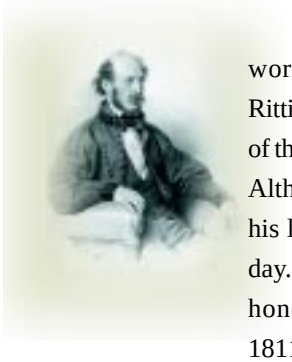
1857

Peter Ritter von Rittinger

Inventor of the world's first known heat pump

By Kelly Green



Many around the world celebrate Peter Ritter von Rittinger as the designer and installer of the world's first known heat pump. Although not much is known about his life, his work is still studied today. His home country of Austria honors his birthday January 23, 1811, as Heat Pump Day.

Burkhard Sanner, president of the European Geothermal Energy Council, said Rittinger made the first practical application of the thermodynamic cycle of a heat pump in 1857 while working for the Salt Works in Ebensee, Austria. At the time, and even today, salt is leached from rocks using water and the remaining brine is then evaporated to harvest salt. With a lack of solar heat in the Alpine area, the only option for boiling the brine was direct firing of wood. Sanner said Rittinger discovered once boiling had begun using direct firing of wood the vapor could be compressed and used to continue the process without burning more firewood. Sanner said waterpower drove the compressor. "Steam can generate mechanical work!" Rittinger wrote in his 1855 book. "But hardly any physicist will doubt the sentence expressed in the reversed sense, mechanical work can generate steam."

"Rittinger's intention was, beside saving money, to protect the environment, by saving 10.3 million cubic feet of firewood per year when applying this technology in all Austrian salt works of his time," Sanner said.

To honor and commemorate Rittinger's contributions to the industry, the International Energy Agency (IEA) created the Peter

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Ritter von Rittinger International Heat Pump Award. According the IEA's Heat Pump Programme Annual Report, the award "recognizes outstanding contributions to the advancement of international collaboration in research, policy development, market development and applications for energy-efficient heat pumping technologies." The first recipients received their awards at the IEA's conference in 2005. The five award winners represented France, Japan, Norway and the United States.

In his home country of Austria, Werner Hochegger, owner of the Castle Rabenstein, works to carry on Rittinger's legacy by promoting the efficiency and feasibility of the heat pump. According to the Burg Rabenstein Web site, Hochegger was the initiator of the Rittinger International Heat Pump Award, and he sought support from Rittinger's family during the development process. In a letter posted on the Burg Rabenstein Web site, Rittinger's great-great-grandson gave his approval of the award saying he was "pleased" with Hochegger's "apparent effort to endow further propagation of the heat pumpî and that ìthis effort is nice and honors similarly the invention and inventor."

The Castle Rabenstein houses the Toshiba Heat Pump Academy and the Toshiba Heat Pump Museum, which are set to open at the end of 2007. Werner Hochegger of Burg Rabenstein said the academy will compare heat pump systems to conventional heating methods and document factors such as environmental effects and contaminant loads. The heat pump museum will exhibit selected air-to-air and water-to-air heat pumps.

The castle itself, which is approximately 1,000 years old, is equipped with air-to-air heat pumps. The heated area measures more than 2,500 square meters, Hochegger said. "We think this will have a very strong impact on the market penetration," he said. "If a castle could be heated by heat pumps, then every house could be heated by the same technology."

Hochegger said he and all those associated with the castle believe the academy and the museum will have a positive impact on the geothermal market in Austria, just as Rittinger's work did all those years ago.