

CAR/MINE (Fr., ML. *carmesinus*, Pers. *qirmizi*, crimson, from Skt. *krmijā*, produced by a worm, from *krmi*, worm + *janati*, *jāyatē*, to be born). A beautiful red pigment obtained from cochineal and employed in the manufacture of the finer red inks, in the dyeing of silk, in coloring artificial flowers, and in miniature and water-color painting. It was first prepared by a Franciscan monk at Pisa, who discovered it accidentally while compounding some medicine containing cochineal, and in 1656 it began to be manufactured. One process for its preparation is as follows: Digest 1 pound of cochineal in 3 gallons of water for 15 minutes, add 1 ounce of cream of tartar, heat gently for 10 minutes, add half an ounce of alum, boil for 2 or 3 minutes, and, after allowing any impurities to settle, place the clear liquid in clean glass pans, in which the carmine will be slowly deposited; after a time drain off the liquid and let the carmine dry in the shade. An excellent quality of carmine may also be obtained by pulverizing cochineal, treating it with a solution of sodium carbonate, adding albumin to the solution, and then precipitating with dilute acid. The coloring principle of cochineal is carminic acid, $C_{17}H_{18}O_{16}$, an amorphous red substance soluble in water and in alcohol. With zinc oxide and alumina carminic acid forms the valuable coloring substance known as carmine lake, which is made from the residues of cochineal obtained in the manufacture of carmine. Carmine lake is still used in painting and in printing, but is being superseded by the coal-tar colors.