

always had molds in the same trough, which worked well, treated with another quality, and the result was always the same rough, speary, spongy, deposit. The blacklead now used by all electrotypers in the United States is from the Tudor mine, and is prepared by Mr. J. Thoreau of Concord, Massachusetts, and is the best article I have ever used.

Great difference exists between samples of that article; for if it be not really carbon, it is absolutely a non-conductor, and I have found a number of pieces totally inactive, while others were most excellent conductors. The action or inaction of different pieces, before grinding, is not at all dependent on their hardness, for I possessed a piece of that variety called by the pencilmakers rock, which completely annihilated the teeth of three of the saws with which I attempted to cut it. I then sent it to a celebrated mechanic, for the purpose of having it sawed, but he succeeded no better than myself; in fact, nothing but a diamond would have any impression upon it, and yet it was one of the best pieces for voltaic purposes which I ever possessed. Sometimes, on the contrary, hard pieces are of no value, whilst soft ones are excellently adapted for galvanic purposes. There is no method but direct experiment, by which the conducting quality of any particular sample of blacklead can be ascertained. There are not two shops where it can be bought alike, so much being either naturally bad, adulterated or ill prepared. Perhaps the best test of good blacklead is to take a pinch between the finger and thumb, and press it—if good, it will cake together and adhere.—*Smee*.

There is a great difference between one specimen of black lead and another; one sample appears a perfect conductor, while another is an equally perfect non-conductor; and it is only by actual experiment that its quality can be determined.—*Shaw*.

Plumbago is largely used in the arts: the finer sorts for drawing-pencils, the inferior in domestic economy, for polishing iron-work. It does not seem that the difference of quality in this substance depends entirely upon the quantity of carbon it contains. The common qualities, such as are used for polishing stoves, are very good conductors; and, if tolerably pure will answer our purpose as well as the best among the finer specimens. Unfortunately, however, the common kinds of blacklead are largely adulterated: among the substances used for adulteration, are plaster of Paris and charcoal.—*Walker*.

INSIDE OF A TYPE FOUNDRY.

Reproduced for "The Printer."

Our old friend Conner being a little dilatory in furnishing us with his specimen pages for the present number of THE PRINTER, we had to call at his establishment to hurry him up. We found him, as usual, busy with a customer. As their conversation was rather dry, as well as business-like, we became quite interested in it, and forgetting our own hurry, instinctively followed the parties from room to room till they had made an exploration of the whole establishment. What we overheard on that occasion we have thought might not be uninteresting to repeat to our readers. We therefore present it in the dialogue form, nearly as it occurred. The customer was a printer from the country, and this was his first visit to the establishment.

Printer—Is this Mr. Conner?

Conner—Yes, sir.

P.—Mr. Conner, senior?

C.—Yes, sir; I am the *old man*.

P.—Really, not so old as I expected to see. Why, Mr. Conner, your appearance says you are still in the prime of life.

C.—I assure you I feel as if I was on the down-hill side of life.

P.—Well, Mr. Conner, I have called on business, and beg through this letter, from one of your old customers, to make myself better acquainted with you; and as my friend says you are not only the best type founder, but an old printer—as well as a most accommodating and jolly good fellow when off duty—I want to trade with you.

C.—Yes, sir. I am at your service. I see your letter is from a very old customer. Our mutual friend traded with us when we were both pretty poor; but since then I learn he has made a small fortune, and he has renewed his patronage with us on a larger scale. Why, sir, would you believe it, we are now on an order for twenty thousand pounds for him, and all of one size.

P.—Yes, so he told me; besides, he says you are making a large font of Long Primer and another of Minion, and he really compliments you and your establishment very highly.

C.—Indeed! We know him to be an old friend; nevertheless, we thank him most heartily.

P.—He tells me his compositors all speak highly of your type, and consider it the best finished of any they ever handled; the figures justify so well with en, em, and other quadrats; and then your metal is uncommon hard.

C.—We are thankful, not only for his extensive patronage, but for his good opinion of our efforts.

P.—Please show me your specimen book. Let me see, Agate is wanted for advertisements, and this is set down at 72 cents per pound, and Minion for general reading matter is marked at 48 cents per pound, a little Brevier for editorial, and for this you charge 44 cents per pound. The two first sizes, Agate and Minion, I want large fonts of, with all the necessary sorts for newspaper work—as well as all other fixings required for a complete establishment. You see by this the order must necessarily be large, and it occurs to me that you might perhaps make more than ten per cent. reduction for cash on so large an order.

C.—Why, my dear sir, ten per cent. deduction from the face of the bill amounts to some hundreds, and is equal to twenty per cent. per annum, which most people consider a very liberal discount, especially as we mean to give you a first rate article in finish and metal—in fact, in all respects an A No. 1 article.

P.—Very true; but I have heard some of the type founders offer more of a discount for cash.

C.—Quite true—so could we, as we have the means and knowledge requisite for the making of cheap type; but I understand you want the best our market produces; such, for instance, as we furnish the *Herald*, and a host of other dailies and weeklies.

P.—Yes, yes, we want the best of everything. Do you supply the *Herald* type?

C.—Yes, sir. Mr. Bennett is one of our very best customers, and has been so, with one exception, ever since he commenced his paper.

P.—What was the cause of the exception to which you allude?

C.—Mr. Bennett was on a visit to Europe, leaving at the time some authority in the hands of his book-keeper, who ordered elsewhere under a promise of receiving a new suit of clothes from one of our cheap founders. Mr. Bennett has been called on frequently by some of our traveling type founders with cheap proposals. So you see, under these circumstances, great injustice would be done, not only to Mr. Bennett and your friend, who are large patrons, but to our customers generally; and we should lose our reputation for fair dealing should we have one price on personal application, and another on orders given by letter.

P.—You say you supply the *Herald*. Can you inform me how many copies the *Herald* prints?

C.—The daily circulation averages sixty thousand.

P.—Can it be possible?

C.—Yes, sir; Sundays as well as week days.

P.—Please inform me how long the *Herald* type lasts?

C.—About one year.

P.—Really, I had no idea—why it is almost beyond calculation. Let me see, 365 times 60,000—why it is almost incredible—it is within a fraction of twenty-two millions of sheets; can it be possible?

C.—It is a fact beyond dispute. My informant is a practical matter-of-fact man, and says he is willing to be qualified to its truth.

P.—Well, Mr. Conner, if your type is so lasting, I cannot do better than to order mine of you. I know when gentlemen take pains to give a good article they must be remunerated; it is so in all branches of business, and I cannot see why yours should be an exception. You may take down my order.

C.—We are much obliged to you. Mr. Clerk, enter Mr. P.'s order in the order book. Will you have your type coppered?

P.—Now that is something I had not thought of, nor do I know anything in respect to its benefits. Can you inform me?

C.—As to that, we would rather have you satisfy yourself. There is no necessity for hurrying the matter; and you can, in the meantime, step into the offices of the *Times*, *Tribune*, *Herald*, and *News*—all in this immediate neighborhood, and learn their experience. Some of these papers have been in the practice of having their type coppered since its introduction to the public, and others not so long.

P.—I thank you for speaking of the coppering, and will make the inquiry and let you know whether I will adopt it. Although I am a practical printer—as I understand you are; still, I have never been inside of a type foundry, nor seen type made. Have you any objections to my seeing how you make type?

C.—Certainly not. On the contrary, it affords us

pleasure to conduct our friends through the foundry. Your case is not the only one, as many printers have never seen the process of making type, or have any idea of the number of hands each type goes through before it reaches the compositor. Why, sir, each type is handled as often as they say pins are; and we will show you the whole process, from the cutting of the punch to the boxing up of the type. But you will excuse me from accompanying you through the various departments.

P.—Why so, is not your type made in this building?

C.—It is all manufactured in this and the two adjoining buildings; but I must beg off from doing that, which under different circumstances would afford me great pleasure, by pleading inability to travel up six pair of stairs. I am afflicted with a kind of rheumatic gout—as you know none but the rich have the gout; my complaint has a mixture of rheumatism with it. This being my situation, my son will accompany you.

P.—Oh, very good, Mr. Conner.

C.—William, do you show Mr. P. through the different departments; and mind, do you keep an eye on him when he reaches the girls' room.

P.—Now stop, none of that!

William C.—That is merely one of my father's hints to call your attention to the fine looking young ladies in the room he speaks of. Now, Mr. P., we will pass through our casting room to the machine shop, in order to get at the beginning—the cutting of the punch. So, as my brother James superintends the manufacturing department, I beg to make you and him acquainted, and leave you to his direction.

P.—Certainly. I see now, you make a family concern of your foundry, which, no doubt, accounts for your success in business; for where all are unitedly interested, you must of necessity make a good article, as the reputation of all are at stake.

James C.—That is my view. In this room some of our punches are cut, the most of our machines made, and matrices justified to suit their respective sized molds. Now this gentleman is engaged in cutting a punch; it is almost finished, and it is the letter m of a new series we shall shortly bring out, particularly adapted to newspaper printing and the machine presses.

P.—Pray, what is the matter with those you already have? I think very highly of the Scotch cut faces I just selected.

James C.—As to the Scotch cut face, there is nothing better, but you know this is a progressive age, and produces more fast minds than any previous one, hence we feel constrained to be equal to our day; therefore we must occasionally show something new in the hope of surpassing what we already have. Now he has the letter finished and hardened. I will drive it, that you may see all. This is a piece of copper prepared for the purpose, one side is burnished to give a clean, smooth surface for the punch; larger punches we force into the copper by using this powerful machine. Now this gentleman and the other two at this bench are engaged in justifying matrices (such as you saw me strike) to the molds. You see it is a slow, tedious business, as they are obliged now and then to take a cast to satisfy themselves as to the progress made, as everything appertaining to the matrix, the head and side bearings must be as true as a die, or as the fine movements you see in a clock. Now this and the other man at the lathe are engaged in mold and matrix making; and this six-foot young gentleman, engaged at turning out screws, etc., is my brother Charles, who is desirous of becoming a machinist.

P.—I see; I may well say your establishment is a family affair, and I like the idea of your father in bringing up his boys to his own profession; it goes to assure your customers there is a solid character as to the continuance of the establishment, so at all times sorts can be had which will justify with the fonts sold.

James C.—I will now show you into the casting room. This man is just commencing a font, and is casting the letter a.

P.—Why, I see you cast type by machinery.

James C.—Yes sir. Some fifteen years back all types were cast by hand molds, and a most killing business it was for the men; now, sir, it is all, or nearly so, cast by machines, and our men make some two dollars per week more than formerly, with one-half the labor.

P.—A very pretty piece of machinery, and how fast it turns type out. Is the type casting machine patented, and who was the inventor?

James C.—Yes, sir, it is patented, and the inventor's name is David Bruce, jr. At the last session of Congress he succeeded in obtaining the passage of a law extending the patent seven years.

P.—Are they in general use?

James C.—Nearly so, especially in this country, as we Americans look on Bruce's patent as being the very best type casting machine in the world; and, as a general thing, the type foundries in this country are not in any one respect behind those of England, France, or Germany; and if you will look over our specimens you will see we are in possession of the very cream of all the foreign specimens in fancy styles, German and English, or American faces.

P.—I suppose Mr. Bruce must have made a fortune out of his machine, by the sale of rights.

James C.—No; on the contrary, on the first introduction of his machine there were many difficulties to overcome, and a very strong prejudice existing against machine work, so he received but a very indifferent amount for this great invention.

P.—Well, how is it with the extension you spoke of—that, even at this late day, must be invaluable. I suppose he holds on to that, and will do better?

James C.—Why, no; not much better, as nearly all the foundries of our country are supplied, yet he has made, and has a further prospect of making, something out of it; for you must know, for fear the machine might fall into worse hands for his interest than ours, he sold to us all his right, title and interest, during its extension, seven years; and in case many are sold it is our intention, after paying us back for investment, to do the handsome thing, although we are not obligated to the amount of one cent beyond the cash paid for the right.

P.—Well, now, that agrees with what my friends have said in respect to the liberality of your firm. Why, how hard your type are! I have just been cutting and breaking some. I never saw the like. Do tell me, what are the ingredients of type metal?

James C.—Now you are asking a little too much. Yet I will say generally, that type metal is made of lead, tin, and antimony, and the better the quality of these ingredients, the better will be the type. But we have been engaged the past ten years in experimenting on metals, in the hope of producing something full as hard or harder, and of a stronger or tougher springing character; how far we have succeeded in our object time will tell; we think we have improved, and are somewhat satisfied in knowing no founder has, or can, beat that which you say you have been breaking and cutting. It has cost us much money and many years of trouble to make it so perfect.

P.—Pray, what do you with so many boys?

James C.—The boys are engaged at breaking off the jets or superfluous part from the type. These boys receive a certain amount per pound for breaking, and are important helps in the business.

P.—I suppose, from what I see, your business is free from competition, or nearly so.

James C.—That is a mistake, for almost every large city has its foundries, and in most of them there are cheap foundries. Some live a few months, some a year or two, others again for a few years, working up a little over journeyman's wages; generally begging cash orders from newspapers; and what few matrices they may perhaps have, consist of an Agate, Nonpareil, Minion, Brevier, and sometimes they may have one or two sizes of two-line letter, but frequently these are purchased at other foundries. Now, would you believe it, many of these sizes are stolen from some favorite type founder, by procuring his types (and I may add brains), and then make matrices by precipitating copper on those very alphabets so stolen.

P.—Why that is a most shameful and unjust way to get into business, and I should think printers trading at such an establishment would, first or last, be disappointed in obtaining sorts for these fonts.

James C.—Certainly. For should one bad sale be made on a credit, nothing could save them from going the way of all flesh.

P.—I suppose these establishments are such as your father alluded to when he very frankly informed me I might possibly purchase at a reduced price from that of yours, for cash.

James C.—Very likely. We will now step into the dressing room, and the first thing in order is the rubbing of types.

P.—Really, Mr. Conner, you have a great many young ladies here. No doubt this is the room where your father cautioned your brother William to keep an eye on me. I understand now.

James C.—Very likely. Now at this stone you see the letter a is being rubbed on two sides. As they rub one the type is turned and the other side is rubbed before it is pushed in this heap of finished type.

P.—You have some very good looking girls. Pray, what amount do they earn in a week?

James C.—Yes, we frequently have as fine a set of handsome young ladies as you can see in a day's travel; well behaved, and modest, too. As to wages, nearly all our work is done by the pound, so that everything depends on themselves. Some, who apply themselves closely to business, make \$7 per week; others, not so expert and industrious, less; yet, I believe, they average \$5 per week.

P.—Indeed! that looks well, and it is a source of satisfaction to know that there are some branches of trade that young ladies can do so well at.

James C.—At these tables the girls are setting the type up, and when they fill out the empty wooden sticks, the same as those you see on the rack, they go into the hands of the dresser. You will observe the sticks are filled to the length of his steel dressing rod. He is now about using his plane to cut out what we call the jet end. See how smoothly the work is done. This process makes the type all the same height, and without it you would not be able to use the type. Now he is engaged in picking out the imperfect type. You will observe he is obliged to use a magnifying glass to detect the smallest imperfection in face and hair lines.

P.—I am much surprised; for I had no idea types went through so many operations ere they reached the printer.

James C.—You have not seen all yet. If you will step this way you will see this dresser is now paging up what he has dressed and picked. This page contains a, b, c, Agate, No. 5. In this manner he goes on until he has the font completed. When all completed, the dresser turns the font over to the caster, who takes it to the counting room where it is weighed, he receiving credit for the casting, and the dresser credit for the dressing. The font is then shelved, unless previously ordered, which is generally the case; if ordered, it is boxed, marked, and sent to its destination, perhaps to China.

P.—Do tell me. Do you ever sell printing materials to China?

James C.—We have on some three or four occasions. I remember one pretty large order going there; among the items was a horse power treading apparatus to be attached to a power press previously sent out. Our business is now extended to nearly all parts of the civilized world. I remember one order from Peru which amounted to upwards of five thousand dollars. We have orders from Cartagena, Mexico, Bermuda, Cuba, and many other points. This is our brass rule and jobbing room. Our large jobbing type is cast here. This, you see, is done by hand molds.

P.—Yes, so I see. Pray, what is that man cutting up the large sheet of copper for?

James C.—The operation you speak of is necessary to the making of brass rules. He is now cutting a sheet of brass two feet by three, which is passed through rollers for an even surface. You will observe the whole sheet disappears in a few minutes, turned into strips of about one inch wide, by two feet long, and the thickness looks as if it was for No. 6 rule—a 30 pound sheet. This sheet also makes Nos. 13, 15, 26, and 31 rule. This man is engaged in making what we call labor saving rule, a very convenient article for an office; and this one is making ornamental dashes for newspapers, he also cuts up and makes the advertising rules to any given measure.

P.—I begin to feel as if I should not like to embark in your business. Every article you manufacture must be executed to the inside of a hair. There is too much nicety required, and then, from what I have seen, it must take a very large capital.

James C.—Yes, the same amount of capital invested in almost any other branch of business, with the same

attention we unitedly give to this, would most likely make large fortunes for us all. But I have one more room to show you. This is our electrotype room. Here the first thing requisite is the pattern, which generally is metal or wood engraving, but sometimes job type; we then pour a wax composition into this case, which is about a quarter of an inch in depth. When the wax is set, the impression of the pattern is made in the wax by means of this powerful press; then the impression is brushed over with plumbago to give it a metallic surface; the dust is then blown out, leaving the impression clear and perfect as you see. After this is prepared for the battery it is immersed as you see here. This one just taken out of the battery has had the copper precipitated on it; the impression makes but a shell—its face as perfect as the engraving. This shell is now tinned on its back, then put into this mold, as you see, and filled with type metal; then it is blocked to make it type high.

I have now, I believe, exhibited to you all the operations of this part of the building; but it may be somewhat interesting for you to step down stairs again and look at the finished matrices, molds, and punches, as well as the manner they are kept. And here I will leave you again with my father.

P.—Mr. Conner, I am fearful too much of your son's time has been taken up in showing me the wonders of a type foundry, but if not too much trouble I should be pleased to look at your matrices, molds, and punches.

Conner—As to time, if you are pleased, we are satisfied. Here, in these drawers, are to be seen some fifty thousand matrices, and I really do not know how many molds there are in this apartment. This safe contains much valuable property. Its destruction by fire would cause immense loss, and stop us from casting type; hence, the importance of having this safe safe. It is commenced at the foundation of the building, and forms a part of it, and is in all probability as safe as human ingenuity can make it. Its frame-work and doors are, as you see, iron. These doors, and all around each apartment, are filled in on the most approved plan. In this safe are several thousand punches, and among them are to be found our celebrated series of Scotch punches, cut expressly for us in Edinburgh by one of the best cutters, also our new series of American Scripts, from Great Primer to Canon, which we think the most extensive, complete, and beautiful scripts ever made. I believe you have now seen the most, if not all we have.

P.—Many thanks to you and yours. Mr. Conner, will you oblige me with one of your latest specimen books? I understand your customers are furnished free of cost. By the by, your specimens must be costly.

C.—Yes, they cost a great deal of money; but I regret to say we are entirely out of specimens, yet have hopes of having some soon, as we are now engaged on a new enlarged edition, and we will avail ourselves of the first opportunity to forward you one.

In the meantime we intend to print some six thousand copies of such portions of our specimen pages as most interest newspaper and book printers, in the seventh number of a new monthly publication called THE PRINTER. In fact, we have, since the commencement of this monthly, had in each number from four to six pages of such new articles as we are bringing out from day to day, and find it a very convenient way to reach our patrons. The number to which I refer, will contain, even to the head of your paper, every article you have this day ordered.

P.—Very well, that will answer my purpose, at present, and when you have your new edition out please send one to my address. I will bid you good day, with many thanks for your politeness, and will let you know in season whether I will have my type copper faced.

C.—During your stay in the city, we beg you will at all times consider our counting room your *sanctum*, our desk yours, for the purpose of any little writing you may have occasion to perform. Here is pen, ink, paper, and in this box you will find postage stamps. On this table you will find our city papers generally, as well, some New Orleans, Charleston, Washington, etc.

P.—I am much obliged to you, and will occasionally avail myself of your kind offer. Good day, sir.

[The above conversation will interest all who are unacquainted with the mode of type making.—Ed.]