

The Press Room

by

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The evolution that has taken place in the press within the last two centuries has been very great. Picking up the early history of the press we find that there is considerable evidence that the origin of printing has been traced back to ancient Assyrian nations, but the great progress which has taken place has been during modern times.

In the early methods of printing we find that the people took their manuscript or whatever they desired to have printed, and wrote it out on a piece of very thin and transparent paper, pasted this on a block of hard wood, the engraver carved away, for a short distance, all that was not traced, after this was finished it was ready for impressions to be taken; the pressure was applied by means of a brush. No great progress was made along this line, the people evidently say that it was a very slow and awkward method, and ceased to use it to any great extent. This earlier form of printing is only in use by the Chinese at present. In Europe the same or a modified method

lasted till the close of the fourteenth century.

One of the earlier forms of a press was simply a modification of the ancient wine or cheese press. It consisted of two upright timbers held together by means of cross-pieces; at a convenient distance from the ground, a flat board on which the types were placed was fastened to the cross-pieces; another board afterwards called the plate moved vertically by means of screws and in so doing produced the impression. The plate had to be screwed down and unscrewed each time an impression was taken. This was a very slow and tedious way, but the same form with slight modifications lasted till the beginning of the sixteenth century, at which we note the beginning of the great revolution.

One noticeable improvement upon the form just mentioned was made in 1620. The improvement consisted in passing the spindle of the screw into a square block on which was fastened the plate, and adding a contrivance by which the bed could be

rolled out and in under the plate.
 Next, in 1798, the Earl of Stanhope came forward with a press in which the framework was entirely iron, and altho he still retained the screw, he attached a combination of levers by which the amount of energy necessary to manipulate the press was very much reduced, and this is the idea that every improver has in view, i.e. to make some improvement or invention by means of which man's energy will be replaced by machinery.

The improvement was made by Geo. Clymer in 1816, when he erected a press, which dispensed entirely with the screw, substituting a large iron bar placed over the plate, one end being attached to the uprights and the frame. The other end was raised and lowered by means of levers. This was slightly improved by Samuel Rust, in 1827, by diminishing the amount of material in constructing the frame, by hollowing the larger pieces out, and by putting the framework together by means of rods thru

these hollow bars; this also added much strength to the frame-work. He slightly improved the toggle-joint.

The next step developed into the Washington hand press, which can be seen in a good many offices, and especially the small country office, today. The hand press has reached its climax, and the power press or printing machine comes into use.

The presses for typographic printing can be conveniently grouped into three classes:

- 1.- Hand-press,
- 2.- Job-press,
- 3.- Power-press.

The power press or printing machine, may further be divided into:

- 1.- The Single Cylinder,
- 2.- The Double Cylinder,
- 3.- The Rotating Machine.

The Single Cylinder:

The single cylinder prints single sheets, and only on one side of the sheet at once; the type from which the im-

pressions are taken is locked up in chases, and then the chases are placed on a flat bed. Some of the divisions of the workings of the single cylinder are:

- 1.- Taking the Impression,
- 2.- Carrying of forms back and forth,
- 3.- Lifting the form,
- 4.- Feeding the sheets,
- 5.- Delivering the sheets.

The impression is taken by placing the form on the bed and cutting the cylinder down so that it will give a certain amount of pressure on the forms, when the cylinder comes in contact with the type it has several thicknesses of paper which taken all together are called the tympan.

The bed is carried back and forth by a series of cog-wheels, which also rotates the cylinder, and the cog-wheels are so arranged that when the bed has gone back and forth, the cylinder has rotated on its axis once, and it comes in contact with the bed at each successive rotation. The bed slides back and forth on grooves

iron bars which are part of the framework, and the jar of the bed is diminished by means of springs at the ends of the bars or by air cylinders below the bed.

The ink is taken from the fountain and distributed by means of rollers varying in number, usually having two or more iron rollers so as to cause a more than distribution of the ink and four or more common rollers.

The feeding of the sheets is a small job after you have a little experience in that line, but even if it is rather insignificant it is very essential that the sheets be put in very accurately, because of the smallness of the job the accuracy should not be slighted. If they are put in accurately on both sides; the matter to be printed lined up accurately, a perfect register will not be difficult to obtain. This is done automatically to some extent; in cases where it is, the papers are placed on a feed board which has an automatic arrangement by which it is raised, the distance depending upon the thickness of the paper. The top sheet is lifted off from the rest by means of steel fingers

which have a kind of rubber attachments.

The sheets are delivered after being printed by means of what is called the fly, which consists of several long wooden fingers which receive the papers directly from the tapes and transfer the papers from the cylinder to the fly. The fly uniformly piles the papers and is worked by a series of arms.

Rotating Press:

The rotating press prints both sides of the paper at once by means of stereotyped plates. The impression cylinders as well as the printing surfaces are circular. The paper is taken from a reel in one continuous web, (The machine is sometimes called the Web-press from this fact), which is severed into parts or sheets after it is printed, thus doing away entirely with the complication of a feeding apparatus. The rotating press has been considerably improved since its first appearance. The speed of the

press has gradually been increased until the average is about 3500 impressions an hour, the papers coming out folded, already to be mailed. The help necessary to run one of these is about the same as that of the cylinder press.

Rollers:

One of the essential requisites of a pressman is to know how to properly take care of rollers, for if not given the proper treatment they deteriorate in a very short time. To keep rollers well they should be put in a closed box or case when not in use. They should always be cleaned after using, so that the ink will not form a coating, which might injure the surface of the roller. When a roller is new it necessitates very careful using; at first it should be used at short intervals and at a definite temperature, depending upon the kind of the roller. Then increase the time each interval until the roller can be put into constant use; it should be

huddled with care, as a small scratch or bruise on the roller helps to cause an uneven distribution of the ink, this should emphatically be practised with new rollers as they are more easily injured than when in constant use. Rollers when used so long that they have lost their section are of little use, but section may be renewed to some extent by washing in lye-water and then rinsing with pure water. In regularly cleaning rollers it is best to use coal-oil, applied with rags. The ink comes off immediately if the oil is applied in this way, and leaves no injurious effects whatever on the rollers.

Inks:

Inks may be grouped into three different classes:

- 1.- News,
- 2.- Book,
- 3.- Lithographic.

But not taking up either of these groups in particular we will speak of it in a

general way, giving a few necessary qualities of inks as a whole. Inks should contain solid pigments; should adhere to the paper readily, and when coming in contact with the paper should readily be detached from the types; should be distributed with more or less ease which determines the price of the ink to a considerable extent; should dry in a reasonable length of time.

Our common newspaper ink is got up on as cheap a scale as possible, in making these common oils from paraffin and resin, mixed with ordinary lamp black are used, not using any drier whatever, but the theory of this mixture is that when it comes in contact with the paper the oils are absorbed, leaving the solid part as a stain.

The best inks are made from selected qualities of linseed, poppy or walnut oils. This kind of ink dries on the paper, and does not leave a stain as news ink does. To accomplish this driers must be used, as in paints, which are employed for absorbing the oxygen;

the ink on being excluded from the air should be tenacious, and should not undergo any changes, but retain its softness and give a smooth glossy appearance.

Colored inks are manufactured in a similar way to those of black inks. Special attention is paid to secure pure varnishes and to get chemicals that do not react on each other. The chief defect to colored inks is that they fade when exposed to the air and light. The fading varies directly with the brilliancy of the colors.

Paper:

Much of the paper used for printing differs from writing paper in that the surface is softer and it is not so hard sized; the fibers mostly used in making paper are straw, wood, paper cuttings or waste and certain grasses. The fibers are prepared by taking them thru a series of stages. They are first macerated, then bleached and treated and finally boiled until they are in a pulpy almost fluid state, then after the water is drawn off they are

rolled into different thicknesses. The sheets vary considerably in size, but when folded up into book form they are distinguished by certain names regardless of their sizes as:

Folio	-----	folded over	making	2	leaves
Quarto	-----	"	twice	4	"
Octavo	-----	"	three times	8	"
Duodecimo	-----	"	irregular	12	"
16 Mo	-----	"	four times	16	"
18 Mo	-----	"	irregular	18	"
24 Mo	-----	"	irregular	24	"
32 Mo	-----	"	five times	32	"
48 Mo	-----	"	irregular	48	"
64 Mo	-----	"	six times	64	"

Not only do the sheets vary in size but there is also a very striking variation in their quality, which determines the grade of the paper. Some of the common kinds that we have for selection, with the size of each in which they are manufactured are:

Flat Letter ----- 10 x 16
 Flat Pocket ----- 12 x 19

Flat cap	14 x 17
Crown	15 x 19
Double Letter	16 x 20
Demy	16 x 21
Polio	17 x 22
Super Royal	20 x 28
Double Cap	17 x 28

This is but a small list but will illustrate the way in which paper is selected. It is ^{not} always the highest grade of paper that gives the best satisfaction, sometimes a cheaper grade will give much better results all around, than will a higher grade, this of course depends upon the kind of work, and the use to which it is to be put. One of the peculiar things about paper is that it sometimes becomes electrified, and this is our difficulty that the single-cylinder pressman has to contend with. When electrified the sheets cling fast to the feed board, and refuse to go in accurately unless an extra amount of energy by the feeder is exerted. This is more particularly noticed in the winter as the atmosphere is drier than in ~~the~~ summer. This

may be overcome to a certain degree by moistening the air, which may be accomplished by putting straw around the press. Moist air is a good conductor while dry air is a poor conductor or in other words the moist air carries the electricity off, which the dry air would not. The electricity also disappears when left standing for some time.

Temperature of Press Room:

This is of the utmost importance. In order to do good work the temperature should be kept at such a degree that the ink will be thoroly distributed, with the least effort, and to do this the temperature is pretty high which is almost suffocating to the amateur, but by continually working in this temperature it will soon become unnoticable. The ventilation of the press-room can be so regulated by careful attention in a way that it is not so disagreeable. To do this one should try and get a current which will not directly flow upon the ink fountain.

Source of Heat:

This is a question which requires due consideration by the press-man if he wishes to do justice to his health and keep his ink in the best workable condition. Probably most small offices are not arranged to heat the press-room by steam, but in cases where it is possible, it is very convenient and advisable to have a branch from one of the main pipes so you can have an extra amount of heat directly under or near the fountain, where it is most needed; if such an arrangement can be made, you can keep the ink at its proper temperature and also have the breathing atmosphere much nearer the normal.

Sinks for Forms and Rollers:

An essential of the press room is to have proper places to wash the forms and rollers; the forms should always receive a good cleansing immediately after they are taken from the press,

to do this a sink should be in a convenient place and conveniently connected with an abundant supply of water, which may be applied to the forms by a hose, also a certain supply of lye water, which enters the sink on the forms. For rollers the sink should be so arranged that the rollers could receive a thorough cleaning without precipitation of muck on the floor.

Relation of Press to Composing Room:

A close relationship exists between the press and composing rooms. To do good work in the press room it is of vital importance that the compositors should be skilled, and not send type to the press "off its feet" or with too long or too short rules, improper spacing or wrong font letters, all of which require an extra amount of time, which the press-man should be devoting to his make-ready instead of correcting mistakes made by unskillful compositors.

Suggestions

A few suggestions, which during the time spent in the press room, the writer has learned to believe significant are;

- 1.- Order should be the pressman's first law. Know where your tools are, and always keep them in their proper places.
- 2.- The Pressman undoubtedly has a very unpleasant place to work unless he is very particular to do his work in such a way that he will get the least possible amount of dirt on the floor and upon his cloths.
- 3.- Odd moments between runs may be utilized to good advantage in "tidying up", wiping press, and getting ready for the next run.

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4. - Do not hesitate to spend an extra amount of time in getting as near a perfect impression as possible, all presses are so constructed that they should give an even impression if they are in running order: when the impression is not satisfactory by the impression screws, the pressman should doctor it by cut-outs and over-laps.

5- Always keep cool, never get excited, for unsteady work spoils much good material.

The press-room is not the most desirable place to work, but taking every thing into consideration it is not undesirable; this, like any work one may engage in has its pleasures as well as its displeasures.