

## **Changes in Iron Manufacturing**

Iron-smelting technology originated in Anatolia (now Turkey). It reached Japan by the latter half of the sixth century, arriving via China and the Korean Peninsula.

Archaeological remains indicate that the earliest known smelting of iron in Japan was done using iron ore. However, accessible deposits of iron ore were scarce in this region, and the smelting process was soon adapted to take advantage of naturally abundant iron sand.

### **Ancient *Tatara***

Early *tatara* furnaces were built outdoors and powered by bellows made from animal skin. Iron production in western Japan was originally concentrated around the Seto Inland Sea, but the center of production shifted to the mountains of the San'in region (Shimane and Tottori Prefectures) sometime between the eleventh and thirteenth centuries.

### **Early Modern *Tatara***

Populations grew over the subsequent centuries, creating greater demand for iron with which to make farming implements, household goods, and weapons. Larger and larger *tatara* furnaces were created to meet this demand, and more powerful foot-operated bellows were introduced to feed them. These advances ultimately led to the peak of *tatara* ironmaking in the eighteenth and nineteenth centuries.

### **Modern *Tatara***

Western reverberatory furnaces were imported in the late nineteenth century, bringing about a revolution in the smelting industry. Traditional ironworks struggled to compete, and their engineers sought to adapt the established methods for use with brick furnaces called *kakuro*. This shift marked the end for *tatara* iron production, and the last clay furnaces were retired by the early 1920s.