



ĀHAK I. PRODUCTION

Calcium oxide is produced by heating limestone and other forms of calcium carbonate to a temperature of more than 900° C (referred to as lime burning). Thereby carbon dioxide (CO₂) is released from the carbonate. In commercial processing pieces of natural limestone are heated in a charcoal kiln to a temperature of 900-1,200° C. Several different types of kiln are used; the shaft furnace, which is similar to the rudimentary, traditional type of kiln used in Iran and elsewhere, has a vertical brick shaft in which limestone and combustible material (charcoal, coke, or, in Iran, usually wood) are mixed together or packed in alternate layers. The mixture is constantly replenished from above and sinks down as the burnt lime is removed from below. In the process limestone loses up to 44 per cent of its weight and 13-15 per cent of its volume. Various fuels may be used—the upland shrubs *Artemisia herba alba*, *A. santonica*, and *A. maritima*; wood in forested areas; and, especially in the Alborz mountains, charcoal. The traditional technology used in lime burning throughout Iran is described in detail by H. E. Wulff (in bibliog., pp. 126-27). Since limestone is distributed throughout Iran, lime is nowadays burnt in almost all parts of the country, especially near large centers of population. Lime mortar is used in particular for building with fired bricks. Lime is also used in the traditional external plaster, a mixture of mud and straw (Pers. *kāh-gel*), in order to help preserve it.

Bibliography : H. E. Wulff, *The Traditional Crafts of Persia: Their Development, Technology, and Influence on Eastern and Western Civilizations*, Cambridge, Massachusetts, and London, 1966.