Accounting for Slavery

MASTERS AND MANAGEMENT

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Harvard University Press
Cambridge, Massachusetts
London, England

to collect data and use it to analyze productivity. Eventually, standardized forms would have an even greater influence in the South than they had in the Caribbean. Planters would come to rely heavily on preprinted forms to monitor plantation business, particularly the growing of cotton. In cotton picking, they would take productivity analysis to new heights, monitoring enslaved productivity on an individual basis. Where West Indian planters had focused on labor allocation and on maintaining accountability over distance, American cotton planters would turn their attention to pushing up output per slave. By the 1840s and 1850s, some would be measuring labor output with an intensity approaching that usually attributed to scientific management. These efforts are the subject of Chapter 3.

3

Slavery's Scientific Management

PRODUCTIVITY ANALYSIS IN THE ANTEBELLUM SOUTH

ON MONDAY, OCTOBER 10, 1842—"A beautiful day" on Pleasant Hill Plantation in Amite County, Mississippi—Eli J. Capell noted the precise amount of cotton picked by each of his fifteen slaves. Every hand, including the enslaved overseer, picked at least 100 pounds, and Capell's top pickers—Terry, Isaac, and Peter—exceeded 200 pounds apiece. All told, they brought in 2,545 pounds, "the best ever done here in one day."[1] Capell knew that the day was remarkable because he was in the habit of keeping diligent records. He kept a yearly plantation journal that tracked his output, and his records show that over the coming decades, his workforce would repeat the achievement of that October day many times. As he increased the size of his workforce and improved the methods of his management, he pushed daily picking totals ever higher.

Capell and other "book farmers" in the American South paid close attention to how efficiently enslaved men and women picked cotton, frequently experimenting with new methods for maximizing output. These plantations were not the giant hierarchies of the West Indies. Though some were worked by hundreds of slaves, many were worked by only ten or twenty. Their free staff was typically limited to an overseer, and sometimes planters managed for themselves. These plantations were distinguished not by their sheer scale

but by their data practices. Planters recorded and analyzed information diligently and precisely, keeping accounts and comparing them year after year. Their efforts—as well as those of planters growing sugar, rice, wheat, and other staples—were remarkably sophisticated for their time. Planters paid more attention to labor productivity than did many northern manufacturers, foreshadowing the rise of scientific management in the 1880s and beyond. They excelled in determining the most labor their slaves could perform and in pushing them to attain that maximum.

Understanding the relationship between slavery and management practices in the American South is the subject of this chapter and the next. In the simplifying language of twentieth-century economics, there are three inputs of production: land, labor, and capital. Slaves confounded the last of these categories, at once labor and capital, and planters analyzed them in both ways, using accounting both to understand labor productivity and to estimate capital increase. This chapter explores the ways calculation structured slaves' days and weeks, focusing particularly on estimates of productivity and output. Chapter 4 turns to longer time scales, asking how plantation accounting structured slaves' practices from year to year and life to life, as planters sought to maximize the value of human capital.

The precise records planters left behind make clear that sophisticated accounting techniques were not incidental to plantation slavery: power enabled precise management. Instead of attracting and retaining labor, slaveholders acquired it and accelerated it, aided by the threat of violence. In essence, they subjected men and women to experiments, directing labor at will, planning meals and lodging, and measuring and monitoring production with great precision. To be sure, slaves resisted planters' efforts, but a combination of calculation and control constrained their attempts. Slavery became a laboratory for the use of accounting, because neat columns of numbers translated more easily to life on plantations than they did in many other early American enterprises.[2]

The clearest examples of these practices can be found on cotton plantations, most notably those using a set of popular journals published by Thomas Affleck. This chapter begins with these account books, which reveal planters' efforts to accelerate the pace of daily labor through calculation and comparison, bonuses and incentives, and, of course, punishment. From here I turn to record keeping more generally, including that on sugar plantations. Though

sugar production was less suited to productivity analysis than was cotton, in some ways its complexity made coordination even more important. Planters could not track output per slave as meticulously as they could for cotton production, but they pursued increased efficiency through systematic labor allocation. Taken together, these efforts paint a picture of elite cotton and sugar planters as relentlessly calculating, aspiring to exploit every aspect of the lives of the people they enslaved.

Plantation Journals

Eli Capell took over the management of Pleasant Hill Plantation after the death of his father, Littleton Capell, in the mid-1830s. Under his direction, the plantation thrived, expanding from a farm of less than 1,000 acres into a plantation of 2,500 acres, worked by a force of eighty slaves.[3] Capell recorded his progress in a series of detailed journals stretching from 1842 to 1867. In the earliest of these records, he experimented with a variety of differently formatted diaries and blank books, but none suited his needs. On days when he attempted to record every slave's individual picking, his calculations spilled into the margins.[4] In 1850, he remedied the problem by adopting Thomas Affleck's preprinted *Plantation Record and Account Book*. Affleck's journal was an all-in-one account book designed to facilitate plantation management.[5]

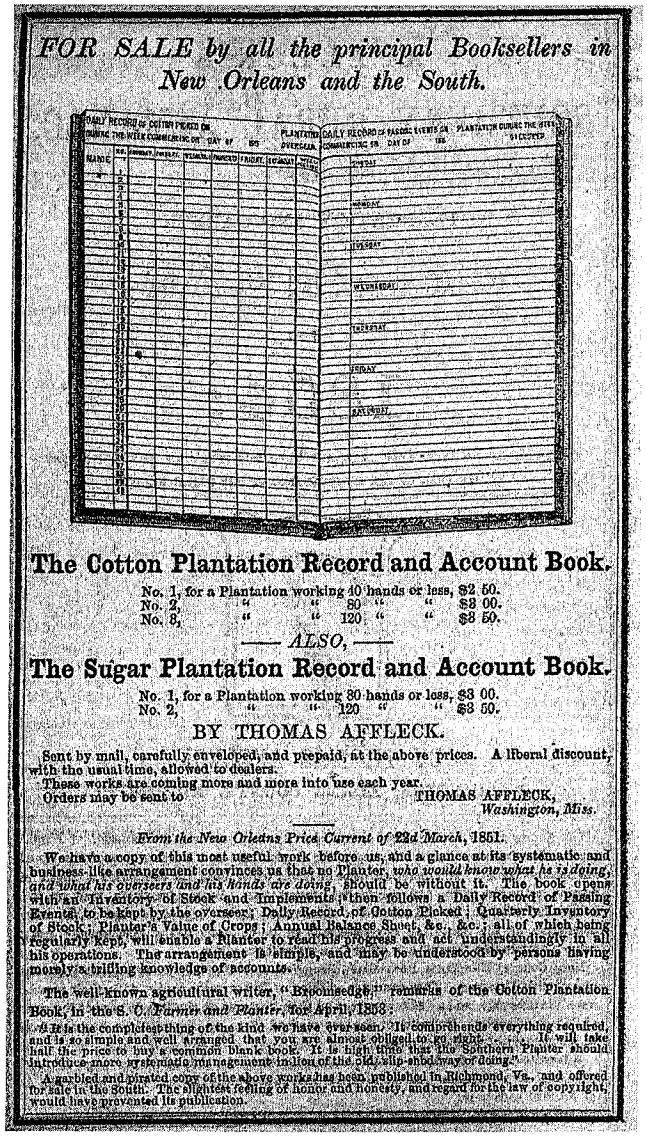
Thomas Affleck was a planter and gardener in the small town of Washington, Mississippi, about fifty miles west of Capell's plantation in Amite County. Born and educated in Scotland, he migrated to the United States in 1832, moving from the East Coast to Ohio before relocating to Mississippi, where he began to plant cotton. His background combined experience in finance, scientific agriculture, and publishing. In Edinburgh, he had worked as a bookkeeper for the Bank of Scotland, and he boasted in his correspondence that the experience had accustomed him "to the strictest business habits."[6]

When he arrived in Mississippi, Affleck found that although some of his neighbors "had kept regular plantation books for many years," their records varied dramatically, lacking the uniformity and regularity that would enable comparisons across plantations. In response, Affleck "prepared 2 books with the pen," giving one to each of his overseers. After testing the journal and

revising it, he published his first edition.[7] The *Plantation Record and Account Book* contained a preprinted, all-in-one system for planters wishing to improve their accounting practices. As advertisements boasted, his journal combined "Day Book, Journal, Stock Book, Ledger and Daily Record" all in "one large folio volume."[8]

Affleck published his journal in six versions, specialized by crop and plantation size (see Figure 3.1).[9] Eli Capell originally used Affleck's smallest book, designed for cotton plantations with 40 or fewer slaves, but by the late 1850s, his operations had outgrown this volume, and he purchased the *Cotton Plantation Record and Account Book, No. 2,* for plantations with up to 80 hands.[10] Affleck offered an even larger edition with space to record the work of as many as 120 working hands, and by 1860, he had published a fourth edition for up to 160 working hands. He also offered two volumes for sugar plantations with 80 and 120 working hands. Because many enslaved men and women were too young, old, or infirm to labor in the fields, the largest volumes targeted elite planters whose holdings could reach as high as 200 or even 300 total slaves. The smallest journal sold for $2.00, and the prices of the larger editions increased in increments of $.50. These prices were higher than those of other blank books but a small expense relative to the total investment involved in operating a large plantation.[11]

The cotton journals contained fifteen different forms, labeled A through O (see Table 3.1). Each form addressed a different aspect of plantation production, and together they comprised an interlocking system that enabled planters to make sophisticated comparisons and calculations. Planters filled in some of the forms every day, including the record of activities and the record of cotton picked. Other pages in the journal—including the inventories of tools, supplies, and the slaves themselves—were to be completed only quarterly or annually. As Affleck explained, the inventories would be particularly useful for non-resident planters who could not supervise everything directly. These forms would save the planter "much vexation and loss" and the overseer "undeserved blame." Several forms offered opportunities to cross check, providing space for both the overseer and the planter to enter information. For example, on Form H, the overseer recorded the weight of every bale of cotton, the total of which should match the total from Form M, on which the owner recorded the weight of the bales as they were sold. Comparing the weight of cotton bales after ginning to the weight at time of



FOR SALE by all the principal Booksellers in New Orleans and the South.

The Cotton Plantation Record and Account Book.

No. 1, for a Plantation working 40 hands or less, $2 50.
No. 2, " " 80 " " $3 00.
No. 3, " " 120 " " $3 50.

— *ALSO,* —

The Sugar Plantation Record and Account Book.

No. 1, for a Plantation working 80 hands or less, $3 00.
No. 2, " " 120 " " $3 50.

BY THOMAS AFFLECK.

Sent by mail, carefully enveloped, and prepaid, at the above prices. A liberal discount, with the usual time, allowed to dealers.

These works are coming more and more into use each year.

Orders may be sent to THOMAS AFFLECK,
Washington, Miss.

From the New Orleans Price Current of 22d March, 1851.

We have a copy of this most useful work before us, and a glance at its systematic and business-like arrangement convinces us that no Planter, *who would know what he is doing, and what his overseers and his hands are doing,* should be without it. The book opens with an Inventory of Stock and Implements; then follows a Daily Record of Passing Events, to be kept by the overseer; Daily Record of Cotton Picked; Quarterly Inventory of Stock; Planter's Value of Crops; Annual Balance Sheet, &c., &c.; all of which being regularly kept, will enable a Planter to read his progress and act understandingly in all his operations. The arrangement is simple, and may be understood by persons having merely a trifling knowledge of accounts.

The well-known agricultural writer, "Broomsedge," remarks of the Cotton Plantation Book, in the *S. C. Farmer and Planter,* for April, 1853:

"It is the completest thing of the kind we have ever seen. It comprehends everything required, and is so simple and well arranged, that you are almost obliged to go right. It will take half the price to buy a common Blank Book. It is high time that the Southern Planter should introduce more systematic management in lieu of the old, slip-shod way of doing."

A garbled and pirated copy of the above work has been published in Richmond, Va., and offered for sale in the South. The slightest feeling of honor and honesty, and regard for the law of copyright, would have prevented its publication.

FIGURE 3.1. Advertisement for Thomas Affleck's *Plantation Record and Account Books,* 1854. Affleck's preprinted ledgers came in specialized versions tailored to plantation crop and size. Affleck's Southern Rural Almanac, and Plantation and Garden Calendar for 1854 (Washington, Miss.: Thomas Affleck, 1854). Courtesy of Louisiana and Lower Mississippi Valley Collections, Louisiana State University Libraries, Baton Rouge.

TABLE 3.1. Forms included in Thomas Affleck's *Cotton Plantation Record and Account Book*

Form	Title	Frequency completed?
A	Daily Record of Passing Events	Daily
B	Inventory of Stock and Implements	Quarterly (Monthly in 1st ed.)
C	Daily Record of Cotton Picked	Daily from late July, weekly totals
D	List of Articles Given Out to the Negroes	As distributed
E	Overseer's Record of Supplies Delivered to Him	As received
F	List of Births and Deaths	As needed
G	Check on the Physician's Account	As needed
H	Weights of Cotton by Bale	At weighing and sale
I	Planter's Annual Record of his Negroes	Beginning and end of the year
J	Planter's Annual Record of Stock	Beginning and end of the year
K	Planter's Annual Record of Tools	Beginning and end of the year
L	Statement of the Several Products of the Plantation	Yearly
M	Statement of the Sale of Cotton	As sold
N	Condensed Account of the Expenses of the Plantation	Yearly
O	The Planter's Annual Balance Sheet	Yearly

sale could help planters to monitor their overseers, while comparing the ratio of cotton picked to ginned could help overseers to monitor the enslaved.[12]

Affleck's journal culminated in Form O, an end-of-year balance sheet on which planters could calculate their yearly profits. This balance sheet ensured that every cost and revenue was tallied, drawing inputs from five different forms elsewhere in the book. Capital costs—including land, slaves, tools, and stock—were charged to the balance sheet at 6 percent of their value, in keeping with what Affleck judged to be the prevailing interest rate. By consulting the balance sheet and comparing it with prior years, planters could assess their overall profitability and identify the cause of their success or failure: improvement to their property, sale of cotton, or change in the value of slaves.[13]

Despite their complexity, Affleck's journals required very little specialized knowledge of bookkeeping. As he explained in an 1860 advertisement, "The plan of the book is so simple, and yet complete, that any man who can

write at all legibly, whether or not he has any knowledge of the principles and practice of book-keeping, is capable of making his entries correctly." The detailed instructions and fill-in-the-blanks balance sheet meant that only basic addition and subtraction were required to strike a "true balance" and to determine "whether the year's labors have resulted in profit or loss."[14] This relative simplicity made Affleck's journals ideal for monitoring overseers, who rarely had any skill in bookkeeping. When James Henry Hammond complained to Affleck that he had "no hope of ever getting an overseer who will or can keep such a book" in South Carolina, Affleck replied that in Mississippi, there were many such men. He recommended making the completion of the books a stipulation of their contracts, giving newly hired overseers little choice in the matter.[15]

Affleck applied the same entrepreneurial calculations to his publishing business that he instructed planters to use with their crops. In a letter to a potential partner, he described his business plan in detail:

> The Acct. books can be got out at 60c to 70c p copy—say an average of 75c. Weld writes me he has got over $650 of advertisements for this coming edition. I feel confident that 5,000 copies of all the editions, Sugar & Cotton can be sold per annum, at an average retail price of $3.00, Netting $2.00, counting freight &c. &c. & losses. $500 can be had for adverts., reducing the cost of the books 10c. p copy. I am keeping a long way within bounds. Say 5,000 copies net $1.35 each = $6, 750.[16]

In practice, Affleck appears to have had difficulty realizing his projections. He claimed that this was due not to a lack of demand but because of difficulty finding and maintaining a dependable printer. Over the run of the journal, Affleck employed several printers, at least one of whom "absquatulated," leaving Affleck with neither the funds nor the volumes for several months.[17]

Affleck's journals appear to have sold well, remaining in print until the Civil War and running to eight editions. Although it is difficult to verify their circulation, Affleck claimed annual sales of two thousand and believed that he could reach five thousand if production were managed efficiently. By 1860, he touted a print run of three thousand. These rates would have reached

only a small fraction of all slave-owning cotton farmers. Assuming Affleck's—probably generous—estimate of three thousand was correct for 1860, he was still reaching less than 3 percent of all slaveholding cotton planters. However, most of these farmers had very small operations, with about half owning ten or fewer slaves and a large majority owning thirty or fewer.[18] A circulation of three thousand would have reached a much larger proportion of mid- to large-scale planters—nearly 15 percent of plantations worked by more than thirty enslaved people. Figure 3.2 shows the distribution of plantations and of cotton production grouped by number of slaves. While there were many small farms and plantations (see the light columns to the left), these produced relatively little cotton (dark columns). Larger plantations worked by many slaves (counted in the light columns to the right) were fewer in number but produced much more cotton (dark columns). These large plantations were the target of Affleck's books. In combination with competing volumes, preprinted journals like his probably reached a substantial fraction of these planters.[19]

Though Thomas Affleck's series of books were the most popular plantation blanks, they were not the first to reach the American South. Farquhar Macrae advertised his methods in the *Farmers' Register* in 1835, though he appears not to have manufactured them for sale.[20] By 1840, Andrew Flynn of Mississippi was using a simple preprinted book, with space to keep an inventory and pages to record the daily allocation of labor. Unlike Affleck's volumes, which comprised a complex system of interlocking accounts, this book simply offered space to track labor.[21] Like Macrae's recommendation, this volume more closely resembled the West Indian work logs highlighted in Chapter 2 than Affleck's system of record keeping. Still, the preprinted journal seems to have been on its way to becoming a well-developed genre of printing in the South well before Affleck published his volumes.

In 1852, J. W. Randolph of Richmond, Virginia, published the most comprehensive alternative to Affleck's book. Randolph did not disclose the author, referring to him only as "a Southern Planter."[22] A review describes him as one of the "best and most systematic farmers in Virginia," claiming the journal could save its users "hundreds of dollars."[23] Where earlier volumes were simpler, Randolph's book was in some ways more extensive than Affleck's. The text included, among other things, a draft contract with a manager, recommendations on books to consult, and space to list the volumes in

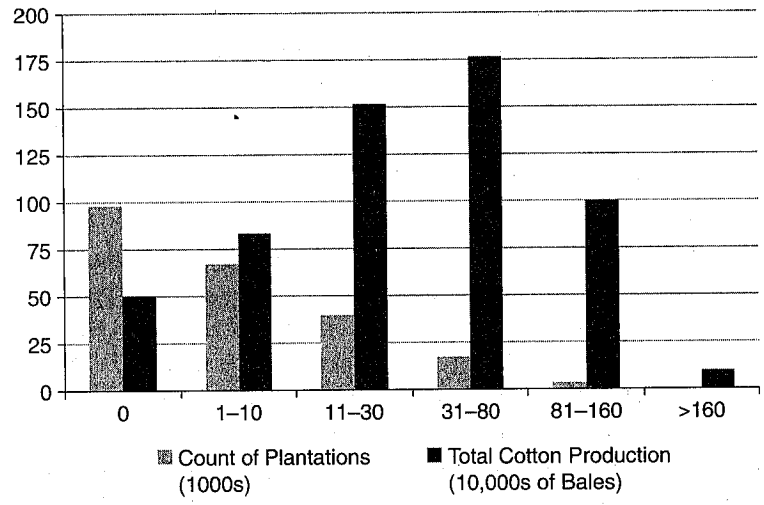


FIGURE 3.2. Output and Number of Plantations by Size of Slaveholding, 1860. Although there were many small farms (see the light columns to the left), these produced relatively little cotton (dark columns). Large plantations worked by many slaves (counted in the light columns to the right) were fewer in number but produced vast amounts of cotton (dark columns). Data comes from the Parker-Gallman Sample, which includes 1860 data on 5,228 farms, or 1.67 percent of all farms in 405 major cotton-producing counties in the South in 1860. Numbers presented here are for all farms producing cotton, scaled up assuming a random draw. William N. Parker and Robert E. Gallman, "Southern Farms Study, 1860," ICPSR07419-V1, Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 1991.

the planter's library. A large section of "Miscellaneous Information, Tables, and Data" covered everything from weights and measures to planting distances and guidance for a system of crop rotation.[24]

Affleck railed against competing texts, considering them inferior substitutes for his own. In 1854, he requested a copy of one "bastard acct. book" from bookseller B. M. Norman.[25] A year later, when someone alerted him of a copycat book being sold by a "Mr. Bland," he exclaimed in reply that "such plagiarism" was "quite common," complaining of "an almost literal reprint of my books—but with the part of Hamlet omitted! Most shabbily gotten up & some of the most important records left out."[26] Still, despite Affleck's lamentations, his books were simply the most well known of a broader genre. By

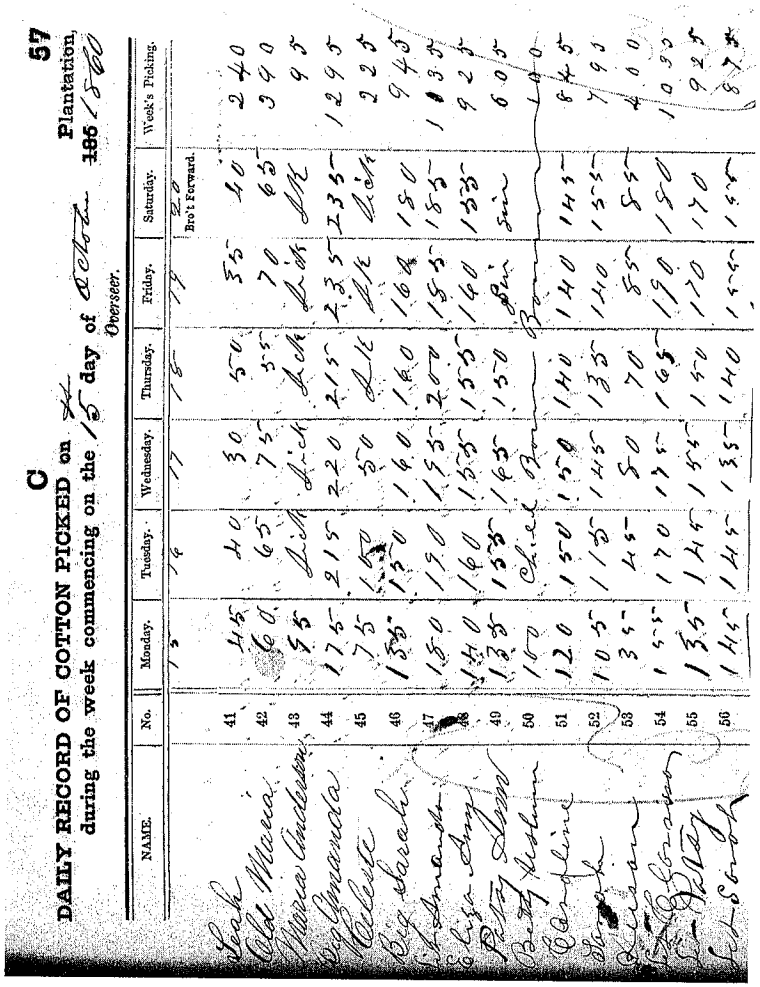
the 1850s, planters could choose from several different systems to monitor plantation business. However, this is less remarkable than what it allowed planters to do: to analyze data and put it to use.

Putting Numbers to Work

Planters not only recorded information systematically, they also put their data to work, analyzing it in order to increase the productivity of their operations. Determining how much cotton an enslaved man or woman could pick was a near obsession among southern planters, and they used careful records to help determine this maximum. Planters used Thomas Affleck's books unevenly, often leaving many forms incomplete. But almost without exception, they completed Form C, the "Daily Record of Cotton Picked." This form tracked the pounds of cotton each slave picked every day (see Figure 3.3).[27] The first column noted the name of each enslaved person, and to the right of this list were columns for each day of the week (Monday through Saturday). These columns could be tallied to determine each workers's weekly output, and these numbers could be summed for a weekly total across the force. In combination with an array of other management strategies, planters relied on this routine of weighing and recording to accelerate the pace of labor.

Some planters had been recording data on cotton picking for many years before blank books were widely available. For example, Francis Terry Leak of Tippah County, Mississippi, kept a daily record of cotton picking in a single book covering the period from 1841 to 1865. On the volume's hand-lined pages, he listed every slave laboring in the fields. To the right of this roll of names were six columns, representing space for every day of the week except Sunday, when he tallied up the week's results. He kept this cotton record separate from his general journal, but he returned to it each year when the picking season began, usually in late September or October, and it continued as long as the picking continued—usually until December but sometimes into January or February if weather permitted. Records of cotton picking like Leak's often included hundreds of data points each week and thousands over the course of each season.[28]

The regularity of picking records reflects regimented procedures for measurement on the plantation. After emancipation, minister and former slave Charles Thompson recollected the basic process of picking, weighing,



C

DAILY RECORD OF COTTON PICKED on [illegible] Plantation, 57

during the week commencing on the 15 day of October 1860

Overseer.

NAME.	No.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Week's Picking.
		15	16	17	18	19	20	
							Bro't Forward	
Leak	41	445	440	430	450	455	440	2440
Old Mora	42	60	655	755	555	70	655	3490
Mora Anderson	43	55	Sick	Sick	Sick	Sick	Sick	95
Amanda	44	175	215	220	215	235	235	1295
Malcolm	45	155	160	550	Sick	Sick	Sick	2225
Big Sarah	46	1550	1550	160	160	160	150	945
Anderson	47	150	150	1555	200	1555	1555	1135
Lisa Long	48	140	160	1655	1555	160	1335	925
Patsy Adams	49	1385	Sick	165	150	Rain	Rain	605
Patty Hudson	50	160	Sick	Rain	Rain	Rain	Rain	160
Caroline	51	120	150	150	140	140	145	845
Stephen	52	1055	145	145	135	140	1355	965
Sarah	53	335	45	50	70	555	555	400
Abraham	54	1555	120	1455	1655	150	150	1035
Edmund	55	1455	145	145	1555	120	120	925
Tom	56	1455	1455	1355	140	1555	1555	875

FIGURE 3.3. "Form C," Daily Record of Cotton Picked on Eustatia Plantation, 1860. Planters used Form C to record the number of pounds of cotton picked by each slave every day. Betsy Uslum (no. 50) picked until her child was born and resumed labor within the month. G. R. Clark, Eustatia Plantation, Mississippi, Account Book, 1861, Ohio Historical Center Archives Library. Courtesy of Ohio Historical Society, Ohio History Connection (Img 59, Vol 649), Columbus.

and accounting for cotton. As he wrote, "Each picker had a 'stint' or daily task to perform; that is, each of them was required to pick so many pounds of cotton." Thompson was "placed over the hands as 'boss' and cotton-weigher." He described measuring each slave's progress as often as "three times each day." Such frequent weighing enabled the enslaved to track their progress and to strive toward their full task. Thompson could add and write, but he had to conceal these skills due to laws against educating slaves. Nonetheless, his owner benefited from his ability. Being numerate allowed him to report "the weights of each hand separate and correctly" to the overseer each night.[29]

Some planters used incentives to accelerate picking, relying on the use of precise calculation. After his escape from slavery, Henry Bibb described the use of contests to speed up the pace of labor. As he explained, instead of extorting picking from their slaves "by the lash," some planters would "deceive them by giving small prizes." An overseer began by "dividing the hands off in three classes" by skill, and "offering a prize to the one who will pick out the most cotton in each of the classes." By this means, they encouraged slaves of every ability to increase their pace. After repeating such challenges several times and "weighing what cotton they pick every night," the overseer could tell "just how much every hand can pick." Later he would use these achievements as benchmarks and punish those who did not reach them. Reward and punishment worked together, with one generating data and the other relying on it.[30]

The most complex incentive systems stretched over the course of the year. In 1851, a Mississippi planter who owned forty-nine slaves explained his scheme. As he wrote, "I pay them money at the end of the year. . . . The amount given to all depends on the crop and the price; the amount to each one upon his good behavior, his activity, obedience and efficiency during the year." He allocated the payment by class: "The negro who has discharged all his duties through the year most faithfully is put in the first class. As many as deserve it are put there and all get the largest and same amount of Money. The amount paid them is lessened as they fall into lower classes." Slaves could draw on their accounts throughout the year, and the planter furnished "any extra clothing that any of them may want," charging their accounts, and "at pay day, as they call it, it is brought up against them."[31]

Incentives could be used to reward and punish entire communities of enslaved people. In 1842, a planter and minister from Virginia described the payment system that he used to enforce slaves' honesty. Every year, he gave "each laboring hand a barrel of corn, or its equivalent in money," to be settled at Christmas. If any theft or "depredation is committed, *no matter by whom,* my negroes are responsible for it, and double its value is deducted from the Christmas present." However, if "the thief is given up . . . the whole responsibility rests on him." Thus, he explained, "a few barrels of corn are made the means of saving my property to perhaps ten times the amount the whole year." Accounting practices allowed sophisticated systems of incentives and punishments to work together.[32]

Record keeping could make punishment just as calculating as payment. Some book farmers advocated more humane treatment, but others relied primarily on the threat of violence. They meted out lashes in precise relation to picking, whipping slaves as many strokes as the number of pounds they fell short of during their daily or weekly tasks. In the 1840s, Henry Watson described a state of almost constant terror on the plantation where he labored. As Watson wrote, "Each individual having a stated number of pounds of cotton to pick, the deficit of which was made up by as many lashes being applied to the poor slave's back."[33] John Brown described the same cruel system: "For every pound that is found short of the task, the punishment is one stroke of the bull-whip." Though Brown himself "never got flogged for short weight," many others did, "and dreadful was the punishment they received."[34]

Even for those who avoided punishment, the weighing of cotton could be harrowing. Solomon Northup's 1855 slave narrative described the fear that motivated him to accelerate his work. As Northup wrote, "A slave never approaches the gin-house with his basket of cotton but with fear. If it falls short in weight—if he has not performed the full task appointed him, he knows that he must suffer." But the cost of success was high. As Northup reflected, if "he has exceeded it by ten or twenty pounds, in all probability his master will measure the next day's task accordingly. So, whether he has too little or too much, his approach to the gin-house is always with fear and trembling."[35] On the plantation where John Brown labored, management expected a hundred pounds for a new picker, but on the first day, he "picked five pounds over this quantity." Much to his "sorrow," Brown found that because he had

"picked so well at first, more was exacted of me, and if I flagged a minute, the whip was liberally applied to keep me up to the mark." By constant driving, the overseer gradually pushed Brown's task higher until he "at last got to pick a hundred and sixty pounds a day."[36]

Enslaved men and women recognized the high stakes of tactics designed to reveal their maximum picking rates. Many saw prizes and payments for what they were—a ruse that masters could discontinue once they knew what work could be performed. And they responded with subtle modes of resistance. Frederick Law Olmsted described enslaved men's and women's attempts to slow down plantation speedups in *The Cotton Kingdom*. As he explained, slaves "very frequently cannot be made to do their master's will." They do not "directly refuse" to obey orders but rather rebel more subtly, undertaking their tasks "in such a way that the desired result is sure not to be accomplished." Olmsted labeled the passage in which he described this behavior as "sogering," a term that he defined approximately a decade earlier when describing the slow pace of work on a packet ship in England. Sogering, he wrote, is "pretending to work, and accomplishing as little as possible." Management scholar Bill Cooke has traced sogering to the same root as Frederick Winslow Taylor's "soldiering," also meaning to shirk, or to pretend to work in order to obscure true ability.[37]

Instances of enslaved defiance are particularly remarkable considering the legal power slaveholders wielded over their human property. Though specific legal circumstances—based on both statutes and case law—varied from state to state and over time, the collective picture is one of legally sanctioned domination. Short of killing enslaved people, planters enjoyed tremendous autonomy to extract obedience from the men, women, and children they owned. In the 1834 North Carolina case *State v. Will*, the judge summed it up as follows: "Unconditional submission is the general duty of the slave; unlimited power is, in general, the legal right of the master." This power had few exceptions, usually only restricting "the unlawful attempt of [a] master to deprive [a slave] of life."[38] In 1842, a Tennessee judge concurred that "the right of obedience and submission . . . is perfect in the master; and the power to inflict any punishment, not affecting life or limb, which he may consider necessary for the purpose of keeping him in such submission, and enforcing such obedience to his commands, is secured to him by law."[39] In a North Carolina case, Justice Thomas Ruffin reflected that though "a principle of moral right" repudiated such treatment, by the nature of the institution of slavery, masters nonetheless enjoyed "uncontrolled authority over the body" of a slave.[40]

The threat of violence offered a powerful tool to extract labor, and the law offered little protection. Even fatal beatings were frequently excused in practice, though theoretically prohibited by law. In an 1860 Mississippi case, a master was initially found guilty of killing a slave named John, but an appeals court reversed the conviction on the grounds that the slave had been resisting his master's lawful authority. As the judge explained, in such cases "the master may use just such force as may be requisite to reduce his slave to obedience, even to the death of the slave." The conflict that gave rise to John's supposed disobedience appears to have been a version of the "sogering" described by Olmsted. As the overseer testified, "He did not seem to work fast enough, and Oliver [the slaveholder] told him to work faster and the negro didn't do it, and Oliver took the shelling-stick from him and killed him with it."[41] Enslaved people could neither defend themselves physically nor defend themselves in court. They typically could not give evidence, and in some states a master could clear himself simply by giving an oath, though this practice was eventually called into question.[42] Still, it is important not to overstate the extent to which enslaved people were outside the law. Despite substantial barriers, some found ways to use the courts. For example, though they were themselves property, enslaved people often owned some property, and in some cases they defended this property in court—even against claims from free whites. That enslaved people sometimes managed to protect their property using a system that offered so little protection for their lives reflects the extent to which the law privileged property rights over enslaved lives.[43]

Case law adjudicating what masters could and could not do to manage the enslaved is remarkably scarce. Plantation spaces were, in a sense, "privatized"—held outside the law but within the master's control. Those few cases that made it to court tended to be extreme, suggesting that masters enjoyed extensive power and that courts only reluctantly policed space within plantations. As Jonathan Bush has written, even in settings where slave law was relatively underdeveloped, it was "offset by private 'rule-making,'

described in plantation manuals and rule-books, and enforced with whipping and other punishments, including death."[44]

Plantation accounting was part of this system of private rule-making, and masters used measurement and calculation to uncover enslaved resistance. Israel Campbell, a slave who struggled repeatedly to meet his task, described hiding "a good sized melon" in his basket before it was weighed. The possibility of discovery terrified him, but he knew that otherwise, "a whipping was sure." At first Campbell thought himself "pretty smart to play such a trick . . . but a day of reckoning was to come." Before the cotton was sold, "it had to be ginned. . . . As they always put down the amount picked, allowing so much for waste, they could calculate very nearly the amount it ought to make." Comparing these weights revealed a shortfall, and though the overseer never implicated Campbell, he could not repeat the trick.[45]

The many surviving account books from southern plantations suggest that by the early to mid-nineteenth century, sophisticated accounting practices were relatively widespread. Amid the destruction of the Civil War, it is remarkable how many volumes were preserved. And these records—typically the most formal elements of plantation accounting—only scratch the surface of the ways numbers were used on plantations. Outside of bound books, there would have been loose paper notations and still more impermanent slates that were filled and erased daily. Only traces of these more informal technologies are visible in account books. For example, on Eli Capell's plantation, the column for Monday, September 13, 1852, has no data. Instead, a scrawled notation reads, "To days picking was Rubbed off the Slate."[46] In several narratives, enslaved authors also recall overseers setting down the weights of cotton on slates.[47]

Scattered clues, like references to slates and scales, suggest that numbers permeated plantation life to an even greater extent than daily picking records reveal. The three-times-daily measures Charles Thompson described did not make it into the account books, but they may have been recorded on slates. Perhaps a low midday total spurred slaves to pick faster to meet their targets. But a high one surely provided no relief, as the manager might raise their targets. Relentless measuring offered both details for surveillance and an incitement to effort. Like progress reports tacked to the walls of modern corporations, these constant notations made the data of plantation operations daily visible.

King Cotton

Though many of the account books produced and sold by men like Thomas Affleck were only partially completed, planters almost always filled in the detailed records of cotton picking. By the late 1850s, planters could even purchase books dedicated to the harvest of cotton. A printer named W. H. Fox offered one such volume for sale. This reformatted journal contained only one form, the "STATEMENT OF COTTON Picked," which nearly exactly replicated Affleck's Form C. Each page contained space to list the names of the enslaved, and across the top were columns for Monday–Saturday, space for a total, and a final column for remarks. The record could be used on any size plantation, with planters simply using as many pages as needed to list the members of the enslaved workforce.[48]

In 1859, Robert Stewart of Natchez, Mississippi, used a dedicated cotton book to record the picking of the enslaved men and women laboring under him. Page after page is filled with daily tallies of individual and plantation picking. The results are extraordinary: by the time picking season was in full swing, the most skilled pickers were regularly bringing in more than 400 pounds per day, sometimes more than 500 pounds. The weaker pickers harvested at least 100 and often 200 pounds per day. In the last week of October, an enslaved man named Oskar brought in more than 500 pounds every day, for a total of 3,160 pounds over the course of the week. The following Monday, perhaps fresh from his Sunday rest, he brought in 615 pounds, reaching 3,295 pounds over that week. The following year, during the boom cotton season of 1860–1861, Oskar would top this daily record again. On January 4, coming back to what must have been full fields after a few days of ditching, Oskar picked an astonishing 735 pounds. That same day in January, Stewart's other top pickers, Little Ellick and Margarette, picked 670 pounds apiece.[49]

These remarkable totals were far above the average for the late 1850s—probably between 150 and 200 pounds per day. However, they would have been unheard of half a century earlier, when average picking rates may have been as low as 50 pounds per day.[50] Analysis drawing on records like the ones described in this chapter has demonstrated a tremendous increase in productivity during the sixty years preceding the American Civil War. Between 1801 and 1862, the average amount of cotton picked per slave per day increased about fourfold, or 2.3 percent per year.[51]

Economists and historians have disagreed about the source of these gains in cotton productivity, with economists pointing to biological innovation—especially the adoption of new strains of cotton—and historians putting greater emphasis on violence toward enslaved people.[52] Plantation account books show that planters pursued both strategies in combination, weaving agricultural innovation and coercion together in strategies to grow more cotton. New strains of cotton, most notably the Mexican hybrid Petit Gulf, undoubtedly accounted for a large part of efficiency gains. Planters sought varieties with higher and earlier yields, extending the picking season. They also sought strains that were more "pickable" and thus could be harvested faster. Pickable strains had boles that opened more widely, enabling the cotton to be plucked from the pod more easily than in other varieties. Ideally, many boles also opened simultaneously, allowing slaves to harvest more on each pass by a plant. In their pursuit of new strains, planters tested varieties from different sources—imports from all over the world, as well as the most productive plants in their own fields. By the late antebellum period, they could choose from many varieties based on climate, yield, cost, and available labor.[53]

"Pickability" did not automatically yield more cotton: enslaved people had to be induced to pick more. Without biological improvement, it would have been impossible to increase the pace of labor beyond some theoretical maximum—force could speed the work of enslaved laborers but not change what was possible. The converse was also true: though new seeds changed what was possible, they did not automatically increase the amount of cotton that enslaved people actually plucked from the fields. By keeping careful records, planters could compare different seeds, select the best varieties, and recalibrate expectations for how much they could require workers to pick. They could then blend rewards with punishment to push enslaved people to achieve these maximums. Focusing too narrowly on either biological innovation or on coercion overlooks the complex ways planters wove these tools together to expand production. New strains of cotton resulted in higher yields only because planters could calculate and enforce a faster rate of picking. And punishment, no matter how brutal, could accelerate productivity only because new strains changed what was possible.[54]

Data and management practices thus underpinned increased productivity. When planters adopted easier-to-pick strains of cotton, daily picking

records enabled them to set new targets, thereby extracting higher output from their slaves. Careful record keeping also facilitated the dissemination of innovations and the recalibration of expectations across the South. When Thomas Affleck first published his account book, he touted both its benefits for individual planters and the salutary influences he expected them to have on agriculture in the region. As he exclaimed to James Henry Hammond in a letter recommending the books, "Think of the advantage to both planters & overseers, of even 1,000 books written from day-to-day experience, scattered over the country!" Such books, kept in a standardized format, would enable precise comparisons, turning the full community of southern farmers into a vast laboratory for agricultural improvement.[55]

If planters seem to have cared about the last pound of cotton, they cared more about the last bale. From one perspective, pound-by-pound records of daily cotton picking are the most distinctive and impressive aspect of late antebellum plantation account books. They show a relentless drive to quantification. Slave-by-slave accounts seem designed to extract every possible pound from enslaved pickers. But on another level, these relatively simple records are less impressive than the larger systems of coordination and control that were developing alongside them. Looking beyond picking shows the many other ways planters attempted to increase their output. Account books not only helped monitor labor but also enabled planters to decide when to try new seeds or purchase equipment. Calculation and record keeping became flexible tools that helped planters reap productivity gains from all kinds of sources.

Growing cotton was complex, and it was sometimes difficult to uncover the source of large yearly fluctuations in output. Was a surplus or shortfall the result of the weather? Of the seed? Manure? The diligence of the slaves? Francis Terry Leak's journals of cotton picking and his accompanying diary show how he attempted to disentangle multiple influences. In his records of cotton picking, leak often included a variety of other calculations. He kept a running total for the year as well as subtotals for individual fields, some of which were planted with different seeds or enriched with different manures. He used these running totals to make projections, attempting to anticipate the success of the cotton crop and making what adjustments he could when the year's harvest began poorly. For example, midway through the 1843 picking season, he drew up a table of production and wrote, "If the deficiency

for the whole season is proportionate to that occurring up to 7 Feby, it will amount to 605000 bales." But if the "balance of the season should be at the rate of that occurring from 17 January to 7 Feby, it will amount to 696000 bales."[56]

Southern planters were obsessed with cotton, but they were not monoculturists, as historians have sometimes represented them. True, cotton was "king" in both the eyes of southerners and their northern critics, but this drove them away from monocropping, not toward it. Though historians once believed that cotton plantations grew little food, plowing all their resources into cash crops, we now know that this misconception resulted from trade statistics that did not reflect the fact that a large proportion of the midwestern foodstuffs that arrived in New Orleans were exported to consumers beyond the South.[57] Planters grew many crops. Most grew large amounts of food, including corn, potatoes, and an array of garden crops. They also raised hogs and sometimes other livestock. All these practices could complement the production of cotton: crops could be rotated, and pigs yielded not only meat but also manure, to enrich the land for growing more cotton. Perhaps most importantly, corn and cotton were countercyclical, enabling the steady use of enslaved labor over the course of a year.[58] Planters could use the off-season from cotton to grow corn to feed their slaves (and to feed their hogs). By carefully choreographing their crop mix, planters smoothed labor requirements over the course of the year.[59]

What plantation account books reveal is not just that cotton and corn were complementary but that they were complementary *by design*. Among the most important of Francis Terry Leak's calculations was his estimation of how he should divide his land between cotton and corn, a subject he commented on regularly. Leak's account books show that the smoothing of labor was not simply a characteristic of the crops but a result of careful calculations of when to plant and tend each. In April 1845, he noted a variety of "hints to be attended to another year." Among these, he included instructions on how to stage the planting of cotton and corn. Early in the season, he aimed to "plant Corn early enough to plough, hoe, & thin it, before Cotton comes up." Following this, "the scraping of the Cotton should Commence as soon as the cotton begins to come up." In order to have enough time to plant corn, the planting of the cotton crop had to happen quickly. So that "the scraping

may commence in time, the whole planting of the Cotton Crop should not exceed 8 or 10 days. This Year we were too long planting." Speed during potential bottlenecks could be enabled by preparation during the off-season. For example, "It would be desirable to break up the Corn land before planting, or to break out the stalks immediately after planting as in either Case the ploughs might not be kept in the Corn, after it comes up longer than to run round it."[60]

Seasonal planning hinged on how quickly planters could expect enslaved people to work. Efforts to understand the pace of labor are most evident from picking records, but planters also made estimates of more difficult-to-measure tasks. Below his notes on the relation between cotton and corn, Leak commented on the pace of labor he expected in chopping: "In chopping through Cotton the men should have 13500 yards & the women 10600 yards for a task." Leak's journal commented repeatedly on when he started and finished various tasks. Optimally planned, labor requirements could be smoothed over the course of the year. Staged properly, there would be no off-season. Even those tasks that were less time sensitive could be choreographed to allow perfect timing for those that were. Ginning, for example, could be completed during poor weather or pushed to the end of the picking season. But it could only be pushed back so far, or it would interfere with the planting of the next season's cotton. When Leak noted, for example, that he "finished ginning Wednesday 22nd March at 12 O'clock," he was completing the task just in time to tend to the next year's crop.[61]

Because planters controlled the activities of slaves year round, they sought to smooth labor requirements from season to season. These efforts had been underway for decades. George Washington proposed growing wheat of different varieties to stagger the harvest. This would have obviated the need to hire additional labor to assist his slaves. As he wrote in his diary, "If Wheat of different kinds are sowed so as to prevent the Harvest coming on at once, it is my opinion that hirelings of any kinds may be dispensed with."[62] By timing their planting, masters could grow more of everything without hiring additional labor. Indeed, across a variety of regions, success in growing staple crops tended to be associated with success in growing food crops. The two activities were complementary because they kept enslaved laborers working at a constant rate while also reducing expenditures on food.[63]

Control over labor over the course of the year also mitigated risks associated with harvest variation. Not only could planters plan the year to make use of labor from season to season, but they could deviate from this plan when opportunities for large profits arose. During an outstanding season, a planter could earn outsized profits—much larger than in a typical year. But he could only earn these profits if he could actually bring in the harvest. A planter pursuing maximum profits thus might sow extra acres in cotton. If the harvest was small, he could reallocate enslaved labor to other tasks and food crops. If it was large, he could purchase food and focus on picking cotton. Taking the risk of planting a very large crop without a captive, controlled labor force made little sense. But under slavery, planters could reallocate from other tasks when opportunities arose.[64]

Slavery made it possible to turn years with exceptional crops into exceptional profits. In a free labor economy, a cotton planter might not be able to recruit labor to bring in a rare bumper crop, which would likely coincide with high labor demand across a region. By contrast, under slavery, planters could plant more cotton with the assurance that they could command labor during the harvest. One such year was 1860, and some planters were able to translate the large crop into massive profits. Take Robert Stewart's plantation. In 1859, the picking season began in mid-August and extended to early December. When the picking concluded, he allocated labor to other tasks. But during the famously productive season of 1860, picking began in late August and stretched into February. Stewart had planted enough cotton for his slaves to continue picking for almost two more months when the opportunity arose.[65] Economist Gavin Wright has argued that the key to understanding southern productivity lies in crop mix. Those farms that concentrated more land and labor in cash crops like cotton tended to be more productive. Of course, concentrating resources in cash crops, rather than in subsistence crops like corn, brought the risk that planters would have to purchase foodstuffs in case of a shortfall. But slavery allowed planters with adequate resources to take on this risk, allocating relatively more resources to cotton.[66]

Planters also tried a wide array of other strategies to increase their cotton yields. Francis Terry Leak conducted an array of such experiments. Some of these constituted little more than dabbling with new methods, but others were designed to isolate the influence of particular techniques. For example,

in the 1850s, Leak described a well-planned "experiment" in the "Southwest Corner of the 58 acre Gin field." He fertilized even rows with various manures: "the 2nd, 4th, 6th & 8th rows are plastered for about 10 hills; the 10th, 12th, & 14th have hydraulic Cement 8 hills the 16th Ripley marl; & the eighteenth & twentieth Ashes only." Leak left the odd numbered rows unfertilized as controls, a strategy that would have made it easy both to isolate the effects of the various additives and to compare one fertilizer to another. More basic experiments included sowing different varietals, including "India cotton," "Nanking Cotton," Petit Gulf strains procured from different sources, and seed that he harvested from his own plants when he observed their boles opening particularly early. Leak also measured stalks as they came up and planted a garden where he attempted to determine how a red rot afflicting his cotton spread.[67]

Historians who have described planters as cotton-crazed get something important right: cotton was certainly king. However, planters grew it not single-mindedly but thoughtfully, with attention to their bottom lines. In their efforts to grow more cotton, planters both diversified crop mix and planted as much cotton as they could harvest. Understanding planters' goals also explains why their books look different from the accounts of merchants and manufacturers. Many did not frequently balance their books. Historians of accounting have focused disproportionate attention on striking a balance and on double-entry bookkeeping more broadly, sometimes describing it as "high capitalist accounting."[68] One of the reasons for this focus is the way double-entry bookkeeping enables businesspeople to both calculate their rates of profit and determine where those profits came from. For a merchant with many trading partners or a manufacturer with multiple product lines, the use of double-entry bookkeeping helped estimate and increase profits. By contrast, cotton planters knew where their profits were coming from: *cotton*.[69] To earn greater profits, the key was to grow (and pick) more cotton. Thus, what is most remarkable among planters' records is not their calculation of rates of profit—only occasionally attempted—but their analysis of labor output and the way it enabled them to grow more cotton and thus to earn higher profits.

Sugar and System

Record keeping also played a role in the success of sugar planters, though their account books were at once more complex and less regular than those of cotton planters. Sugar production was more complicated than growing cotton. As on the West Indian plantations described in Chapters 1 and 2, success involved more machinery, more processes, more tasks, and more potential bottlenecks. Sugar cane had to be planted, cut, and milled promptly to capture as much juice as possible before the cane dried out, then the resulting juice had to be boiled quickly to avoid spoilage. Because of this compressed schedule, the growing of raw ingredients and the early stages of processing were closely integrated and typically co-located. In a sense, it was as if textile mills had been located amid the cotton fields.

Sugar production in the American South, predominantly Louisiana, was even more time-sensitive than in the West Indies because of the shorter growing season. The risk of frost meant that the cane did not have as much time to reach maturity, and near the end of the growing season, planters faced the choice of whether to begin milling earlier at a lower rate of yield or to wait longer but chance an early frost. Harvesting typically began in the second half of October or early November, and then within a span of six to eight weeks, everything had to be harvested and processed into sugar.[70] The complexity of production and the exigencies of the crop made the potential rewards from aggressive labor management particularly large. The faster the harvest, the longer the planter could wait, and the more sugar he would produce. But a planter who pushed too hard might encounter resistance or a spike in runaways during this critical period.

Cotton had the convenient characteristic of being easy to weigh and easy to attribute to individuals, producing a number that could be used to reward or punish enslaved workers. And though fluctuations in price would of course mean changes in profit, this easy-to-collect metric related closely to a plantation's final productivity. By contrast, sugar planters lacked any single such measurement. The cutting and boiling of cane could not be easily quantified and attributed to individual slaves. Sugar making was an industrial, high-risk operation that benefited from regular record keeping. But sorting out the most valuable measurements and optimizing them was a far harder task. As a result, practices were often complex but also highly uneven.

Thomas Affleck's sugar plantation account books reflect these circumstances. They included many more forms than the cotton journals. Where the cotton books included fifteen forms, lettered A–O, the sugar books included twenty-one, lettered A–U (see Table 3.2). The sugar books changed more over the course of Affleck's publishing career, and planters used them even more unevenly than they used his cotton books. For example, on A. Ledoux & Company's plantation in Louisiana, overseer Samuel Leigh appears to have used the books as little more than a daily diary. He noted the weather and plantation activities daily, but he completed the other inventories only sporadically.[71]

On James Pirrie Bowman's Frogmoor Plantation, overseer George W. Woodruff used Affleck's books more extensively. He recorded clothing and supplies given out to slaves, births and deaths, and physician's visits. However, even he did not use all the recommended forms. His script filled the daily diary spaces from margin to margin, and when grinding season began, he simply wrote across the columns Affleck included for quantitative measurements. These five calculations ("Strength of Juice," "Lime Used," "Number of Strikes," "Number of Hogsheads," and "Cords of Wood") might have yielded valuable insights over the long run, but the payoff to recording them was far more distant than for the weighing of cotton. Woodruff ignored the instructions and simply offered more detail in narrative form. In similar fashion, he completed the inventory of slaves but left the valuations blank. He kept a detailed record of sales, but he did not bother to tally everything up in the final balance sheet.[72]

Woodruff did take advantage of occasional opportunities when output could be attributed to individuals. For example, he kept a detailed slave-by-slave record of cutting wood. First he recorded the daily task in the appropriate column (most often 1½ cords, but it ranged considerably by slave), next he filled in the amount cut each day, and finally he summed that total over the course of the week. Maintaining a sufficient supply of lumber was critical to the success of the mill; without enough to burn, the entire operation would grind to a halt. And unlike most of the other processes on the plantation, woodcutting could be easily monitored on a slave-by-slave basis.[73]

The comparative lack of standardization in sugar accounting should not be mistaken for a lack of sophistication. Rather, it reflects the exigencies of the crop: instead of minute productivity monitoring, planters focused on

TABLE 3.2. Forms included in Thomas Affleck's *Sugar Plantation Record and Account Book*

Form	Title	Frequency completed?
A	Daily Record of Passing Events	Daily
B	Inventory of Stock and Implements	Quarterly (Monthly in 1st ed.)
C	Daily Record of Passing Events (with grinding data)	Daily from start of grinding season
D	Record of Wood Cut	Daily
E	Record of Cooper's Work	As needed
F	Record of Clothing, Tools, &c., Given Out to the Negroes	As distributed
G	The Overseer's Entry of, and Receipt for, Supplies	Beginning of the year and as received
H	Record of the Weight of each Hhd. of Sugar made	
I	Record of each Barrel of Molasses made	
J	Record of the Shipments of Sugar and Molasses	As shipped
K	Overseer's Record of Births and Deaths of Negroes	As needed
L	Record of the Physician's Visits	As needed
M	Planter's Annual Record of his Negroes . . .	Beginning and end of the year
N	Planter's Annual Record of Stock	Beginning and end of the year
O	Planter's Inventory of Implements and Tools	Beginning and end of the year
P	Planter's Annual Inventory of Sugar-house . . .	Beginning and end of the year
Q	Planter's Record of the Amount and Value of Crops . . .	Beginning and end of the year
R	Planter's Record of the Sales of Sugar	
S	Planter's Record of the Sales of Molasses	As sold
T	Condensed Account of the Expenses of the Plantation	Yearly
U	Planter's Annual Balance Sheet	Yearly

Samuel Leigh, Observations of weather and crops, 1856–1857, A. Ledoux & Co. Plantation Journal, Pointe Coupee [Iberville?] Parish, Louisiana, January 5, 1856–January 18, 1857. Kenneth M. Stampp; Randolph Boehm; Martin Paul Schipper; Library of Congress, Manuscript Division, *Records of Antebellum Southern Plantations from the Revolution through the Civil War*, Series I: Selections from Louisiana State University, Part 1: Louisiana Sugar Plantations (Frederick, Md.: University Publications of America, 1985).

overall coordination and supervision. Richard Follett's excellent study of the business of sugar making describes the wide range of techniques planters adopted to make their operations more efficient. He describes how they instituted "assembly-line production," subdivided tasks, and introduced "systematized shift work," imposing a "regimented order that proved both exacting and relentless." In Follett's analysis, it was "a punishing agro-industrial system that, at the very least, anticipated several aspects of modern industrialization."[74]

Planters' efforts to increase production focused on coordination and supervision. As planter William Hamilton wrote, "I am a lover of order and system." He strove "to have a certain way of doing everything and a regular time for doing everything."[75] As in the Caribbean, planters developed extensive labor hierarchies and corresponding reporting structures. Compared to cotton, sugar required more slaves per acre, which made direct surveillance easier. Men supervised what the scale could not. Planters also sought a perfect balance between planting the cane, preparing it, cutting wood, grinding, and boiling. Timing was the key to maximizing the final output of sugar and molasses.

The journal for Robert Ruffin Barrow's Residence Plantation, in Terrebonne Parish, Louisiana, reflects the importance of "system." Residence was part of Barrow's extensive holdings. By some accounts, on the eve of the Civil War he owned sixteen plantations and more than seven hundred slaves. Barrow's journal shows his efforts to optimize production. Coordinating and categorizing labor was a year-round challenge. Every day, multiple gangs of slaves labored at a variety of tasks, from planting to plowing to hoeing to milling. Barrow's top manager was Ephraim A. Knowlton. Knowlton and the overseers below him kept running totals to track their cumulative progress at each of these tasks, hoping to ensure that everything was prepared for the harvest. As the year advanced and winter bore down on the plantation, the challenges of coordination intensified. The enslaved worked frantically to bring in the crop and turn it into sugar, often in multiple shifts over the course of the day. But there were many potential bottlenecks that could bring everything to a halt. Without enough wood, the boilers could not boil. Without the right boards and hoops, they could not make barrels. Without enough barrels, they could not store the sugar. On top of all this, cane had to be brought from the field at a steady pace and continuously fed into the

grinder. Any mechanical malfunction could disrupt this continuous flow of production.[76]

To keep the works running, either Knowlton or Barrow (perhaps together) laid out a roster of the many tasks on the plantation. They titled this form the "classification of Han[d]s at Residence of 1857." The first classification was drawn up in mid-November, at the beginning of the grinding season. The chart divided the various categories of labor into two groups, presumably each feeding a boiling apparatus. Each group included a broad distribution of categories: "engine," "cane cutters," "shucking cane," "kettles," "furnace," "wood hauler," "cane shed," "loaders," "wagoners," "juice boxes," "wagon greasers," "cook till 12 o'clock," "sugar potters," and "cook for negroes." The messy document appears to have been modified repeatedly, with categories crossed out and altered. The journal also refers to it repeatedly, noting that the rest of the hands are at work as "per the classification."[77]

A few weeks later, perhaps with a better idea of how each process could be staged, the classification was redrawn (see Figure 3.4). This classification divided the various categories of labor into two groups, one for each "tower." Under the new division of labor, the whole plantation operated as if a machine of many parts—a continuous-process assembly line on a grand scale. This document is neater than the first classification, but the proto–assembly line still required constant adjusting. Knowlton explained at the bottom: "The above is how the Hands worked this day. They are however changed most every day. Those on 1st Tower are put on 2nd Tower, it is hard to keep up with the changes as it is almost requisite to make a new classification every day if a currency is required. EAK." And despite this effort, a variety of bottlenecks could and did sometimes bring the works to a halt.[78]

Coordinating and classifying labor was an ongoing challenge, but the legal conditions of slavery made it far easier to keep the works running. In a northern factory, labor could not be reclassified without consent from the workers. A new job might require new negotiations and higher wages. Negotiations often resulted in high rates of labor turnover—a challenge that manufacturers in free factories would continue to face into the twentieth century.[79] By contrast, planters could simply and quickly reallocate labor from day to day without renegotiation. On cotton plantations, this meant a secure labor force when the crop came in. On sugar plantations, this offered regimented control over the whole factorylike production process. Several ob-

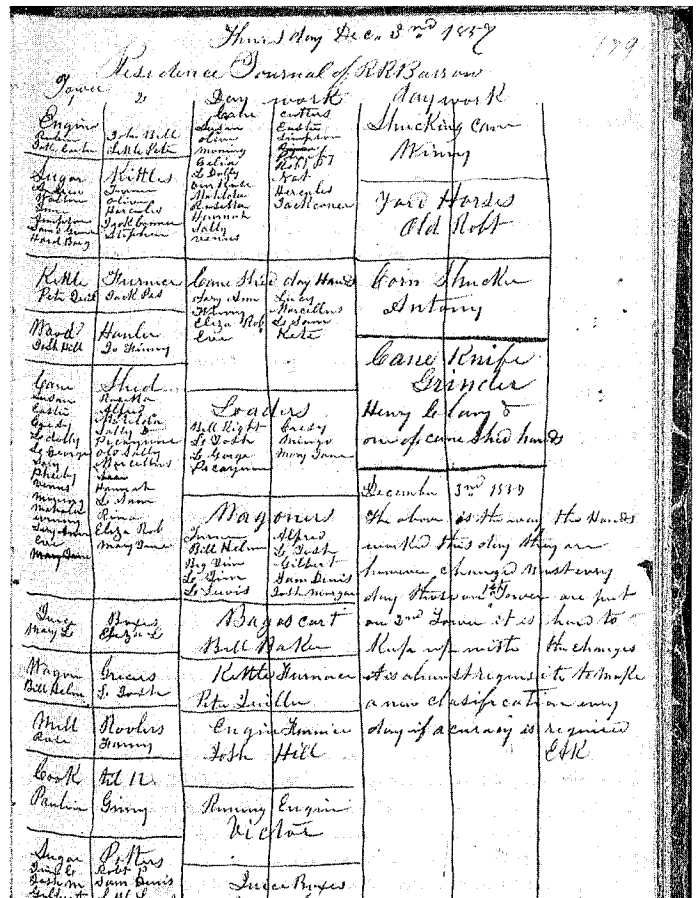


FIGURE 3.4. Classification of Labor on Residence Plantation, 1857. Labor on Residence Plantation was regularly classified and reclassified as the sugar-making season advanced. Courtesy of the Southern Historical Collection, Louis Round Wilson Special Collections Library, University of North Carolina at Chapel Hill.

servers commented on the advantages of superior organization. Timothy Flint explained that one hundred slaves "will accomplish more on one plantation, than so many hired free men, acting at their own discretion."[80] Robert Russell concluded, "Free labor cannot compete, in the manufacture of sugar, with better organized slave labor."[81]

The challenges of turnover were not entirely absent on southern plantations, which often employed free workers as well. Because he had such large holdings and was often absent from the plantation, Barrow employed a manager and a team of overseers. Just managing this small free staff frequently presented problems. Ephraim Knowlton, Barrow's top manager, had charge of production and remained on the plantation throughout the year. However, the overseers below him quit or were fired every few months. In late April, after a disagreement about the livestock, Robert Ford told Knowlton that he planned on "quitting and cease Overseeing," and Barrow told Knowlton to "let him quit." Several months (and another overseer) later, Ford would return. At first Ford seems to have been resigned to follow Barrow's orders, but he quit again after only a few weeks. A man name Gaither quit after thirty-eight days because "he thinks he does not suit Mr B." After Gaither, N. B. Holland arrived. Barrow decided to employ Holland "on trial," but conflicts over scheduling and coordination arose almost immediately.[82]

For enslaved people, the only way to quit was to run away, risking capture and deprivation not only for themselves but for loved ones they left behind. If the law neglected to reach inside the plantation except in the most egregious cases, it did police its boundaries. From the colonial period to the Civil War, slave patrols monitored movement off plantations and enforced pass systems, securing the system of slavery. In some cases, elite masters preferred not to extend too much power to patrollers, restricting their authority on plantations or refusing to write passes for their own slaves. Generally, however, masters supported patrols while also taking steps to make sure that they maintained authority within the boundaries of their plantations. Patrols safeguarded slavery by restricting enslaved mobility, while planters controlled the enslaved within the plantation.[83] On a national scale, planters used the law to protect their authority, with the Fugitive Slave Act of 1850 as the most prominent example. Even when enslaved people took the immense risk of fleeing beyond the state or region of their masters, they were not safe from their authority.[84]

Enslaved people could not quit, but their owners could sell them. Slaveholders used the threat of sale to increase their power. Occasionally statutes limited planters' rights—for example, restricting the sale of children away from their mothers. But even these statutes placed few practical restraints on planters' power. For example, an 1854 Georgia law prohibited the executors and administrators of wills from selling children under the age of five without their mothers. But this restriction only applied if practicable: if a will could not be executed without selling children away from their mothers they could be sold.[85] The threat of sale could be used to extract obedience, even from beyond the grave. The 1861 will of Edward Winning of Saline County, Missouri, expressed his aspiration that after his death, his slaves would be allowed to "choose their new homes, and if it could be done to be kept in the family." However, any who became "unmanageable and disobedient" were to be sold or hired as the executor wished.[86]

The plantation worked as a kind of human machine. As one commentator wrote in the *Southern Cultivator*, "A plantation might be considered as a piece of machinery; to operate successfully, all its parts should be uniform and exact, and the impelling force regular and steady; and the master . . . should be their impelling force."[87] Reallocation of labor occurred not only in response to changing seasonal labor requirements but also as a result of sickness and injury. When a human cog in the machine became ill, management could simply rotate him or her to a lighter task. On Barrow's Residence Plantation, this occurred when the hands were struck with measles. Knowlton and Barrow established a "measles gang" to make use of those hands deemed well enough to work. Pregnant women and those with young children were similarly reclassified during confinement and after birth. Barrow's journal records the regular tasks of a "sucklers gang," which would have been composed of nursing women.[88] Planters sought to allocate the labor of enslaved people of all ages and capabilities, and they distributed tasks according to strength and ability. The lightest tasks could be assigned to children or to those recovering from illness. Though the nature of work might change over the course of a day, a season, or a life, the expectation was always that labor would continue.[89]

Some of the incentive systems masters employed resembled those used in free labor systems, but planters could be far more intrusive than managers of wage laborers. Not only could they threaten punishment, but they could

manipulate almost every aspect of slaves' daily lives—from access to food to housing, clothing, curfew, and contact with children and family. Private and community life could be manipulated to improve production. Evidence of this minute level of control can be found in the ways planters reconfigured plantation life during periods of peak labor. Some adopted centralized kitchens to spare field hands the need to cook during the grinding season. Cooking facilities also enabled overseers and planters to monitor slaves' diets during times when maximum effort was required.[90] The recommendations were part of a larger literature on how food influenced output. Planters debated slaves' consumption in much the same way they considered the addition of marl or guano to southern soils, hypothesizing about what foods and beverages might expedite labor and increase yield. One writer to an agricultural periodical proposed serving coffee with lots of sugar during the winter months,[91] while another recommended refreshing slaves with a blend of water, ginger, and molasses as they toiled in the fields.[92]

Of course, planters' domination had limits. The exigencies of the grinding season gave slaves a modicum of power, and they did what they could to secure better conditions. Slaves might receive Christmas presents, more food, and small sums of money for diligent service.[93] Frederick Law Olmsted observed that on one plantation the slaves seemed to have fewer grievances during the season of hardest labor. The "reason of it evidently is, that they are then better paid; they have better and more varied food and stimulants than usual."[94] But incentive schemes always paid planters better than slaves. As on cotton plantations, planters used bonuses and prizes to stretch out the working day and drive slaves harder during times of peak labor. And the circumstances of slavery meant that planters did not have to pay very much. Slaveholders could buy the diligence of many slaves for a pittance compared to total costs.[95]

Accounting for Control

The language planters used to describe their efforts to improve labor productivity bears a striking resemblance to the late nineteenth-century language of scientific management. In his 1911 classic *The Principles of Scientific Management*, Frederick Winslow Taylor described the goals of his experiments in labor productivity. As he wrote, "Our endeavor was to learn what

really constituted a full day's work for a first class man; the best day's work that a man could properly do, year in and year out, and still thrive under."[96] More than half a century earlier, South Carolina planter Plowden C. J. Weston described the fundamental maxim of good management in almost identical terms. As he emphasized in his instructions to his overseers, "*In nothing does a good manager so much excel a bad, as in being able to discern what a hand is capable of doing and in never attempting to make him do more.*"[97] Virginia wheat planter Pleasant Suit urged his overseers to use "every means" in their power to understand "what is a day's work for a hand in every variety of plantation business."[98]

The fundamental aim of scientific management was to discern and extract the maximum amount of labor from workers. Managers and owners thought about men and women as inputs of production that could be adjusted and improved in the same manner as machines—and trained and rewarded like animals learning new tricks. When Taylor described the ideal profile of a pig-iron handler, he revealed this mind-set. Those who were "fit to handle pig iron as a regular occupation" should be "so stupid and so phlegmatic" that their mental capacity "more nearly resembles . . . the ox than any other type."[99] The circumstances of slavery lent themselves to a similar mode of thinking. Taylor's "first class men" were seen in a similar light as the "prime hands" who labored in the cotton fields. Taylor and the "college men" he hired to follow them and study their motions thought of them as "first class" only in their ability to perform physical work.[100]

In exceptional cases, the level of observation planters applied to their slaves approached the time and motion studies of scientific management. One particularly striking contribution to the southern agricultural press came from a planter writing under the proto-Taylorist pseudonym "One Who Follows His Hands." In 1848, this unnamed planter wrote two essays titled "A Day's Work." The articles enumerated exactly how much work a prime field hand could complete across an array of tasks. The prime hand could plow 20 to 24 miles (with allowances for turning the plow and team), open furrows for sowing 12 acres of cotton, drop cotton seed across 7 to 10 acres, and haul out 6 to 800 yards; in addition, three "good fellows" could "make a ditch 3 feet wide at top, 2 feet deep, and 2 feet wide at bottom, 220 yards long." In this way, the author continued specifying what constituted "a day's work" across dozens of tasks. Throughout his experiments, he claimed literally to follow

his hands, requiring that every hand be closely observed, for "unless he is watched he will not do it."[101]

The essayist appears, at first, to be prone to exaggeration, and perhaps he was. Still, readers took him seriously enough to respond in detail and on his terms. One skeptical reply contributed by "A Voice from the Seaboard" chose to precisely analyze his calculations. "Really, Mr. Editor," he wrote. "Let us take his example in ditching, under the most favorable circumstances. He says—'Three good fellows, somewhat versed in spade &c. can make a ditch three feet wide at top, two feet deep, and two feet wide at bottom, 220 yards long in a day in old land.' Or 3,300 cubic feet (being 1,100 cubic feet apiece). . . . What sort of hands has he . . . ?"[102]

Similar analysis can be found in the *Plantation and Farm Instruction Record and Account Book*, published by J. W. Randolph. The appendix offered task recommendations in a short section on "data in mechanics and rural economy." For example, the author explained that "in plane earth excavations, one man ought to execute each day 10 cubic yards with spade and wheelbarrow, depositing the dirt at any distance within 120 feet." He similarly concluded that a man or boy with a horse and plow could be tasked with about 1 and 1 / 3 acres per day. For him, figuring out labor was simply a matter of multiplication: "given the width of the furrow-slice cut by any plough, the number of hours at work, and the rate at which the team travels per hour," the "surface that such plough and team can plough per day, may be calculated." Ironically, the author's example included a large arithmetical error, but he nonetheless offered it as a general rule. This same author offered further estimates that an active man, "working to the greatest possible advantage," should be able "to raise 10 lbs. 10 feet in a second, for ten hours in a day; or 100 lbs. 1 foot in a second, or 36,000 feet in a day; or 3,600,000 lbs. 1 foot in a day." A good horse could "in general, draw no more up a steep hill than three men can carry." And so he continued, treating men just as he treated horses, and both as he treated machines.[103]

The logic of multiplying human labor out over time again resembles Frederick Winslow Taylor's investigations into scientific management. In *The Principles of Scientific Management*, Taylor described repeated attempts to determine "what fraction of a horse-power a man was able to exert, that is, how many foot-pounds of work a man could do in a day." Through a series of experiments, he concluded that "to our surprise," there was no "constant or

uniform relation." In some activities a man could do "not more than one-eighth of a horse-power," but in others he might achieve "a half a horse-power of work." Despite his empirical findings, however, Taylor remained "quite as firmly convinced as ever that some definite clear-cut law existed as to what constitutes a full day's work for a first-class laborer." Eventually, through collaboration with Carl Barth, Taylor would settle on a relationship, if not quite a law. And he would maintain his mechanistic view of human labor as he developed the theory and practice of scientific management.[104]

Taylor's efforts and those of southern planters even appear to share an overlapping heritage. The analysis of the "labor of an active man" included in Randolph's plantation journal appears to come from an 1814 book by Scottish civil engineer Robertson Buchanan. Buchanan's work was also a source for Julius Weisbach's *Principles of the Mechanics of Machinery and Engineering*, a chapter of which appeared in a textbook used at the Stevens Institute of Technology while Taylor was in residence.[105] Just as in the late eighteenth- and early nineteenth-century West Indies, management advice sometimes circulated widely, even crossing oceans and moving between economies based on free labor and those based on slavery. Though slavery's "scientific management" does not appear to have any direct influence on the system that would later go by that name, both were embedded in broader networks of managerial expertise. Both reflected the same mechanistic view of human labor, and both relied on the belief that careful observation would reveal the physical laws that governed maximum output.[106]

Southern blank books spread innovative, comprehensive accounting systems. Books like Thomas Affleck's were remarkably precise and specialized, and planters used them both to monitor the activities of overseers and to extract maximum effort from enslaved people. Among the many kinds of records contained in these journals, planters focused by far the most attention on the records of cotton picking. Planters used these forms to track the number of pounds picked by each individual slave every day. They recorded thousands of data points, tracking productivity with a level of precision that would not be regularly attained in northern factories until the late nineteenth century with the rise of scientific management. They wove this data together with violence to accelerate the pace of labor, enabling planters to grow more cotton and thus to earn higher profits.

Though slave-by-slave records of cotton picking are in many ways the most impressive artifacts of plantation data practices, they were only one piece of a larger system of experimentation and innovation. Carefully kept records helped planters to increase their output through a variety of agricultural innovations ranging from new seeds to fertilizers. These new technologies made it possible for enslaved people to pick more cotton, and assiduously collected data helped planters to reset their expectations and to design incentive systems (of small rewards and brutal punishments) to drive enslaved laborers to reach new frontiers of productivity. Enslaved people sometimes slowed the pace of work in an attempt to thwart this speedup, but careful records limited their success. The constant surveillance of the scale made both overages and shortfalls perilous. Slaveholders' control guaranteed them a steady supply of labor. Though they were not monoculturists, they were obsessed with growing as much cotton and sugar as possible, and their domination of enslaved people made it profitable to sow larger crops because they could be assured of labor at harvest time.

Systematic accounting practices thrived on antebellum plantations—not despite slavery but because of it. The soft power of numbers complemented the intimidation of the whip and the threat of sale. Planters blended innovation, information, and violence as they drove up the pace of labor, conducted experiments, and distributed incentives. On the pages of account books, the power of masters over slaves transformed men and women into units of labor power, labor power into bales of cotton, and cotton into profit. Chapter 4 turns to a complementary set of calculations—of enslaved people's value as capital. Here planters estimated not just how much work people could be expected to perform, but how much they were worth on the market as tradable assets. Of course, the transformation of enslaved people into units of labor and units of capital was never complete; the complexity and humanity of individual people constantly subverted full commodification. But planters advanced remarkably far in their efforts to capitalize human lives.

4

Human Capital

VALUING LIVES IN THE ANTEBELLUM SOUTH

IN 1856, TWELVE BABIES were born on Canebrake Plantation in Adams County, Mississippi: six boys and six girls. The first, Kate, arrived on January 21, born to Beck, age thirty. The last came just before the New Year—Jenny, born to Susan, age twenty-three, on December 29. One, a baby girl born to Peggy on November 12, did not survive the month. If she received a name, we do not know it. But the rest lived long enough to be entered into the inventory of lives for the following year. There, Canebrake's proprietor, James Green Carson, noted their names, ages, and values. He priced each baby at $25 except for Kate. He rounded her age up to one and set her value at $75. Thus, the births of 1856 became $325 in human capital at the beginning of 1857. Many years before he would begin to measure their labor, Carson had already entered them into his account books as capital.[1]

Chapter 3 described the ways planters attempted to accelerate the pace of labor from day to day, keeping detailed records in order to determine how much work their slaves could perform and to pushing them to achieve this maximum. But slavery also offered another kind of profit: capital appreciation. Slaves were, quite literally, human capital, whose value could appreciate through maturation, reproduction, and health or depreciate due to illness, age, and disobedience. Slaveholders' calculations show that they were keenly