The Florida Panhandle, John Gorrie and Air-conditioning

by Norman Berdichevsky (September 2014)

Why travel to one of the hottest regions of one of the hottest states in early August? That's what my wife and I recently did in spite of awareness that the likelihood of cooler temperatures in the Florida Panhandle compared to where we live in Orlando in Central Florida was no better than even. I guess boredom with our routine and the long suppressed desire of getting away and seeing something different – i.e. the only significant region in Florida we had not yet visited – got the better of us and a curiosity about that part of the Deep South located in the northernmost part of the state – an irony – that appealed to my geographic imagination along with the enchantment of staying at three bread and breakfast homes officially listed in the National Register and certified in every guidebook as "haunted."

What we discovered along the way outweighed the discomfort. The humidity wasn't that bad for the first day when we stayed in Quincy (which, believe it or not, once boasted an "opera house") and passed through Chattahoochie next to the Georgia line (within the Central Standard Time Zone). The next day we "enjoyed" low humidity again below 40%. The last day of our trip however ensured that we didn't escape from the worst summer heat and humidity which plagued the entire state and Gulf Coast for generations before the advent of air-conditioning about which we learned a fascinating story. As a geographer, I have had many experiences visiting places about which I had read and studied a lot but always found something intriguing, deceptive, or inexplicable about places when actually encountering and observing them. Speaking to local residents and seeing their home environment often unleashes a stream of consciousness about how other people live and what might have been.

On the long drives where only a skilled botanist can discern all the different varieties of trees, we passed a cultural landscape that makes the region truly a part of the Deep South – a density of Protestant churches unmatched anywhere in the country. Although Catholics make up the largest denomination in the entire state they are few and far between in the Panhandle away from the Coast. I couldn't catch sight of more than three rather large and imposing structures compared to the 213 (after which I stopped counting) Baptist, Methodist, AME, Episcopal, "Victory" and other smaller denominations that I enumerated in my notebook. When I mentioned this to the Chief of Police in the town of Port St. Joe, he remarked that "You must have missed a few." There were no Spanish language radio broadcasts, no Jewish synagogues

except for a beautiful temple in the downtown area of Tallahassee. One Seventh Day Adventist billboard defiantly bravely proclaimed that Saturday is the Sabbath! During our drive we passed at least a dozen “correctional institutes” and often saw the inmates at work on outdoor projects. Scores of flatbed trucks hauling enormous logs zipped passed us with only a few inches of clearance, a sight we hadn’t paid attention to in other parts of the state.

The three haunted houses were not too pricey given the time of the year when tourism is at a low point. I tried to figure out what it would be best to call us – the opposite of the typical “snowbirds” who come to sunny Florida during the winter, ice and snow of the Northern states. It may well be the attraction of eccentrics undisturbed by the season following the careers of literary greats drawn to Florida such as Hemingway, John Dos Passos, Marjorie Kinnan Rawlings, Zora Neale Hurston and Jack Kerouac. None of these however was attracted to the Panhandle!

Tiny Apalachicola and nearby Port St. Joe thrive on their natural scenic beauty, deep history and true southern hospitality. Having visited the region, I can concur that whether you are walking, shopping, swimming, fishing, dining or catching up on history, you’ll never meet friendlier people (both towns have roughly the same population today 3,000). They once vied for the state capital of Florida. Like Tallahassee, they lie roughly halfway between the early settlements of Pensacola in the West (capital of original Spanish settlement and later acquired by Great Britain and then returned to Spain until formally ceded to the United States) – and St. Augustine (oldest Spanish settlement in North America) in the East. Port St. Joe even was the largest city in the territory by 1840 until decimated by an epidemic of yellow fever.

Apalachicola features a beautiful antebellum home built in 1838 by Thomas Orman, overlooking the Apalachicola River and was used for both business and social gatherings. Orman was a cotton merchant and businessman from 1834 to the mid-1880s and a contemporary of physician and inventor John Gorrie. Orman helped the tiny town become one of the Gulf Coast’s most important cotton exporting ports. The magnificent home has been beautifully restored and features details of both Federal and Greek revival styles with pine floorboards, wooden mantelpieces, and molded plaster cornices. Nevertheless the most fascinating look at this period of history and an understanding of its society can be gained by a visit to the museum a stone’s throw away celebrating the life and work of Dr. John Gorrie.

John Gorrie, is a name I assume most readers (like myself) have never heard of. What the

museum reveals is also a telling critique of the negative side of the oft repeated mantra of the so called “American Dream” – repeated ad infinitum and ad nauseum by politicians of all stripes declaring that if an immigrant or individual with no social standing or economic resources simply works hard, is honest and applies himself, he will inevitably “succeed.”

John Gorrie (1803 – 1855) was a physician, scientist, inventor, and humanitarian, born on the Caribbean Island of Nevis (then under British rule) to Scottish parents. He spent his childhood in South Carolina and received his medical education at the College of Physicians and Surgeons of the Western District of New York in Fairfield. Gorrie’s appearance was unusual – he had a “foreign air” about him due to his olive complexion and very dark hair and eyes. Rumor had it that his mother was born in Spain and had fled to the Caribbean.

In 1833, he moved to Apalachicola, was active in the community, being a resident physician at two hospitals, and serving as mayor (1837), a council member, Postmaster, President of the Bank of Pensacola’s Apalachicola Branch, Secretary of the Masonic Lodge, and one of the founding vestrymen of Trinity Episcopal Church. By the time the young John Gorrie arrived, the town was already flourishing as the third largest port on the Gulf (after New Orleans and Mobile). It harbored ships carrying cotton back to Europe and New England.

Dr. Gorrie was appalled at the poor sanitary conditions and how illness was aggravated by the region’s tropical climate of high heat and humidity. His medical research concentrated on the study of tropical diseases. Although the cause of yellow fever and malaria were unknown at the time, many ascribed the symptoms to bad hot humid air. He originally proposed draining swamps and the cooling of air in sickrooms. To achieve this, Gorrie hit on the simple idea of cooling rooms with ice in a basin suspended from the ceiling. Cool air, being heavier, flowed down towards the floor across the patient and could be conducted out of the room by a vent thus causing a circulation current. By 1845, he became so enthused by the idea of manufactured ice, that he gave up his medical practice to pursue refrigeration projects.

Gorrie invented a machine that produced ice by proposing the motive energy of either horses, water, wind-driven sails, or steam power that could drive a compressor. This machine lay the groundwork for modern refrigeration and air-conditioning. On May 6, 1851, he was granted Patent No. 8080. Although the mechanism produced ice in quantities, leakage and irregular performance sometimes impaired its operation. Gorrie went to New Orleans in search of venture capital to market the device, but met with the immediate opposition of what can today be called “The Ice Lobby.”

The international trade in ice can be said to have begun in 1806 when the New England

businessman Frederic Tudor – the “Ice King” who shipped ice to the Caribbean island of Martinique, intending to sell it to well off members of the European elite there. In spite of the enormous wastage due to melting, the trade proved profitable due to the insatiable demand. Tudor quickly attracted competitors. During the 1830s and 1840s the “natural’ ice trade expanded further, with shipments reaching the American south, England, India, South America, China and Australia. Gorrie realized that if he could find an alternative and artificially manufacture ice, it would prove to be not only a boon to health but also establish a lucrative business.

The “Ice Trade” was a 19th-century industry, centering on New England (Tudor was from a wealthy Boston family) and Norway. It facilitated the large-scale harvesting, transport and sale of natural ice for home consumption and commercial purposes. Ice was cut from the surface of ponds and streams, then stored in “ice houses” wrapped in insulating material, sawdust or hay, before being sent on by ship, barge or railroad to its final destination around the world. Ice wagons were typically used to distribute the product to the final domestic and smaller commercial customers.

Gorrie never realized any return from his invention. The leading ice “harvesters,” notably Tudor, paid for a vicious press campaign against him as an eccentric and, a “foreigner” for his “insane notion” that humans could create ice. The New York Globe proclaimed that a “crank down in Florida thinks he can make ice by his machine as good as God Almighty.”

On July 14, 1847, Gorrie received acknowledgment for his project when the French consul Monsieur Rosan was celebrating Bastille Day, and guests were upset at the prospect of having to dink warm wine. Rosan gave his guests a surprise when waiters delivered cool wine that had been prepared with the help of Gorrie’s device.

With his invention being ridiculed regularly in the press, his other investors fell by the wayside. Gorrie suspected that Frederic Tudor had spearheaded a smear campaign against him and his invention. Gorrie even expressed the long term view that his invention would not only benefit health, and preserve food but also would regulate the temperature of buildings, thus envisioning centralized air conditioning. He died impoverished in 1855, and the idea of air-conditioning languished for 50 years.

The basic principle was cooling caused by the rapid expansion of gases. Using two double acting force pumps, air was first condensed and then rarified. A small amount of water was then injected and the air was then submerged in coils surrounded by a circulating bath of cooling water. He then allowed the interjected water to condense out in a holding tank of

lower pressure containing brine. Drip-fed, brick-sized, oil coated metal containers of non-saline water, were then immersed into the brine, producing manufactured ice bricks.

Humidity remained the crucial problem to be solved for the development of modern air conditioning. It was resolved by Willis Haviland Carrier's U.S. Patent in 1906. It involved passing hot soggy air through a fine spray of water, condensing moisture on the droplets, leaving drier air behind. These inventions have had global implications.

At the time of Gorrie's death, the industry was already quite large. In 1855, around $6–7 million ($250 million in today's dollars) was invested in the industry in the U.S. and an estimated two million tons of ice was kept in storage at any one time in warehouses across the nation – a powerful opponent of any "artificially" manufactured alternative.

Unreliable and expensive at first, manufactured plant ice began to successfully compete with natural ice only following his death but it was Gorrie whose research provided the initial catalyst. Although his efforts at winning the first patent in the United States were successful, he lacked the business acumen to make the idea a commercial success. His scientific articles on the idea and the original scale model of this are on view at the Smithsonian Institution. A three-quarters scale model of Gorrie's ice machine can also be seen at the John Gorrie State Museum, in Apalachicola.

His life ended in tragedy. Gorrie was humiliated by the libel and criticism, financially ruined, and his health broken. He died in seclusion on June 29, 1855 and is buried in Gorrie Square in Apalachicola. A version of Gorrie's "cooling system" was used when President James A. Garfield lay dying in 1881. Naval engineers built a box filled with cloths that had been soaked in melted ice water and forced hot air to blow on the cloths thereby causing a drop in room temperature by 20 degrees Fahrenheit.

What would have or could have happened had Gorrie secured major financial backing? There is no doubt that with the improvements in railroads and shipping the cost of both producing and transporting refrigerated fresh fruits and vegetables and ice would have declined significantly thus opening up a huge opportunity to a modern agriculture in the South not reliant on the crops of cotton, tobacco, rice and indigo tied to slavery and share-cropping. It would have raised health standards in the South and help prevent the deeply held prejudices of many in the South against innovative change by "foreigners" (or "Yankees"). It is also a sad reminder that the "American Dream" has sometimes stumbled against the harsh realities of powerful vested economic interests.

No one is more suitably remembered along the Florida Gulf Coast than this man – witness the

John Gorrie Bridge across Apalachicola Bay, connecting Apalachicola with Eastpoint, the 1914 statue of Gorrie given by the state of Florida to the National Statuary Hall Collection, the John Gorrie Junior High School, John Gorrie Elementary School in Tampa The SS John Gorrie, a liberty ship, named in his honor; and the John Gorrie Award each year provided to a graduate of the University of Florida College of Medicine believed to be the "best all-around student showing promise of becoming a practitioner of the highest type."

We didn't cool off on our trip to The Panhandle but it was an illuminating and educational experience.

Norman Berdichevsky is the author of *Modern Hebrew: The Past and Future of a Revitalized Language*.

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