

be glad to know that our safes are free from danger in this respect, as inspection of many of them convinces us that a few blows would do the business for them effectually.

THE CIRCUMLOCUTION OFFICE.

The great fiction writers of modern times have become popular not merely by their forcible imaginations and power of description, but by taking some public wrong and making it clear and plain before men, so that the correction comes naturally and necessarily; in so doing they have wrought great good. Charles Read, in his latest work, "Hard Cash," unmasked the iniquities of private mad houses. Thackeray held the mirror up to society; and Dickens, the great master, has rebuked official imbecility and dilatoriness scathingly.

In none of his works is his caustic and vigorous criticism more noticeable than in "Little Dorritt," where he speaks of the Circumlocution Office. Possibly a parallel might be found to it in this country, and many Daniel Doyces among our inventive friends. He says, in relation to the trial of an invention for the Government:—

"Mr. Clennam, will you do me the favor to look at this man? His name is Doyce—Daniel Doyce. You wouldn't suppose this man to be a notorious rascal, would you?"

"I certainly should not." It was really a disconcerting question, with the man there.

"No. You would not. I know you would not. You wouldn't suppose him to be a public offender, would you?"

"No."

"No. But he is. He is a public offender. What has he been guilty of? Murder, manslaughter, arson, forgery, swindling, house-breaking, highway robbery, larceny, conspiracy, fraud? Which should you say now?"

"I should say," returned Arthur Clennam, observing a faint smile in Daniel Doyce's face, "not one of them."

"You are right," said Mr. Meagles. "But he has been ingenious, and he has been trying to turn his ingenuity to his country's service."

[And after the hearing was finally granted, Mr. Dickens says]:—

How, after interminable attendance and correspondence, after infinite impertinences, ignorances, and insults, my lords made a minute, number three thousand four hundred and seventy-two, allowing the culprit to make certain trials of his invention at his own expense. How the trials were made in the presence of a board of six, of whom two ancient members were too blind to see it, two other ancient members were too deaf to hear it, one other ancient member was too lame to get near it, and the final ancient member was too pig-headed to look at it. How there were more years, more impertinences, ignorances and insults. How my lords then made a minute, number five thousand one hundred and three, whereby they resigned the business to the Circumlocution Office. How the Circumlocution Office, in course of time, took up the business as if it were a bran new thing of yesterday, which had never been heard of before; muddled the business, added the business, tossed the business in a wet blanket. How the impertinences, ignorances, and insults went through the multiplication table. How there was a reference of the invention to three Barnacles and a Stiltstalking, who knew nothing about it; into whose heads nothing could be hammered about it; who got bored about it, and reported physical impossibilities about it. How the Circumlocution Office, in a minute, number eight thousand seven hundred and forty, "saw no reason to reverse the decision at which my lords had arrived." How the Circumlocution Office, being reminded that my lords had arrived at no decision, shelved the business. How there had been a final interview with the head of the Circumlocution Office that very morning, and how the Brazen Head had spoken, and had been, upon the whole, and under all the circumstances, and looking at it from the various points of view, of opinion that one of two courses was to be pursued in respect of the business: that was to say, either to leave it alone for evermore, or to begin it all over again.

"Upon which," said Mr. Meagles, "as a practical man, I then and there, in that presence, took Doyce by the collar, and told him it was plain to me that he

was an infamous rascal, and treasonable disturber of the Government peace, and took him away. I brought him out at the office door by the collar, that the very porter might know I was a practical man who appreciated the official estimate of such characters; and here we are!"

DEATH OF DR. MOTT.

Valentine Mott, M.D., LL.D., died at his residence in this city on the 26th of April, in the 80th year of his age. Dr Mott was the most eminent of American surgeons, and his operations have never been surpassed in any part of the world. He was born at Glen Cove, Long Island, on the 20th of August, 1785, being descended from an English family that settled on the island in 1667. After studying medicine in this country he went to England and finished his studies under the tuition of Sir Astley Cooper. In 1809 he commenced the practice of his profession in the city of New York, directing his attention especially to surgery, in which he rose very rapidly to the highest position.

His first great achievement was in 1816, when he successfully performed an amputation at the hip joint. In 1818 he performed the difficult and delicate operation of placing a ligature around the brachiocephalic trunk or *arteria innominata*, only two inches from the heart, for aneurism of the right subclavian artery. This was the first operation of the kind in history, and the patient lived twenty-six days after. When Sir Astley Cooper heard of this wonderful achievement of his pupil, he remarked:—"I would rather be the author of that one operation than of all I have ever originated." This great triumph has since been imitated only by the first surgeons of the world.

His operation on the great arteries were unparalleled in the annals of surgery. He tied the common carotid forty-six times, the subclavian seven times—every one of them successful; the external iliac seven times—four successful—and the femoral fifty-two times; cut for stone one hundred and sixty-five times, and amputated nearly one thousand limbs. In 1827 he tied the primitive iliac artery. It was the first time this operation was performed in any country, and was perfectly successful. The subject of it, in 1856, was still living, his life then having been extended nearly thirty years. From 1818 to 1824 Dr. Mott performed a variety of original operations on the jaws, both upper and lower, which mark a distinct era in the annals of surgery. On the lower jaw he has performed sixteen capital operations—in four instances removing the bone at its temporo-maxillary articulation. On the 17th of June, 1827, he extirpated the entire clavicle for osteo-sarcoma, which is altogether the most formidable undertaking in surgery. This operation originated with him, and has been performed but twice since—once by Warren, of Boston, and once by Travers, of London. The subject, a distinguished clergyman of the South, was still living a few years before the rebellion.

He was the author of a number of medical works, and had a great many honors conferred upon him by learned societies at home and abroad.

THE MANUFACTURE OF CHEAP JEWELRY.

PROVIDENCE, April 23, 1865.

MESSRS. EDITORS:—Through the politeness of Mr. Steere, of this city, I have had an opportunity of visiting his large manufactory of rings, pins, bracelets, and other ornaments, and purpose in a few words to lay the principal processes before your readers in the clearest manner possible.

MIXING THE METALS.

The first step is to make the proper alloy. In former times the gold was procured by drawing a check on the bank where the proprietor of the works had a deposit, and marking it "gold," when the amount came in double eagles. Now coin is purchased at the current rate of premium, whatever that may be. Two or three hundred dollars of coin is placed in a crucible, with the proper proportion of copper and silver, and melted. Mr. Steere remarked, smiling, that they use no more gold than is necessary, still that they do use some may be inferred from the fact, that a few years since the man employed at his works in melting had abstracted \$20,000 of it before the theft was detected.

ROLLING.

The next step is to roll the alloy down to the thickness required for the work. To illustrate this operation, Mr. Steere took a nickel cent from his pocket and presented it to the rollers, but they refused to draw it in till he dipped the edge in spirits of turpentine, thus increasing the friction, when it was instantly drawn through. It was elongated into an oval form, and by repeated passages, the rollers being screwed more closely together each time, it was drawn to a length of six or eight inches in a direction transverse to the rollers, while its width in a line parallel with their axes was hardly increased at all.

STRIKING UP.

The pieces are next cut from the plates of metal, generally by a punching process, and where anchors, crosses or other figures are raised on them, this is done by striking up. A steel die has the figure formed in it by the usual method of die-sinking, and a corresponding figure is raised upon a steel bed or anvil, the upper die being attached to the lower side of a heavy mass of iron which is secured between two vertical slides. The workman raises the heavy mass of iron with the die which is attached to it, lays the bit of thin alloy on the anvil, and lets the upper die fall upon it. The blow presses the thin plate of metal between the dies, imparting to it the figure which is engraved upon them.

When the figure is very much raised, it is impossible to produce it at one blow without breaking the metal. In this case it is necessary to employ two or three pairs of dies, raising the figure partially in the first, and completing it in the last.

SOLDERING.

At a long bench running down one side of the shop, opposite a row of windows, were seated some 20 or 30 high-priced workmen, engaged in putting together the fashioned pieces of metal and finishing the articles. One man was soldering rings. He had about two dozen placed in small slits in a plate, so as to hold them conveniently, with a little solder and borax on the joint to be soldered, and with a blow-pipe in his mouth he was directing the tip of the flame upon one ring long enough to melt the solder, when he moved the plate so as to bring another ring under the flame.

FINISHING.

Some of the workmen were soldering stones into breastpins, and others were putting the final polish to the ornaments. After this they were packed in cases and laid away in massive iron safes. Mr. Steere took from one of these safes a lump of gold weighing perhaps four ounces, and stated that it was absolutely pure, having been reduced from the chloride. Its color was the clear yellow characteristic of pure gold.

During the first two years of the war the manufacture of this class of jewelry was almost wholly suspended, but within the last two years the business has been resumed, and large quantities are now being made and sold.

Dickerson's Boiler.

The steam boiler of Mr. E. N. Dickerson, of this city, of which we gave an illustration on page 51 of the SCIENTIFIC AMERICAN, current volume, and on which there has been considerable discussion among engineers, is coming into use rapidly, and, from inquiry, we find that our principal engineering firms and engineers speak of it with great favor. The results obtained by this boiler are remarkable in point of economy and efficiency. It is also so compact in form that a boiler of 10-horse power is but little larger, externally, than a common dry-goods case, while, for accessibility and ease of examination, it is most conveniently arranged.

This boiler does not work on any miraculous principle, but simply brings the water in contact with hot iron, where it ought to be. In other words, by rapid circulation of the contents the heat is not only taken up from the surfaces through which it passes, or impinges against, but the mechanical disengagement of the steam from the water is very much facilitated from the same cause. This latter point is one of importance in the rapid production of vapor. We look upon this boiler as a great improvement in steam generators, and are pleased to know that many of them are now in use and being made; as also to accord Mr. Dickerson the credit of having obtained a result he has so long labored for.