HISTORICAL DEVELOPMENT OF OLIVE MILLS

The oldest method of obtaining olive oil was by treading or crushing the olives with feet and pouring hot water over them, crushing olives in large stone mortars using various mallets or pestles and heating the mixture. The production of larger quantities of oil required the development of the first olive mills. These were simple devices consisting of a stone slab – the base – and a round stone (cylindrical or roller-shaped) used to crush the olives, after which the resulting paste was taken to presses. The appearance of the rotary mill, known as the trapetum (Greek *trepo* – to turn) during the Hellenistic period in Greece, significantly improved the grinding of olives. This type of mill was composed of two concave millstones attached to a central horizontal beam (*cupa*) anchored to an iron pivot (*columella*) on a stone base (*miliarium*) at the centre of the vessel with millstones – the mortar. The next advancement in olive oil production was the appearance of a new Roman rotary mill – *molea olearia* – consisting of one or two cylindrical millstones supported by a vertical wooden beam or iron post, placed inside a shallow circular stone basin and rotated by people. A subtype developed from this mill featured conical millstones. In the Iberian Peninsula and Africa, a mill with a concentric stone or horizontal ring was used, rotated by a central thicker toothed stone roller or pillar located in the centre of a shallow round basin. From the 10 th century onward, water-powered olive mills began to appear, where the rotation of a wheel with paddles or fins — directly below the mill or via a large wooden wheel with gears at the top of the shaft in the mill house—would drive the millstones. The Croatian inventor Faust Vrančić from Šibenik, in his work Machinae novae published in Venice in 1616, presented an innovation using the example of an oil mill – *molea olearia.* A stone wheel, placed in an elongated trough, moved in a straight line and was powered by the strength of a single person, who, by turning a large wooden wheel using rope and pulley, transferred force to a smaller wooden wheel attached to the stone wheel. Although a fine innovation, the invention never saw widespread use. As a driving force of the typical Roman rotary mill, which was widely used during the Middle Ages and beyond, by the late 19 th and into the 20 th century, draft animals—primarily horses and mules—began to be used, and some wooden components were replaced with iron or brass ones (shafts, screws, tensioners, etc.). With the advent of the first industrial revolution, from the late 18 th to mid-19 th century, steam-powered mills emerged, followed by diesel-powered mills in the 20 th century.