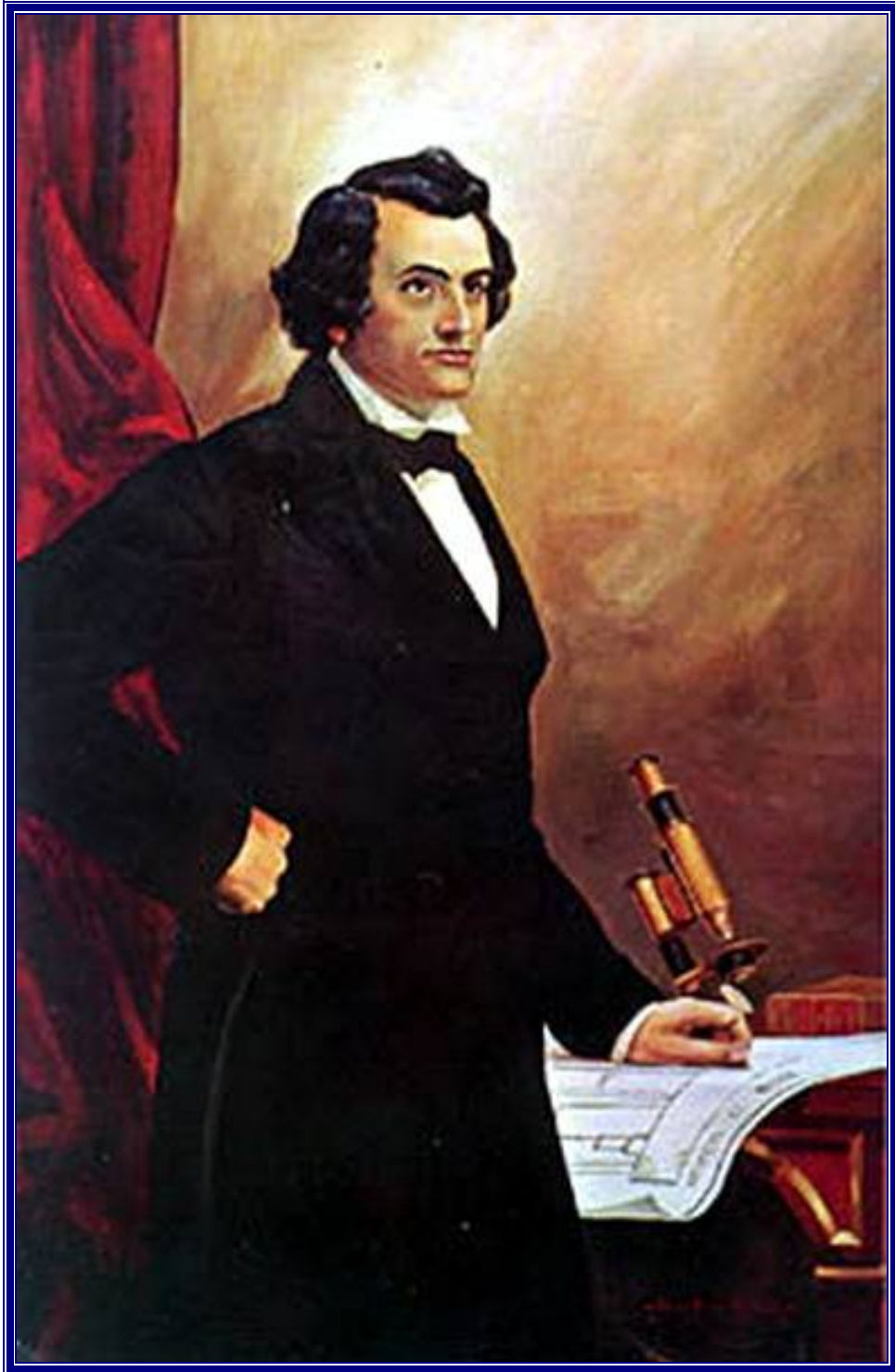


JOHN GORRIE & His ICE MACHINE

By EurIng Brian Roberts, CIBSE Heritage Group



Dr John Gorrie, 1803-1855

Introductory Note

The story of John Gorrie and his ice machine is confusing. The reference publications and other sources disagree on so many things: dates, education, activities, posts held, his achievements and the practical success or otherwise of his invention. One researcher noted “He was born on two different dates, graduated from medical school on two different dates and died on three different dates.”

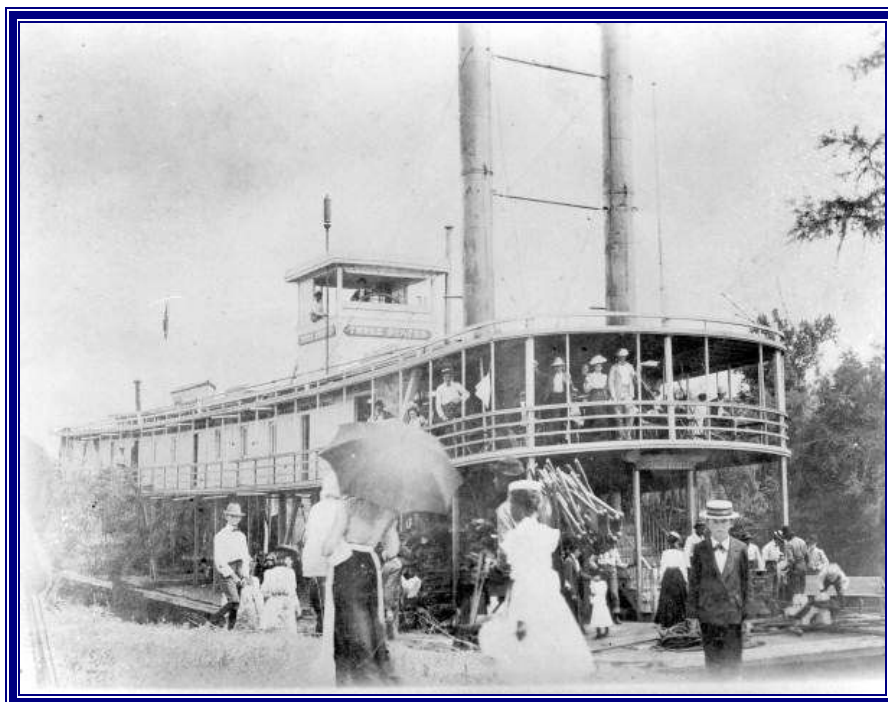
There is also the dubious claim that he is the father of air conditioning and refrigeration. For example, Jacob Perkins’ British Patent 6662 of 1834 for a refrigerating machine was granted some fifteen years before Gorrie’s first US patent application which was not granted until 1851 (USP 8080). He did, however, obtain a British patent in 1850 as did the American Alexander Catlin Twining (Some regard Twining’s achievements as more significant. He obtained USP 10221 in 1853).

The earliest installation which made provision for both cooling and humidification is that of Dr David Boswell Reid in the Temporary House of Commons in 1835. However, this had been quickly erected inside the shell of the former House of Lords following the fire of 1834. The earliest building designed to incorporate what we would now call air-conditioning (by strict definition this should include filtering, heating, humidification, cooling and dehumidification) was St George’s Hall in Liverpool. The system there, again designed by Reid, first came into use in 1851.

Reid has recently been styled as the *Grandfather* of air conditioning, the *Father* being Willis Haviland Carrier for his early 20th century achievements.

John Gorrie in Apalachicola

John Gorrie was born in or around 1803 in Charleston, South Carolina. After completing his education at the College of Physicians & Surgeons of the Western District of New York in 1827, he took up a position as a doctor in Abbeville, SC, before moving in 1833 to Apalachicola, Florida. The town, a busy seaport, was an outlet for the cotton grown in neighbouring States and the port hospital was crowded with seamen suffering from malaria and yellow fever. One report says he held the position of Director of the United States Marine Hospital in Apalachicola and while it appears that Gorrie did serve as a Physician for the Marine Hospital Service until around 1844, another biographer states that there was no government appointed Marine Hospital in Apalachicola itself.



Early Apalachicola

No. 8080.



The United States of America



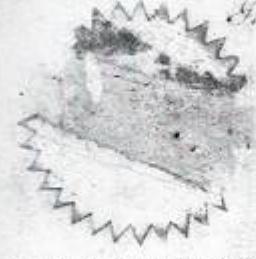
TO ALL TO WHOM THESE LETTERS PATENT SHALL COME:

Whereas John Gorrie of New Orleans, La. has alleged that he has invented a new and useful

Improved process for the artificial production of ice;

which he states has not been known or used before his application was made, and that he is a Citizen of the United States; that he has the original and first invention of the said process, and that the same hath not to the best of his knowledge and belief been previously known or used in the United States, the sum of \$1000 being paid into the treasury of the COMMISSIONER of PATENTS signifying a desire of obtaining an exclusive property in the said invention, and paying that a patent may be granted for that purpose.

These are Therefore to grant according to law to the said John Gorrie his administrators or assigns for the term of fourteen years from the twenty-second day of August one thousand eight hundred and fifty the full and exclusive right and liberty of making, constructing, using and vending to others to be used the said Invention a description whereof is given in the words of the said Gorrie in the schedule herunto annexed and is made a part of these presents.



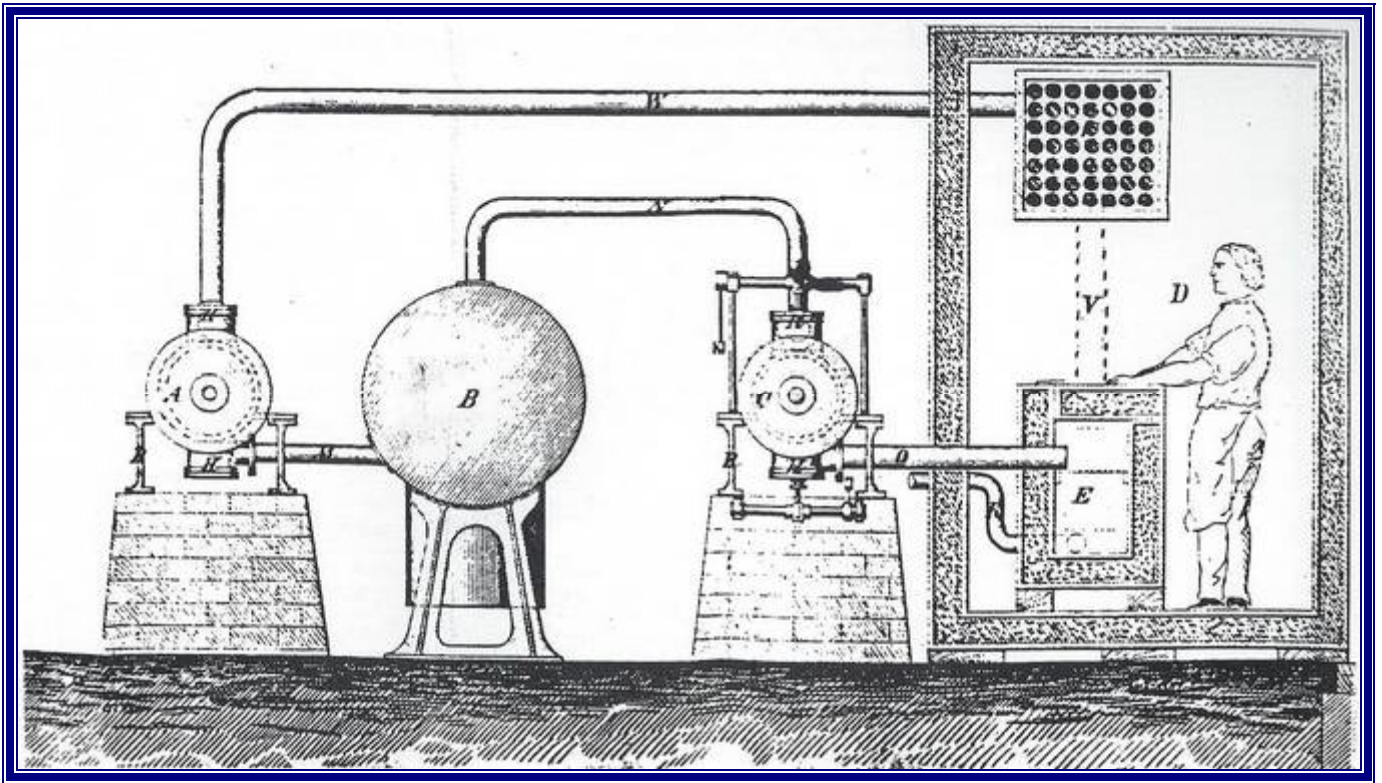
In Testimony whereof I have caused these Letters to be made Patent and the Seal of the PATENT OFFICE has been hereunto affixed GIVES under my hand at the City of Washington this Sixth day of May in the year of our Lord one thousand eight hundred and fifty one and of the INDEPENDENCE of the United States of America the Seventy-fifth.

John C. Calhoun Secretary of the Interior.
Thos. Edw. Smith Commissioner of Patents.

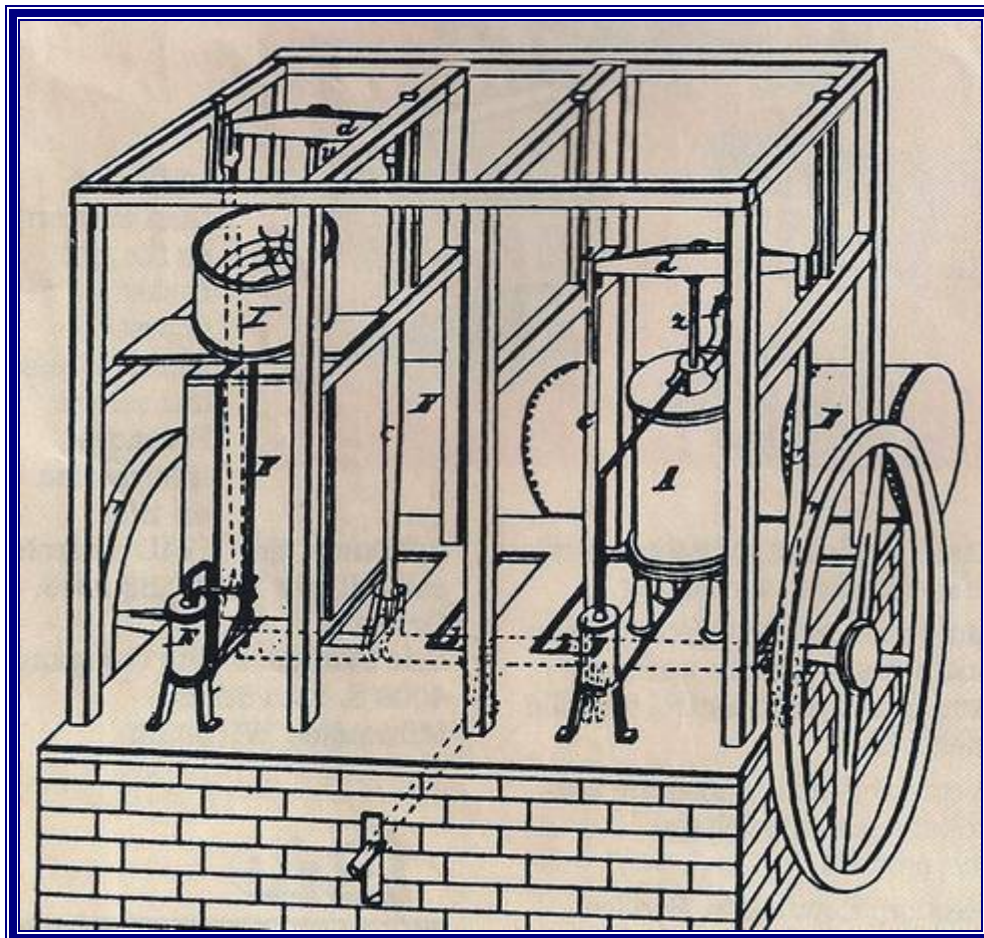
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Countersigned and Sealed with the Seal of the Patent Office.

The original Letters Patent issued to Gorrie



Ice Machine drawing based on Gorrie's 1851 Us Patent



Gorrie's improved ice making machine of 1854

Gorrie believed that fever could be controlled by cooling the patient externally and it is said that as early as 1833 he treated sailors by blowing air over suspended buckets of ice. However, ice was shipped to the Gulf ports out of Boston and New York where it was harvested from frozen Northern lakes and stored in ice houses. The supply was unreliable and Gorrie decided a better way would be to make it.

Using the pen name Jenner, in 1844 Gorrie published *A Description of a Machine for the Prevention of Malarial Disease* in the *Apalachicola Commercial Advertiser*:

“The proposed engine for ventilation, and cooling air in tropical climates by mechanical power is simple in its construction, requires but a small expense of power, admits of being complete in its operation, and its parts if well made are not liable to be injured by wear. It consists essentially of two double acting force pumps –one for condensing and the other for rarifying air –and an air magazine or receptacle for condensed air.”

This proposal appears to be a repeat of an earlier 1842 article because by 1844 Gorrie had constructed a working air-cycle refrigeration system. Gorrie tried without success to secure financial backing to manufacture his machine. The only possible commercial application at this time was to make artificial ice but he ran into opposition from the vested interests of the Northern shippers of natural ice. In particular, Frederic Tudor the “Ice King” who controlled the majority of the natural ice trade certainly didn’t want competition. The New York Daily Globe labelled Gorrie a “crank” who “thinks he can make ice as good as God Almighty.” So Gorrie was defeated and his machine never saw widescale commercial manufacture. However, there is contemporary reference to two machines constructed on his principles, one in Cuba and one constructed by Wollaston Blake on the outskirts of London. The latter was examined by William Siemens who pointed out that with modification the machine could be greatly improved.

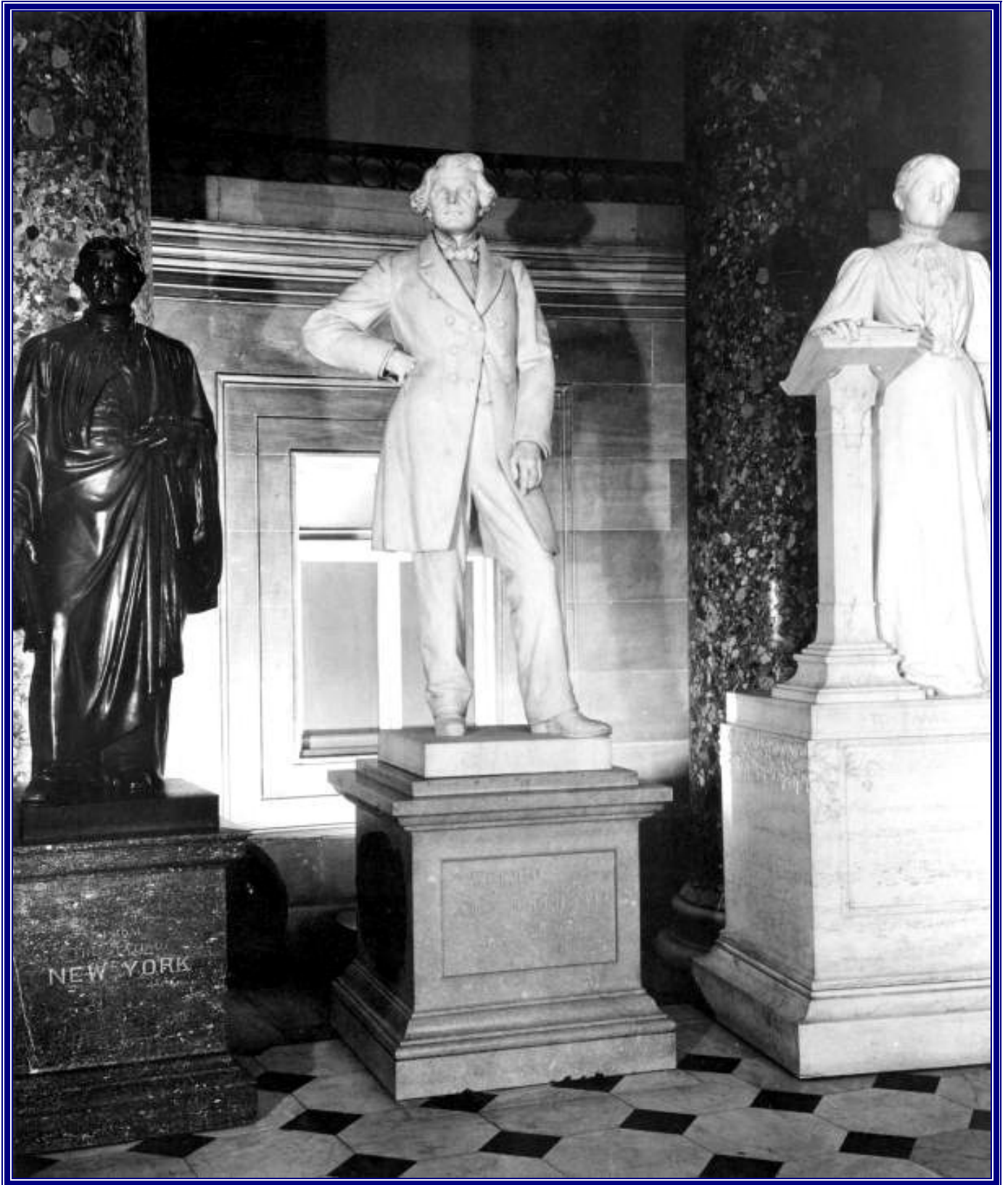
The failure to realise his dream took its toll on Gorrie’s health and he died in 1855 at the age of 53. That same year, Twining’s plant in Cleveland was the first, using vapour-compression refrigeration, to successfully make ice in commercial quantities.

Postscript

John Gorrie was successful in that he produced the first machine to manufacture artificial ice and he saw the possibilities of one day using it to cool buildings and even complete cities. He was extremely active in the community of Apalachicola serving, at various times as Postmaster, City Councilman, Treasurer, a Bank president, founder of the local Trinity Church and the Mayor.

Gorrie is commemorated by a local memorial, by the John Gorrie State Museum and honoured by the State of Florida in 1914 with a statue of him placed in Statuary Hall in the US Capitol.

It was the American Civil War (1861-1865) that gave fresh impetus to the manufacture of ice when the Northern States cut off supplies of natural ice to the South. The Frenchman Ferdinand Carre developed an aqua-ammonia continuous absorption machine for ice manufacture obtaining a patent in 1859. Two Carre machines were smuggled through the blockade in 1863, one being used in Georgia the other in Texas. After the war, significant improvements to Carre machines were made by Daniel Livingstone Holden taking out US Patent No. 95347 in 1869.



Statue of John Gorrie (centre) in the US Capitol Building



Gorrie Memorial in Apalachicola

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