Feature

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The Rise and Fall of the Millstone[1]

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ABSTRACT

Millstones have been used for more than two millennia for the milling of cereals. They were developed from primitive, hand-operated querns and today have largely been replaced by chilled iron rollers. The sources of motive power (energy) for milling also transitioned from human to animal to water to wind. The introduction of steam power helped to usher in the age of the roller mill. Increased demand for white (refined) flour and increased importation of harder wheat varieties accelerated the decline of the use of millstones as ever larger mills were built near ports. From the perspective of a millstone miller, my greatest regret is the progressive loss of traditional craft skills, such as those required to dress millstones and sense when the wood and iron machinery is not quite running properly. Fortunately, the health food trends of the late twentieth century ensured the use of millstones in milling continues, although on a very small scale.

For more than a century, Bennett and Elton's four-volume work has been the main source for the history of corn milling (2). (Note, in line with Bennett and Elton and common English practice, throughout this article corn milling refers to the milling of wheat). More than 100 years later, a comprehensive and up-to-date review of the topic was published online by Watts and Watts (19). Both works provide useful background for this article, which is written from the perspective of a millstone miller with more than 30 years of experience (7).

Peacock (16) reviewed evidence that stones have been used to crush and grind seeds, plants, and minerals for many thousands of years. Millstones were first introduced around 2,000 years ago, and they dominated grain milling until, as David (9) wrote, "with the invention of the roller mill…the long search for a means of producing uniformly white flour was over."

Detailed accounts of the transition from rubbing stones to rotary devices such as millstones, which enabled the use of animal power in milling, have been published. Rubbing stones crush the grain between the stones, whereas the dressed faces of rotating millstones cut the grain (15,18). Early rotary mills were first driven by animal power and then by waterpower during Roman times. Wind-driven mills were not introduced until more than a thousand years later (Fig. 1).

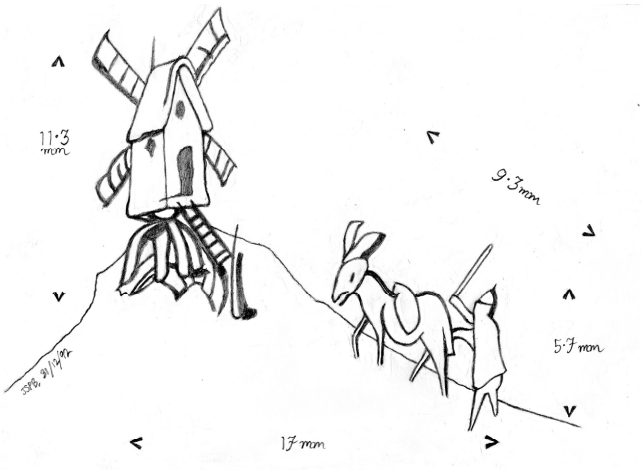

Fig. 1. Windmills were first mentioned in England during the twelfth century. They would probably have been post-mills such as this mill (ca. 1422) depicted in the *Book of Hours*. (Drawing by S. Buckland reproduced courtesy of the Mills Archive Trust, JSPB-ODR-288).

With all of these milling methods, the resultant product requires further refinement to separate the bran from other components. In contrast, a central principle of roller milling is the gradual reduction of grain by breaking it open and reducing the particle size between successive pairs of rollers (4). At every stage of the process some flour is produced and extracted to obtain the maximum amount of white (refined) flour. The efficiency of the roller milling process ensured the demise of millstone milling, particularly in urban areas where there was a demand for high volumes of flour. Because rollers were essential for grinding harder wheat varieties, the move away from millstones was very rapid. In addition, the introduction of steam power enabled rollers to handle the huge increase in flour production required to meet growing demand.

Muscle Power, the Romans, and Waterpower

Traditionally, grinding grain using a saddle quern was almost always the responsibility of women. This type of quern was named after the characteristic flat or dish-shaped lower stone, and its use spread west from the Near East, reaching Britain ca. 4000 B.C. (Fig. 2). The saddle quern became the main means of grinding grain until the introduction of the rotary quern ca. 400 B.C. Rotary