

## Paper Making.

The art of paper making, if not the most important, is at least one of the most useful that has been invented. Paper has, in the present age of rapid advancement and improvement, acquired a degree of importance with which it would not have been credited with a century ago. Being the vehicle of written thought between nations as well as individuals, it has contributed more to the advancement of the human race than any other material employed in the arts; and its manufacture constitutes an art depending more closely than any other upon the march of civilization. Its uses are now beyond number, and the demand for it so general that it has become an article of prime necessity, and one that is daily entering more and more largely into the ordinary wants and ordinary life of all classes.

The word "Paper" is derived from the Greek name of a rush which grew in the swamps on the banks of the Nile, about ten to twelve feet high, and from which the Egyptians manufactured a writing material. The inner cuticles under the coarse exterior portion of the plant were carefully removed, and the thin leaves were laid side by side on a table, moistened with water, and rendered adhesive by the use of a paste made of very fine flour mixed with size or glue. Another layer was laid transversely on the top of the first, and the two were pressed together and dried in the sun, when they became sufficiently cemented to form a sheet. The sheet was then beaten smooth with a mallet, and a surface imparted to it by polishing with a piece of ivory or tooth.

This paper was probably known and used as far back as the third or fourth century B. C., and it continued in general use until the beginning of the sixth century of the present era, when it was superseded by parchment and the paper known as "Carta Bombycina," made from cotton, which latter was then just then being introduced from the East. From the Egyptians, the art of making paper from the papyrus was transmitted to the Romans, who greatly improved it, bestowing more care upon the various operations of washing, pressing, sizing, and smoothing, and they made many different kinds and qualities. The trade in papyrus became considerable, not only at Rome, but throughout the civilized world. The profits from the sale were so large that they produced a revenue sufficient for Firmus, who made himself master of Egypt towards the end of the third century, to boast that he had in his possession as much paper as could support his army. The papyrus, though it was submitted to a special process of manufacture, retained substantially its original form; and it is to the Chinese that the credit is due of having invented the art of making paper from pulp. They were familiar with the art about the beginning of the Christian era, the materials used being the bark of trees, parts of the bamboo cane, rice straw and cotton. The Arabians and Hindoos, by their inroads and conquests in Tartary at the close of the seventh century, learned the art from the Chinese. It was next introduced into Europe through Greece and Spain, the Arabs or Moors bringing it with them in their conquest of Spain during the eighth century,

and the Greeks acquiring it through their commerce with Asia and Egypt. From Greece and Spain, the art was communicated to Germany, France and Holland, and thence it reached England. Paper made from cotton, with authentic dates from the tenth and earlier centuries, is preserved, but linen fibre does not seem to have come into use until later, and cannot be traced back further than the middle of the fourteenth century.

The first account of the construction of a paper mill of any note is the establishment of a large one at Nuremberg, in 1390, by Ulman Stromor, a German, in which he employed a great number of persons for the manufacture of paper from linen and cotton fibre. A century afterwards a mill was afterwards erected in this country, at Stevenage, in Hertfordshire, by Mr. John Tate, to which reference is made in a book printed by Caxton, about the year 1490. In 1588, John Speilman, a German, jeweller to Queen Elizabeth, owned a paper mill near Dartford, for the erection of which he obtained from the Queen his knighthood, and a ten-year monopoly for the gathering of all rags, etc., necessary for the manufacture. Only very common paper, principally for wrapping purposes, was made there, the finer sorts coming always from France and Holland. About the year 1770, Whatman had the courage to examine, in the capacity of a workman, the continental mills. On his return to England he founded the mill at Maidstone, which is known at the present day as the manufactory of the finest hand-made paper. Hitherto, all paper had been made by hand, sheet by sheet. At the end of the eighteenth century, the idea of a machine, for producing at one operation a continuous web of paper from the prepared pulp, was conceived by a Frenchman named Robert. This machine, developed and rendered practicable in England, soon took up a place of first importance in the paper trade; and from this time the manufacture was divided into two distinct branches, known respectively as hand-made and machine-made.

Early in the present century, Berthollet discovered the valuable bleaching properties of chlorine, which at once caused a revolution in the trade; manufacturers were able to produce white paper from materials that had hitherto been debarred from use for that purpose owing to their color. About the year 1844, however, a sudden depreciation arose in the value of white papers, especially the French, due to the indiscriminate use of the bleaching agent. Papermakers, although appreciating its value, were not aware of the necessity of destroying all traces of chlorine in the prepared pulp. This free chlorine gradually acting upon the fibres, injuriously affected their resisting power, and rendered the paper brittle and wanting in tenacity. Since that time the manufacture has steadily progressed.

Until the end of the eighteenth century, paper was made in Europe almost entirely from rags. At this period other substances were adopted as substitutes, due in part, no doubt, to the insufficient supply of rags, and consequent rise. The author has a copy of a publication, printed by Burton, of London, and said to have been written by Matthias Koops; it was published in the year 1800, and is printed

on the first paper made from straw in England. It was dedicated to the reigning Sovereign, George III. An appendix is printed on paper made from wood fibre alone, which, although hardly properly reduced, is strong, tough, and of a light yellow color; the printing shows up well upon it, as also upon the straw paper.

Paper has been made from a great variety of substances without the use of rags; in fact, almost any vegetable fibre can, by proper manipulation, be made into some sort of paper; but the principal substances which have a remarkable value, and are used to any great extent, are esparto, wood and straw.—*British and Colonial Printer and Stationer.*

## The London Fur Sales.

The great March fur sales began sooner this year than usual, on account of the earlier approach of Easter.

The Hudson's Bay Company had sales on Monday, March 12, and the three following days, beginning at 10 o'clock. There were offered 11,588 skins otter, only 9 skins sea otter, 6,138 fisher, 944 silver fox, and 3,821 cross fox on the first day. The first eight lots of otter (about 45 skins each) sold at 57s per skin. These were "York Fort," and brought about 3s more per skin than the same grade last season. Wetted (45 skins in each lot) sold 45s per skin. M. R. in 10 lots of 42 each brought 53s. E. M. and F. G. realized the highest prices, 58s and 60s respectively. Seconds (York Fort) declined about 10 per cent. from last March prices, selling at 37s and 38s per skin. The smalls 27s and 28s per skin. In general, small seconds and large thirds went at last March prices, and small thirds at an advance of about 10 per cent. America took most of these, some were for Russia, but very few for England. Some 3,000 more skins otter were offered than at the corresponding sale last year.

Silver fox realized all sorts of prices. Beginning with four skins which brought £33 apiece, they sold as low as 10 per cent. on an average less than last year, and the inferior grades at a reduction of 30 per cent. or 40 per cent. Russia and Germany had most of these. One fine skin brought £40, and 32 skins sold for only £1 2s 0d each.

Red fox Y. F., (17,000 skins) opened at 10s 3d, about the same price as last year. Thirty-two lots of 42 skins each went for 8s 9d per skin. A long string of seconds (50 each) realized 7s 9d and 8s. Some of the poorer lots went as cheap as 3s per skin.

White fox, of which there were 12,978 skins, fell off in price about 40 per cent., the finer skins 20 per cent. Mostly bought by Germans for dyeing, except a few of the best which are for the American market.

Only 72 skins of the expensive blue fox came next, and they brought great prices. Each of the 18 skins in lot 1301 sold for £9, an advance of £1 over last year's price; another lot of seven skins brought £7 each. The French competed with Russian buyers for these valuable skins.

After 250 kitt fox, which brought an average price of 3s 3d, came 78,555 lynx. The best lots of large Y. F. went 10 per cent. higher than last March; N. W. remained about the same. Some large fine skins marked M. R. brought