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## RICE MILLING, GENDER AND SLAVE LABOUR IN COLONIAL SOUTH CAROLINA\*

On the eve of the American Revolution, exports of rice from South Carolina annually exceeded seventy million pounds, a figure achieved by a slave labour force that numbered about one hundred thousand.<sup>1</sup> (Table 1.) This represented a staggering growth of the rice economy from the onset of the century, when three thousand slaves prepared a mere half a million pounds for export.<sup>2</sup> The increased scale of production was even more remarkable given the export trade's demand for milled rice, which for most of the eighteenth century was met by processing the grain by hand with a wooden mortar and pestle. The post-harvest period consequently brought no respite to slave labourers; on the contrary, milling resulted in an intensified work-burden, as slaves struggled to prepare the cereal for European markets in time to start the next cycle of cultivation.

The radical agrarian transformation associated with the intensification of commodity production in the eighteenth century serves as the point of departure for this paper. Emphasis is placed on the problem that hand-processing posed for slave labour and markets in the Carolina rice economy prior to the American

\* I wish to thank Chris Elias and Musa Ceesay for their assistance with data collection in The Gambia; Richard Porcher, for help in estimating mortar-capacity in South Carolina; Chase Langford of the Department of Geography, U.C.L.A., for his graphics; and David Gamble.

<sup>1</sup> The numbers of bondsmen involved in the rice economy were of course lower than this, since available figures refer to the entire slave population of South Carolina, not merely to those located in the coastal corridor planted with rice, and also include very young children and the elderly, who would have been exempted from rice cultivation and processing. The number involved in the rice economy, however, would have represented a considerable percentage of the total. See Converse Clowse, *Economic Beginnings in Colonial South Carolina* (Columbia, 1971); Converse Clowse, *Measuring Charleston's Overseas Commerce, 1717-1767* (Washington, D.C., 1981); James Clifton, "The Rice Industry in Colonial America", *Agric. Hist.*, lv (1981), pp. 266-83; Peter A. Coclanis, *The Shadow of a Dream* (New York, 1981); Henry C. Dethloff, *A History of the American Rice Industry, 1685-1985* (College Station, Texas A & M, 1988).

<sup>2</sup> Charles F. Kovacik and John J. Winberry, *South Carolina: The Making of a Landscape* (Columbia, 1987), p. 77.

TABLE 1  
RICE EXPORTS FROM SOUTH CAROLINA 1695-1774\*

| Year | Pounds     | Barrels† | Year | Pounds     | Barrels† |
|------|------------|----------|------|------------|----------|
| 1695 | 438        | 1‡       | 1737 | 20,201,400 | 44,892   |
| 1698 | 10,407     |          | 1738 | 16,327,350 | 36,283   |
| 1699 | 131,207    |          | 1739 | 32,167,800 | 71,484   |
| 1700 | 394,130    |          | 1740 | 43,326,000 | 96,280   |
| 1701 | 194,618    |          | 1741 | 38,720,955 | 85,101   |
| 1702 | 612,646    |          | 1742 | 22,706,060 | 49,316   |
| 1703 | 694,493    |          | 1743 | 35,935,200 | 77,280   |
| 1704 | 759,536    |          | 1744 | 39,963,630 | 85,029   |
| 1706 | 267,309    |          | 1745 | 29,813,375 | 62,765   |
| 1707 | 561,185    |          | 1746 | 27,335,040 | 56,948   |
| 1708 | 675,327    |          | 1747 | 27,643,060 | 56,996   |
| 1709 | 1,510,679  |          | 1748 | 28,368,550 | 57,895   |
| 1710 | 1,600,983  |          | 1749 | 21,381,030 | 43,194   |
| 1711 | 1,181,430  |          | 1750 | 27,372,500 | 54,745   |
| 1713 | 3,850,533  |          | 1751 | 32,751,270 | 64,854   |
| 1714 | 3,139,361  |          | 1752 | 42,245,850 | 82,385   |
| 1715 | 2,367,605  |          | 1753 | 19,747,675 | 38,345   |
| 1716 | 4,584,927  |          | 1754 | 49,179,520 | 94,576   |
| 1717 | 2,881,335  |          | 1755 | 59,057,775 | 112,491  |
| 1718 | 2,956,727  |          | 1756 | 45,344,250 | 86,370   |
| 1719 | 4,001,210  |          | 1757 | 33,976,950 | 64,718   |
| 1720 | 6,485,662  |          | 1758 | 38,527,650 | 73,386   |
| 1721 | 7,963,615  |          | 1759 | 30,472,575 | 58,043   |
| 1722 | 9,732,377  |          | 1760 | 35,327,250 | 67,290   |
| 1723 | 8,797,304  |          | 1761 | 58,480,275 | 111,391  |
| 1724 | 8,654,447  |          | 1762 | 47,435,325 | 90,353   |
| 1725 | 7,093,600  | 17,734   | 1763 | 61,959,450 | 118,018  |
| 1726 | 9,442,710  | 23,031   | 1764 | 55,907,250 | 106,490  |
| 1727 | 11,291,280 | 26,884   | 1765 | 65,710,575 | 125,163  |
| 1728 | 12,884,950 | 29,965   | 1766 | 48,396,600 | 92,184   |
| 1729 | 14,248,960 | 32,884   | 1767 | 63,465,150 | 120,886  |
| 1730 | 18,774,900 | 41,722   | 1768 | 77,284,200 | 147,208  |
| 1731 | 21,753,450 | 48,431   | 1769 | 73,078,950 | 139,198  |
| 1732 | 16,866,000 | 37,480   | 1770 | 83,708,625 | 159,445  |
| 1733 | 23,245,200 | 51,656   | 1771 | 81,755,100 | 155,724  |
| 1734 | 13,991,850 | 31,093   | 1772 | 69,218,625 | 131,845  |
| 1735 | 21,259,800 | 47,244   | 1773 | 81,476,325 | 155,193  |
| 1736 | 24,804,000 | 55,120   | 1774 | 76,265,700 | 145,268  |

\* Sources: Henry C. Dethloff, *A History of the American Rice Industry, 1685-1985* (College Station, Texas A & M, 1988), p. 10; James Clifton, "The Rice Industry in Colonial America", *Agric. Hist.*, lv (1981), p. 269, for 1695.

† Number of pounds per barrel varied from year to year and ranged from 350 lbs. (<1730), 450 lbs. (<1755) and to 525 lbs. for the remainder of the colonial period.

Revolution, when technological improvements succeeded in mechanizing milling. A study of the processing of rice brings to light three interrelated issues: first, the nature of the changes in the labour process wrought by commodity production; secondly,

the role of slavery in the transmission of a rice production system, West African and gendered in origin, in its diffusion across the Atlantic; and thirdly, the process by which the gender division of work in rice processing changed under slavery.

The present article responds to Ira Berlin and Philip Morgan's call for a renewed emphasis on the centrality of labour in the slave experience. A focus on labour reveals the social organization of production and time allocation, particularly the seasonal rhythms of work "and its numerous divisions by age, sex and skill".<sup>3</sup> In an influential article published in 1967, E. P. Thompson noted that the eighteenth century witnessed dramatic changes in seasonal work-routines. A precapitalist agricultural calendar, marked by alternating bouts of intense labour and idleness, and with the rhythms of work being integrated into those of social life, gave way to new demands on labour throughout the British Empire.<sup>4</sup> In rural England, enclosure and agricultural improvements forced supernumerary labour out of the pre-existing agricultural calendar into new relations of production that were increasingly characterized by submission "to a more exacting labour discipline";<sup>5</sup> and in Virginia, as throughout the American South, a plantation economy sharply conflicted with the precapitalist work-rhythms that had regulated the societies of both slave and indentured servant.<sup>6</sup> Two important hallmarks of eighteenth-century commodity relations, enclosure and chattel slavery, consequently subjected millions to new labour discipline and work-routines.

The changing social organization of production became particularly evident during the season following harvest, the period devoted to crop processing. In South Carolina the exertions of the rice-harvest were as nothing compared with the herculean toil that awaited slaves hand-milling the crop. While the brutal work-regime involved in processing sugar cane is well documented, little attention has been paid to the labour involved in

<sup>3</sup> Ira Berlin and Philip D. Morgan (eds.), "Labor and the Shaping of Slave Life in the Americas", in I. Berlin and P. Morgan (eds.), *Cultivation and Culture: Labor and the Shaping of Slave Life in the Americas* (Charlottesville, 1993), pp. 1-45, esp. pp. 3-4.

<sup>4</sup> E. P. Thompson, "Time, Work-Discipline, and Industrial Capitalism", *Past and Present*, no. 38 (Dec. 1967), pp. 56-97; Frederick Cooper, "Colonizing Time: Work Rhythms and Labor Conflict in Colonial Mombasa", in Nicholas B. Dirks (ed.), *Colonialism and Culture* (Ann Arbor, 1992), pp. 209-45.

<sup>5</sup> Thompson, "Time, Work-Discipline, and Industrial Capitalism", p. 78.

<sup>6</sup> Mechal Sobel, *The World They Made Together* (Princeton, 1987).

processing rice for eighteenth-century markets. During the colonial period Carolina planters relied upon slaves hand-pounding rice in a mortar and pestle, the method used in Africa.<sup>7</sup> Rice cultivation in West Africa dates to at least 1500 B.C., and the methods of planting and processing the crop were already known to thousands of slaves brought to South Carolina with the onset of the transatlantic slave trade.<sup>8</sup> This focus on a plantation crop and its processing, both deeply rooted in West African culture and history, starkly reveals the changing relationship of time, labour and market that characterized the commodification of rice during the eighteenth century.

It is on South Carolina that this paper concentrates. The discussion is in four parts, and begins with the evolution of the Carolina rice economy, where export market demand is placed in relationship to the post-harvest cycle. The next section examines the significance of market schedules for the intensification of labour in rice processing and its effect on slave work-burdens. In the third section the focus shifts to West Africa, where the magnitude of the changes wrought by slavery are brought into relief; particular attention is given to the role of African women in food preparation and the role of slavery in de-gendering rice processing. The conclusion discusses the value of examining the cultivation and processing of crops like indigo and rice in their pre-existing African setting for the light they shed on the changing social organization of labour on eighteenth-century plantations.

## I

### THE RICE CALENDAR:

#### MARKET DEMAND AND LABOUR INTENSIFICATION

Rice cultivation in South Carolina began to develop during the 1690s, just twenty years after the colony's settlement. By 1695 the first exports are recorded: one-and-a-quarter barrels containing less than five hundred pounds. Several converging factors

<sup>7</sup> Melville Herskovits, *The Myth of the Negro Past* (Boston, 1958); Peter Wood, *Black Majority* (New York, 1974); Peter Wood, " 'It was a Negro Taught Them': A New Look at African Labor in Early South Carolina", *Jl Asian and African Studies*, ix (1974), pp. 160-79; Daniel Littlefield, *Rice and Slaves* (Baton Rouge, 1981), p. 105.

<sup>8</sup> The Asian species of rice, *Oryza sativa*, was first domesticated more than five thousand years ago. Considerably less is known about the West African cultivar, *O. glaberrima*, but it has been domesticated for at least three and a half thousand years. The indigenous West African rice cultivation area extends over a broad region along the Atlantic coast from Senegal to the Ivory Coast, and into the interior along

ensured the orientation of South Carolina to a rice plantation economy between 1710 and 1730. First, the ranching and the deerskin trade along the South Carolina coastal corridor that had characterized the colony's earliest years never recovered after the Yamasee Indian War in 1715. Deerskin exports declined, and the export trade based on salt beef and pork, cow-hides and tallow moved southward and westward into the pine woodlands.<sup>9</sup> The displacement of the cattle frontier proceeded in tandem with the colony's next major economic activity, the production of pitch and tar for naval stores. Unlike its counterpart in Scandinavia, the Carolina trade depended on the use of dead trees, perhaps related to the widespread grazing practice of felling trees to create grasslands and subsequent burning of those areas for pasture.<sup>10</sup> While deforestation exhausted the supplies of naval stores, profits from the production of pitch and tar financed the increasing numbers of slaves available for rice planting.

The same period also witnessed a decline in the numbers of native Americans sold into slavery.<sup>11</sup> In 1710 native Americans, and especially women and children, formed a quarter of the slave labour force in the mainland North American colonies. By 1730 they had been largely replaced in South Carolina by slaves of African origin, whose numbers increased nearly sevenfold,

(n. 8 cont.)

river-banks, inland swamps and lake-margins to Mali and Niger. See Roland Portères, "Primary Cradles of Agriculture in the African Continent", in J. D. Fage and R. A. Oliver (eds.), *Papers in African Prehistory* (Cambridge, 1970), pp. 43-58; D. H. Grist, *Rice*, 4th edn (London, 1965), pp. 3-4.

<sup>9</sup> For an overview on the grazing and extractive economy, see Clowse, *Economic Beginnings in Colonial South Carolina*; Clarence Ver Steeg, *Origins of a Southern Mosaic* (Athens, Ga, 1975); Terry G. Jordan, *Trails to Texas: Southern Roots of Western Cattle Ranching* (Lincoln, Neb., 1981), pp. 37-45; John S. Otto, *The Southern Frontiers, 1607-1860* (New York, 1989), esp. pp. 27-44.

<sup>10</sup> See Ver Steeg, *Origins of a Southern Mosaic*, p. 121; Jordan, *Trails to Texas*, pp. 37, 39.

<sup>11</sup> The harsh demands of clearing densely vegetated lowland swamps for rice plantations demanded a continuous flow of slaves. In the early decades of the eighteenth century, south-eastern Indians formed an important component of the enslaved labour force in South Carolina — especially women and children, as male Indian slaves, like those in West Africa, were sent abroad in greater numbers than females. See Clowse, *Economic Beginnings in Colonial South Carolina*, pp. 108-9; J. Leitch Wright, Jr, *The Only Land They Knew* (New York, 1981), pp. 148-9, 159. One effect of the gender bias towards males in international slave-markets was to leave a disproportionate number of women, the principal agriculturalists and food-preparers, in their geographic areas of farming expertise. See also Claire C. Robertson and Martin A. Klein, "Women's Importance in African Slave Systems", in C. C. Robertson and M. A. Klein (eds.), *Women and Slavery in Africa* (Madison, 1983), pp. 3-28.

from three thousand in 1710 to twenty thousand in 1730.<sup>12</sup> This vast expansion of the enslaved population contributed to the sharp increase in rice exports from South Carolina from less than two million to almost nineteen million pounds in the same period.

The suitability of the South Carolina coastal corridor for rice planting, the presence of slaves familiar with its cultivation, and a growing international market demand for the cereal facilitated the transition to a rice economy. The process was complete by 1730, when changes in the Navigation Acts legalized direct exports from the colonies to southern Europe, the crop's principal market. No longer required to break the overseas journey for payment of duty in England, rice-planters could reach market destinations without additional delay and spoilage loss.<sup>13</sup> Finally, the 1730s marked yet another important development in rice cultivation within South Carolina: the crop began shifting from inland swamps to the more labour-intensive and higher-yielding production environment located along the floodplains of tidal rivers.<sup>14</sup> By the American Revolution this tide-affected rice system supported one of the world's wealthiest plantation economies.<sup>15</sup>

One important aspect of the export trade, not evident in the numbers presented in Table 1, was the rice market's dependence on grain already milled. Mechanized processing did not develop until late in the colonial period, and planters displayed no awareness of the water-powered mechanical devices then in use

<sup>12</sup> Kovacik and Winberry, *South Carolina*, p. 77.

<sup>13</sup> In 1704 rice was placed on the list of British commodities on which duty had to be paid in England. The colony's growing emphasis on rice as the export mainstay was evident in 1714, when the South Carolina Assembly began petitioning the British government to permit duty-payment in the colonies, which would enable the crop to be shipped directly to markets in mainland Europe. Permission was finally granted in 1730, and led to a considerable growth in the colonial rice economy. See Leila Sellers, *Charleston Business on the Eve of the American Revolution* (Chapel Hill, 1934), pp. 53-4; M. Eugene Sirmans, *Colonial South Carolina: A Political History, 1663-1763* (Chapel Hill, 1966), p. 74; Dethloff, *History of the American Rice Industry*, pp. 14-15.

<sup>14</sup> For a more detailed examination of the shift in rice production environments in colonial South Carolina and its African basis, see Judith Carney, "From Hands To Tutors: African Expertise in the South Carolina Rice Economy", *Agric. Hist.*, lxxvii (1993), pp. 1-30.

<sup>15</sup> Peter A. Coclanis, "Bitter Harvest: The South Carolina Low Country in Historical Perspective", *Jl Econ. Hist.*, xlv (1985), pp. 251-9; Clifton, "Rice Industry in Colonial America", pp. 279-80; Mart Stewart, "Rice, Water, and Power: Landscapes of Domination and Resistance in the Lowcountry, 1790-1880", *Environmental Hist. Rev.*, xv (1991), pp. 47-64.

for milling in the Piedmont rice region in northern Italy.<sup>16</sup> Only with the advent of steam-powered mills in the nineteenth century did rice occasionally leave South Carolina and Georgia unmilled.<sup>17</sup> Commercial development of the overseas export trade depended upon processing rice prior to shipment, and a report by Edward Randolph to the Council of Trade and Plantations implies that the African method of rice processing was already in use in 1700: "They have now found out the true way of raising and husking rice".<sup>18</sup> But the competitive advantage of slave-produced and slave-processed rice in overseas markets had not been lost on one Scottish settler, John Stewart, who had boasted ten years earlier: "Our rice is better esteem'd of in Jamaica than that from Europe sold ther for a ryall a pound its price here new husk't is 17/ [shillings] a hundred weight".<sup>19</sup>

The period allotted for rice processing within the plantation calendar fell between the September harvest and the resumption of cultivation in March/April.<sup>20</sup> But the milling of the crop was superimposed upon numerous other seasonal labour demands like

<sup>16</sup> Rice cultivation in Piedmont predates the sixteenth century, and proved the main European competitor to Carolina production. On mechanical devices used in Italian rice milling contemporary with the colonial period in Carolina, see Giovanni Biroli, *Del riso: trattato economico-rustico* (Milan, 1807); Giambattista Spolverini, *La coltivazione del riso* (Milan, 1813); Oreste Bordiga and Leopoldo Silvestrini, *Del riso e della sua coltivazione* (Novara, 1880); Luigi Messedaglia, "Per la storia delle nostre piante alimentari: il riso", *Rivista di scienze mediche e sociale*, xx (1938), pp. 1-15; Michele Lecce, "Un'azienda risiera veronese nel XVII e XVIII secolo", *Economia e storia*, i (1959), pp. 64-80; Pieraldo Bullio, "Problemi e geografia della risicoltura in Piemonte nei secoli xvii e xviii", *Annali della Fondazione Luigi Einaudi*, iii (1969), pp. 37-112.

<sup>17</sup> Dethloff, *History of the American Rice Industry*, p. 35.

<sup>18</sup> Edward Randolph, report to the Council of Trade and Plantations, 27 May 1700: Public Record Office, London, C.O. 5/1288, summarized in in *Cal. State Papers Colonial*, xviii, p. 285 (no. 475), and cited in A. S. Salley, *The Introduction of Rice Culture into South Carolina* (Bull. Hist. Commission South Carolina, vi, Columbia, 1919), pp. 1-23 (at p. 7).

<sup>19</sup> John Stewart, letter to William Dunlop, 27 Apr. 1690, in "Letters from John Stewart to William Dunlop", ed. Mabel L. Webber, *South Carolina Hist. and Geneal. Mag.*, xxxii (1931), pp. 1-33 (at p. 22), cited in Clifton, "Rice Industry in Colonial America", pp. 268-9. Stewart's comment refers to the food-import demand of Caribbean sugar plantation economies. For the first half of the eighteenth century, the West Indies' share of South Carolina's total rice exports averaged under 5 per cent, but increased after 1748 to almost 20 per cent: David Richardson, "The British Slave Trade to Colonial South Carolina", *Slavery and Abolition*, xii (1991), pp. 125-72, esp. pp. 149-50.

<sup>20</sup> David Doar, *Rice and Rice Planting in the South Carolina Low Country* (Charleston, repr. 1970), pp. 13-15; Charles Joyner, *Down by the Riverside* (Chicago, 1984), pp. 46-7.

the processing of indigo, the harvesting of subsistence crops, the repairing of field embankments, ditches and fences and the ploughing-under of rice stubble so that the sod could benefit from winter frosts.<sup>21</sup> One visitor to Charleston in 1765 commented on the “active” work-pace of the months from December to May, when the “crops of rice and indigo [were] brought to town and shipped off”.<sup>22</sup> But the need to process millions of pounds of rice, rather than harvest, set the pace for the season’s activity. In the assessment of one historian, this increased labour burden during the post-harvest period contributed to making the work-regime of a rice plantation more rigorous and sustained throughout the year than that on comparable cotton or sugar plantations.<sup>23</sup>

Market forces also contributed to the intensity of the work-discipline imposed on slaves following the rice-harvest. The principal demand for the Carolina rice crop was from Catholic Europe, with peak market-prices prevailing during the period of Lent.<sup>24</sup> Aiming production at this southern European market, planters sought to complete rice milling by early winter in time for a transatlantic voyage that would deliver the grain in February.<sup>25</sup> The market structure consequently abbreviated even further the time allocated for rice processing. Yet the goal of punctual delivery to Europe was often not met, as is evident from one merchant’s complaint in January 1726 about the shortage of milled

<sup>21</sup> Joyner, *Down by the Riverside*, p. 46. Indigo planting in South Carolina got under way in the 1740s, but declined after the American Revolution. Indigo cultivation did not compete with rice for the same type of land. All but the third and smallest indigo harvest was picked and processed prior to the rice harvest. See Joyce Chaplin, *An Anxious Pursuit: Agricultural Innovation and Modernity in the Lower South* (Chapel Hill, 1993), esp. pp. 191-208. Like rice, indigo cultivation and dyeing was widespread in West Africa, having diffused there from the Nile Valley c.700-1100. See George E. Brooks, *Landlords and Strangers: Ecology, Society, and Trade in Western Africa, 1000-1630* (Boulder, 1993), p. 56. On West African female slaves and indigo dyeing, see Robertson and Klein, “Women’s Importance in African Slave Systems”, pp. 15-16.

<sup>22</sup> Pelatiah Webster, “Journal of a Visit to Charleston, 1765”, in *The Colonial South Carolina Scene: Contemporary Views, 1697-1774*, ed. H. Roy Merrens (Columbia, 1977), pp. 218-26 (at p. 221).

<sup>23</sup> Dethloff, *History of the American Rice Industry*, p. 23.

<sup>24</sup> Clowse, *Economic Beginnings in Colonial South Carolina*, p. 244; Clifton, “Rice Industry in Colonial America”, pp. 280-1.

<sup>25</sup> Sirmans, *Colonial South Carolina*, pp. 107-8; Clowse, *Economic Beginnings in Colonial South Carolina*, pp. 128-9; Clifton, “Rice Industry in Colonial America”, pp. 280-1.

grain in Charleston for loading waiting vessels.<sup>26</sup> Matters improved somewhat in 1730 with the changes in the Navigation Acts mentioned above. But these changes also spurred a great increase in production, thus placing ever greater demands on slave labour for processing. Sometimes it was far into winter before the entire crop could be prepared for market.<sup>27</sup>

The completion of a cycle of rice cultivation consequently brought no relief to the slave labour force, but instead marked the prelude to even more gruelling work-routines associated with milling. The intense effort required to process millions of pounds of rice by hand during the post-harvest period both brutalized slaves and transformed the colonial plantation system into a factory in the field.<sup>28</sup>

## II

### FACTORIES IN THE FIELD: RICE PROCESSING AND SLAVE LABOUR

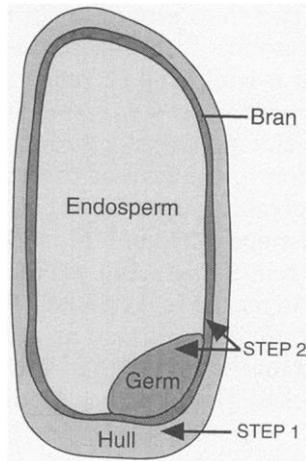
Rice consumption depends upon removing the indigestible hull that encloses the grain without breaking the product in the process. I. H. Burkill succinctly summarizes the problem posed by rice milling in comparison with the processing of other cereal crops traditionally grown in Europe and North America: "European milling-machinery for rice could not be adapted simply from that used for other cereals, for in the milling of wheat the object is to get the finest of powders; but in the milling of rice the object is to keep the grain whole as much as possible".<sup>29</sup> Rice processing, in short, requires that the grain be not pulverized. Until the advent of milling machinery in South Carolina at

<sup>26</sup> "Here thirty seven barrels of Rice and two Chest of Deare Skin Shipt by me Richard Splatt on board the *Lovely Polly* Michael Bath Master bound for London on my proper account and . . . goes Consigned to Mr. William Crisp . . . [there are so many ships] that there is not rice to load the 1/2 of 'em": Richard Splatt, Charleston, to William Crisp, London, 17 Jan. 1726, letter preserved in the South Caroliniana Library, University of South Carolina, Columbia, cited in Dethloff, *History of the American Rice Industry*, p. 11.

<sup>27</sup> Duncan Heyward, *Seed from Madagascar* (Chapel Hill, 1937), p. 21; Sellers, *Charleston Business on the Eve of the American Revolution*, pp. 151, 154-6; Clowse, *Economic Beginnings in Colonial South Carolina*, pp. 128-9.

<sup>28</sup> Michael Mullin, *American Negro Slavery: A Documentary History* (New York, 1976). For the relevance of this view of South Carolina rice plantations during the colonial era, see the related discussion by Clifton, "Rice Industry in Colonial America", p. 279.

<sup>29</sup> I. H. Burkill, *A Dictionary of the Economic Products of the Malay Peninsula*, 2 vols. (London, 1935), ii, p. 1601.



RICE PROCESSING AND THE STRUCTURE OF THE GRAIN

the end of the eighteenth century, the African mortar and pestle proved an effective processing method, because it removed the hull while minimizing grain breakage. A hollowed-out tree-trunk formed the receptacle (or mortar) for the unprocessed rice (paddy), which was then milled by applying to the rice a heavy wooden pestle, between one and one-and-a-half metres long.

There are three main operations involved in rice milling: threshing, winnowing and pounding. Threshing involves separating the grains from the stalks after a short period of drying. This can be done by using a hand-held flailing-stick, animals for trampling, or machinery. Winnowing, which alternates with pounding, removes the empty husks and chaff. It is traditionally carried out by placing the rice in a flat basket and rotating the grains so that the lighter materials move to the edge, where they are jettisoned. The third operation of rice processing, pounding, is really misnamed, since the need to obtain whole grains, rather than broken, requires a tapping and rolling motion, in which loosening the grip on the pestle at the right moment before striking the rice minimizes grain breakage. "Pounding" actually involves two distinct steps: first, removing the grain's hard outer coat or hull (dehusking), and secondly, polishing or whitening the rice by separating the bran and the nutrient-bearing germ from the softer endosperm. (Figure.)

The first of these two steps proved easier to accomplish mechanically in South Carolina than the second, as polishing is a delicate process, and it is difficult to remove the bran and germ (responsible for the grain's brown colour) without breaking the rice. The grade of rice produced by hand-milling thus varies considerably according to the skill of the processor. An experienced operator can obtain nearly 75 per cent whole grains, but a less skilled or careless one may end up breaking half the rice.<sup>30</sup>

In the eighteenth century, as now, broken rice sold at a much reduced price in world markets. Merchants' lists from the colonial period indicate that the export market favoured "very clean, bright and whole grains", but besides fetching a higher price, whole-grained, polished rice was less likely to become rancid during transatlantic shipment.<sup>31</sup> Market preferences required South Carolina planters to have the milled rice separated into three grades: whole grains, partially broken and small broken.<sup>32</sup> One colonial planter, Timothy Ford, described the different uses of each grade on his plantation: "For here it must be noted that what is called the clean rice is not the *merchantable* rice; for it is easy to conceive that the beating must break many of the grains in pieces; and this divides it into *rice, midlings, & small rice*. These are all separated by sieves; the first is put up in barrels for market, the second reserved for family use; and the third for the consumption of the plantation".<sup>33</sup> The broken rice, not so "vendable", was thus either sold at a lower price or reserved for local consumption.<sup>34</sup>

<sup>30</sup> Clowse, *Economic Beginnings in Colonial South Carolina*, p. 129. On rice dehusking, Rochefoucauld claimed that "an efficient husker [could] . . . deliver 19 parts of whole rice and 1 part of rice dust or broken rice, while an 'indifferent' workman would turn out equal parts of each kind": Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860*, 2 vols. (Gloucester, Mass., 1958), i, p. 282, paraphrasing François Alexandre Frédéric de la Rochefoucauld-Liancourt, *Travels through the United States of North America, the Country of the Iroquois, and Upper Canada, in the Years 1795, 1796, and 1797*, trans. H. Neuman, 2nd edn, 4 vols. (London, 1800), ii, p. 446.

<sup>31</sup> Merchant demand-list of Josiah Smith, Jr, quoted in Sellers, *Charleston Business on the Eve of the American Revolution*, p. 68. Polishing rice involves removing the protein-bearing germ, thereby reducing grain spoilage.

<sup>32</sup> Ulrich Bonnell Phillips, *American Negro Slavery* (Baton Rouge, 1966), p. 90; Gray, *History of Agriculture in the Southern United States to 1860*, i, p. 287.

<sup>33</sup> "Diary of Timothy Ford, 1785-1786", ed. Joseph W. Barnwell, *South Carolina Hist. and Geneal. Mag.*, xiii (1912), pp. 181-251 (at pp. 183-4), cited in Sellers, *Charleston Business on the Eve of the American Revolution*, p. 150.

<sup>34</sup> "An Interview with James Freeman, 1712", in *Colonial South Carolina Scene*, ed. Merrens, p. 46.

Achieving a high percentage of whole grains with milling proved difficult, for three reasons. First, the abbreviated time-period allowed for processing and its accompanying stress on slave labour frequently resulted in quality being sacrificed to market schedules. Secondly, the famed South Carolina rice, "Carolina gold", was more fragile than its main European competitor, the smaller and rounder risotto type planted in Piedmont.<sup>35</sup> Thirdly — and the focus of the next section — use of a mortar and pestle for rice processing depended upon degendering a skill associated with women's labour in Africa and then subjecting both male and female slaves to a radically different work-regime with hand-milling. For these reasons, the percentage of brokens in the processed rice probably remained high for much of the colonial period.

The desire to hasten shipment of milled rice to overseas markets soon led to attempts to develop a device that would reduce the slave-labour input in the first step of rice processing, dehusking or hulling. In 1691, Peter Jacob Guerard registered the earliest patent for a "pendulum machine" to dehusk rice.<sup>36</sup> This may have been a hand- or animal-operated device in which a pestle attached to a tree-branch would swing back after each stroke into the mortar below, thereby dehusking the rice.<sup>37</sup> By the 1730s, hand-mills, consisting of two wooden blocks revolving on each other, were being used to remove the outer husk.<sup>38</sup> From the 1750s, horses and oxen were increasingly harnessed to these wooden mills.<sup>39</sup> The substitution of animal for human labour in rice hulling probably contributed to the higher per capita output

<sup>35</sup> Thomas Jefferson to William Drayton, 30 July 1787, in *Thomas Jefferson's Garden Book, 1766-1824*, ed. Edwin Morris Betts (Philadelphia, 1944), pp. 124-5; Karen Hess, *The Carolina Rice Kitchen: The African Connection* (Columbia, 1992), p. 19.

<sup>36</sup> Clifton, "Rice Industry in Colonial America", p. 272.

<sup>37</sup> Wood, *Black Majority*, p. 171 n. 12.

<sup>38</sup> "Mark Catesby's *Natural History*" (1731-47), in *Colonial South Carolina Scene*, ed. Merrens, p. 100. Allston described hand-milling the rough rice as a process in which the grains were passed between wooden blocks, 20 inches in diameter and 6 inches thick, worked by hand: R. F. W. Allston, "Rice", *De Bow's Rev.*, original ser., i (1846), p. 343. L. C. Gray adds that the surface of the blocks was frequently incised with channels grooved to radiate obliquely from the centre to the circumference: Gray, *History of Agriculture in the Southern United States to 1860*, i, p. 282.

<sup>39</sup> John Drayton, *A View of South-Carolina* (Spartanburg, 1972; first publ. Charleston, 1802), pp. 120-4; Gray, *History of Agriculture in the Southern United States to 1860*, i, pp. 280-3; Chaplin, *Anxious Pursuit*, pp. 252-3.

of processed rice reported for the second half of the eighteenth century.<sup>40</sup>

The second step in rice pounding (polishing), which removes the grain's inner cuticle, proved far more resistant to mechanization, as Henry Laurens noted in 1772: "for cleaning Rice, . . . no *Grinding Mill* will answer the purpose. Rice is ground first for the *Mortar* by a *Wooden Mill* & the *softest* kind of *Pine* is chosen for that service. The husk is ground off very clean, but nothing less than the *Pestle* will take off the *Inside Coat*, & shew the neat whiteness of the *Grain*".<sup>41</sup> During the colonial period, little progress was made in removing the inner skin beyond hand-pounding. Technological change in this crucial second step of the milling process did not gain ground until the eve of the American Revolution, when Jonathan Lucas, the Eli Whitney of rice, developed a water-driven mill that successfully polished the grain.<sup>42</sup> For most of the eighteenth century, rice polishing still depended upon slaves wielding a pestle to whiten millions of pounds of rice in wooden mortars for overseas markets.

Many researchers have pointed out the exhausting and unhealthy nature of rice cultivation in the malarial swamps of South Carolina during the eighteenth century.<sup>43</sup> Others have examined the technological innovations that shaped rice processing from the 1780s.<sup>44</sup> Fewer, however, have examined in detail the brutal demands imposed on slaves by the need to hand-pound the harvested crop during just a few months of the year. Rice processing "was a heavy task that slowed down the crop's travel to market and with its monotonous drudgery took the heart out of

<sup>40</sup> Coclanis, *Shadow of a Dream*, p. 97.

<sup>41</sup> Henry Laurens to Peter LePoole, 14 Aug. 1772, in *The Papers of Henry Laurens*, viii: *October 10, 1771 to April 19, 1773*, ed. George C. Rogers and David R. Chestnutt (Columbia, 1981), p. 409. Mark Catesby, who travelled through the rice-growing region before 1731, noted the particular problem posed by polishing. "About the middle of September it [rice] is cut down and housed . . . then to get off the outer coat or husk, they use a hand mill, yet there remains an inner film, which clouds the brightness of the grain, to get off which it is beat in large wooden mortars, and pestles of the same, by Negro slaves, which is very laborious and tedious": "Catesby's *Natural History*", ed. Merrens, p. 100.

<sup>42</sup> Dethloff, *History of the American Rice Industry*, p. 29; Chaplin, *Anxious Pursuit*, p. 254.

<sup>43</sup> Clowse, *Economic Beginnings in Colonial South Carolina*; Wood, *Black Majority*; Littlefield, *Rice and Slaves*; Coclanis, *Shadow of a Dream*.

<sup>44</sup> Victor S. Clark, *History of Manufactures in the United States*, 3 vols. (New York, 1949); Gray, *History of Agriculture in the Southern United States to 1860*, i, p. 282; Clifton, "Rice Industry in Colonial America"; Dethloff, *History of the American Rice Industry*; Chaplin, *Anxious Pursuit*, pp. 251-2.

the plantation hands".<sup>45</sup> One patent request in 1733 by Peter Villeponteux for a mechanical pounding-mill matter-of-factly describes the toll on slave labourers with existing hand-processing technology: "the Pounding of Rice by Negroes, hath been of very great Damage to the Planters [*sic*] of this Province, by the excessive hard Labour that is required to Pound the said Rice, which has killed a large Number of Negroes".<sup>46</sup> In 1773 Henry Laurens faulted a neighbouring planter for failing to substitute hand-mills for mortar-and-pestle processing in the first step of rice milling: "his Crop . . . depends wholly on the Violent Labour of the poor Negroes".<sup>47</sup> The "infinite cost to human labour" of milling rice by hand served as an early impetus for targeting rice processing for technological innovation during the colonial period.<sup>48</sup>

Like all aspects of the plantation rice system, processing was "tasked". Market demand was met by requiring each slave to deliver a fixed daily amount of polished rice during the post-harvest period. In 1755, the South Carolina physician Alexander Garden described the task as being equal for men and women: seven mortars of paddy, each containing three pecks of rice.<sup>49</sup>

<sup>45</sup> Samuel G. Stoney, *Plantations of the Carolina Low Country* (Charleston, 1938), pp. 33-4.

<sup>46</sup> Advertisement by Peter Villeponteux and Samuel Holmes for a patent to produce a pounding-mill: *South Carolina Gazette*, 14, 21, 28 July 1733.

<sup>47</sup> Henry Laurens to John Lewis Gervais, 2 Mar. 1773, in *Papers of Henry Laurens*, viii, ed. Rogers and Chestnutt, pp. 634-5.

<sup>48</sup> Sellers, *Charleston Business on the Eve of the American Revolution*, p. 27. See also Clowse, *Economic Beginnings in Colonial South Carolina*; Chaplin, *Anxious Pursuit*. The labour burden posed by rice pounding also proved a problem on Jamaican sugar plantations in the early eighteenth century, when slaves sought to grow a preferred dietary staple in kitchen gardens. "This grain [rice] is sowed by some of the negro's in their gardens, and small plantations in Jamaica, and thrives very well in those that are wet, but because of the difficulty there is in separating the grain from the husk, 'tis very much neglected, seeing the use of it may be supplied by other grains, more easily cultivated and made use of with less labour": Hans Sloane, *A Voyage to the Islands Madera, Barbados, Nieves, S. Christophers, and Jamaica, with the Natural History . . . of the Last of those Islands*, 2 vols. (London, 1707-25), i, p. 103, cited in William Ed Grimé, *Botany of the Black Americas* (St Clair Shores, 1976), p. 154. The labour demands of rice processing on Caribbean sugar plantations thus favoured planting other cereal crops and rice imports.

<sup>49</sup> "Labour and the Loss of many of their Lives testified the Fatigue they Underwent, in Satiating the Inexpressible Avarice of their Masters . . . but the Worst comes last for after the Rice is threshed, they beat it all in the hand in large Wooden Mortars to clean it from the Husk, which is a very hard and severe operation as each Slave is tasked at Seven Mortars for One Day, and each Mortar Contains three pecks of Rice. Some task their slaves at more, but often pay . . . dear for their Barbarity, by the Loss of many so . . . Valuable Negroes, and how can it well be otherwise, the poor Wretches are Obligated to Labour hard to Compleat their Task": Alexander Garden, M.D., to the Royal Society of Arts, 20 Apr. 1755, in "Correspondence between

However, drawing upon family records, the planter F. R. W. Allston claimed in 1846 that the daily task for processing in the eighteenth century differed for males and females, with six pecks for men and four for women: "The method was, that each male laborer had three pecks of rough rice in a mortar, and each female two pecks, to pound before day or sun-rise; and the same at night, after finishing the ordinary task in the field".<sup>50</sup> This division of the day into two pounding-periods is confirmed independently for the 1750s by the Georgia Lutheran pastor and civic leader Johann Martin Bolzius: "They [i.e., slaves] gather the rice, thresh it, grind it into wooden mills, and stamp [pound] it mornings and evenings".<sup>51</sup>

A more detailed and revealing understanding of the impact of mortar-and-pestle processing on the daily slave work-burden during the post-harvest period can be reached by making a

(n. 49 cont.)

Alexander Garden, M.D., and the Royal Society of Arts", ed. Joseph I. Waring, *South Carolina Hist. and Geneal. Mag.*, lxiv (1963), pp. 16-17, cited in Wood, *Black Majority*, p. 79. Garden's figures both reveal the rice processing task and at the same time obscure our understanding of it. His observation suggests that the mortar and pestle was still being used for dehusking as well as polishing rice on Carolina plantations in 1755. The processing task of 21 pecks of unhusked rice (11 pounds per peck, according to Doar) would have required hand-milling over 230 pounds of rice daily. Even if divided into two processing sessions, this figure widely differs from Allston's estimates for the eighteenth century (cited immediately below), which give the daily processing task for males as six pecks (66 pounds). However, if Garden was in error here, and the daily task was *three* pecks, not 21 (even if it took seven mortars to accommodate that amount), then the quantity (33 pounds) would better conform to Allston's figure of six pecks (66 pounds). The gradual substitution of wooden mills for the first step in rice milling, dehusking, during the eighteenth century may well explain the discrepancy between the figure supplied by Garden (as conjecturally adjusted) and that provided by Allston. A task requiring slaves to perform by hand both steps in rice milling (dehusking and polishing) would lengthen the time spent processing and favour a lower amount; but the substitution of wooden mills for dehusking would reduce the time needed to mill the rice and increase the amount tasked in accordance with Allston's figures. See Doar, *Rice and Rice Planting in the South Carolina Low Country*, p. 18; Allston, "Rice", p. 342.

<sup>50</sup> Allston, "Rice", p. 342. The surviving historical evidence does not make it clear why the female task in rice processing may in fact have changed during the eighteenth century. Perhaps the change was related to the shift in rice cultivation to tidal swamps and the emergence of a gender-division of labour that favoured females in tasks like sowing, weeding and harvesting (as in Africa), or alternatively to changes in plantation work-patterns associated with the second cash-crop, indigo, before the Revolutionary War.

<sup>51</sup> The passage quoted indicates that the first stage in rice pounding (dehusking or hulling) was performed by wooden mills, but does not reveal whether they were hand-operated or animal-driven. See Klaus G. Loewald, Beverly Starika and Paul Taylor, "Johann Martin Bolzius Answers a Questionnaire on Carolina and Georgia", *William and Mary Quart.*, 3rd ser., xiv (1957), pp. 218-61 (at p. 259).

TABLE 2

LABOUR TIME FOR HAND-POUNDING ONE KILOGRAM OF RICE WITH A MORTAR AND PESTLE, THE GAMBIA, WEST AFRICA\*

| Sample No.<br>(one woman pounding) | Number of<br>poundings | Number of<br>winnowings | Time (in minutes) |
|------------------------------------|------------------------|-------------------------|-------------------|
| 1                                  | 3                      | 3                       | 25                |
| 2                                  | 2                      | 2                       | 10                |
| 3                                  | 2                      | 2                       | 14                |
| 4                                  | 2                      | 2                       | 19                |

\* Source: Carney, fieldwork data, 1993.

cross-cultural comparison of the milling task on Carolina rice plantations with one area of West Africa where rice processing continues by hand. Table 2 shows how long it takes a Gambian woman today to hand-pound a kilogram of paddy-rice: between 10 and 25 minutes, depending on her strength and skill, as well as on how strongly motivated she is to produce a product with a high percentage of whole grains.<sup>52</sup>

On Carolina rice plantations, a bushel of unhusked rice typically weighed about 44 or 45 pounds and resulted in a bushel of milled rice averaging 30 pounds, a paddy-to-milled conversion rate of 65 per cent, somewhat lower than contemporary hand-pounding methods in The Gambia.<sup>53</sup> With a peck of unhusked rice weighing about 11 pounds, the daily task during the post-harvest period in eighteenth-century South Carolina would have required 66 pounds for milling, but if there was, as Allston claimed, a gender difference in the amount required for processing, the female task would have been 44 pounds.

An extrapolation of the figures from the range in processing times presented in the Gambian data amply substantiates colonial commentaries on the brutality of rice processing, even when the task was divided into two daily sessions. At the fastest Gambian rate, ten minutes per 2.2 pounds of paddy, the period for a male slave to complete his daily task would average about five hours, while that for a female would be 3 hours 20 minutes. At a slower rate, the 19-minute average of the three other values for one person milling, the time for task-completion would have increased to 9 hours 30 minutes daily for a male slave and 6 hours 20

<sup>52</sup> Unlike its counterpart in Carolina, the hand-milling process in West Africa does not favour polishing the grain to a shiny whiteness.

<sup>53</sup> Phillips, *American Negro Slavery*, p. 252; Doar, *Rice and Rice Planting in the South Carolina Low Country*, p. 18.

minutes for a female.<sup>54</sup> The equivalent time-range for rice processing in eighteenth-century South Carolina would probably lie somewhere between these two sets of values. Even if the desired percentage of whole to broken grains was at times sacrificed to the requirements of other plantation duties (in support of the lower time-estimate) and the processing task divided into two work-periods, the physical exertion demanded by repeatedly lifting a pestle weighing between ten and twenty-five pounds and bringing it down on the rice for hours at a time vividly illustrates the task's gruelling toil, mentioned in so many colonial commentaries.

By dividing processing into two daily work-periods, before sunrise and after sunset, planters improved the "efficiency" of labour while intensifying the slave work-burden. But processing also contributed to lengthening the number of hours worked daily during the late autumn and winter months. The concentration of rice processing into the post-harvest season poignantly illustrates the radical rupture in labour relations between slavery and the precapitalist agricultural system known to African-born slaves. A task performed daily in Africa in less than an hour became transformed with commodity production into one that demanded extended hours of daily toil for an abbreviated period of the year. Under the new work-regimen of slavery in eighteenth-century South Carolina, the mortar no longer remained a rudimentary but effective means to process rice for family food-needs as it did in Africa. Instead, commodity production transformed the mortar and pestle into a device that harnessed human arms to a measurement of rice required by planters for processing.

### III

#### WEST AFRICA AND A GENDERED KNOWLEDGE SYSTEM

Over the past two decades, evidence has steadily accumulated to show how African-born slaves provided crucial expertise in the rice cultivation system that developed on South Carolina

<sup>54</sup> These estimates result from converting the numbers in Table 2 from kilograms to pounds at a 10- and 19-minute-rate for the male and female task and dividing that figure by 60 to determine hours spent milling. The faster rate would allow for rice processing with wooden mills for dehusking; the slower rate would cover time spent in hulling and polishing with the mortar and pestle, as well as allowing for fatigue from the hours spent processing daily.

plantations during the formative colonial period.<sup>55</sup> A cropping system unknown to planters of English and French Huguenot descent had sustained millions of people in West Africa over millennia.<sup>56</sup> Carolina slave-dealers expressed a steady preference for slaves in terms of ethnicity, age and sex as well as for those born in the West African rice region, even if their objectives could not always be met.<sup>57</sup> 43 per cent of the slaves entering South Carolina during the eighteenth century were brought directly from this region, a higher percentage than was characteristic of the English slave trade as a whole.<sup>58</sup> From the 1730s, when Carolina rice cultivation began shifting to the higher-yielding and more labour-intensive river floodplains, the share of slaves imported from West Africa's indigenous rice area grew steadily, from 12 per cent in the 1730s, to 54 per cent between 1749 and 1765, and finally to 64 per cent between 1769 and 1774.<sup>59</sup>

The historical record indicates, moreover, that male and female slaves were more equal in purchase-value in South Carolina than in slave-markets in the West Indies, a discrepancy which Peter Wood has suggested may in fact represent an acknowledgment of African women's skills in rice culture.<sup>60</sup> Where rice is grown in West Africa, women have long been involved, sometimes solely, in its cultivation and in the sale of surpluses.<sup>61</sup> Writing in 1624 about food-purchases by Dutch traders in Sierra Leone,

<sup>55</sup> Wood, *Black Majority*; Wood, "It was a Negro Taught Them"; Littlefield, *Rice and Slaves*; Judith Carney, "Landscapes of Technology Transfer: Rice Cultivation and African Continuities", *Technology and Culture*, xxxvii (1996), pp. 5-35; Carney, "From Hands To Tutors".

<sup>56</sup> Wood, "It was a Negro Taught Them", p. 170.

<sup>57</sup> Littlefield, *Rice and Slaves*, pp. 8-32.

<sup>58</sup> Philip Curtin, *The Atlantic Slave Trade* (Madison, 1969), pp. 150, 157; Littlefield, *Rice and Slaves*, p. 113.

<sup>59</sup> Richardson, "British Slave Trade to Colonial South Carolina", pp. 135-6.

<sup>60</sup> Wood, *Black Majority*, p. 61 n. 97.

<sup>61</sup> Women's involvement in the rice-trade was first noted by Ibn Battuta, who travelled to Mali in the mid-fourteenth century: Ibn Battuta, *Travels in Asia and Africa, 1325-1354*, trans. H. A. R. Gibb (London, 1969 repr.), p. 322. André Donelha, who visited the coast of Guinea-Bissau in the 1570s, provides the earliest European account of women's role in the trade. "Here the black women hold a market when ships are in port; they bring for sale rice . . .": A. Donelha, *Descrição da Serra Leoa e dos rios de Guiné do Cabo Verde, 1625; An Account of Sierra Leone and the Rivers of Guinea and Cape Verde, 1625*, ed. Avelino Teixeira da Mota, trans. P. E. H. Hair (Lisbon, 1977), p. 149. On gendered cultivation practices, see Paul Pélissier, *Les paysans du Sénégal: les civilisations agraires du Cayor à la Casamance* (Saint-Yrieix, 1966), pp. 744-56; Olga F. Linares, *Power, Prayer and Production: The Jola of Casamance, Senegal* (Cambridge, 1992), pp. 19-23.

Samuel Brun observed: "For the rice they wanted only glass corals for their wives, because rice is the ware of women".<sup>62</sup> A European account from the early eighteenth century notes that along the Gambia River, rice was a woman's crop.<sup>63</sup> In the West African rice regions where floodplain cultivation paralleled the system that later emerged in South Carolina, a distinct gender division of labour characterized the cropping cycle, as it still does. Men reclaimed swamp-land for cultivation and each cropping season overturned the clay soil and repaired ditches and embankments; sowing, weeding and transplanting were tasks generally performed by females.<sup>64</sup>

However, the successful transfer of rice culture to South Carolina depended not only on learning how to raise rice but also, as Randolph mentioned in 1700, on finding "the true way of . . . husking Rice".<sup>65</sup> While the mortar-and-pestle technology existed in India and Asia, Carolina planters did not need to look there for this method of milling.<sup>66</sup> In Africa the mortar and pestle is the principal mechanism by which all cereals and root-crops are processed. When rice is harvested, women alone are involved in preparing the crop for consumption. This involves cooking as well as milling.

The importance of processing for enabling the adoption of rice culture in eighteenth-century Carolina has not received sufficient

<sup>62</sup> Brooks, *Landlords and Strangers*, p. 318.

<sup>63</sup> Francis Moore, *Travels into the Inland Parts of Africa* (London, 1738), p. 127.

<sup>64</sup> Around 1793 the slave-ship captain Samuel Gamble described the gender-division of labour in Baga rice cultivation in Guinea-Conakry: Littlefield, *Rice and Slaves*, pp. 93-5. See also Pélissier, *Paysans du Sénégal*, pp. 744-56; Linares, *Power, Prayer and Production*, p. 20.

<sup>65</sup> See n. 18 above.

<sup>66</sup> Some controversy exists over whether native American women also used the mortar and pestle prior to the introduction of African slaves into the south-eastern states. The historical and archaeological evidence is inconclusive. While the mortar and pestle does appear in Spanish accounts from Florida, it was used to grind maize into bits or "grits", not for the skilled tapping motion involved in producing whole-grained rice. Similarly, processing of the wild rice (*Zizania aquatica*) collected by native Americans in the Great Lakes region involved placing the grain in an earthen pit and beating it with a wooden stick or treading upon it. It remains uncertain whether this processing system ever existed in the south-east. The argument for an African introduction is strengthened by three factors: first, the adoption of an upright mortar, as in Africa, for rice processing; secondly, its use among native Americans only for grinding maize; and thirdly, the absence of any indication that native Americans used the pestle, as Africans do, to dehusk rice without breakage. See R. Douglas Hurt, *Indian Agriculture in America* (Lawrence, 1987), pp. 37-8; Wood, "It was a Negro Taught Them", p. 172; Wright, *Only Land They Knew*, pp. 261-2; Littlefield, *Rice and Slaves*, p. 105.

attention by scholars interested in African carry-overs. Historical and ethnographic accounts of agricultural systems frequently centre on cultivation practices, but often leave unexamined the manner in which field-grains and tubers are prepared for human consumption. In part this results from the specific technological trajectory of processing cereal for those with diets based on cereals of European and Near Eastern origin. From the Roman period wheat, oats, barley and rye were crushed into flour with animal- and water-driven rotary mill-stones.<sup>67</sup> This form of technology development in flour milling partially displaced the “mill-girls” who figured prominently in household grain preparation in antiquity.<sup>68</sup> The effect of this mechanical trajectory on cereals known to Europeans was to make women’s labour in food preparation appear synonymous with cooking.

Food processing, consequently, does not often feature in early descriptions of food-systems in non-European societies. Yet in tropical farming systems, the preparation of cereals and tubers often demands more time and labour than the act of cooking. Manioc, for example, needs to be subjected to a complicated grating and soaking process before the tuber can be consumed. Similarly, maize requires soaking in an alkali solution (lime, for example, or lye made from wood-ashes) to remove the outer hull and soften the grains for making a dough that can be rolled into tortillas.<sup>69</sup> While other indigenous African cereals like millet and sorghum are merely pounded, rice demanded skilled labour to render a whole-grained product. In the native American and African centres of domestication of these tropical crops, women perform the labour of processing.

The scant evidence that exists from Africa suggests that food preparation has long remained a task daily carried out by women. European commentaries and African oral histories both describe women procuring wood and water, pounding cereals and root-crops, cooking and cleaning.<sup>70</sup> The seventeenth-century

<sup>67</sup> L. A. Moritz, *Grain-Mills and Flour in Classical Antiquity* (Oxford, 1958), pp. 62, 74, 105, 115-16, 133-6.

<sup>68</sup> *Ibid.*, pp. 29, 34, 74, 97, 133.

<sup>69</sup> William O. Jones, *Manioc in Africa* (Stanford, 1959); Sophie D. Coe, *America’s First Cuisines* (Austin, 1994); Betty Fussell, *The Story of Corn* (New York, 1992); S. H. Katz, M. L. Hediger and L. A. Valleroy, “Traditional Maize Processing Techniques in the New World”, *Science*, clxxxiv (1974), pp. 765-73.

<sup>70</sup> See Jean-Baptiste Labat, *Nouvelle relation de l’Afrique occidentale: contenant une description exacte du Senegal et des Païs situés entre le Cap-Blanc et la Rivière de Serreliomme, jusqu’à plus de 300. lieux en avant dans les Terres*, 5 vols. (Paris, 1728), ii,

Dutch geographer Olfert Dapper, relying on an account by a Dutch trader resident in Sierra Leone c.1620-30, confirms women's role in food processing during the early period of the Atlantic slave trade: "After the millet is cut and put under the shelter, the remaining work [is carried out] without help from men, by women, who strike the millet from its ear and pound it in a wooden mortar, and place it in small baskets . . . after being winnowed".<sup>71</sup> The strongly demarcated gender division of work that already characterized West African societies during the period of the Atlantic slave trade both suggests that it had been in existence for some time, and also underscores a point made by the anthropologist Claude Meillassoux about women's labour in African indigenous slavery: "It is not that men could not perform these tasks, since there was no question of social standing for slaves, but women were better prepared because they received knowledge which passed from woman to woman".<sup>72</sup>

The tendency of the Atlantic slave trade to export males in a 2:1 ratio to women is well documented, as is the preference for females in indigenous African slavery.<sup>73</sup> As the Atlantic slave trade gained momentum, agricultural production thus increasingly devolved on women.<sup>74</sup> Surpluses produced by women helped provision African armies seeking captives, and European slave-ships relied considerably on the purchase of foodstuffs all along the African coast.<sup>75</sup> From the end of the fifteenth century,

(n. 70 cont.)

pp. 301-2, 208-9, cited in Gwendolyn Midlo Hall, *Africans in Colonial Louisiana* (Baton Rouge, 1992), p. 39; Robertson and Klein (eds.), *Women and Slavery in Africa*, *passim*.

<sup>71</sup> Cited in G. Thilmans, "Le Sénégal dans l'œuvre d'Olfried Dapper", *Bulletin de l'I.F.A.N.*, series B, xxxiii (1971), pp. 508-63 (at p. 535).

<sup>72</sup> Claude Meillassoux, "Female Slavery", trans. Martin A. Klein, in Robertson and Klein (eds.), *Women and Slavery in Africa*, pp. 49-66 (at p. 56). On the gender-division of labour, see Martin A. Klein, "Women and Slavery in the Western Sudan", *ibid.*, pp. 67-88, esp. pp. 85-6; on women in indigenous African slavery, see also Claude Meillassoux, *The Anthropology of Slavery: The Womb of Iron and Gold*, trans. Alice Desnois (Chicago, 1991).

<sup>73</sup> Robertson and Klein, "Women's Importance in African Slave Systems", esp. p. 4.

<sup>74</sup> *Ibid.*, *passim*.

<sup>75</sup> On rice provisioning armies and nobles within Africa, see Walter Rodney, "African Slavery and Other Forms of Social Oppression on the Upper Guinea Coast in the Context of the Atlantic Slave Trade", in J. E. Inikori (ed.), *Forced Migration: The Impact of the Export Slave Trade on African Societies* (London, 1982), pp. 66-70; John Thornton, *Africa and Africans in the Making of the Atlantic World, 1400-1680* (Cambridge, 1992), p. 93. On rice and cereal purchases by slave-ships, see K. G. Davies, *The Royal African Company* (New York, 1970), pp. 228, 279; *The Journal of*

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rice figured prominently in cereal purchases by the Portuguese, with early references in accounts by Eustáquio de la Fosse (c.1479), João Fernandes (c.1506-10), André Álvares de Almada (c.1594) and André Donelha (c.1625).<sup>76</sup> As in South Carolina, this rice would have had to be sold already processed.

The earliest reference to suggest that rice processing was indeed gendered by the onset of the Atlantic slave trade is made by English trader Richard Jobson, who visited the Gambia River in 1620-1: "I am sure there is no woman can be under more servitude; for first they doe in morters, with such great staves wee call Coole-staves [pestles], beate and cleanse both the Rice, and all manner of other graine they eate, which is onely womens worke, and very painefull".<sup>77</sup>

In the early seventeenth century, throughout the area of West Africa from The Gambia to Sierra Leone known as the Rice Coast, men probably did not mill rice; nor do they hand-pound the grain with a mortar and pestle in the contemporary period. Food was processed in Africa by women, and rice was no exception. The practice of milling rice with a mortar and pestle in South Carolina may well result from the transfer of a food-processing technology to the Americas by female slaves.<sup>78</sup>

If rice culture was indeed gendered, South Carolina's emergent rice-plantation economy would then have necessitated the resolution of two problems associated with hand-milling: first (as already discussed), shifting the pattern of labour utilization in

(n. 75 cont.)

a *Slave Trader (John Newton), 1750-1754*, ed. Bernard Marting and Mark Spurrell (London, 1962), pp. 20, 27-49, 67, 78-9; James Walvin, *Black Ivory* (Washington, D.C., 1994), pp. 50-1; Wood, *Black Majority*, p. 59.

<sup>76</sup> For sources for early Portuguese visits to West Africa, and for rice purchases, see Brooks, *Landlords and Strangers*, pp. 260, 276, 279, 287, 315-18, 323-5; Avelino Teixeira da Mota, *Some Aspects of Portuguese Colonisation and Sea Trade in West Africa in the 15th and 16th Centuries* (Bloomington, 1978), p. 15; John W. Blake, *West Africa: Quest for God and Gold* (London, 1977), pp. 91-2.

<sup>77</sup> Richard Jobson, *The Golden Trade: or, A Discovery of the River Gambia, and the Golden Trade of the Aethiopians*, ed. C. G. Kingsley (Teignmouth, 1904), p. 68. The work was first published in 1623 (S.T.C. 14623).

<sup>78</sup> The retention of the mortar and pestle for rice processing as a gendered task among Saramaka "Bush Negro" communities in Surinam similarly suggests the task's pre-existing gendered basis in Africa. Saramaka women both grow and process rice, with men helping in field preparation. They are the descendants of late seventeenth- and early eighteenth-century maroons who fled from sugar plantations in Surinam. See Sally Price, *Co-Wives and Calabashes* (Ann Arbor, 1993), pp. 14-15, 18, 30-1; for a detailed discussion of their history, see Richard Price, *The Guiana Maroons: A Historical and Bibliographical Introduction* (Baltimore, 1983).

Africa, characterized by milling rice for a short period daily, to one which demanded extended hours of milling during just a few months of the year; and secondly, de-gendering a knowledge system for rice processing under slavery.

Solution of the second problem would have relied upon male slaves learning the processing skill from females. A comment made in 1761 by James Glen, former governor of South Carolina, that planters remained “ignorant for some Years how to clean it” implies that knowledge of rice processing lagged behind the crop’s cultivation, but Stewart’s report in 1690, already cited, about the grain being sent dehusked to Jamaica suggests that the mortar-and-pestle method of processing was known within five years of the colony’s first rice exports.<sup>79</sup> Perhaps an indirect tribute to African women’s expertise in rice cultivation and processing underlies Thomas Nairne’s observation in 1710 that female slaves in South Carolina fetched the same market-price as males and performed equivalent operations.<sup>80</sup> Even though female slaves were less numerous than men during this period, it would have needed only but a handful of women from West Africa’s rice region to teach men the skilled techniques of milling on Carolina plantations.<sup>81</sup>

Throughout the colonial period, slavery as an institution provided the means to dissolve a pre-existing gendered division of labour. As male slaves assumed a task not formerly performed by them and faced planters’ demands to intensify labour to meet market schedules, the milled product probably included a high proportion of broken rice. However, a more effective way to improve the performance of male processors and to de-gender the task on Carolina rice plantations would have been to teach the processing techniques to children of both sexes, boys as well as

<sup>79</sup> James Glen, *A Description of South Carolina: Containing Many Curious and Interesting Particulars relating to the Civil, Natural and Commercial History of that Colony* (London, 1761), p. 94, repr. in *Colonial South Carolina: Two Contemporary Descriptions*, ed. Chapman J. Milling (Columbia, 1951), and cited in Wood, *Black Majority*, p. 58; Stewart to Dunlop, 27 Apr. 1690, in “Letters from John Stewart to William Dunlop”, ed. Webber, p. 22, cited in Clifton, “Rice Industry in Colonial America”, pp. 268-9.

<sup>80</sup> [Thomas Nairne], *Letter from South Carolina* (London, 1710), discussed in Wood, *Black Majority*, pp. 106-7.

<sup>81</sup> For a discussion of female slaves in South Carolina, see Littlefield, *Rice and Slaves*, pp. 56-73.

girls.<sup>82</sup> Surviving records from the colonial period, unpublished as well as published, fail to illuminate this point. The earliest depictions of hand-milling date to the 1920s and 1930s, when men and boys are shown processing rice with a mortar and pestle in photographs taken on former plantations. One such photograph is direct evidence for the significance of children in the transmission of knowledge of rice culture: two boys and a girl are shown hand-pounding rice in South Carolina around 1920. (Plate.) A description of one ante-bellum rice plantation additionally discloses the role of females and older (male) children in rice processing and the level of skill required in hand-pounding: "On the plantation it was beaten fresh for dinner every day . . . Two boys or two women would seize the pestles together in the middle, raising and letting them fall so quickly and evenly that the beating of rice was not considered a difficult task. The children often tried it, but never succeeded, as the motion required a knack they did not possess".<sup>83</sup>

For the first half of the eighteenth century, it must have proved difficult to raise the level of male processing-skills through teaching young boys the tapping motion crucial for reduced breakage of the grain's cuticle. The colony's slave population failed to reproduce itself, and planters relied on continuous importations of Africans to sustain numbers in bondage.<sup>84</sup> Under such

<sup>82</sup> An account of the African-American blacksmith and master craftsman Philip Simmons suggests how young boys acquired the processing skill. "At age six Philip . . . wasn't strong enough to lift the regular pestle . . . so his grandfather made a small one for him to use . . . Philip could then take part in the work, even though it certainly couldn't be regarded as a full share": John Vlach, *Charleston Blacksmith* (Columbia, 1992), pp. 3-5. The fragmentary evidence from South Carolina suggests that boys became involved at an early age in rice milling, and that this was a result of plantation slavery. However, evidence that rice processing became de-gendered is also provided by different social relations of production — those found among the descendants of maroon communities in Surinam. While women and girls dominate mortar-and-pestle processing in Saramaka and Djuka communities, Kahn reported that Djuka boys hand-pounded rice earlier this century. Perhaps this de-gendering evolved from sheer necessity, since maroon communities faced the constant threat of recapture and re-enslavement until they were granted their freedom by treaty in the 1760s. See Price, *Co-Wives and Calabashes*, pp. 14-15, 18, 30-1; Price, *Guiana Maroons*, p. 293; Morton C. Kahn, *Djuka* (New York, 1931), p. 86.

<sup>83</sup> Caroline Couper Lovell, *The Golden Isles of Georgia* (Boston, 1932), p. 187.

<sup>84</sup> James Glen, governor of South Carolina, to the Board of Trade, 26 Aug. 1754, in *Documents Illustrative of the History of the Slave Trade to America*, ed. Elizabeth Donnan, 4 vols. (Washington, D.C., 1930-5), iv, p. 313, cited in Peter Wood, " 'More like a Negro Country': Demographic Patterns in Colonial South Carolina, 1700-1740", in S. L. Engerman and E. D. Genovese (eds.), *Race and Slavery in the Western Hemisphere: Quantitative Studies* (Princeton, 1975), pp. 131-71 (at p. 145).

conditions, skilled female labour would have been in demand, a point which may illuminate Garden's claim in the middle of the century that the processing task was equal for men and women. By the 1760s, however, the reproductive rate of the colony's slave population had improved, and slave imports were no longer necessary "to supply the place of Negroes worn out with hard work or lost by Mortality".<sup>85</sup> The improved demographic situation of the colony's slaves, with males learning rice processing at an early age and increasingly surviving to adulthood, may have lessened demand for female skilled labour and thus made possible a reduction in the amount of processing that fell on women, as Allston later claimed.<sup>86</sup>

Certainly, by the end of the eighteenth century a skilled labour force had emerged to process millions of pounds of rice annually for export markets. The substitution of animal for human labour in rice hulling in addition to an improved skill-level in hand-polishing may explain the increases in milled product observed on Carolina plantations over this period. A 1748 report by Governor Glen mentions that a good working hand produced about 2,250 pounds of clean rice within a season; during the second half of the century per capita production of processed rice averaged between 3,000 and 3,600 pounds.<sup>87</sup>

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Berlin and Morgan's call for renewed emphasis on the centrality of labour in the slave experience draws attention to the temporal cycles that shaped plantation work-patterns and their numerous divisions by age, sex and skill.<sup>88</sup> In the South Carolina rice economy, market demands induced radical changes in the pattern of

<sup>85</sup> Glen to the Board of Trade, 26 Aug. 1754, in *Documents Illustrative of the History of the Slave Trade to America*, ed. Donnan, iv, p. 313, cited in Wood, "More like a Negro Country", p. 132. Recent scholarship, however, challenges the view of an improved reproductive rate for slaves on rice plantations. Dusinberre argues that slaves died much faster in the rice region than anywhere else in the American South and that the population failed to reproduce itself by natural increase right up to the Civil War. William Dusinberre, *Them Dark Days: Slavery in the American Swamps* (Oxford, 1996), pp. 48–84.

<sup>86</sup> Allston, "Rice", p. 342.

<sup>87</sup> Coclanis, *Shadow of a Dream*, p. 97.

<sup>88</sup> Berlin and Morgan, "Labour and the Shaping of Slave Life in the Americas", pp. 3–4.



Children pounding rice with a mortar and pestle, South Carolina c. 1920.  
(Photo by permission of the Avery Research Center for African American History and Culture, College of Charleston, Charleston, South Carolina)

labour utilization in milling that characterized African production: on eighteenth-century rice plantations, grain milling shifted from a task performed daily by women in Africa with a mortar and pestle to a seasonal activity that required the intensification of both male and female slave labour.

In scrutinizing and nuancing how slavery affected the workpace in the post-harvest period, this paper extends Berlin and Morgan's concern with plantation labour to an examination of the production relations that characterized the system of rice culture known to many African-born slaves. Prior to the Atlantic slave trade, rice and indigo were widely planted in Africa,<sup>89</sup> and historians have documented the slave-labour regimes underlying their production in America. However, little scholarship has hitherto examined the cultivation and processing of these crops within Africa with a view to illuminate patterns of labour on eighteenth-century plantations. Yet the comparative analysis of

<sup>89</sup> Brooks, *Landlords and Strangers*, pp. 143-65.

rice processing in the Atlantic basin attempted here suggests that planters may have depended upon African expertise for crucial skills, and that part of this knowledge may well have been gendered.

As Daniel Littlefield has noted, African contributions to the technological development of American agriculture are obscured by assumptions that fail to consider both American plantations and African systems of production.<sup>90</sup> This paper's emphasis on labour utilization in rice processing in both regions of the Atlantic basin is an attempt to respond to his challenge.

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<sup>90</sup> Littlefield, *Rice and Slaves*, pp. 4-6.