

## **Controlling Heat and Humidity**

First domesticated in northern China, silkworms are sensitive to temperature and humidity. It was difficult to raise silkworms in the hot, wet summers and cold, dry winters of Gunma and Saitama until Takayama Chōgorō (1830–1886) revolutionized the Japanese silk industry with his design for a new kind of silkworm nursery. He designed the building to make it possible to control the heat and humidity inside the nursery year-round.

Chōgorō built his first advanced nursery here on a north–south axis to take advantage of the cooling effects of prevailing winds. Large sliding doors and braziers built into the floors were used to control humidity and temperature inside the nursery. Chōgorō also added three small monitor roofs on the ridge of the nursery’s roof. These are called *yagura*, the Japanese word for tower, and could be opened and closed to help control the temperature and humidity inside the building.

Chōgorō was also the first person in Gunma to use Western scientific instruments such as a thermometer and a hygrometer in his silkworm nursery. He later founded the Takayama-sha Sericulture School, and through his school, his designs, technology, and methods were adopted across Japan, dramatically improving domestic silk production in the latter half of the 1800s.