

STAMPS IN THE NEWS

GEOHERMAL HEAT IN ICELAND



A series of five stamps along with an informative booklet was recently issued (March 11, 2004) by the Iceland Post Office (Posturinn - www.stamps.is) (email: stamps@postur.is). The following are excerpts from this booklet (gift folder G29 with 439A-E as se-tenant stamps in one sheet which is dedicated to geothermal energy in Iceland).

Geothermal Heat in Iceland: “Iceland lies astride the Mid-Atlantic Ridge, a geologically active system of ridges and fissures forming an undersea mountain chain along a split in the earth’s crust that stretches the entire length of the Atlantic Ocean. ... The meeting point of the American and European tectonic plates, runs through Iceland.... moving apart at an average rate of two centimeters per year.”

What is Geothermal Warming?: “The hot water found around Iceland is rainwater that gradually seeps through the earth’s surface layer until it heats up when it comes into contact with hot rock. The heated water has a lower density and rises towards the surface through faults and fissures in the form of hot water or steam.”

Low-Temperature Areas: “There are around 250 low-temperature geothermal areas all around the country outside of the active fissure zones. The largest low-temperature areas are in the south and west of the country. A low-temperature geothermal area is generally defined as an area where the temperature is below 150EC (302EF) at a depth of 1000 meters (3300 ft.). Because the mineral content of hot water in these low-temperature areas is generally low as well, the water can be used directly in domestic and industrial heating systems.”

High-Temperature Areas: “High-temperature geothermal areas are found only at active volcanic belts or at their edges. There are between 20 and 30 such areas in Iceland. The active volcanic belt is a broad zone stretching diagonally from northeast to southwest Iceland. The temperature of the water is not less than 200EC (392EF) at a depth of 1000 m (3300 ft.). ... Higher temperature water contains more gases and dissolved mineral than water from low-temperature areas. High-temperature water cannot be used directly for heating. Instead, utilization is mainly accomplished through heat exchangers; whereby, hot water or steam is used to heat cold water from a different source.”

Exploitation of Geothermal Energy: “Geothermal energy is exploited in numerous ways and has helped improve Icelanders’ quality of life throughout the ages. In earlier times, hot water was used mainly for bathing and laundry. Since the settlement of Iceland began nearly 1100 years ago, references in Icelandic Sagas and other stories have been made to hot pools for bathing. ... For centuries, the residents of Reykjavik used the warm springs in Laugardalur for washing clothes. ... The earliest confirmed use of geothermal energy for domestic heating was in 1907.... Today, more than 85% of Iceland’s inhabitants enjoy domestic heating derived from geothermal energy. In thinly populated areas, schools and small villages have been built where hot water was discovered. Swimming pools are an important part of Icelandic culture, and outdoor swimming pools are open all year round --despite the country’s northerly location. Iceland has more than 100 pools using naturally heated water. Horticultural greenhouses are a common sight in areas where hot springs abound. Small geothermal power stations produce electricity such as Krafla and Bjarnarflag near Myvatn, at Svartsengi and at Nesjavellir.

The Reykjavik Heating Company was established in 1930 and initially used hot water from boreholes in Laugardalur to heat one of the city's schools. This venture proved to be popular, and hot springs all around the area were soon tapped for heat. Boreholes were sunk in Reykur and Reykjahlíð in the Mosfellsbær area, as well as in other places

close to Reykjavik. As soon as all the hot springs were soon fully exploited, it became clear that, as the city grew, its residents would have to look farther away for sources of hot water. In 1990, the Nesjavellir energy installation began operation and hot water is now piped over 20 km into Reykjavik.”

THE STAMP THAT CHANGED HISTORY



The 1900 Nicaraguan stamp depicted above (Scott #122), was instrumental in determining the location of the canal connecting the waters of the Atlantic and Pacific Oceans, or as is known today, the Panama Canal.

The United States had been interested in a canal linking the Atlantic and Pacific Oceans for many years, as more than two months were required to sail from California to New York by way of Cape Horn--a canal across Central America would reduce the voyage by 8,000 miles. France had begun a canal project in the Panama region of Colombia during the 1880s, but progress was stopped by tropical diseases, engineering problems with unstable soils, and financing. The French company, headed by Ferdinand DeLesseps, declared bankruptcy, and the receiver company attempted to sell the assets to the United States. However, their difficulties made an alternate location through Nicaragua appear more acceptable to the Americans even though it was longer, as it offered a more amenable climate and easier terrain than found in Panama. Senator John Tyler Morgan, chairman of the Senate Committee on Inter-oceanic Canals favored the Nicaraguan route. President Theodore Roosevelt favored the Panama route, but remained noncommittal.

On the other side, William Nelson Cromwell, an American lawyer and promoter, and Philippe Bunau-Varilla, the agent for the original French construction company set about to counter the congressional interest in Nicaragua. Senator Marcus Alonzo Hanna of Ohio, another promoter for

Panama, discussed “the burning question” of igneous activity in the Caribbean region. He pointed out that Mont Pelée in Martinique had erupted the previous month killing 40,000 people, and that Panama was “exempt” from this kind of danger. Nicaragua, on the other hand, lay along a volcanic tract through which the proposed canal would traverse that was “probably the most violently eruptive of any in the Western Hemisphere.” Mount Momotombo, a hundred miles from the proposed route, had blown up only two months prior to Pelée. Even as he spoke, Mount Pelée was erupting again. Later, maps and diagrams of Central America showing every active and extinct volcano most of which lined up in Nicaragua--and with Panama dot free--were exhibited in the Senate.

Finally, to cinch the argument for the Panama route, Bunau-Varilla visited stamps shops in Washington, D.C. and bought enough of the above stamp showing the erupting Mount Momotombo, to send one to every Senator. “An official witness,” he typed on the envelopes, “of the volcanic activity of the Isthmus of Nicaragua.” The final vote on June 19, 1902 was 76 to 6 in favor of the Panama route. Forty million dollars were subsequently approved for purchase of the French project along with \$130 million in construction funds. Problems with Columbia in preventing the canal's construction, led to the revolt in the region and the formation of the country of Panama in 1903. Construction started in 1904 and was completed by 1914 at a cost of more than \$360 million. It was operated by the American Panama Canal Company until the year 2000: when, it was turned over to Panama. Ironically, Momotombo erupted in 1902 and 1905, but has not erupted since. Momotombo is now the site of 77.5 MWe of installed geothermal electric power.

As an interesting recent development, Nicaragua has proposed a new waterway through the southern part of the country--a public private partnership called the Grand Canal Foundation--to cost an estimated \$25 billion and take 10 years to build. It would be wide and deep enough to handle a new generation of “post-Panamax” container ships that are too big to fit through the Panama canal's locks and put an end to delays of days or even weeks as ships presently await passage. Proponents say it would turn Nicaragua into the wealthiest nation in Central America within 20 years.