



**When Rice
became
Gold:** the
origins of
Commercial
Rice Farming
in North
America

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- ▶ Southern Foodways Alliance Keeper of the Flame
- ▶ Twice James Beard Book Award Finalist
- ▶ Slow Food USA Snailblazer for Biodiversity
- ▶ Browne Award “Best Single book in American Popular Culture” 2014

Why Rice?

- ▶ Of the major grains consumed in Europe at the end of the 17th century, rice was the least consumed in the British Isles. Both white rice and rice flour were known and available in England in the 1600s, but its availability was limited to the largest cities, and its employment restricted.
- ▶ The first woman authored cookbook in English, Hannah Wolley's *The Queen-like Closet, or Rich Cabinet* (1670) listed only four preparations for milled rice: a pudding, a cream, pigeons & rice, and capons with rice. Two recipes called for rice flour. 6 listings in 288 recipes.

CCIV. *To make Naples Bisket.*

Take four Ounces of Pine Apple seeds, two Ounces of sweet Almonds blanched, the Whites of two Eggs, one spoonful of Ale-Yeast, one spoonful of Rice Flower, one spoonful of sweet Cream, beat all these together in a Mortar, then adde to it Musk or Ambergreece, drop it upon a Pie-Plate, and make it in what shape you please, and so bake it.



Madagascar White

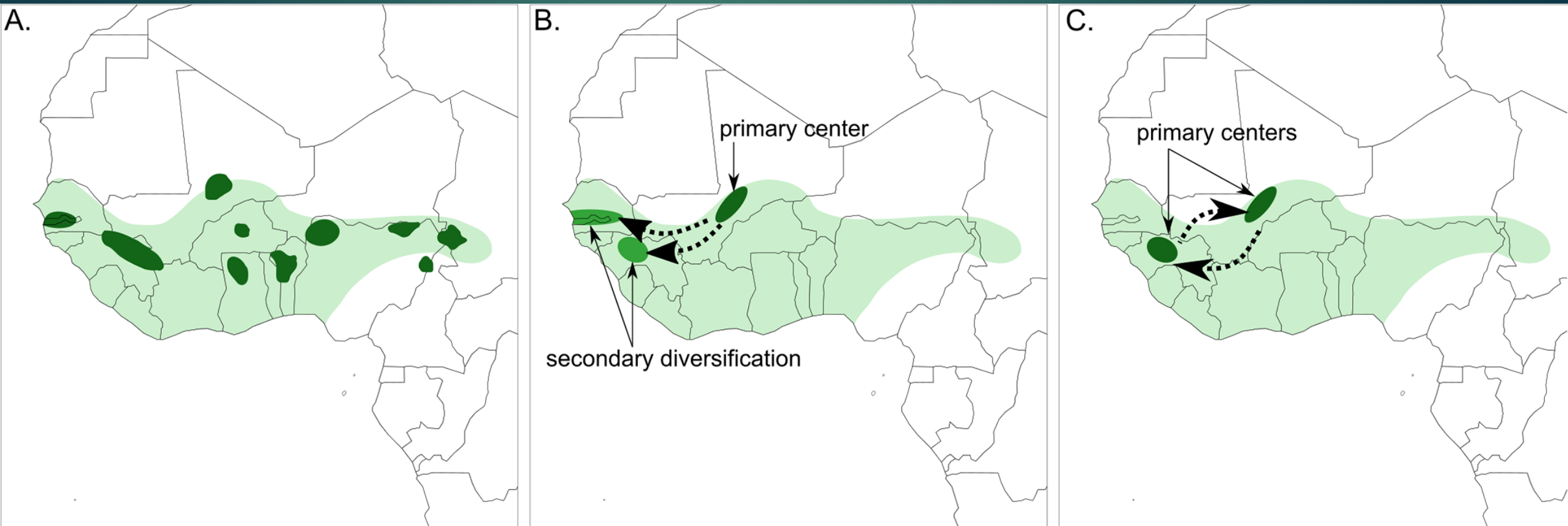
- ▶ Several stories exist about the importation of the first rice seed into the Carolina colony. Perhaps the most reputable one was supplied by English botanist Peter Collinson in 1766. He noted that merchant Thomas Marsh conveyed a bag of rice seed supplied by Charles Dubois, treasurer of the East India Company, in 1696. It was patch grown outside of the Charles towne walls. It became an article of commerce in 1726.
- ▶ In 1691 John Stewart, the plantation manager at Wabdoe Barony began systematically experimenting with methods of planting rice on various types of soil and pioneered the cultivation of rice on dry swamps—the first successful cultivation scheme. The seeds were not broadcast but buried in a shallow inundation, a West African method suggested by slaves. This prevented seed from floating off when the field was inundated.

The Earliest Rice

- ▶ None of the rice varieties cultivated in South Carolina prior to the American Revolution survive. The Madagascar White (a probable tropical japonica) famously brought in during the 1680s to Carolina was supplanted by "Gold Seed Rice" in the 1780s and 1790s. The African glaberimma patch cultivated and seen by Catesby in the 1720s suffered the fate of most glaberimma varieties grown in North America—they expired because of day length issues. The American Revolution—a civil war in the colony—disrupted rice cultivation and left little in the way of seed stock when the war ended in 1782.
- ▶ Picture: landrace white rice that survives in Madagascar



Geography of African Glaberrima Rices



The British Trade

- ▶ Rice was not a consumption commodity for the British. It was something to be passed through to the continent for a mark-up. England would not become a great consumer of rice until the Indian cookery—curries particularly—began to impinge upon the public taste in the 19th century.

in the Acts of Trade and Navigation, requiring all colonial American rice exported to Europe to pass through English ports. Most of Carolina's rice landed at Cowes on the Isle of Wight in 600-pound barrels. Until the American Revolution, English brokers transshipped the majority of the export crop to the German states, the Netherlands, and Portugal.¹⁹ The English demand remained modest, for the grain could never supplant wheat in the people's imagination as hearty nourishment. Rice's muted flavor suggested that it was best served as an aliment for sickly persons lacking the stomach for bread, beer, and porridge. Hence its invariable place in English cookery books as a base for white puddings or in the section devoted to invalid cookery. Independence enabled American merchants to ship rice directly to those who desired it most avidly without the British middleman. In 1789 Thomas Jefferson concretized the commercial



Gold Seed

Appears in 1785

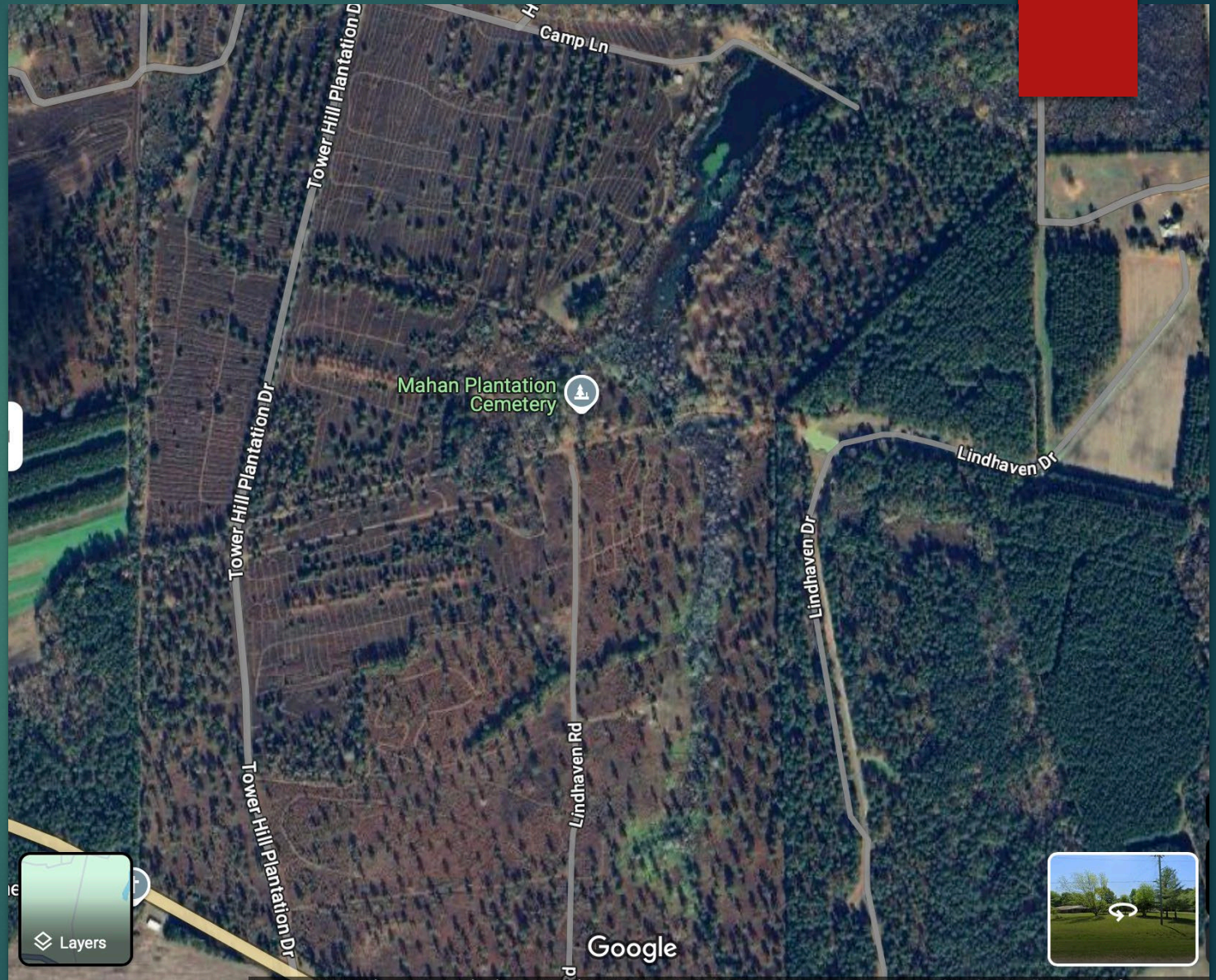
- ▶ Col Hezekiah Mayham of Pineville Plantation secured seed from we know not where to plant his fields. A veteran of Col. Francis Marion's rangers and a passionate patriot, he became a local legend and is recalled in the character of Capt. Porgy in William Gilmore Simm's series of Revolutionary War novels.

1. The *Gold Seed Rice*, the ordinary crop rice most highly esteemed, and therefore universally cultivated, an oblong grain 3-8ths of an inch in length, slightly flattened on two sides, of a deep yellow or golden color, awn short; when the husk and inner coat are removed, the grain presents a beautiful pearly-white appearance—an ellipsoid in figure, and somewhat translucent. This rice has been introduced into the Winyaw and Waccamaw region, since the revolution. It was planted by Col. Mayham, on Santee, in 1785.



Gold Seed was grown in a Carolina Bay, a natural wetland occurring inland.

- ▶ Google earth image of the initial rice field, upper center right, where Mayham planted Gold Seed in 1785. The 18th century insurance plats of the plantation demarcate the rice field exactly.
- ▶ Pineville, Berkeley Cty South Carolina

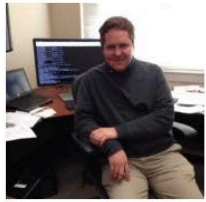
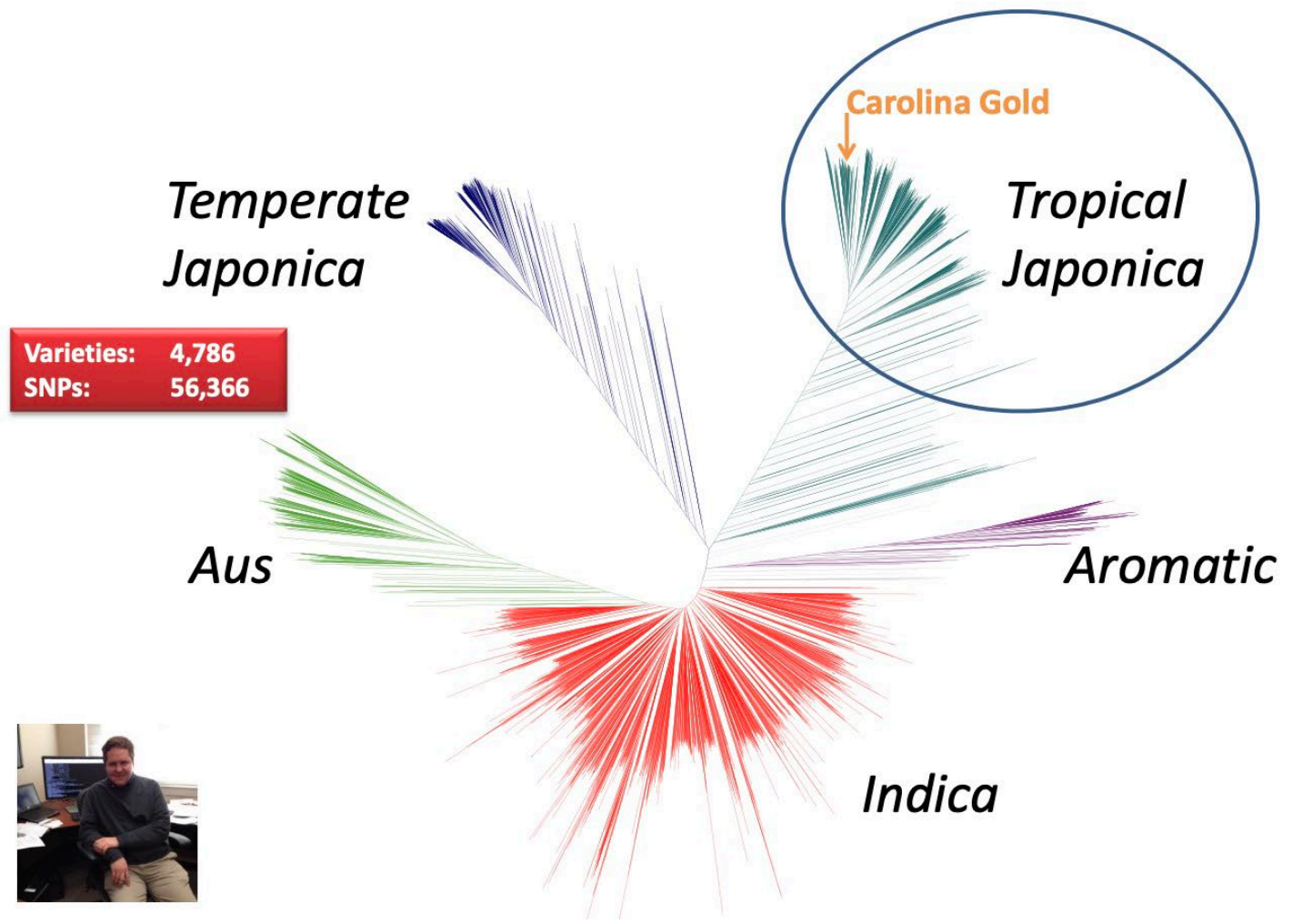


Carolina Gold as Subtropical Japonica

- ▶ Genetically it hails from South Asia, perhaps Indonesia. But japonica rices traveled by trade throughout the world well before the colonization of America. It was in Africa by 1100. By 1800 under the name “Gold Seed” it is the crop rice of the Lowcountry. Non-aromatic medium grain, though sometimes commercially classed as a long grain



What global rice varieties are related to Carolina Gold?



Why did **Carolina Gold** prevail in the field?

- ▶ In 2024 when the height of Carolina Gold makes it seem particularly vulnerable to lodging, a problem in an area prone to hurricanes. But in the 1790s its field performance was immediately recognized as superior by planters who had grown other strains. It was markedly resistant to diseases. In 2016 this impression received some remarkable validation. Plant pathologist Lindsay Triplett determined that Carolina Gold had strong resistance to *Xanthomonas oryzae* pathovar (pv.) *oryzae* and pv. *oryzicola*, the cause of much crop loss in Africa. It is now intensively used in rice breeding to impart this resistance in new strains.



Superior Flavor

- ▶ As important a matter in Gold Seed rice's widespread adoption was the general impression that the rice tasted more sumptuous than any other variety. As a non-aromatic rice, this perception had as much to do with the mouth feel and immediate bloom of starch when on the tongue. The mild taste of hazelnuts, and the plush wholesome mouth filling plentitude of sensation won immediate converts. Among the west African cooks who worked in the kitchens of South Carolina, it seemed the best ground for the mixing of flavors in one pot dishes such as Hopping John, Chicken Bog, Chicken Perloo, and a host of pilaus.
- ▶ The flavor of Carolina Gold was the single most important factor in its revival in the 21st century. The chefs who were lifting up Southern cookery found it the optimum choice for traditional rice dishes. Hence a variety that had less productivity and more vulnerability to harsh growing conditions managed to establish itself as a niche product commanding a price substantially above any other variety grown in North America.



Starch Quality

- ▶ This distinctive starch quality is the result of a rare genetic trait among world rice varieties. Dr. Anna McClung of the USDA conducted a global survey of the allele controlling starch content and solubility.



Carolina Gold has a unique gene that controls grain starch content

In a survey of 1700 world rice varieties for this gene, <1% possess this allele

Used this genetic marker and plant trait data to find varieties similar to Carolina Gold

Bankoram – same allele as CGR for 42/43 genetic markers, from Ghana, highly similar plant traits, pedigree indicates it is derived from *O. glaberrima*

Long Gold from 1843-1861

- ▶ Long Gold first appeared suddenly, a genetic sport of regular Gold Seed rice, spotted as a lone panicle lying on the ground after the 1837 harvest by Mr. Thompson, the overseer of Brookgreen Plantation.
- ▶ Brookgreen's owner, Joshua John Ward, was the most ambitious and scientific, of Carolina's antebellum planters. He took up Thompson's discovery and carefully developed the strain, planting it in newly cleared marsh lands, soil free of red rice contamination and blessed with maximum fertility. From 1838 to 1843 he nurtured the grain, giving pure seed to his circle of planters working north of the Santee River.
- ▶ In 1843, Ward and his circle grew sufficient quantities of Long Gold to make it available commercially. Its qualities immediately commanded the wallets of rice buyers, who paid "15 to 20 per centum more" for it than regular Carolina Gold of prime grade. [R. W. Allston, "On the Cultivation of Rice," *Southern Agriculturalist* 3, 7 (July 1843), p. 245. See also Ward's Letter below.] In 1844 Ward placed Long Gold seed rice on the market, making it available to anyone who wished to undertake cultivation.



Early Brookgreen photographs
Obtained from Dr. Moore 4/30/38

Global Fame and Awards

- ▶ Long Gold's international fame arose from two gold medals it won in international expositions in the 1850s. Dr. E. T. Heriot's Long Gold grown at Direleton plantation in Georgetown County, won the Great Gold Medal the Great Exhibition of All Nations in London in 1851. One reason his rice won this highest commendation was its translucency, a glassiness of grain that came from manuring his rice fields with rice flour and by rotating rice in his fields with cowpeas and sweet potatoes. On June 10, 1856 a barrel of Col. R. W. Allston's Long Gold won the First Class Medal (gold) of the Paris Agricultural Exhibition. The honors fired intense international demand for Carolina Rice in Europe, particularly pearly Long Gold.



The Demise of Long Gold

- ▶ Supplying that demand proved more difficult than one would image. The challenge of maintaining seed integrity was not the sole problem that Long Gold's growers faced. The larger grains caused problems with the commercial rice processing mills, requiring recalibration of the grinding surfaces to keep the rice from breaking apart when having the bran removed. Joshua John Ward died in 1853, turning his rice empire over to son, Joshua Ward, who maintained Long Gold's seed stock as a testimony to his father's memory. According the R. Habersham, the Savannah, GA, grain broker, Joshua Ward's own mills processed most of the Long Gold produced on the eve of the Civil War.
- ▶ The war disrupted the planting schedule, stopping seed production for Long Gold. By 1865 the variety was lost in the Waccamaw region. In 1869 Joshua Ward died, and the will of his father went into litigation that would lead to the plantation's break-up. While Long Gold had been crossed with other varieties during its two decades of production, engendering long grain raise in other places, it only lived in the cherished memories of southern cooks and agriculturists as the twentieth century dawned.

Upland Rice

- ▶ Dry culture rice doesn't require huge capital outlays and can happen in Piedmont and Mountain South. Jefferson promoted it and distributed a West African variety among Southern experimental planters in the 1790s. This would be called red bearded, or upland. Orangeburg & Savannah two places of initial cultivation.



Merikan Moruga Hill Rice

- ▶ This earliest upland survives in Trinidad among the descendants enslaved Africans from Cumberland Island, GA who were recruited by the English to the royal marines to fight against their American masters in the War of 1812. These Trinidadian farmers call themselves Merikans, and call the rice "Moruga Hill Rice" It is very diverse, mainly *Sativa indica*.



The Spread of Gold Rice

- ▶ Gold Seed Rice seed began being planted in Louisiana extensively in the 1850s, in Hawaii in 1870s, and Arkansas in the 1890s.
- ▶ In the 1870s the British Government began buying tons of Gold Seed rice and shipping it to India to improve Native varieties. The 500+ page report communicates how Carolina rice had become the aesthetic standard against which Native Indian landraces were judged, and judged harshly.
- ▶ Finally, the Confederados, the unreconstructed southern nationalists who refused reconstruction and departed for Brazil took Carolina Gold with them to Brazil where they cultivate it to this day in the upper reaches of the Amazon basin.

...
CAROLINA RICE IN INDIA.—An official report of a highly successful experiment in cultivating Carolina rice in India is published. The experiment was made in Punjab, on canal-irrigated land. From 3½ seers the yield was 17 mounds, “or about 5 mounds per seer.” As there are 40 seers in a maund, this is two hundred fold. The experimenter states:

The grain of the Carolina rice is much larger than that of the India rice, and, on boiling the two together, it was found that the former was done sooner, was much larger, of a whiter color, and possessed a sweeter flavor. The plant of the Carolina rice is equal to that of good India wheat, but stronger, not being liable to be thrown down by a strong wind or rain.

Decline of Rice Culture in the Southeast

- ▶ The liberation of the slaves caused a labor crisis in the traditional rice lands of NC, SC, and GA. Because of the prevalence of malaria on the plantations, many who had worked the fields refused labor there for wages. Agricultural politics in the southern states pivoted from commodity farming to truck farming. Many planters found their fortunes ruined by the war and could not engage in recapitalizing their plantings. The influx of the more cheaply grown Honduran White Rice in Louisiana, Arkansas and Texas eroded the market for Carolina Gold. The inability to repair breached dikes after hurricanes and the salting of the fields brought commercial rice production to a halt in the 1910s.



The Rice that never went away

- ▶ From 1920 to 1986 Carolina Gold was not a commodity rice, but it was patch grown by old believers, kept as duck fodder on shooting plantations, and maintained as breeding stock by rice geneticists. It held a particular place in the imaginations of rice people such as Charles N. Bollick, the USDA breeder who grew the rice on his land in Louisiana and on his USDA variety fields. It was he who supplied Dr. Richard Schulz the rice that led to its revival in the 1980s.



Carolina Gold Rice Foundation 2004

- ▶ Glenn Roberts & Dr. Merle Shepard of Clemson organized a Foundation to oversee the revival of Carolina Gold, and associated crops in the rice plantations of the 19th century South. Dr. Anna McClung focused the genetics of the landrace strains of Carolina that survived in germ plasm repositories. She created Carolina Gold select, the seed stock for all commercial plantings of the variety now.



Improvement & Market Adaptation

- ▶ The tides of taste shift. In the 1960s the importation of aromatic Basmati rice and in the 1980s the popularity of Thai Jasmine rice created a demand for aromatic rice in the United States. Dr. Merle Shepard and Gurdev Kush of IRRI bred an aromatic form of Carolina Gold, called Charleston Gold. They also imparted modern agronomic virtues: short stature, greater productivity, and some disease resistance while retained the famous starch bloom, gold husk, and grain size.



The Return of Long Gold

- ▶ Though Gold Seed rice is an ancestor of most long grained white rice in the United States, it is itself a rather large medium grain rice. When Long Gold appeared with its milled grain size of $\frac{4}{16}$ ths of an inch, it magnetized demand. Its loss in the Civil War created a longing for a truly long-grained Gold Rice. In 2022 Dr. Anna McClung released Santee Gold, a productive gold hulled long grained rice that renovated the famous old Long Gold. It is a short-stature, disease resistant variety. The circle was complete.

