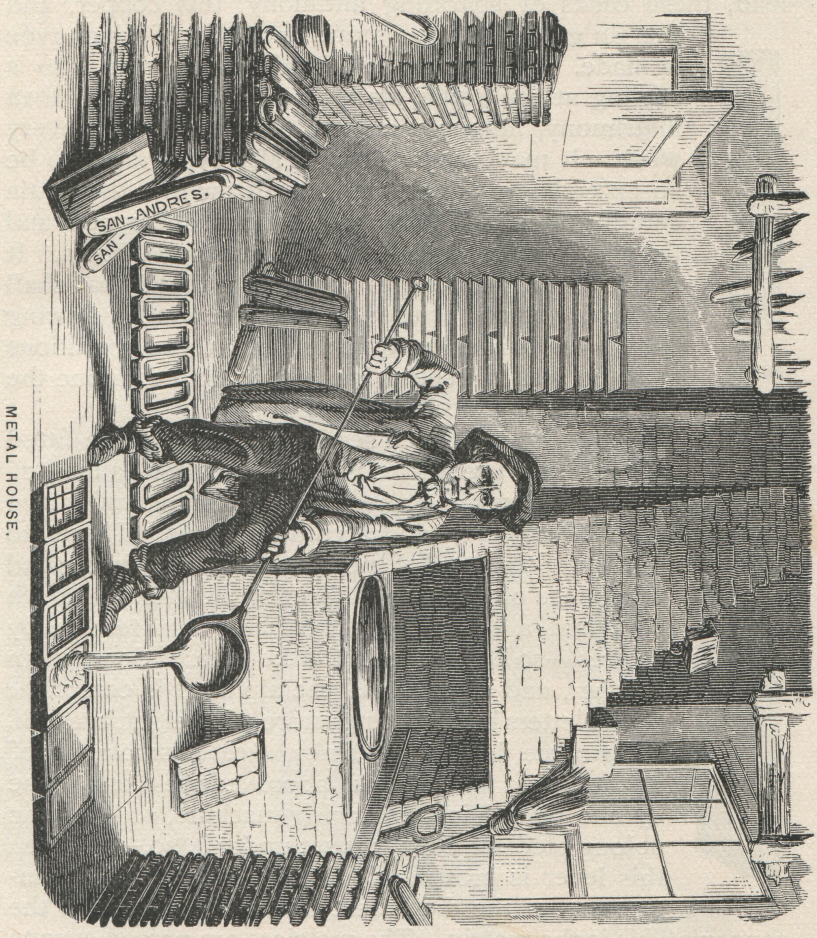
## A WALK OVER OUR FOUNDRY.

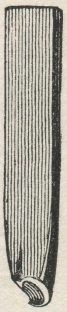
MR. TYPOGRAPH, how are you, sir? Glad to see you. How is business with you? Plenty to do, and customers paying up? You are so prompt in paying us, that we




have no doubt you have a noble set of customers. You wish to add to your stock our new things? All right, sir. You have a fine office already, but you want to keep up with the times, and give your patrons the best the type-founder can invent? That's the way, sir. The man on the lookout sees

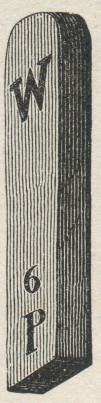
the sun the earliest. Mr. Faithful, show our new things to Mr. Typograph, and take his order.

You say, Mr. Typograph, that you have never gone over a type-foundry? We shall be happy to show you every thing. This way, sir. Here is the metal-house. These piles of dull lead, these casks of sparkling antimony, this copper, and this tin go to form the grand amalgam of which type is made. The worthy and kind-hearted man who is stirring at the kettle, unites, in bonds stronger than matrimony, immense masses of these metals every week. It may appear to you, Mr. Typograph, to be an exceedingly simple thing to throw into the kettle certain amounts of lead and antimony, and copper and tin, and produce type-metal. Not so, good friend. It is not an easy matter to compose a metal that shall be hard, yet not brittle; ductile, yet tough; flowing freely, yet hardening quickly. All these conditions must be met. Break a bar in two, and examine the grain of our metal: is it not beautiful?



PUNCH.

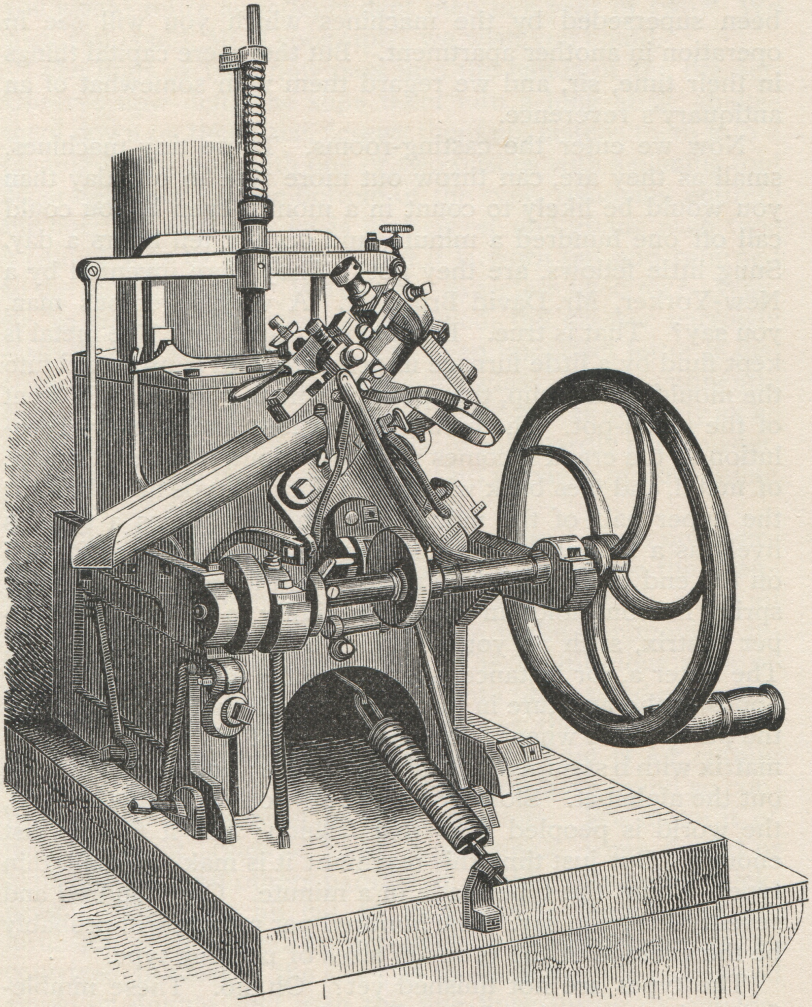
Now, sir, let us up-stairs and see how these bars are fitted for printers' use. This is a punch-cutter—a man of exquisite finger and unerring eye—sitting amid keen and delicate tools and accurate gauges. There are but few of this kind of men in the world. On the end of a piece of steel he is forming a letter. A touch here and a touch there, and frequent testing by gauges,—so he proceeds, till the letter is done; then another, and another, till the alphabet is complete; all the letters harmonizing entirely in height, breadth, appearance, length of stroke, &c. A smoke-proof of the dies is taken, and if approved the dies are one by one placed in a stamping-machine, so,—and an oblong piece of copper is set under it, so,—and then this lever is brought down, so,—and a perfect impression of the die is left, as you see, deep in the copper. This is the matrix. The matrices are passed over to other workmen in the adjoining room. Observe now the carefulness and skill exercised in fitting up these bits of copper, so that, when placed in the mould, the types cast in them shall range accurately and be of uniform height. The slightest variation would give the zigzag appearance which you may




MATRIX.

have noticed in badly-made type. This we endeavour sedulously to avoid, and with how much success you can judge from our Specimen Book. Look at this drawer full of matrices. You say they are triumphs of art? True saying, evincive of good judgment.

You wonder what these curious-looking instruments are which lie, in dusty repose, on the shelves around the room?



CASTING MACHINE.

Those, Mr. Typograph, are hand-moulds, and at one time they provoked intense covetousness on the part of rival founders. One of our earliest predecessors, Mr. Archibald Binny (our foundry dates from 1796), added such valuable improvements to the ordinary mould, that no other foundry in the world could rival the expedition and accuracy with which types were cast in the establishment of which he was a co-proprietor. Their day has passed, however. They have been superseded by the machines which you will see in operation in another apartment. But they were capital things in their time, sir, and we regard them with somewhat of an antiquary's reverence.

Now we enter the casting-rooms. These tiny machines, small as they are, can throw out more type in one day than you would be likely to count in a month, even if you could call off one hundred a minute, and occupy ten hours a day. Snug little fellows, are they not? They were invented by a New-Yorker, Mr. David Bruce, Jr. A very ingenious man, you say? That is true. Look at one carefully. The metal is kept fluid by a little furnace underneath, and is projected into the mould by a pump, the spout of which, you see, is in front of the metal-pot. The mould is movable, and at every revolution of the crank it comes up to the spout, receives a charge of metal, and flies back with a fully-formed type in its bosom; the upper half of the mould lifts, and out jumps a type as lively as a tadpole. You don't see how the letter is formed on the end of the type? True, we had forgotten: well, this spring in front holds in loving proximity to the mould a copper matrix, such as you saw just now in the fitting-room. The letter a, for instance, stamped in the matrix, sits directly opposite the aperture in the mould which meets the spout of the pump; and when a due proportion of a's is cast, another matrix with b stamped in it takes its place; and so on throughout the alphabet. Slow work, you say, one at a time? Well, the world is peopled after that fashion; and it fills up fast enough. But just time this machine: it is making small, thin type. Count the type made in a minute. One hundred and seventy-five, you say. One hundred per minute will probably be the average of the ordinary sizes of printing type.

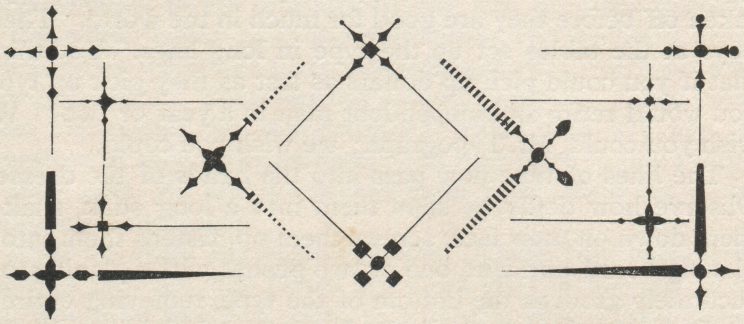
The types are not finished yet? Oh, no. These nimble-fingered boys are breaking off the jets, or waste ends of the

type. Quick, a'n't they? Now let us go up stairs into the dressing-room. An immense beehive? Yes, indeed, it looks like one. The lads clustered around the large circular stones, with leather-protected fingers, rub off the rough edges of the type. But men as well as type require their rough edges taken off before they are good for much in the world. These boys at the tables set up the type in long lines. You think that if you could pick up dollars as fast as they pick up type, you would retire an independent man in a year or two? We wish you could, Mr. Typograph; we wish you could.

The lines of type now pass into the hands of the dresser. Observe how deftly he slips them into a long stick, shakes them down on their face, screws them up, fastens them into a planing-board, and with one or two pushes with a planing tool accurately grooves the bottom of the type, removing entirely the burr left when the jet is broken off, and giving each type a pair of legs to stand upon, till it is worn out and returned to the melting kettle. What is the eye-glass used for? Why, sir, as soon as the types are grooved, the dresser narrowly inspects the face of the type, and if an imperfect letter is discovered by the aid of the magnifying glass, it is incontinently turned out. Ah, sir, if we were all inspected as severely as he criticizes type, some of us, perhaps, would hardly pass muster. The immaculate types are next put up in pages of convenient size, and are ready for the purchaser.

Let us drop into the large machine-room. Does not every thing hum here! Is it not a beautiful sight to see the shafts and belts and pulleys whirling around as if they were all alive? Here we fit up our machines, make our moulds, repair damages to machinery, &c. The multifarious uses of these lathes you must be familiar with: this ponderous machine is an iron planer: how it makes the iron chips fly! What is that curiously-arranged lathe? That is for cutting Labour-Saving Rule,—the rule which you have found so convenient and economical in your job-room. We make it of many different styles of faces: some single, some dotted or hyphen-lines, and others parallel or double, of varying thicknesses. They are all cut to Pica ems in length, and are furnished with mitred corner-pieces of different angles, so contrived, in most of the sizes, as to allow the rule to be used single or double, and with the fine lines inside or outside.

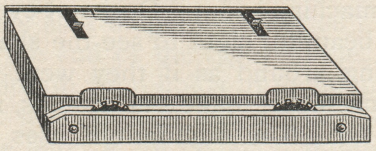
Here are specimens of our new slotted brass corners, so handsome and useful to the skilled printer. See how accurately the slotted pieces fit in one another, so that you cannot detect the joint. Are they not effective? Our brass is care-



SLOTTED BRASS CORNERS.

fully rolled by the best manufacturers in the country, and is sent to us in strips or in sheets. That wicked-looking shears yonder cuts up the thinner brass with as much unction as Commissioner Yeh's executioner slices off heads: the thick brass goes under a circular steam-saw.

Now, sir, while we are up here, we will peep into the printers' furnishing-room. Isn't this a beautiful stereotype-block? Doesn't it do your eyes good to look at such perfect workmanship? And these brass galleys, and mahogany galleys and composing sticks, are they not admirable? Our effort in this department, as in all others, is to do our work well. All our miscellaneous wood-work is done here,—stands, racks, drawers, stereotype and packing boxes, &c. Some curious work has been designed and executed for the Smithsonian Institution, as well as brass ciphering-frames for the blind.



STEREOTYPE BLOCK.

Ah, we forgot to show you our large-type room. On our way to the electrotype department, we will glance in it. The types you see here cool too slowly to be cast in a machine, so we continue to pour them. Look over the drawers, and see the multitude of patterns. Some men fancy one style, and some another. So we try to meet all tastes. Feel how

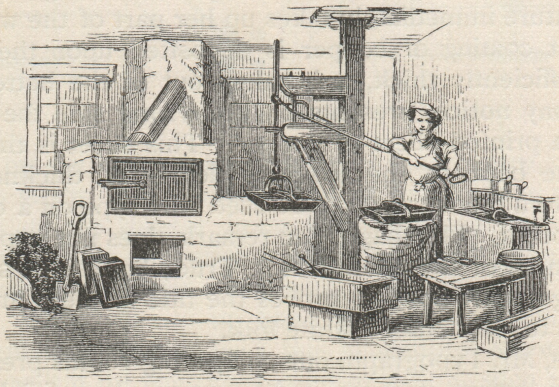
solid the type is. You can't squeeze the life out of that type on a power-press. No, indeed. It is made for wear.

Now, Mr. Typograph, we enter the grimed and murky electrotype-room. Electrotyping, you are aware, is simply stereotyping in copper. Its advantages over stereotyping are, sharpness of outline in plates from wood-cuts, and great durability. Plates for books of large circulation are electrotyped; but the art is applied mainly to the production of duplicates of cuts, jobs, binders' stamps, &c. The thing to be electrotyped is laid upon a press, and a prepared mould is placed over it, and an exact impression taken. This is well dusted with plumbago, and then deposited in a galvanic battery. Nature immediately takes up her part of the work, and a brilliant coating of copper is deposited upon the mould. When sufficiently thick, it is taken out of the battery, and, as you may notice, presents on the wrong side the appearance of a printed sheet of copper. This sheet is then filled up on the back to the requisite degree of thickness, and fastened to a block, ready to be used with type on a common printing-press. Plumbago, you remark, does not improve the countenances of the operatives? True; but a little soap and water, vigorously applied, proves the title of these intelligent workmen to rank among white folk.

To you, Mr. Typograph, our composing-rooms present nothing new, except, perhaps, in its vast number of job founts, due to the fact that we now mainly confine our work in this department to all kinds of jobbing; and yet in ten years we have set up in these rooms and stereotyped more than eight hundred considerable works,—most of them consisting of a single volume, but some of from two to twelve volumes each, —besides a multitude of smaller books, tracts, &c. Among the rest we may mention two Quarto Bibles, (one of them, now published by J. B. Lippincott & Co., the grandest ever got up in America,) Lippincott's two great Gazetteers, Dr. Kane's Explorations, The North American Sylva, Thiers' Napoleon, and Macaulay's England: Allibone's magnificent Dictionary of Authors and Books among the number.

After the pages have been set and carefully read, they are sent down to the casting-room. In the electrotype-room, every thing is as black as the brow of a coal-heaver: in the casting-room, all is as white as the neck of a belle. Take

care, sir, or your coat will commit a larceny of our plaster. The form of type is laid on this stone, and nicely oiled: and then a mixture of plaster and water—doesn't it look like a good wife's buckwheat batter?—is poured over it, and gently rolled in. In a short time the plaster sets, and the mould is removed by screws as tenderly as a nurse handles a baby. It is then dried in this hot-tempered oven, and, after the moisture is all evaporated, it is laid in a pan and fastened tightly, as you see, and plunged into this terrible bath of a thousand pounds of molten type-metal. Phew! you exclaim, what



STEREOTYPE CASTING-ROOM.

warm work! Yes, sir; but from that fiery sea of lead soon emerges the pan, and its hissing heat is gradually overcome by the water in the trough into which the pan is lowered. Now, caster, break it out. There, Mr. Typograph, is the plate, fixed,—immovable,—stereotyped. The mould is ruined; but the plate is comparatively immortalized. It is rough yet, and, like an uncouth boy, needs polishing.

This next room is the finishing-room. Here the plates are carefully examined, picked, shaved, trimmed, and boxed, ready for the printer. Take a plate in your hand and examine it: it will bear inspection. You say it is far better than the untrimmed, uneven plates of English founders? We know that, sir; for we have often had to re-finish English plates imported by some publisher who imagined he could save a little by ordering a duplicate set of plates of a popular foreign

book. A mistake, sir. Both in type-founding and in stereotyping the Americans have driven the foreigner from the field, —and in the only legitimate way, too: simply by surpassing him.

In this nook below, our engraving is done. The drawing is made on the block by the designer, as you see: then patiently and skilfully the engraver cuts and digs out, till the lines and shapes and lights and shades are all revealed in the beautiful picture. Our work in this department gives so much satisfaction that we are seldom without orders.

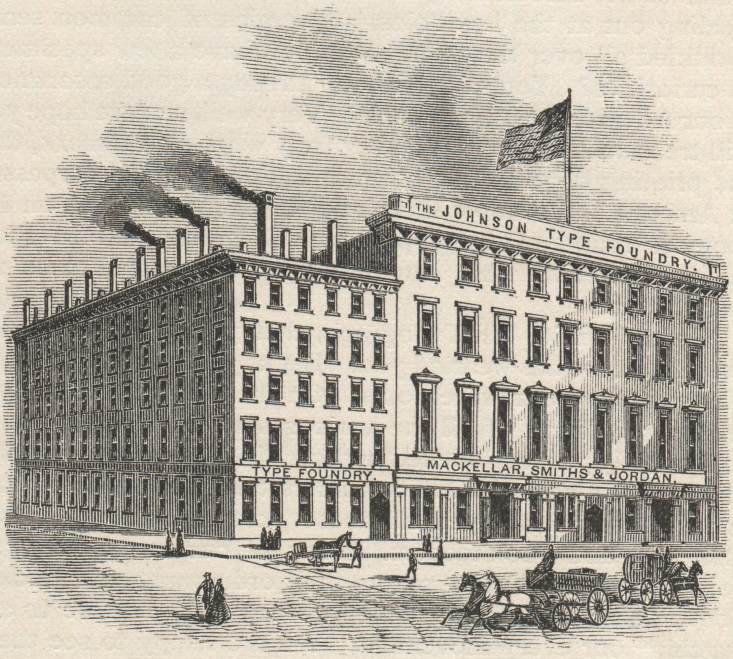
Now, Mr. Typograph, we shall admit you into our editorial parlour. Walk in, sir. It is not carpeted, and its principal furnishings comprise a desk or two, a few presses, stands and cases, with multitudinous type-surroundings. Here, sir, we edit and print our Specimen Books and our Typographic Advertiser. Don't you see poetical flies buzzing around, and atoms of wit-dust floating in the air, and odours of sentiment stealing out at the key-holes, and grains of common sense sprinkled all over the floor. Will you have a few specimens as curiosities? You say you have already a good assortment in our Advertiser and our Book? Very well, sir: we hope you will treasure them up. You say truly when you remark, that the printing done in this room is seldom, if ever, surpassed in America. We know that; and we intend to stand on the topmost round of the typographical ladder, and to show our fellow-artists what can be done with type such as we manufacture.

We are afraid, Mr. Typograph, that your long excursion over the house has wearied you. Let us go down-stairs again. These, sir, are our warerooms. On these numerous shelves are ranged founts of all the various sorts of types made by us, carefully put up, labelled and classified, and all accessible at a minute's notice. Our customers throughout the country keep actively employed all these porters, packers, clerks, salesmen, and bookkeepers. Many of our customers have never visited us; but we put up their orders with as conscientious fidelity and care as if they were standing before us and watching our every movement. We are happy to see them, and hope none will visit our city without calling in and taking us by the hand. We like to see them face to face, so that we can hang up their portraits in our mental gallery; and, when we

afterward receive a letter from them, we can imagine that we are hearing them talk to us rather than reading their writing.

The side-door on which your eye has just rested leads to one of our fire-proofs. Enter it. Here, sir, are safely stored many thousand matrices, as well as moulds, when not in use. As it would require the labour of many weary years to replace them if destroyed, we endeavour to keep them secure from the danger of ruin by fire. The upbuilding of a complete type-foundry is a work of generations.

You will hardly care to look into the basement,—the store-house of ink and other typographical appliances? Your time is exhausted? Then, sir, we bid you good-day. A safe return to your pleasant family, Mr. Typograph.



THE

# AMERICAN PRINTER:

## A Manual of Typography,

CONTAINING

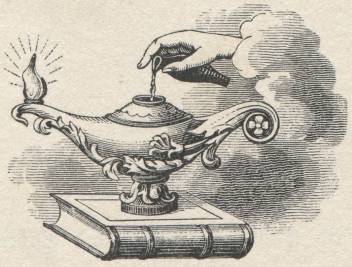
PRACTICAL DIRECTIONS FOR MANAGING ALL DEPARTMENTS
OF A PRINTING OFFICE,

AS WELL AS

**Complete Instructions for Apprentices:**

WITH SEVERAL USEFUL TABLES,
NUMEROUS SCHEMES FOR IMPOSING FORMS IN EVERY VARIETY,
HINTS TO AUTHORS, ETC.

BY THOMAS MACKELLAR.



FIAT LUX.

PHILADELPHIA:
MACKELLAR, SMITHS & JORDAN.
1882.