

ENGRAVING PROCESSES.

Of all the arts, probably, Engraving on Wood has made the most decided progress in the last decade. This has been very apparent to any one who has been at all a careful observer of *The Century* and *Harper's Monthly*, two American exponents of the wood engraver's art. The advance is still more clear and definite, because in this case is direct, when we compare *Picturesque America*, which when published represented Wood engraving in its best class, and *Picturesque Canada*, which is the work of the best engravers of the present day.

This progress has been in a measure forced. New processes had come in and were threatening the utter ruin of the Wood engraver's craft, and unless he could beat the new methods in quality, his occupation like Othello's was gone. Most of the processes which have come into competition with Wood engraving may be classed under the heading, Photo-Engraving. The first progress made in this direction was the discovery by Mungo Ponton, in 1839, of the sensitiveness to light of a sheet of paper treated with bichromate of potash. In 1853 Fox Talbot discovered and utilized the insolubility of gelatine, exposed to light in the presence of bichromate. It is upon these facts that the Woodbury and other Photo-engraving processes are built. Each system has its special way of working, and its special material and proportions; but they are all founded upon the above basis. In the Woodbury process from which such excellent results have been obtained, the gelatine picture obtained by light, is placed in contact with a piece of soft metal, and subjected to heavy hydraulic pressure. This gives a picture in reversed relief and depression. It is filled with a solution of coloured gelatine in hot water; a piece of paper is placed on top and pressed down with a level lid, so as to squeeze out the superfluous gelatine. The paper is then lifted, bringing with it the coloured gelatine which forms the picture.

The leading processes outside of Photo-engraving are, the Kaolyne, the Wax and the Zinc.

A layer of specially prepared clay is spread upon a metal plate and while still in a plastic state the picture is cut out, either with a graver or other similar tool. This gives a matrix from which when hard and dry either an electrotype or stereotype may be obtained. This is the Kaolyne process.

The Wax process is somewhat similar and has been used to great advantage in Map Work, Rand, McNally & Co. of Chicago, doing all their Map engraving by this means. A copper plate after being chemically treated is coated with a wax composition which when slightly warm is readily cut away, where necessary

with a needle or other sharp instrument. An electrotype may be made from this matrix.

The Zinc process, is one of the oldest and cheapest systems for coarse engraving. Zinc plates are quite soft and readily eaten away by acids or cut with tools. The work may be either a transfer from lithographic stone, type or engraving or may be drawn on with ink made of proper materials. When the sulphuric acid is poured upon the plates it immediately attacks such portions as are not covered with work. After the face has been slightly eaten away by the acid the work is rolled up with a gummy ink which will, when the plate is heated fall over the sides of the work, which is by this time slightly raised. This will protect the sides and avoid the danger of eating away beneath by the acid when again applied. By repeating this operation several times the required depth will be obtained and the engraving be ready to print from. This process has the advantage of being very inexpensive, all the materials being common and cheap, but the work produced is necessarily coarse and crude.

Photo-engraving is now so perfected that almost any style of work can be reproduced, and almost any degree of fineness obtained. As shades are represented in all engraving and type work by lines or dots and cannot be by degrees of colour, as in nature, so Photo-engraving is limited to copying from drawings, engravings, &c., in which all the work is done in lines or dots, and scenery or other natural objects cannot be reproduced by this process any more than by old engraving methods without the intervention of the draftsman.

Work can be done by any of the processes here mentioned at less than one half the cost of good wood engraving, and in one-tenth the time which is very often an object. The cheaper illustrated papers all over the world have their engravings produced by "process" and even such high class periodicals as *Harper's Weekly* use "processes" for the production of fully one-half of their pictures. Whether wood engraving will be ultimately driven out of the field by these processes is still a disputed point; but to stand at all it must be first class.

The splendid picture of John Bright printed in this number of BOOKS AND NOTIONS, is a good example of first-class wood engraving of the present day, and is kindly lent to us by *The Century Co.*, and that booksellers may have an idea how expensive this class of work is, we may mention that the cost of engraving this one small cut was \$160. The engravings in *The Century* are almost all wood cuts, photo-engraving in that periodical being confined almost entirely to outline pictures and maps.