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PART I

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# Plantation Technologies



CHAPTER I

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Toward a Political Economy  
of Slave Labor

Hands, Whipping-Machines, and Modern Power

EDWARD E. BAPTIST

Charles Ball had been a family man, a skilled worker. From his cabin on Maryland's Eastern Shore, he had seen a brighter future. True, he was enslaved, like his wife and children. Yet in 1805, men with his intelligence and drive were finding ways to buy their freedom from enslavers in Maryland's tobacco districts. But on this morning, when a blaring horn jerked him out of sleep before dawn, he sat up in a loft bed at the top of a cabin 500 miles to the southwest, and he was no longer who he had been. In fact, he was not even—by some reckonings—a whole body any more.

A few weeks earlier, Ball had been bought by a slave trader who purchased men, women, and children in the Upper South, so that he could march them south and west and sell them to the cotton planters who were pushing the frontier of that commodity south and west into the Carolina and Georgia backcountry. Ball had carried iron chains on his wrists and neck for 500 miles to a new owner's slave labor camp on the Congaree River in South Carolina.<sup>1</sup> Now more than ever the appendage to another man's dreams, Ball looked down from his loft bed, remade at modernity's dawn not into an insect like Gregor Samsa but into something just as strange as a fly on a Prague ceiling. He was a hand.

Though historians have written tens of thousands of pages on the enslavement of people like Charles Ball, relatively few of those pages have considered

the specific labor he was about to do in Wade Hampton's cotton fields. That is odd, for within a few short years from 1805, cotton made by enslaved African Americans not only accounted for the majority of U.S. exports, but also helped to generate a transformation unprecedented in human history. In the years between the late eighteenth century and the early twentieth century, Western societies achieved rates of sustained economic growth and transformation that had never been seen before. These gave the West extraordinary power over other societies and their peoples. Industrial transformation, virtually all accounts agree, emerged in northwestern Europe. More specifically, almost all agree that it proceeded from England, and most concede that it proceeded specifically from northwest England's cotton textile industry, from the late eighteenth century on. All human societies today ride on a trajectory of growth and innovation, of creation and destruction, launched from Manchester.<sup>2</sup>

Since this initial acceleration out of the Malthusian world's gravity well shapes us all, a little more every day, I will use the first person plural in the next paragraph or two. We historians have been trying to explain the causes of this transformation ever since. In many ways, explaining it has been (along with hymning the nation) our main alibi for existence. And we've collectively offered a great many explanations for this set of changes. We've said that industrialization was written in the book of fate long before, because of a specific market orientation encoded in the genes of Western culture. We've argued that an existing technological lead was transformed by a burst of innovation in machine and other technologies in eighteenth-century Britain. We've argued that legal and other fundamental rules were changed to open up the British market for land and labor, making wage-labor manufacturing employment and a true credit market possible. We've read that the Puritan sensibility pushed Western capitalists to accumulate well beyond their needs, rather than wasting their profits in display. We've even heard, though this idea has often been flatly dismissed by those who see capitalism as a purely Western creation, that "primitive accumulation" in the course of early imperial conquest, the Atlantic slave trade, and the sugar plantations of the British and French West Indies provided the basis for the Industrial Revolution.

For all that arguing, we historians have spent relatively few pages on the connection between the South's cotton fields and the cotton textile industry, an oversight especially noteworthy in light of how direct that connection was. And we certainly haven't argued that all that came from modernization and modernity was impossible without the cotton-field work of "hands," to use

the body part by which enslavers described whole people like Charles Ball. Above all, we haven't argued that the character of that labor was quintessentially modern, and particularly important for creating the modern world economy.<sup>3</sup> Indeed, we have done the opposite. True, the history of cotton slavery is usually told as that of a pivot on a machine, the cotton gin, for which Eli Whitney claimed credit. Every high school history student hears that the gin broke the processing bottleneck. But there the story is dropped. After all, the remainder of the labor that began with clearing a densely forested South Carolina or Alabama acre and ended at the steamboat landing with the delivery of a cotton bale—400-odd pounds of clean fiber ready for the spinning machines on the far side of the Atlantic—was hand labor. Enslaved African Americans did it, and they did it unaided by machine.

Yet the invention of the cotton gin still left two significant choke points in the production of raw cotton. This meant, therefore, two bottlenecks for the nascent textile industry as well, and here they were: growing the plants and harvesting their fiber. Over a relatively short period of time, enslavers in the United States managed to break them. Within two decades of Charles Ball's first morning in the cotton fields, American planter-entrepreneurs would deliver for sale enough cotton to dominate the world market in this, the Industrial Revolution's most essential commodity. To do so they began by using political, military, and financial power to get more cotton land and labor: taking land from the Indians, developing a set of new slave trades to transport captives to the frontiers. After that, they forced transported captives to work, and to work in new ways. So when the overseer's horn blew a second time, propelling Charles Ball out into the predawn humidity of a July morning, he was about to learn what we historians have not known: how enslavers were going to break that remaining bottleneck.<sup>4</sup>

Ball's bare feet hit the dirt floor. He stumbled out of his hut and soon was marching behind the overseer, along with 170 other workers, into the fields.<sup>5</sup> When they came to the vast field in which they were to labor that day, cultivating the soil around the waist-high cotton plants to drive back the competing growth of weeds that migrated southwest with the monocrop system, the overseer portioned the laborers in dozens, each under a "captain." And so Charles began to learn about a dynamic system of labor extraction designed by white people whom the enslaved identified as "pushing men."<sup>6</sup>

Pushing men like Ball's owner, whose right hand wrote out the instructions for the equally pushing overseer, deployed several innovative techniques of labor control to fill new fields with ever-greater quantities of cotton. One

such technique was that of forcing fast workers like Ball's captain, a man named Simon, to "carry the fore row"—to work at top speed, and thus set a pace that the others had to match. "By this means," Ball decided, "the overseer had nothing to do but to keep Simon hard at work, and he was certain that all the others must work equally hard."<sup>7</sup> If not, their slowness would be visible as a break in the line of workers. In the vast fields in which cotton was being grown, such a technique allowed an overseer to surveil scores of workers simultaneously, alerting him to anyone who lagged behind the leaders, whom he was consciously pushing at higher and higher speed. Enslavers also eliminated customary breaks and meals, forcing slaves to eat huge breakfasts, passing out cold meals in the fields, and detailing one older slave to make suppers so that field workers could toil until full dark.<sup>8</sup>

This "system," implemented by pushing men, was new for those who had learned to labor in the "task" system of the rice swamps or cotton fields of the Carolina Lowcountry where enslaved people had to furnish a fixed quantity of labor, set by custom, after which they might have some free time. (In the Lowcountry, enslaved workers cultivated and harvested a specialized variant of cotton on the task system, Sea Island cotton, which generally grew only in coastal regions.) These developments were also new for those who, like Ball, had grown up in the gang labor system of Chesapeake tobacco and wheat fields. In Virginia, Maryland, and much of North Carolina—as well as Kentucky, settled by enslavers and enslaved from the Chesapeake—enslaved people usually toiled in small groups that worked at somewhat individualized paces, often supervised by enslaved "drivers" out of whites' vision.<sup>9</sup>

"A good part of our rows are five hundred and fifty yards long," wrote one Tennessee cotton planter in the 1820s. Not only had he created a kind of space where he could easily identify stragglers, he could also use it as a stage on which to inflict immediate and exemplary punishment in front of a large audience. In Mississippi, Allen Sidney saw a man who had fallen behind the fore row fight back against a black driver who tried to "whip him up" to pace. The white overseer spurred up, pulled out his pistol, and shot the prone man dead. "None of the other slaves," Sidney claimed, "said a word or turned their heads. They kept on hoeing as if nothing had happened."<sup>10</sup> Enslaved migrants in new cotton fields quickly discovered that they had to adapt to what pushing men demanded, or face ruthless violence. And like many other forced migrants, Charles Ball insisted that the violence used on slavery's commodity frontier was of a greater order of magnitude. Even the whip was different. Here it was a lead-loaded handle from which snaked a ten-foot lash of heavy plaited

cowskin, whose tip ripped open the air with a sonic boom. Many other migrants, including some white ones, reported Ball's feeling of shocked discovery at their first witness of the new lash in use. The shock of the whip *made bales of cotton*, to borrow words from a Mississippi overseer.<sup>11</sup>

Enslavers used whatever violence was necessary to make forced migrants accept the elimination of both the Lowcountry task system and other customs of slavery developed in the early modern southeast. Part of this violence was the forcible disruption of people's lives by forced migration and separation from community and family. Like Ball, other survivors in their accounts repeatedly tell us that in their minds and memories they constructed the passage into the southwest of the expanding United States as a moment of transformation of the self, though not self-transformation. The experience of that forced migration was a huge one, in time or space or on any other scale. Over seventy years, from the signing of the Constitution, in 1787, to the start of the Civil War, enslavers turned a vast area of 800,000 square miles, as big as Saudi Arabia and inhabited almost exclusively by about 50,000 Native Americans, into a subcontinent of slavery. Enslavers and their allies dispossessed two European empires, two postcolonial states, and six Native American nations. They moved one million forced migrants to the new territory. Within a single lifetime the entrepreneurs who masterminded this process had created a complex that produced 80 percent of the cotton sold in Britain, the world's central market. Cotton made by people enslaved on the United States' southwestern frontier was both the world's most widely traded commodity and its most crucial industrial raw material.<sup>12</sup>

Indeed, each year the cotton country cycled through its channels and pipes a good part of the English-speaking world's most high-velocity money, the commercial credit backed by quasi-national banks in Britain and the United States and deployed by the world's most innovative merchant firms. And why not? The cotton region was a massive sink of collateral in the form of commodified human beings who generated massive revenues. Creditors around the Western world liked to lend money with slaves as collateral. An active domestic slave trade meant that in normal times, one could always recoup one's losses on a mortgage that went bad by foreclosing and selling the man, woman, or child treated as property.

Enslaved people could be sold so readily that in almost any year they constituted in their bodies almost one-fifth of all national accounting wealth, and a far higher proportion of its liquid wealth. In enslaved people, the world's money worked, usually generating high returns at low risks. Of course, the



essential interweaving of enslaved people and their labor product into the financial patterns of the United States and of the Atlantic nations in general meant that any credit crisis for southern cotton planters would automatically lead to a worldwide credit crunch. Dynamic, creative-destructive cycles of boom and bust followed the succession of international financial relationships linking the cotton frontier to world markets for cotton, credit, textiles, and textile labor. Still, by 1860, five of the six states in the Union with the highest average white income were in the belt that cotton entrepreneurs wrapped across the South. The region would have been among the world's ten largest economies, and by one accounting its fourth most prosperous one. The three million white people in the cotton states were per capita the richest people in the United States, and probably the richest group of people of that size in the world.<sup>13</sup>

That was the macroscale. But Charles Ball lived his life at the micro-level. In this experience—which would be repeated a million times over—the unwilling migrant would inevitably be forced down a thermocline of brutal learning. In their narratives, formerly enslaved people repeatedly allegorized this process in this fashion: it happened on the first day in the new fields. Or they realized the nature of the new labor the first moment they stepped across the first cotton row. Such a pattern, imposed on experience, can surely play a major role in any construction-of-self analysis if cultural historians and others who analyze the texts of ex-slaves focus closely on the gigantic forced migration that made the South. The scale and significance of this process are force multipliers for the weight of any analysis that can explain it.

Understanding how enslaved people constructed and reconstructed their own analyses of their internal worlds, under conditions of extreme stress, is an important task. But the same trope in the sources also tells us that on slavery's cotton frontier, enslaved migrants recognized in the world around them a new system of power emerging, being imposed on them through new modes of labor extraction. Charles Ball was now going to have to contend with that power.

There are several ways to talk about the history and nature of power, but over the last four decades of historical study, one of the most influential has been the set of ideas about power associated with poststructuralism. This genealogy of modern power was inspired, directly or indirectly, by Marx, Freud, and Nietzsche—those whom Paul Ricoeur famously identified as masters of suspicion for their efforts to demystify emergent modernity's pieties. Yet their late twentieth-century successors associated the acolytes of the first two think-

ers in particular with other kinds of systematization and coercion that were reproduced in the master narratives of those who attacked the triumphant bourgeois. Poststructuralists writing between the sixties and the nineties carried the flag of the assault on the *logos*, the Western idea (gifted from neoplatonism and other deep sources) that a unified system of universal knowledge was possible. In Foucault, its most cogent and systematizing exemplar, this poststructuralist approach leads to a map of history in which the way to obtain and hold power is to construct epistemes or grids of power-justifying knowledge. Power-knowledge is a will that aims to convince every object-of-rule that it is exactly what the grids map it as being. These epistemes emerged in the ways that the state categorized and counted people, in the way that sex became a problem to be regulated and that psychological and other discourses named the abnormal. The real work of modernity and modernization was the project of convincing modern citizens to see disciplining the self as a crucial project—one in which they should participate.<sup>14</sup>

At the same time, in Foucault's scholarship, in his own personal activism, and in the performativity of his life, he insisted that every power creates a resistant counterpower. Every decree creates an opportunity; every attempt at normalization creates an opportunity for resistant transgression. Modernity made and was made by discourses of power, but everywhere that the state and society tried to enact those discourses, people pushed back against the disciplining grid.<sup>15</sup> Those who have written histories of culture and the self in the years since Foucault have sometimes seen their project as championing people who fashion alternative identities. Such histories are in turn obviously linked to the liberatory projects for which millions of people have struggled, individually and collectively, in the decades since the watershed of 1968.

But this history of power cannot fully address the kinds of power that wrecked Charles Ball's life. Nor, as should now be all too painfully clear, does the project of universal demystification and deconstruction by itself do much to reshape the devastations that are the obverse face of globalizing modernization and commodified modernity. We shall see those devastations all too clearly as we follow Ball's story and that of a million others, and shall see how they were not accidental but constitutive. Instead, before Charles Ball entered the cotton fields of Congaree, we could map the relationships between the rulers and the ruled in the world along two axes of power. James Scott calls these axes "domination" and "resistance," the power of the powerful versus the weapons of the weak. Here's an illumination: the theologian Robert Farrar Capon, revising Martin Luther, calls the first of these "right-handed power,"

the strength to intervene directly to force an outcome. Capon writes about right-handed power when he critiques the idea of God held by many believers of many religions: a deity working in straight-line ways, exerting crushing force, throwing the wicked into the flames, drowning the sinful Earth. Right-handed power is the power of domination, kings, weapons, the letter of the law; it is the power of God (and gods) the Father, of Just Because and In the Beginning.<sup>16</sup>

On the other hand, according to Capon, are the parabolic arts of resistance that have been deployed ever since the first peasant slowed down her work when out of sight of the first mud-pyramid god-king. Her knowledge, her craft is “left-handed” power: the strength of the poor and the weak, of secret ways of seemingly passive resistance to evil. For Capon, this is the power of life-through-death, the seed in the dark earth and the stone the builder rejected. Long before Paul or Isaiah, even before Moses fled Pharaoh’s house as a fugitive from a cop-murder charge, those compelled to knuckle under to right-handed power in traditional societies—serfs, peasants, women, and slaves—had been using the arts of secret resistance to undermine the sway of the dominant. They slowed down the pace of work when out of sight of overseers. They broke employers’ tools, lied, played dumb to lords, escaped from masters. They learned the path of the trickster. They left signals at its every crossing to guide those who came after them, secret signs in stories for children and older people, too—folktales that around the world follow the same 10,000 plot types.<sup>17</sup>

Over the 10,000 years since agricultural civilization emerged and quickly developed significant internal distinctions of wealth and power, the left hand had developed vast resources with which to resist, with which to claim terrains of independent thought, critique, creativity. One concrete example of what left-handed power could force right-handed power to yield was the task system that had developed in the South Carolina Lowcountry. The bargains that limited the amount of labor in rice or Sea Island cotton that could be extracted in a day were the product of a history of negotiations between the power of the masters and the cunning of the enslaved. They allowed many enslaved people to finish their task before dark, which in turn meant that they could tend their own gardens and take care of their family and fellows. At the same time, enslavers also benefited: the bargains lessened the cost of supervision, damped down resistance, cut the cost of rations to the bone, and allowed the wealthiest whites to spend much of their time away from the malarial swamplands where enslaved people toiled.<sup>18</sup>

One could identify similar bargains in the narrow opportunities for advancement built into the job structures of the Caribbean sugar complex's boiling houses, or the layers of skill and administration that allowed a strong Maryland worker like Charles Ball to think that he could become an enslaved overseer or even a free man. But by 1805, the nature of right-handed power was already changing in the West. In the early nineteenth century, those societies and individuals who were winning in the sorting out of power and status progressed to higher stages of right-handed power. As economic systems expanded in complexity and reach in the era of merchant capital leading up to 1800, this meant some men and women could move goods and profits and peoples at rates and distances of time and space that had once been reserved for pharaohs and the like. These beneficiaries got more guns and bullets, more soldiers, the ability to knock down other peoples' defenses and force them to trade on the terms most favorable to the West. They got more political rights as citizens—bourgeois ones, anyway—and claimed the right to rule themselves, as sovereigns equal to each other.

In the first half of the nineteenth century, the societies that most dramatically increased their quotient of right-handed power came to dominate other peoples to a degree unprecedented in human history. And within those victorious new modernized nations, right-handed power was increasingly distributed in a lopsided fashion. Apparatuses and systems of power that could be extended and multiplied much higher than in previous eras meant that more people could get what they wanted by direct, or direct-seeming, action. Even though the effects of entrepreneurs' decisions sometimes played out a long way from the places where the decisions were made, they were still straight-line, right-handed effects. The letter is written in New Orleans and sent by ship bound out through the mouth of the Mississippi; the Maryland trading partner receives it, reads it, deposits the enclosed bill of exchange in a Baltimore bank. He rides across the worn-out soil of Eastern Shore tobacco country to the probate auction at a county seat. He buys a woman advertised as a house servant and takes her to the next Louisiana-bound vessel. The turning circles of the cotton economy, wrote one white man (to whom Louisiana success, he said, had given a new "sense of independence"), "put it in *your* power"—into your hands, he told his Virginia relative—"to enrich yourself."<sup>19</sup> And when eager participants talked about using the new possibilities of the global economy that had begun to emerge by the time Charles Ball was dragged to Congaree, it was hard to tell whether they understood that the networks and tools that gave them unprecedented economic leverage were not part of their own

bodies—and a specific part, in fact. They wrote notes and letters that informed their correspondents that they held slaves “on hand” and money “in hand.” Important letters “came to hand.” They got cotton “off [their] hands” and into the market. Waiting for prices to rise, John Richards offered the Bank of the State of Mississippi a note to ensure he would not yet have to sell “the cotton that I now have in hand.” Individual bills of exchange that drew on credit with other merchants were “notes of hand.”<sup>20</sup>

So press a button (with the index finger of your *right* hand) on the machine of the trading world, and things happen to benefit the man with sterling bills, a huge pile of cotton, a long roster of slaves, abundant credit that allows him to extend his reach across time and space. The emerging modern world offered those people whose right hand it strengthened the opportunity to make everything new and different, to shape it along the lines of their desires. Like the domestic slave trade, which sold *hands* as commodified extensions of purchasers’ power into the market for which hands would produce, the system that “pushing men” used to increase the number of cotton plants that enslaved people planted and cultivated was a direct application of right-handed power as a technique for organizing and controlling human behaviors. In fact, it was probably a spin-off of one of the techniques Western states developed to help them exert power over other societies, by first exerting it over the bodies of its own soldiers. Over the preceding century, Western European armies had implemented a new kind of battlefield organization. In this military drill, soldiers advanced across the battlefield in even line, matching their steady pace and keeping in file with sergeants and junior officers. The lockstep march exposed soldiers to a lengthy time of vulnerability as they marched against their enemies, but the payoff came in their disciplined ability to cow and ultimately crush the other side.<sup>21</sup>

Between 1790 and 1860, more land, a vast and highly capitalized slave trade, punishment, increased surveillance, decreased breaks, and lockstep labor—all the innovative violence and right-handed power of the pushing men’s system—let’s call it the *pushing system*—made possible a vast increase in the number of cotton plants being tended in the United States. The amount of cotton produced in the United States grew from 20 million pounds around 1805, when Charles Ball reached South Carolina, to over two billion pounds of cotton in 1860, an increase of 10,000 percent (in the same time, the number of slaves in cotton-specializing areas grew from about 50,000 to two million, or by 4,000 percent.) By the 1820s, the United States had achieved dominance over a rapidly expanding international market, controlling about

80 percent of the world's most widely traded commodity in its most important markets. It rose from irrelevance in the world cotton market to a dominant position.<sup>22</sup>

The flood of cleaned cotton fiber reshaped the economy of the Atlantic and then of the globe. Indeed, slave-made cotton may have been the sine qua non of the greatest revolution in human material circumstances since the domestication of food crops ten millennia before.<sup>23</sup> Kenneth Pomeranz argues that in the late eighteenth century, the developing Western European economy faced a Malthusian resource cul-de-sac that limited the scope of development and raised the price of key inputs. But Europe escaped. The millions of acres taken from Native Americans and planted by enslaved migrants like Ball were that many acres that Britain would not have to devote to the production of raw fiber. Indeed, it could not have afforded to do so.<sup>24</sup> To replace the fiber it imported from American slave labor camps with the same amount of wool, Britain would in 1830 have had to devote 23 million acres to sheep pasture—more than all the island's agricultural land.<sup>25</sup> The rise of the Lancashire textile industry, which in turn drove a chain of other changes in the Western world, could not have occurred without an escape from these Malthusian constraints. What Pomeranz calls the “ghost acres” of the expanding cotton South were the way out of the cul-de-sac.<sup>26</sup>

Yet it was not foreordained that the United States would be able to produce the ever-increasing quantities of cotton that the world's growing textile industry—and textile consumers—demanded. Or that the United States would harvest those quantities more cheaply than competitors like India, Brazil, or China. The cotton gin and the pushing system opened two choke points in the production flow. But the most difficult clog remained in place.

On an early morning at the beginning of September, the overseer ordered the enslaved people at Congaree back into fields, where the cotton was now open in a blaze of white fiber. He gave each man, woman, and child a long bag and ordered them to take a row and start picking. Bending to his new task, Ball quickly found that picking required sharp eyes and good coordination. Slip up, and the hand clutched a leaf, or fingers were pricked by the hard points of the drying “square” at the base of the boll. Grab too much, and a mess of fiber and stem sprang loose in one's hand. Grab too little and the fingers twisted only a few strands. Finally at the end of his first row, Ball saw women and even children speeding past him in the neighboring rows, their hands blurs, and not just their right hands but, in the fastest cases, their left as well. Some demon seemed to pursue them, but Ball didn't yet know where

the secret of their fear was hidden. All day, as the sun crawled in a slow parabola, the sound of click, click, click rose from the almost silent fields as nails tapped on hard pods. The only other sound was the occasional hoarse cry of "Water, water!" as children ran back and forth. Buckets rested on their heads, where within a few weeks a circle of hair would wear off and stay bald until February. There was no singing.<sup>27</sup>

"A man who has arrived at the age of twenty-five, before he sees a cotton field," Ball decided, "will never, in the language of the overseers, become a *crack picker*."<sup>28</sup> Yet many millions of enslaved people did become crack pickers. The amount of cotton enslaved people harvested increased dramatically over time. In 1801, 28 pounds per day per picker was the average in the South Carolina labor camps for which we have records. In 1846, the hands on a Mississippi labor camp averaged 341 pounds each on a good day, and in the next decade averages climbed higher still.<sup>29</sup> A study of planter account books that recorded daily picking totals for individual enslaved people on labor camps across the South finds a growth in daily picking averages of some 400 percent between 1800 and 1860, or a 2.1 percent growth in productivity each year.<sup>30</sup>

The increase in the efficiency of cotton picking was extremely high, comparable in magnitude to key measures of growing efficiency in the British textile factory, the breeding ground of the factory system's technological innovations. From 1819 to 1860, the productivity of workers in Manchester spinning mills increased by a little less than 400 percent, while those in weaving mills improved by over 600 percent.<sup>31</sup>

Yet until very recently, most historians missed the increase in cotton-picking efficiency. And this means they missed a secret at the heart of the modern world's emergence.<sup>32</sup> Recently, however, two economists who noticed the increase and confirmed it by creating a massive database from the thousands of daily cotton weigh-ins recorded in enslavers' cotton-picking ledgers tried to offer an explanation. They rejected the idea that enslavers implemented a new labor system to extract continual gains in cotton picking, or that enslaved people worked faster and with greater efficiency. Instead, they postulated that a crucial shift in planter-directed "biotechnology"—new varieties of short-staple cotton seeds, especially, from the 1820s on, a breed called Petit Gulf, adapted for heavy growth and "pickability"—was responsible for transforming the efficiency of cotton harvesting.<sup>33</sup> But their argument cannot explain all the available facts.

The inadequacies of the economists' explanation emerge as soon as one begins to look at the very cotton record books on which the claim for pick-

ability is based. These records measure nothing about seeds and everything about the performance of individual laborers. Yet to explain the performance thus recorded, the economists uncritically reproduce the seeds-did-it assertion from the claims of planters who dabbled in seed dealing.<sup>34</sup> Self-advertisement usually does not make the most objective of sources about products, as other cotton planters who were skeptical about such claims often pointed out.<sup>35</sup> The economists also make a series of logical errors in their attempt to draw the conclusion that seeds, and not an increased intensity of labor or new systems of labor, led to the rise in cotton picking rates.<sup>36</sup>

In the absence of the kind of slavery into which Ball had been sold, seeds seem to have been incapable of driving picking-efficiency increases. From the 1830s on, British officials and entrepreneurs repeatedly tried to resuscitate the Indian export cotton sector, which had been crushed by its peasant producers' inability to compete with the continually falling real price of cotton produced by enslaved African Americans. They imported North American planters' seeds, North American cotton planters' gins, and even North American planters themselves, all to help them to learn how to produce cotton of the high quality and low price that, shipped from New Orleans to Liverpool, dominated the world market. But the British didn't import North American slavery, and without it, these attempts to compete with the U.S. South's enslaved cotton pickers always failed.<sup>37</sup> Meanwhile, back in the United States, after slavery ended in 1865, picking rates appear to have stopped increasing, and may have even declined.<sup>38</sup> Perhaps some change in the nature of cotton DNA meant that seeds, by a remarkable coincidence, stopped driving increases in picking rates right at the time when slavery ended. But this would be strange, because the late nineteenth and early twentieth centuries were exactly when the United States saw the emergence of a new scientific research complex in higher education, industry, and government, much of it devoted to agricultural innovation. Yet with the end of slavery's systems of labor extraction, the cotton South experienced a systemic decline in productivity from which it never fully recovered.<sup>39</sup>

Any persuasive explanation for the rise in picking efficiency must take seriously something that the economists in question admit they never considered. Those who survived this incredible increase in labor efficiency knew that something well, however, and focus on it in the testimony they left for history. Using their testimony, I will explain why picking totals actually rose, and what that meant. First, however, I want to consider why the astonishing dynamic increase in the efficiency of slave labor has remained largely unknown to history.



Historians' model for economic modernization, the constant process of seeking greater efficiencies, is the industrial transition from hand labor to machine technology, from human or animal power to water and then steam power. This archetype comes, in other words, from the textile mills of Manchester in Britain, and Lowell in Massachusetts, which wove the cotton picked by Ball and his successors into cloth in ever more mechanized and efficient ways.<sup>40</sup> In contrast, the attempts of Adam Smith and virtually all his successor political economists to classify slave labor have usually proceeded from two points of dogma. The first point of departure is the belief that slave labor was a premodern excrescence, a baroquely grown cul-de-sac off the road to modernity. Such accounts are typically written in the mode of *telos*. Generation after generation have found new reasons why slavery in the United States, for instance, could not have persisted for long after 1865, even if there had been no Civil War. This belief in predestination is the Calvinism, the Puritan ethic underlying the historiography of capitalism. In such accounts, slave labor is antithetical to modernity, industrialization, and capitalism in every sense, and so would have inevitably faded. It denies the rights of free contract that are the alibi for a society whose wage-labor relations produce unequal outcomes while also founding political stability on representative politics structured by republican or natural rights claims. Slave labor is antithetical to the sense of progress that is meant to justify the destruction of tradition and the disruption of human relationships that comes with rapid economic transformation. And slave labor is thus depicted as something that will be or would have been inevitably destroyed by some action of advancing modernity. Sometimes the nature and mechanism of that action are spelled out and sometimes they are not. But usually, we assume that we truly modern people would have chosen the more efficient and productive path.

For the second axiom is this: ever since Adam Smith, it has been assumed that slave labor is inherently inefficient because the laborer has no incentive. "The work done by free men comes cheaper in the end than the work performed by slaves. Whatever work he does, beyond what is sufficient to purchase his own maintenance, can be squeezed out of him by violence only, and not by any interest of his own."<sup>41</sup> Not only does the slave laborer's lack of incentives imply shoddy work in this view, it also implies unchanging productivity—doing things the same way, over and over again, for centuries. The laborer has no incentive to increase his or her industriousness. She or he has no incentive to create innovations of time-and-motion use or of tool invention. The enslaver has no incentive to introduce mechanical inventions that will create

more output for a given set of inputs of time, labor, or raw materials. Why? Well, for one thing, the enslaver already has one massive capital investment, and supposedly has no incentive to render it less significant on the scale of social power. Let us also bracket, but hang on to, another assumption: that increases in the efficiency of hand labor are always limited by hard physical barriers or limitations, compared to the supposedly unending possibilities of productivity increase available with machine technology and inorganic sources of power.<sup>42</sup>

There is also an assumption that enslavers are or become *different*—that they are not like moderns, that they do not seek efficiencies because they do not have to do. But above all, slave labor does not become more efficient, we are also told, because one cannot introduce machines. Slaves break machines—they have no incentive not to do otherwise, and besides, they unsurprisingly resent those who steal from them. Without machine technology, we are told, natural limits to already disincentivized hand labor render slave labor uncompetitive in an industrializing, free-labor-focused modern world. And certainly the Whitehall reformers who helped end slavery in the British Empire in the 1830s promised sugar cultivated by free labor would be cheaper than that cultivated by the enslaved. Likewise, the Liberty Party critics—who in the early 1840s launched the political economic critique of U.S. slavery that would eventually find a home in the Republican platform—believed that the post-1837 financial crisis in the United States revealed that slave labor in cotton was inefficient. Most white abolitionists already shared this point of view. Their critique was taken up in the 1850s by Frederick Law Olmsted. It was retailed as gospel by many of the contractors who leased conquered plantations from the federal government in 1861 and after. Free laborers would work harder and more efficiently than the enslaved.<sup>43</sup>

Hidden within the second axiom is a further assumption that is used to explain why slavery sometimes *appeared* to be more successful than free labor as a system of production. The costs of direct supervision in slavery societies would eventually be too high to justify slavery as a labor system in a world where markets were steadily becoming more competitive and interlinked. However, at certain places and in certain times, slavery—or its cousin, serfdom—could, in early capitalist economies, be profitable. The Manchurian economist Evsey Domar, translating older Russian scholarship, argued that where and when land was abundant there would be no opportunity to persuade free laborers to work at unpleasant resource extraction processes for someone else. Thus forced labor would become relatively profitable despite the

cost of supervision, and thus we see the expansion of slavery in the New World after 1492, and of serfdom at the same time in Europe's eastern regions.<sup>44</sup>

Yet the Domar thesis is a variation on the teleology—or so it has been read. Typically appended to it are variations on one of these two further theses. The first is the “Prussian Road” argument, identified with Barrington Moore and mid-career Eugene Genovese. This holds that the political-economic formations that build development on forced labor sacrifice social and cultural freedom. Prohibitions against internal criticism make them unpleasant places for many creative personalities, and the resistance to external criticism leads them into fights they cannot win. Hence the Civil War and World War I, both of which the thesis attributes to “Prussian” decision making. Such political-economic formations also suffer from constraints imposed by path dependence on the economic sectors controlled by slave masters or serf lords. And because they depend on slave labor, these economic sectors are not susceptible to technological innovations or sustained productivity increases.<sup>45</sup>

If you do not swallow the Prussian Road argument—if, for instance, you doubt its assumptions of cultural uniformity and centralized decision making—you could also turn to the second thesis, the “energy poverty” argument. This thesis accounts for the persistent inability of some oil-rich nations—Venezuela and Nigeria are favored examples—to deliver sustained economic growth to a majority of their citizens by arguing that the early profitability of extracting a single natural resource produces lasting patterns of bad governance and nonexistent transparency. Because of the profitability of political control of the key resource, the stakes of political power are very high. Unscrupulous strongmen and their cliques set aside rules to gain and retain power. Competitive economics, contract enforcement, transparency in allocating business—all of these things become irrelevant. The society becomes both structurally and culturally incapable of carrying out the modern business practices needed to develop a complex, diversified economy. The prescription is simple: eliminate corrupt government, impose consistent legal processes and enforcement of contracts, allocate capital based on efficiency, and so on. While contemporary oil-rich nations are one group of proof-texts, accounts such as that of Daron Acemoglu and James Robinson cite slavery as a classic case of the long-term negative effects of resource-extraction economies. Slavery, of course, institutionalized violence and the unequal enforcement of contracts, and created hypertrophied single sectors that dominated entire political-economic formations.<sup>46</sup>

Yet all of these accounts return to their foundational assumption that production by the enslaved was essentially inefficient and less productive than what could be achieved over the long run by the more iconic techniques of modernity: machine technology, free wage labor, incentives internalized by choice or by Foucauldian structures of power that impose on us a way of knowing that permits only participation in the ebb and flow of market society.

Certainly, Charles Ball would have agreed with Adam Smith and others that slavery *was* wasteful. Slavery's captives knew that slavery wasted the days and years extorted from them. The first day Ball spent in the cotton fields was of no use to him as a human being whose life mattered. He made nothing of it for himself except, as we will see, to begin to develop a new power in his hands that he would be forced to turn against himself. But the manual cotton labor of hands in the field was anything but resistant to increases in productivity, as the numbers reveal, and when his first day of picking closed, Ball was about to learn where the secret resided. When the sun finally settled on the white glow of the cotton field, the exhausted people in it hefted their cotton baskets and carried them to the shed where the owner kept his cotton gin. In a semicircle, they put down their load and waited while the drivers hung each basket, one by one, by its handles on a "steelyard," a balance-beam scale. The overseer took down each number in chalk by the picker's name on the slate held in his hand. When Ball's turn came, he had "only thirty-eight pounds." Most of the other men in his field had picked fifty to sixty pounds. Ball would soon learn that even some of the faster pickers would be beaten for not picking enough.<sup>47</sup>

Twenty years after Ball's first day of picking, Israel Campbell went through his own first season of this kind of work at a Mississippi slave labor camp. The planter and his Irish overseer had told the young man that his daily minimum would be 100 pounds. Both owner and overseer had told him that he would "have as many lashes as there were pounds short." The overseer had his slate and list of names ready, on which he recorded each "draft of cotton." (A draft was a check that paid off a debt, in the commercial lingo of the time.) At the end of the day, Campbell knew that he had been able to pick no more than ninety pounds between first light and full dark. When he brought his basket up to the cotton yard, Campbell—desperate to avoid the reconciliation of his negative balance—silently set his basket down and slipped away. He hid in a hut, but then the door opened. Looming on the threshold was the planter Belfer, a lantern in one hand, and a bullwhip and four stakes in

the other: “Well, Israel, is that you?” The Irishman had weighed the basket. The account was short. “I will settle with you now,” Belfer said, “adding an oath for emphasis.”<sup>48</sup>

A system of measurement, accounting, and torture was used to coerce enslaved people to pick large amounts of cotton. People who were enslaved reported it again and again.<sup>49</sup> Of course, some readers may wonder whether or not people who had once been enslaved told the truth about this. And a few critics will inevitably suggest that survivors of slavery were charlatans, or too illiterate to speak for themselves, or that they catered to the whims of white abolitionist editors who were dogmatically intent on depicting slavery as a parade of cruelties. Such critiques have been made since at least the late 1830s, when the first African American autobiographies began to appear in significant number as part of the emergent North American abolitionist antislavery movement. Enslavers launched every one of those critiques against Charles Ball, Frederick Douglass, and many others. Today, criticisms—sometimes identical ones—still appear. When they do, they usually take no account of the tremendous amount of work done by scholars of slavery’s history and survivors’ culture to authenticate, assess, and understand the testimony that has survived.<sup>50</sup>

Whether we are talking about autobiographies and memoirs created by nineteenth-century escapees from enslavement or interviews done in the 1930s with elderly formerly enslaved people, these ex-slave narratives are, in the end, sources like other sources.<sup>51</sup> They have their flaws, as do all sources. They need to be interpreted, as must other sources. They need to be weighed and tested. One must understand when the interests of the people involved in creating these sources were served and when they were not. All that is exactly what we must do with all sources. (Of course, all too often scholars have been willing to let enslavers’ accounts of slavery—including their claims about cotton seeds—escape such scrutiny.)

When we do serious interpretive work with the narratives and interviews left behind by slavery’s survivors, we find that what people who picked cotton said about picking cotton was probably derived from their own experience. The white abolitionists who were involved in the editing and publication of many of the nineteenth-century narratives did not ask for it. They were not interested in hearing about slave labor as an efficient system of production. Most were ideologically committed to the position that slave labor was inefficient. We can document the fact that white abolitionist audiences took slave labor’s inefficiency as a given and often didn’t even ask about it.<sup>52</sup> The fact that

survivors of cotton-frontier slavery depicted that system as one that compelled intensively measured labor that (we now know) grew more efficient over time thus appears likely to have been included in texts by the choice of the survivors.

Nor were such depictions of cotton labor exceptional or isolated. In fact, virtually every nineteenth-century narrator who had spent time in a cotton field—about twenty individuals in all—depicted a similar system of pushing, quotas, and whipping for those whose end-of-day accounting came up short. Did these survivors lie? If so, they must have all agreed to tell the same lies, and to tell them for a century, and to do so without thereby gaining any apparent benefits for themselves. The fact that their testimony so often agrees with the testimony of 1930s interviewees, whose interlocutors were often southern whites deeply embedded in the system of segregation, further verifies this evidence.<sup>53</sup> Indeed, when those interviewed in the 1930s spoke about the process of cotton picking or about cotton weighing, they too appear to have done so by their own choice. Lists of questions generated by the national and state bureaucrats who directed the 1930s interviews usually do not mention these aspects of slavery. Certainly those survivors interviewed by southern whites deeply embedded in Jim Crow power structures—which is to say, most of the 1930s interviewees—do not appear to have been prodded by their interlocutors to speak of whippings and theft of labor, or to have been encouraged to speak of enslavers as exploiters.<sup>54</sup> And yet approximately thirty of them chose to talk about quotas and whipping.<sup>55</sup>

Together, then, fifty-odd survivors testified directly to the existence and characteristics of the dynamic system of labor extraction with whose 1805 version Charles Ball was trying to grapple on that late-summer evening in South Carolina.<sup>56</sup> These sources cannot be dismissed or disregarded, despite the many inconvenient truths they tell about how the modern world emerged. Last-ditch attempts to dismiss these sources still occur, of course. And the language and character of attempts to dismiss these sources often reveal an issue that is deeply embedded in U.S. and Western public and private culture, but which also has not been rooted out from the world and words of scholars. That is the persistent unwillingness of many white readers and listeners to accept black testimony about black life—or death—as legitimate.<sup>57</sup>

It would be hard to think of more legitimate sources for helping one understand how cotton picking worked than those who picked cotton. Then again, those who prefer sources from southern whites will be interested to learn that they too testify to the existence of this incentive system structured by

whip, scale, and ledger—and not only by the existence of thousands of pages of daily cotton-picking records. “You are mistaken when you say your negroes are ignorant of the proper way of working,” wrote Robert Beverley, handling a new crew transported from Virginia to Alabama. “They only require to be made to do it . . . by flogging and that quite often.” Meanwhile, here’s a Natchez doctor, in 1835: “The overseer meets all hands at the scales, with lamp, scales, and whip. Each basket is carefully weighed, and the nett weight of cotton set down upon the slate, opposite the name of the picker.” “The countenance of an idler may be seen to fall,” for the penalty for failure to meet his or her quota was coming out of their back. Or, as travelers less friendly to the enslavers report hearing: “So many pounds short, cries the overseer, and takes up his whip, exclaiming, ‘Step this way, you damn lazy scoundrel’ . . . ‘Short pounds, you bitch.’”<sup>58</sup>

Charles Ball understood that his first-day total on the slate would be his new individual minimum. He also understood that if he failed the next day to pick at least thirty-eight pounds, “it would go hard with me. . . . I knew that the lash of the overseer would become familiar with my back.” This was not a task system like that of the South Carolina rice swamps and Sea Island cotton plantations.<sup>59</sup> Here, on the cotton frontier, enslaved people picked from first light till dark. They did not get to stop, even if they had made their quota. Here, each person was given an individual quota rather than a limit of work fixed by custom. Those who picked more found themselves saddled with a higher quota. They were also subject to whippings, just like the slower ones—perhaps, in some cases, they were in even greater danger. Finally, once enslaved people learned how to meet the quota consistently, the enslaver erased his chalk and wrote a higher quota on the slate for the next day.<sup>60</sup>

Over time, quotas climbed, and so, in general, did the quantity picked by each enslaved person on each day. We know from enslavers’ cotton-picking books that the average amount picked per day by enslaved picker rose by 400 percent from 1800 to 1860, in a steady curve. When we map the quotas reported by survivors of the enslaved, we find they report that daily requirements rose in the same pattern.<sup>61</sup> Survivors report that enslavers raised enslaved people’s personal quotas (or “stints,” as they were sometimes called). Sometimes this was done by simply measuring the amount that enslaved people, desperate to avoid the whip, had picked over their stint, and adding that to the old quota to make a new, higher one.<sup>62</sup>

In other cases, enslavers used positive incentives to get people to pick faster, setting up races between individuals with prizes like a cup of sugar, a

hat, or a small amount of money.<sup>63</sup> But such speed-ups shouldn't be seen simply as attempts to import positive incentives into a system dominated by negative ones. They were also tricks, designed to get enslaved people to reveal capacities they were hiding. In Georgia, John Brown's enslaver Thomas Stevens would "pick out two or more of the strongest and sturdiest, and excite them to a race at hoeing or picking, for an old hat, or something of the sort. He would stand with his watch in his hand, observing their movements, whilst they hoed or picked across a certain space he had marked out. The man who won the prize set the standard for the rest. Whatever he did, within a given time, would be multiplied by a certain rule, for the day's work."<sup>64</sup>

But enslavers also whipped greater picking speed out of enslaved people in the field itself, forcing their targets to devote sustained attention and unrelenting effort to their speed and accuracy (less leaves, dirt, "trash," etc. in the picked fibers). This kind of invigilation reveals yet again the major differences between the labor system used on the cotton frontier and that used in the Lowcountry. It also reveals the essence of the enslavers' plan: to force enslaved people to show their left hands. Here, on the cotton frontier, enslavers "whipped up" enslaved people to force them to reveal capacities they were hiding, or that had not yet been created. "As I picked so well at first," remembered John Brown, "more was exacted of me, and if I flagged a minute the whip was applied liberally to keep me up to my mark. By being driven in this way, I at last got to pick a hundred and sixty pounds a day," after starting at a minimum requirement of 100.<sup>65</sup> "Old man Jonas watched us children and kept us divin' for that cotton all day long," remembered Irella Battle Walker, and "us wish him dead many a time."<sup>66</sup>

At the end of the day came the weighing, and then, for those "not up to the task," the whipping. Sometimes they locked people in metal boxes overnight instead, or beat them with handsaws, or locked them in stocks. But the whip was the most typical. The master had a "black snake,"—some called it a "bull whip," remembered Austin Grant. "He cut the blood outta the grown ones . . . right on your naked back. They said your clothes wouldn't grow but your hide would."<sup>67</sup> Some tried to run as the dusk fell, but, as Williamson Pease remembered: "They caught him . . . beat him in the head with the handle of the strap. They stripped him naked. . . . I saw it done—I was looking through the palings. Then they whipped him with a piece of white oak made limber. I saw his back and it was all raw. The man was sent to work next day, but he gave out, and was laid up . . . until the cotton had been picked over. Three



times.” That wasn’t what mattered, what mattered was “they caught him, and showed no mercy,” and above all, that “I saw it done.”<sup>68</sup>

Whether the next day or a month later, when the victims of these brutal assaults went back into the field with their shirts stuck to bloody cuts, they’d be an example as well. Quotas rose. Planters and overseers consulted the cotton-picking books to see who was falling off from previous days’ and previous years’ quotas. (What else are the hundreds of cotton-picking books kept by enslavers but guides to whipping?) Whips rose and fell. And cotton-picking rates rose inexorably, sometimes picker after picker; but always the average across the expanding South’s expanding slave labor camps rose: year after year after year.

The whip made cotton. And whip-made increases in the efficiency of picking had global significance. They pushed down the real price of cotton, which by 1860 had fallen to one quarter of its 1800 price, even as demand had increased many times over. U.S. cotton producers effectively set the world price for this all-important commodity. So efficiency gains in picking created a pie from which many could take a slice. Lower raw material costs meant more capital could be invested in creating better machines, higher wages for mill workers, revenue for enslavers, and of course benefits passed on to the consumers of cloth, as most of the world eventually acquired clothes made in the industrial sectors of the West from cotton grown and picked in the U.S. South. Consumers were among those who benefited most from the ever more efficient production of the enslaved. In Western countries, and soon around the world, people had access to a much greater variety of light, adaptable, printable textiles. An astonishing variety of clothes became accessible to a much higher percentage over the world population. Bourgeois and, eventually, proletarian houses would acquire a new kind of room, the closet, to store the sudden variety. One of the greatest problems for the entire chain of those actors who profited financially from the labor of slaves in U.S. cotton fields became that of convincing consumers that they needed even more clothes, to soak up the endless flood of fiber spilling out of the sacks and baskets of enslaved people. Fashion magazines with illustrations, research on what cloth was desired in markets as distant as East Africa: so was born modern marketing as a process of simultaneously responding to consumers’ wants and endlessly stimulating new ones with new forms of media. And so, in lurches and starts, consumption broadened and deepened across class and geography, staving off the beast of overproduction more often than not.<sup>69</sup>

The fluctuations in cotton supply and demand drove many of the ups and downs of the wider global economy. In part this was because cotton was an essential input of the global supply chain for the first and most important factory-made good, cotton textiles, and in part because so much of the world's financial capital was invested in making this crop. Of course, the interlinking of daily picking totals with the dynamic ongoing transformation and modernization of world commodity and capital markets ran both ways: world demand for cotton shaped the demands of enslavers and the responses of the enslaved.<sup>70</sup>

This particular new constellation of power was not confined to the United States. Even as slavery-made cotton from the southern United States became the most widely traded commodity in the world, the radical, dynamic, and continuous transformations that began with slave labor were shaping two other major societies in the New World, Cuba and southeastern Brazil. Each region produced a commodity that also became a key component of industrial transformation. And just as with cotton, the processes in these two societies not only drove economic modernization but also partook of the creative destruction of economic modernity. Finally, just as in the U.S. cotton states, the nineteenth century saw a massive increase in the number of enslaved people who lived and toiled and died in the Cuban and Brazilian zones where new commodities were being made.

After 1807, the United States and Britain banned their citizens from participating in the Atlantic slave trade. Over the next fifty years, most Western nation-states also signed treaties banning the international slave trade. But despite the optimistic hopes of some reformers, the reality that followed these slave trade "abolitions" was quite different. Between 1808 and the start of the U.S. Civil War, more than 2.7 million people were moved by force from Africa to the New World, most of them to Cuba and Brazil. This was more than during any other half century of the Atlantic slave trade, save the 3.4 million toll of the 1750–1800 period. This was also more than the total number of free immigrants who moved to the United States between the time of the Revolution and 1850.<sup>71</sup>

Thus, slave trades continued after 1807, especially to rapidly growing commodity-producing zones. U.S. citizens were deeply involved in both the Brazilian and Cuban slave trades, as well as in the sugar plantation zone of Cuba, as owners, technicians, and investors. And while the post-1807 illegal slave trade to the United States itself was miniscule, the internal slave trade

was not. In this same time period, more than one million enslaved African Americans were moved from the older states of the South to the newer ones in the Mississippi Valley. Their experience was also one of absolute displacement and an introduction to new levels of violence, and so was not so different from those who went through the Middle Passage. When we add those one million people to the 2.7 million of the post-1807 Atlantic slave trade, we find that the fifty years that preceded Lincoln's election were actually the highest point so far of the long-distance slave trade to the commodity-producing regions of the Americas. More than four million enslaved people had been moved by brutal processes of forced migration into New World slavery's most profitable zones. And despite the emancipations of all slaves in the British empire, and of most of the enslaved people in the newly independent states of Spanish-speaking Latin America, the total number of enslaved people in the New World had increased dramatically, from about five million to about seven million.

The millions of acres taken from Native Americans and cleared, planted, and harvested by enslaved migrants from the Chesapeake and the Carolinas were an ecological windfall for the industrializing West, absolutely crucial for escaping older economies' Malthusian constraints. So too were the new, modernized sugar plantations of Cuba and the coffee estates of the Brazilian frontier. By 1850, as British working-class factory towns swelled with millions of factory workers, that island's changing agricultural sector struggled to keep up with all the new mouths to feed. Much as with cotton, by the 1830s and 1840s, innovations in Cuban sugar production processes permitted individual Cuban slave labor camps to produce four times as much sugar as eighteenth-century predecessors. From 16,000 metric tons in 1800, just 5 percent of world production, Cuba rapidly scaled up its production to half a million metric tons by the 1850s—50 percent of all the sugar made in the world. As the price of sugar fell, British and North American cuisines came up with more and more ways to deliver its cheap calories to the urban masses. By 1860, British workers consumed 10 to 20 percent of their daily calories in the form of sugar inserted in jam, as sweetener for tea and other drinks, and in baked goods. Eventually sugar became a key component of far more processed foods than we even now realize. This was crucial to industrialization. Western societies experienced a measurable average adult height decline in the nineteenth century. This was probably attributable to the new dietary restrictions imposed by the new increase in geographic and social distance from sources of food supply. Without the cheap calories provided by

sugar, the general health deficit this decline signals could have been significantly worse.<sup>72</sup>

Meanwhile, in Brazil, where the sugar industry had grown decrepit, enslavers opened a vast new hinterland in the interior of Rio de Janeiro state and São Paulo state. In the 1700s this region had been a backwater; by the early twenty-first century, it was the core of one of the most rapidly growing economies in the world. And it started with coffee. In 1800 Brazil exported only 580 tons of coffee; by 1860 that number was 800,000 tons. By the late nineteenth century, 80 percent of world coffee exports came from Brazil. While to say coffee was a major factor of industrialized, capitalist production might sound like a joke, it really isn't. The shift from old ways to a world of constant innovation, from an agricultural and religious calendar to one of the clock and nonstop work and business, was as much a cultural shift as it was a shift from wood to iron. Coffee replaced alcohol as the beverage of the work break, especially in the United States. Around 1800, U.S. workers drank immense quantities of alcohol, especially during the workday. One can imagine the effects this had on labor discipline and efficiency. In contrast, coffee stimulated, delivered sugar, gave energy for work, and did all this without intoxication and alcohol's other effects. Along with a massive campaign of religious revival and reform, the availability of coffee is the major reason why the average consumption of alcohol dropped dramatically from a peak of 7.1 annual gallons of absolute alcohol per capita early in the nineteenth century to well under three gallons by the Civil War decades.<sup>73</sup>

In both these other two new regimes, sugar and coffee, labor productivity grew continuously throughout the nineteenth century. In Cuba, a series of innovations in the chemistry, machine technology, and production process organization was what made the Cuban sugar planters so efficient. They broke the bottleneck in sugar production, which was (as of 1800) not in planting or cutting but in grinding and refining sugar cane into juice and juice into sugar and molasses. Of course, these improvements—steam-driven mills, vacuum pans, centrifuges, continuous-flow processing, careful organization of the space and sequence of harvesting—stole the last remaining secrets and skills from the left hands and right brains of enslaved African and Creole Cubans. The sons of enslaved sugar refiners went out into the fields as cane cutters. The secrets now rested inside the machines, in the control of the white technicians, who increasingly were the ones who ran them. The technology, and the more rapid pace of production overall, led to a machine-gear speedup for the slaves who cut cane by hand.<sup>74</sup>

Machine technology was a big part of the dominance of Cuban sugar. The success of Brazilian coffee, on the other hand, was built to a large extent on pure hand labor, sped up by a process much like that occurring in the cotton fields. The bottleneck in production here was picking. Coffee planters in the Paraíba Valley created new processes of driving enslaved pickers across hill-sides of bushes, and then of measuring their output. Just like cotton planters, coffee barons and their minions weighed daily picking totals and balanced accounts, whipping those who defaulted on the debts imposed by their quotas. And just like coffee planters, the coffee entrepreneurs increased their prices over time, extracting by the late nineteenth century daily picking totals that were 200 to 300 percent of those gathered early in the century.<sup>75</sup>

The disruption of enslaved people's lives and the measurement, surveillance, and violent coercion of enslaved people's labor were key components in the massive efficiency increases that made the Industrial Revolution possible. This history, once we know it, demands that we give up truisms of choice and incentive, premodern versus modern, or hand versus machine. But how, then, are we to understand and explain the kinds of labor that transformed the world during the nineteenth century, and the kinds of power that emerged? Maybe we could start by looking at how the gains of nineteenth-century slave labor were extracted. Cotton productivity grew because pickers themselves were forced to pick faster, better, more efficiently. Clever entrepreneurs extorted the benefit of new gains they themselves could not imagine. To do so, they did not have to be scientists of motion or choreographers of efficiency. But they did have to press the most skillful hands ever harder. Seeds were surely part of this story. But every time seeds got better, enslaved people did not find their work got easier. Instead, they were pressed to their new maximum, and beyond: forced to become better, faster pickers.<sup>76</sup> Ultimately, it was calibrated torture, not the seed selecting of science-minded planters, that became the technology that kept the Industrial Revolution fed with cheap, high-quality cotton, that broke through the resource constraints that had imprisoned previous civilizations in a Malthusian cul-de-sac.

Torture is not a word we use often in the study of slavery's history, much less that of capitalism. We see torture as inherently inefficient, not something that a professor could put on the chalkboard as a variable in an equation or a graph (*T* stands for torture, one component of *S*, or supply.) But understanding torture as a technology, a means of accomplishing what the philosopher Martin Heidegger called the "challenging-forth" of nature, putting nature (the nature of human beings and the second nature they have developed in their

embodied culture) to the test and making it yield all that it can—this helps incorporate the astonishing increases in productivity in both field and factory into the story of the rise of the modern world. Here's an illuminating metaphor for the process, one offered by a man named Henry Clay. Born into slavery in the Carolinas, he was moved west as a boy, and seventy years after slavery ended he recalled that his Louisiana owner had once possessed a machine that by his account made cotton cultivation and harvesting mechanical, rapid, and efficient. This contraption was "a big wooden wheel with a treadle to it, and when you tromp the treadle the big wheel go round. On that wheel was four or five leather straps with holes cut in them to make blisters, and you lay the negro down on his face on a bench and tie him to it." When the operator pumped the treadle to turn the wheel, the straps thrashed the back of the man or woman tied to the bench into blistered, bloody jelly. According to Clay, the mere threat of the whipping-machine was enough to speed his own hands and hoe.<sup>77</sup>

The contraption may have actually existed. I think, however, that it was not a material thing of wood and leather but instead, Clay's telling tale. It tells us that we could see the scientific principle of every cotton labor camp ever carved out of the southwestern woods as a metaphorical whipping-machine: a technology for controlling and exploiting human beings, calibrating increments of torture to extract both efficient production of pounds of cotton and endless, dynamic improvements to that efficiency. They measured the increments with steelyard scales, and by then checking totals against the cotton-picking accounts they kept on slates and then copied into ledgers. These books had no purpose besides that of measuring cotton pickers and holding them responsible for exceeding their previous gains. Hundreds of these cotton-picking ledgers survive. They are the most numerous artifacts and—once we understand why they existed—they are also the most overwhelming evidence of both the function and the functionality of enslavers' whipping-machines.

In fact, the whole vast archipelago of slave labor camps that eventually stretched from western South Carolina into Texas, extracting from the hands of the enslaved an unprecedented level and quality of field labor, was a dynamically evolving technology of measurement, torture, and forced innovation, a whipping-machine writ large and built full scale. This whipping-machine challenged enslaved people every day to exceed yesterday's gains in production and profit. The whipping-machine also challenges historians' willingness to adopt, from the powers that be and have been, definitions that implicitly distinguish "torture" from "discipline." Historians of torture have defined the

term as extreme torment that is part of a judicial or inquisitorial procedure. Torture, in this view, might give psychological rewards to sadistic torturers, but the key feature that distinguishes it from mere brutal torment is that it aims to extract “truth.” Instead, we see the whipping of slaves as either psychopathy or as part of an archaic structure of power and labor “discipline” that is in nature no more efficient at creating true work efficiency than the beating of children and domestic servants is at creating true love.<sup>78</sup>

The whipping-machine did, in fact, continually extract a truth: the maximum poundage that a man, woman, or child could pick. Once the victim surrendered to that fact, the torturer then challenged the enslaved person’s reason again, to force the creation of and then extract from his hands a new truth, an even greater capacity to pick. (As we know, torture can create new truths.) How did enslaved people create a truth that answered the ever-higher demands? Some tried to fool the weight and cheat the whip, hiding rocks, dirt, or melons in their baskets to make them heavier. George Womble remembered that cotton pickers tried to sprinkle white sand on the dew-wet cotton as they put it in their bags in the first hours of the long day.<sup>79</sup>

But overseers were selected for “hardness.” They inflicted severe punishment on enslaved people caught trying to cheat the scales on daily cotton debts. The steady upward curve of efficiency proves that overseers and enslavers usually won that struggle. And every forced adaptation made to survive defeat added more revenue for enslavers. Thomas Cole recalled that small children who picked were allowed to add the cotton to their parents’ baskets—another way to use family ties and parental authority to support planter profits. In general, enslavers opposed cooperation, preferring the leverage that individual measurement gave them. (In the opposite of cooperation, remembered Austin Grant, some enslaved people stole cotton from each other’s baskets to add it to their own.) Instead, most enslaved people had to train their forces of individual innovation. Fearing punishment or even death, minds scrambled to come up with ways to speed their own hands as minimums increased. Parents and elders taught children to pick faster: Grant’s grandfather “would tell us things, to keep the whip off our backs. He would say, ‘Chillen, work, work and work hard. You know how you hate to be whipped, so work hard!’” They taught individual adaptation in a world of perpetual vulnerability to violence, and sometimes themselves used violence to prepare their own children for the picking season. Berry Smith’s mother beat him, “took a pole to me if I didn’t do it [pick cotton] right.”<sup>80</sup>

Looking at the dramatic increase over time in the quantity picked, one must concede that above all, enslaved people succeeded in picking more cotton. But it is interesting that enslavers' language, with its assumption that some human beings could be reduced to the hands, the appendages of others, was in its way the mirror of the words enslaved people used to describe the experience of picking cotton. To pick it well, the way that cotton entrepreneurs needed it to be done so that they could make calculations about a harvest's profit into reality, one had to disembodiment oneself, to separate the mind from the hand—to become for a time, in fact, little more than a hand. Or two hands. While novice Solomon Northup, for instance, lurched down his row, his neighbor Patsy worked both sides of her row in perpetual motion, picking with both hands, moving like a dancer in an unconscious rhythm—though one of dissociation rather than of pleasure. Like a pianist her hands—both her hands, right and left—did their own separate thinking.<sup>81</sup>

Symmetry can be beautiful to witness. In laboratory tests, people are consistently attracted to more symmetrical faces and bodies. But human beings are in crucial ways asymmetrical. For most people, however, the left hand did not want to do its own thinking. And they did not want to make it (or make the right hand, if they were left-handed.) Most of us prefer to use the right hand for most tasks. Virtually all of us are “handed,” preferring one hand over another. Consciousness and handedness are intertwined. So are handedness and selfhood. Many of us are aware that the left side of the brain generally controls the right hand, and vice versa. In fact, in both language and work with one's hands, each side of the brain plays a different role, and thus so does each hand. We write, we touch, we gesture, we take more with one hand than another. We work with one hand more than another. Our strong hand, whether we are right- or left-handed, is the dextrous partner of our conscious, planning mind. In the skilled tasks that Charles Ball could perform, or those of any enslaved person coming from older regions of the South and older systems of labor, one hand was always the leader. And such tasks in which one hand was the leader, the mind at work, could be an expression of the self—even if it was forced, even if the product was stolen.<sup>82</sup>

People could move faster and faster. They could get up early and sneak out to the fields and pick by moonlight to meet their unusually high quotas, like a Georgia woman named Nancy.<sup>83</sup> But as time went on, more and more enslaved people had to figure out how to use each hand equally. As “stints” increased, many were only able to meet their picking quotas by learning how



to unhook their nondominant hand from the tethers of bodily asymmetry and brain architecture founded in human anatomy and genetics and built on over the course of a lifetime. The whipping-machine continually demanded that they come up with ways to pick more cotton: by watching or talking to others and learning from their speed, by creating new efficiencies that would shorten the path of hand from plant to sack and back again in both space and time. And above all, by shutting down some pathways in the brain so that the body could pick with the left hand as well as the right, and thus dance like a Patsey—becoming, for a time, the disembodied “hands” of enslavers’ fantastic language.

“Some hands can’t get the sleight of it,” said a white man who had tried to whip a young woman to “make her a hand at cotton-picking.” “Sleight” means “left,” but also craft, cunning, a special knack or trick. There is something left-handed about the word, something distinct from right-handed force. We think of sleight of hand as something employed by pickpockets, magicians, three-card monte dealers. Sleight is an art of resistance, play against right-handed power. This sleight of hands was different: it was required, extracted by power that compelled, exposed, and commodified hidden, individual capacities. Torture—the whipping-machine as a whole, in fact—was cunning. In its design was embedded a secret as consequential as the secrets of capital that Marx believed he exposed when he peered beneath the veil of the working day. The technology of torture required the use of a creativity that would generate new tricks and knacks, but not for the service of the trickster him- or herself. It then measured left-handed power, the safeguard for millennia of the poor and the less powerful against the domination of the great. And then it turned the sleight and creativity of left-handed power against the self, forcing from enslaved hands skillful but endless and depersonalizing labor.<sup>84</sup>

For those who succeeded in developing the sleight of hands did so by achieving a kind of detachment from their own consciousness. Patsey was impressive as she moved, even beautiful—that sense drips out of Northup’s description of her performance between the rows—but her achievement was also a thing of horror. She had become not just a person forced to toil in a hot field but one of the “hands” sketched in words written down on paper by men sitting in cool dark offices. Sometimes, especially once they achieved freedom, the formerly enslaved talked about how this process felt. The repetitiveness, and above all the demand that one become a different person—or not even a whole person, but a hand—or be tortured—these things made cotton picking horrible. It was “irksome,” “fatiguing”; “I was never thoroughly reconciled

to it.” It never felt like one’s own work or one’s own body, because it wasn’t: not in the same way that felling trees or threshing wheat or topping tobacco was one’s work, however stolen. The psychological torment of alienating one’s own hands from the old integuments that tied them to one part of the mind or another and rewiring them in different ways for someone else took a tremendous and painful effort. This effort, and the torture that drove it, left their mark on the body, but perhaps even more indelibly on the mind. As late as the 1930s an elderly woman named Adeline Hodges, who had learned to pick cotton in Alabama in the 1850s, couldn’t stand to watch clerks weighing her food at the grocery store “cause I remembers so well that each day that the slaves was given a certain number of pounds to pick. When weighing up time come and you didn’t have the number of pounds set aside, you may be sure that you was going to be whipped.”<sup>85</sup> Only something more violent than the forced self-rewiring of the body could have carried hands through the deepest, thickest layers of the cotton bottleneck, and she was still traumatized from that torture a lifetime later.

Thus, another way to tell the story of how the modern world came to pass is to tell it as one in which left-handed power was exposed, commandeered, turned against its possessors and built into something much different. At the heart of that process are the experiences, day after day, of one million people like Charles Ball. The work of hands and enslaved people’s creative, exploited minds, a work driven by the measured creaking of the whipping-machine, seems the opposite of what is modern, industrial, technological. Yet the data reveal that those in the cotton fields were not only absolutely necessary to the developments on the factory floor but in dynamic efficiency were their equals. And it will not take us long to draw links between the whipping-machine—and the entrepreneurial history of slavery’s expansion in the nineteenth-century United States in general—and our own world.<sup>86</sup> These are links of resonance, and even of direct causation. This isn’t just Charles Ball’s story. We are part of it as well.