

## ***Kera*: A Mass of Iron and Steel**

The direct method of *tatara* smelting produces a large, porous mass of iron and steel called a *kera*. After three straight days of operation, the furnace is demolished and the *kera* is dragged out from the ruins to cool. The portions of a *kera* on display here were produced at Nittōho Tatara in 1992.

The average *kera* smelted at Nittōho Tatara weighs 3.2 metric tons and measures 300 centimeters in length, 125 centimeters in width, and between 25 and 30 centimeters in height. Roughly 70 percent of the *kera* is high-quality *tamahagane* steel, which is concentrated at its center. The remaining 30 percent is either lower-grade steel (*bugera*) or iron. When *tatara* furnaces were the primary means of producing iron and steel for various purposes, these lower-grade metals were refined before being sold. Today, they are simply stockpiled for future use.