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THE HISTORY OF PAPER

According to the Han chronicles, in the year 105 of our Era, the eunuch Ts'ai Lun, a great court dignitary, presented the Chinese emperor with the first sheets of paper. Improved by Tso Tsui-yi, paper was used, in the following centuries, for a wide range of purposes: for decorating houses and temples, for writing, for wrapping, for tissues, and even for toilet paper. Paper money was introduced in the Seventh century. Various kinds of paper were manufactured in China, but paper made of rags dominated.

As of the 5th century, paper spread throughout the empire in various elaborate forms, but remained a secret of China until the 8th century when, following a battle, it reached the Islamic world. In 751, during a military expedition towards the borders of China, the general governor of the Caliphate of Baghdad captured two Chinese paper manufacturers in Samarkand. With their help, he established a paper mill in that city, a favourable location due to the availability of water, irrigation channels, and linen and hemp crops. From Samarkand and from Baghdad, the paper industry spread to all the provinces of the Muslim world. A branch of the way of paper spread from Tunis to Palermo, and for some authors the Fabriano paper originated from this base in Palermo. The Arabs improved paper production, mostly through their hydraulic skills. The new techniques were first used in Spain, the great European region subject to Arab invasions since 711, and later spread throughout Europe.

Wide linen crops, with their blue flowers, were often seen in medieval Europe. Linen fabrics were worn out to obtain rags for paper production. In the 13th century, however, the shortage of rags became chronic in Europe and stimulated research on alternative materials. The most important one today is wood-pulp, although its use only spread in the 19th century, in spite of a number of experiments.

Early paper mills were established in Italy in Amalfi and Fabriano. Production spread from there to Bologna, Padua, and Genoa, then to Tuscany, Piedmont, Veneto, and the Toscolano Valley (Brescia). However Fabriano held the leadership for some time, thanks mostly to some technical improvements. For at least 200 years, Italy dominated the paper market, substituting Spain and Damascus as the providers of Europe.

Two centuries after its introduction in Italy, paper became the basic support for writing and printing. In the 17th century, however, the development of the paper sector stopped abruptly, due to the plague outbreak in 1630-31: the fear of transmission and the preventive measures, also providing for the burning of rags, hampered the collection and circulation of raw materials. The demographic recovery, in the second half of the century, restored the paper sector too. Two additional factors, however, stood in the way to overcoming the plague emergency: the introduction of duties and the development of foreign competition.

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With ups and downs, the history of paper between the 17th and the 19th century is marked by ongoing innovation: the invention, in Holland, of a cylinder equipped with metal blades that cut, tore, and reduced rags into a mash, avoiding the need for soaking that affected the high quality of paper; the first continuous machine, designed in 1799 by Nicolas Louis Robert; the breakthrough discovery by Frederick Gottlob Keller, who obtained wood pulp mechanically in 1844 by grinding wood using stone wheels for the first time. The discovery of cellulose is linked to the names of Meillier (1852), who cooked straw with caustic soda in a sphere-shaped boiler, and Tilghman, who succeeded in producing cellulose starting from wood and using a calcium-bisulphite solution. The Ritte-Kellner process was introduced in 1882, and the Dahl process, which paved the way for cellulose and sulphate, dates back to 1883.

(For further information on this point, please visit: www.assocarta.it, where much of the mentioned data is taken from.)