, and a material was obtained containing apparently new properties, as compared with any iron or steel hitherto manufactured. Briefly, the material may be described as follows: That containing from $2\frac{1}{2}$ to 6 per cent is extremely brittle in its cast state, then a return in strength gradually takes place, and, with about 9 to 10 per cent, a cast bar, $2\frac{1}{2}$ inches square, can be bent considerably out of the straight without breaking. This continues up to about 14 or 15 per cent, when a decrease occurs in actual toughness, though not in transverse strength, and after about 20 per cent is passed, then a rapid decrease again takes place. It should be stated that these remarks apply specially to the material in its cast state.

"Manganese steel is not so liable to honeycombs as ordinary steel and the addition of silicon is unnecessary. It is very fluid and can be run into thin sections, but cools more rapidly than ordinary steel, and its contraction is decidedly greater. The latter fact explains the reason of its piping and settling so much, both in the ingots and in castings; with proper heads or runners, however, this difficulty can be obviated. It is manufactured by any of the ordinary steel-making processes, the basis, *i.e.*, the material before the manganese is added being preferably decarbonized iron (practically pure iron, Fe), or mild steel. The ferro-manganese is added in a molten state or very highly heated. The steel is then ready for casting into ingots or other forms."—*Manufacturer and Builder*.

POSTAL STREET CARS.

Mr. Frank Brown, postmaster of Baltimore, Md., makes a very useful suggestion in relation to the utilization of street cars to assist in the rapid collection and delivery of city mail matter. In most of the large European cities they now have pneumatic tubes, by which the quick delivery of special messages is accomplished at a high charge. But a much quicker, cheaper, and more serviceable system for the public might be easily arranged if the street cars were employed. In New York not only might the street cars, but the elevated street railways might be brought into the work, and the city provided with a splendid system of postal delivery and collection. We have heretofore urged this matter upon the attention of the government. We wish some of our senators and representatives in Congress would take up the matter. It is simple and easy of accomplishment, and might be quickly put in operation.

The introduction of such a system, in addition to its great convenience for the public, would put an end to all those disgraceful interruptions of traffic that periodically take place when roughs obstruct the car, abuse the drivers, and threaten the lives of honest citizens. The street car lines would then be declared mail routes, and no stoppage of travel would be tolerated.

Mr. Brown's suggestion in respect to the city of Baltimore, given in a letter to the *New York Tribune*, is as follows:

It is my intention, if approved by the department and the companies, to place letter boxes on the rear dash of every car in Baltimore City, and to have collectors collect mail from all sections of the city and deposit it in the first car that passes them, the collector to remain in his district and continue collecting and dispatching to the main office during the entire time he is on duty. Under this arrangement the dispatch and

delivery of the mail would be greatly facilitated, as many of these letters would arrive at the office to make trains they now miss, and, in addition, the citizens of this city would have full benefit of the special delivery system, as a letter placed in a box on one of these car lines will proceed immediately to the post office (instead of remaining in a street box to be taken up by collector), and on its arrival at the main office be delivered by special messenger.

As the car passes the nearest point to the post office they would not be called upon to stop, but only to slow up sufficiently to allow the collector to open the box, take out the mail, and close the box. No additional expense would be incurred by the department other than the cost of the boxes, which would be nominal. The city being covered with a network of railways, every section would have equal advantages so far as the rapid collection of mails is concerned, and the letter carriers would not be forced to carry immense bags of mail through the rain, slush, heat, and cold to the post office. The street lamp-post boxes would remain intact, as at present. In the event of a "tie-up," or strike, these street boxes would be used as they now are, and the letter boxes on the street cars would be unused, as the cars would be packed in the sheds of the various companies. In case of a fire, which might blockade the cars, the collector on whose district the blockade occurred would be ordered to proceed to the fire immediately, empty the boxes, deliver, and report to the office.

SOME GOLDEN RULES.

The following, from an unknown source, contains advice which experienced business men endorse and young men will do well to follow:

Have but one business, know it thoroughly, and attend personally to its minutest details. Be self-reliant, concentrate your energies in a determination and supreme effort to conquer success. Keep your own counsel, attend strictly to business, and never dabble in anything foreign to it, curtail your expenses, never sacrifice safety to prospective large returns, cut short your losses and let your profits run on, and make your prime movers industry, economy, and fair dealing. It is the merest rant and bosh to rely on Luck. He is always indolent and whining, folding his arms, drinking and smoking, waiting for big prizes in lotteries, or lying abed expecting a letter with news of a legacy. On the contrary, Labor and Pluck are the invincible heroes who conquer success; they strike out new paths, create, contrive, think, plan, originate, take all legitimate risks, toil to surmount obstacles, push forward, win renown by success. The glorious galaxy of successful business men and illustrious authors have all been hard workers. Shun bad company and the prevalent vices of the day, never loan a borrowing friend more than you are able to lose if he cannot pay, and never take a loan on importunity. Never borrow money to speculate with. Acquire knowledge. It is only enlightened men who successfully hold their own with the surging masses who throng the road to riches. Avoid law and legal squabbles of every kind. In discussing business disagreements, keep cool. Make all the money you can and do all the good you can with it, remembering that he who lives for himself alone lives for the meanest man in creation. If engaged in public business, advertise it; be punctual in meeting promised payments; keep short accounts; settle often; be clear and explicit in making bargains. Be civil and obliging as well as decisive and prompt with customers, and do not overtrade your capital. Finally, in the maturity of life, don't out by retiring from business; keep bright by useful effort, remembering that industry and happiness are inseparable.