The Profitability of Sugar Planting in the British West Indies, 1650–1834[1]

By J. R. WARD

How profitable were the plantations of the British West Indies during the years of slavery? The question is interesting for several reasons. First, colonists went there, when they went of their own accord, in order to make money, and it is worth asking how well they succeeded. Then there is the problem of the effect of the plantations upon the mother country. It is generally considered that they were profitable to their owners, at least during their early years. But were they equally profitable to society at large? The British West Indies were developed and held under the navigation laws, and these laws gave them a virtual monopoly of the British market for the products of tropical agriculture. But for much of the eighteenth century the planters of the British colonies were unable to deliver sugar to Europe as cheaply as the planters of the French, Dutch, and Danish islands. So it can be argued that in consequence of British West Indian settlement under a peculiar form of economic organization, the British consumer had to pay more for his sugar than he would have under free trade. Also the West Indian colonies became objects of international rivalry and brought large expenditures on defence. These points were first made in a coherent way by Adam Smith, and his economic indictment of the British West Indies lay at the heart of his attack on the system of regulated trade.[2] More recently they have been the subject of debate in this *Review*.[3] The problem is, did the private profits of the sugar planters exceed by a large enough margin the social costs that their business entailed? Clearly the first step in its resolution must be to estimate what those profits were.

Finally, the subject of profitability is important for the history of the plantations during the seventy years before the abolition of slavery in 1834. There are various points of view on this. On one hand L. J. Ragatz has told a gloomy story of almost continuous decline.[4] The prosperity of the sugar planters, he considers, reached its height about the middle of the eighteenth century, but even then it was clouded. They were overcommitted to a crop which exhausted the soil, they

[1] This article is part of a larger study of the British West Indies between 1624 and 1834. I am grateful to the archivists and their staffs who have made material available to me. I have profited from conversations with Prof. Stanley Engerman and Mr George Tyson and their advice on sources, and from comments made on an earlier draft read to the Conference of Scottish Economic Historians held at Edinburgh in Dec. 1975.

[2] A. Smith, *The Wealth of Nations* (2 vols. 1776). See esp. Bk IV, ch. 7, 'Of Colonies'.

[3] R. B. Sheridan, 'The Wealth of Jamaica in the Eighteenth Century', *Economic History Review*, 2nd ser. XVIII (1965), 292–311; R. P. Thomas, 'The Sugar Colonies of the Old Empire: Profit or Loss for Great Britain?', ibid. XXI (1968), 30–45; R. B. Sheridan, 'The Wealth of Jamaica in the Eighteenth Century: A Rejoinder', ibid. 46–61.

[4] L. J. Ragatz, *The Downfall of the Planter Class in the British Caribbean, 1763–1833* (New York, 1928).

could not or would not improve their techniques, and many were absentees employing dishonest or incapable managers. In the following decades they were ruined by a remorseless sequence of misfortunes. The settlement of more fertile lands in the newly acquired Ceded Islands, Trinidad, and British Guiana glutted their markets; the rebellion of the North American colonies cut them off from their traditional source of plantation supplies; and the abolition of the British slave trade in 1808 raised the cost of their labour. Plantation agriculture was on the point of collapse through most of the British West Indies even before the slaves were freed; emancipation only consummated a longer process of decline. The breadth of its scholarship and the force of its argument have given Ragatz's account great influence, but more recently it has been criticized. R. B. Sheridan and W. A. Green have taken a less pessimistic view of the planters' capacity for technical improvement.[1] R. K. Aufhauser has examined the records of some Barbados plantations on the eve of emancipation and found that they were making profits.[2] Hence one of the purposes of this article is to extend the discussion and put the period studied by Ragatz into wider perspective. It is based upon the study of a sample of plantation records.[3] First, it considers the form of plantation accounts and the way in which they may be used to estimate the rate of profit. Second, it presents the results that these accounts yield for the sample of plantations chosen and discusses their limitations. Third, it draws some conclusions on the subjects mentioned here.

I

The rate of profit is the ratio between net income and a stock of capital, and a means of estimating these is required. Income is the balance of receipts and expenses, net of capital appreciation or depreciation; sometimes this is stated in planters' papers but more usually we must make the estimates ourselves. Plantation receipts came from the sale of sugar, rum, and molasses, and sometimes also from livestock, provisions, and the hiring out of slaves. To be deducted from these are the three main categories of expenditure: first, the so-called Island Expenses, that is expenses incurred locally in the colony on taxes, salaries, and the purchase of food, lumber, slaves, and livestock; second, the Invoice, that is the shipments from Europe of plantation stores; and third, the costs of marketing the sugar, that is factorage, insurance, and freight. Ideally, we should have information about all of these as the basis for our estimates, but we are not always so fortunate. The most important components of the balance are the income from the sales of sugar and rum, and the Island Expenses; where no information on these survives no estimate of profit has been attempted. For the sugar it is best to use detailed accounts of sales which give the prices obtained and the proceeds net of marketing expenses. But sometimes there is an account only of the weight, or of the volume (number of hogsheads) of production, or of shipments leaving the plantation, or reaching Great Britain. In such cases the proceeds of sales have

[1] R. B. Sheridan, *Sugar and Slavery* (Barbados, 1974), ch. 16; W. A. Green, 'The Planter Class and British West Indian Sugar Production, before and after Emancipation', *Econ. Hist. Rev.* 2nd ser. XXVI (1973), 448–63.

[2] R. K. Aufhauser, 'The Profitability of Slavery in the British Caribbean', *Journal of Interdisciplinary History*, V (1974), 45–67.

[3] They are listed in the Appendix.

been estimated by assuming that the weight per hogshead was the average for the time and place, that 96 per cent of production was shipped to market from the plantation, that the loss of weight in shipment through leakage was 14 per cent, and that the sugar when it reached its destination was sold at the average current London price as reported in the main published series.[1]

The rum was usually sold locally to meet the Island Expenses, and for information on these the Island Account is necessary. As it happens, because this was the main instrument by which owners supervised their property, it was the class of record which was kept most carefully and which survives most often. The second component of expenditure, the Invoice, was less considerable, and less subject to unpredictable variation. So where the necessary accounts do not survive I have estimated it as a ratio of the number of slaves on the plantation, calculating this ratio from other contemporary data. Thirdly, there are the marketing costs. Where the details are not known they can be estimated. The factor's commission was standardized throughout the period at 2½ per cent; rates for freight and insurance were quite uniform for each island or groups of islands in any particular year. The details are set out in Tables 1 and 2.

Table 1. *Freight Rates on Sugar from the West Indies to London*
(per cwt)

		Jamaica s.	d.	*Other West Indies* s.	d.
1689–97	War	14	5	8	9
1698–1702	Peace	9	6	3	7
1703–13	War	15	9	7	4
1714–38	Peace	4	0	3	6
1739–48	War	10	0	8	0
1749–55	Peace	4	0	3	6
1756–62	War	8	0	6	0
1763–75	Peace	4	0	3	6
1776–82	War	8	0	8	0
1783–92	Peace	4	0	3	6
1793–8	War	9	0	7	0
1799–1801	War	10	0	8	0
1802–3	Peace	6	0	4	6
1804–7	War	9	6	7	6
1808–15	War	11	0	9	0
1816–34	Peace	6	0	5	0

Sources: R. Davis, *The Rise of the English Shipping Industry* (1962), p. 283; plantation records.

[1] The assumptions about hogshead capacity, proportions shipped, and losses in transit are based upon plantation records. Sugar prices for 1674–1775 from Sheridan, *Sugar and Slavery*, pp. 496–7; 1776–89, 'The Average Price of Antigua Sugars at the British Market since 1769, Taken from the Books of a Mercantile House in London', *House of Commons Papers, 1731–1800, Accounts and Papers*, XXVI, 1789, no. 646a, pt 5. Antigua; 1790–1, 1818–19, 1834, plantation records; 1792–1817, 1820–33, annual average of sugar prices from the *London Gazette* printed in L. J. Ragatz, *Statistics for the Study of British Caribbean Economic History, 1763–1833* (1927), p. 8. Usually prices were slightly higher in the outports than in London, but apparently this was because their markets were narrower and their means of payment less secure. The published prices for 1726–58 have been criticized as likely to understate the true average because they are derived from the sales of sugar paid to the crown on account of the 4½ per cent export duty, which may have been of low quality. But insofar as it has been possible to check this, crown sugar does not seem to have been much worse than the average. Between 1749 and 1758 its mean price was 34s. 5d. while sugar from the Parham plantations, Antigua, sold for 35s. 1d.—Somerset Record Office, Tudway Papers, Box 12.

Table 2. *Insurance Rates on Sugar from the West Indies to London*
(per cent)

		Jamaica	*Other West Indies*
1689–97	War	17	17
1698–1702	Peace	6	4
1703–13	War	11	11
1714–38	Peace	6	4
1739–48	War	15	10
1749–55	Peace	6	4
1756–62	War	15	10
1763–75	Peace	4	3
1776–82	War	10	13
1783–92	Peace	4	3
1793–1800	War	11	8
1801	War	8	6
1802	Peace	5	3
1803–8	War	7	6
1809–15	War	5	4
1816–24	Peace	4	3
1825–34	Peace	3	2

Sources: Plantation records.

Table 2 glosses over a number of complications. The seaworthiness of ships varied, as did the reputations of their owners and captains; also rebates were often given if a ship left the Caribbean before the start of the hurricane season in July or August, and, in war time, if it took convoy. The rates listed are the average of rates quoted, deducting these rebates, and adding the usual charges for commission ($\frac{1}{2}$ per cent) and for making out the policy ($\frac{1}{4}$ per cent). But in practice not all ships sailed before the hurricane season or took convoy in war time, although most did. So in this way the procedure will tend to understate the average net premium paid. On the other hand, many planters did not insure at all, particularly in time of peace, and while over the long term they would pay a price in uncompensated losses, this price would on average be less than the premiums whose costs were saved, because these included an element of broker's and underwriter's profit. Thus we have a complete record of shipments from the Parham plantations in Antigua between 1749 and 1781.[1] The average rate of loss in peace time was 1·6 per cent and in war time 3·9 per cent, much below the prevailing rates of insurance. So in this way insurance rates overstate the dangers of war and the sea. This probably cancels out the understatement introduced by the treatment of rebates. I think that on balance Table 2 rather exaggerates the cost of insurance.[2]

The last point to consider in the calculation of net income is capital appreciation and depreciation. Capital expenditure, whether for the maintenance of an existing stock or for additions to it, was usually included in the Island Account and Invoice. So where a plantation's equipment does not change, the estimates of income made in the way already described can be accepted without further adjustment. But where the capital stock changes substantially special account must be taken. Few complete valuations of assets were made, but their most

[1] Somerset R.O. Tudway Papers, Box 12.
[2] For further details see R. Pares, *War and Trade in the West Indies* (Oxford, 1936), pp. 495–500.

important component, the number of slaves, was recorded regularly. So the capital stock of each plantation has been calculated as a multiple of the number of its slaves. Account is taken of capital appreciation and depreciation when the number of slaves changes by more than 5 per cent in the period for which the estimate of profits is made.

The multiplier required for this, the average stock of capital employed per slave, has been estimated from plantation records. Valuations made at current market prices have been accepted as they stand, except for land, and after 1808, for slaves. During much of the period, land in the West Indies was scarce and so commanded a rent which appeared in its price. Therefore, I have valued it at the current cost of clearing and cultivating. Similarly, after the prohibition of the African slave trade in 1808 and of the inter-colonial trade in 1825, slaves also became scarce, at least in the more productive colonies. Thus in the years before emancipation the average market price of slaves ranged from £115 in British Guiana to £33 in Antigua.[1]

If the market price was no longer a true measure of the economic cost of a slave, however, it is not easy to establish a more satisfactory alternative. Certainly, estimates of the cost of rearing slaves were published, but these were worthless exaggerations put out by the planters' pressure groups to show that they could not compete with Cuba or Brazil, where the slave trade continued.[2] I have seen no authentic account among plantation records and it would be very difficult to make. The main expense of rearing a slave was its food, but how much did this cost? The slaves grew much of it for themselves on their own provision grounds. But no one knows, and perhaps no white man ever knew, how a child's needs were met there, whether through its own labour, through increased effort by its parents (and what did this cost their master in the canefields?), or by their sacrifice of income from sales of the surplus in the markets. The rest of the slaves' needs were met by the master's purchases—these alone are easily accounted for—and by gang labour under his instructions. But what price should be put on this? Much of it was done outside the cane-planting and harvesting seasons, which were the times of greatest demand for labour. Also, on some plantations, particularly in Barbados and the Leeward Islands, food crops were grown on the cane lands as part of a system of rotation. Therefore, the opportunity cost of labour devoted to growing food is uncertain. In short, it is impossible to estimate directly the cost of raising a slave. But for many years before the abolition of the slave trade planters consistently urged their managers to encourage breeding and avoid purchases "from the ships".[3] If this policy was rational then the cost of breeding a slave in the West Indies must have been equal to or less than the market price of a slave of similar quality brought from Africa. For the sake of simplicity I assume that the business of slave supply was in long-run competitive equilibrium

[1] *Averages of Sales in the Colonies Affected by the Slavery Abolition Act* (Parl. Papers, 1837–8, XLVIII, 329); D. Eltis, 'The Traffic in Slaves between the British West Indian Colonies, 1807–33', *Econ. Hist. Rev.* 2nd ser. XXV (1972), 55–64.

[2] See, for example, *Statements . . . relating to the Commercial, Financial, and Political State of the British West India Colonies* (House of Lords Sessional Papers, 1831, VI), 120–8.

[3] See, for example, National Library of Scotland, Nisbet Papers, MS 5477, Letter Book of William Chisholme, 1797–1810; Somerset R.O. Dickenson Papers, DD/DN 468, Letter Book of William Dickenson, 1792–4.

and that costs equalled prices, that is, £55 sterling for a plantation slave of average quality in the years 1799–1807.

The economics of slave breeding are not likely to have changed substantially, so I estimate the economic cost of a slave in later years by adjusting the price of 1799–1807 for movements in the prices of the food and clothing required for its maintenance and in the costs of medical attendance and taxes. I assume that each slave received annually 6·5 bushels of Indian corn, 56 lb. of pickled herrings, 5 yards of linen, and 4 yards of woollen cloth. The composition of the index of average costs derived on these assumptions is set out in Table 3.[1] The index yields £71 as the average economic cost of a slave for 1808–19, or £64 for 1799–1819, and £39 for 1820–34.

Table 3. *Annual Maintenance Costs per Slave*
(£ sterling)

	Indian corn	*Herrings*	*Clothing*	*Medical attendance*	*Taxes*	*Total*	*Index number*
1799–1807	2·535	0·930	0·49	0·20	0·30	4·455	100
1808–19	3·250	1·250	0·64	0·25	0·35	5·740	129
1820–34	1·625	0·625	0·42	0·25	0·25	3·170	71

Sources: Plantation accounts.

There is one further point. This procedure takes no account of changes in the composition or average quality of the slave labour force. But after the ending of the African slave trade in 1808, and perhaps also before, the proportion of African-born slaves on the plantations fell, and that of creoles—locally born slaves—rose. Creoles were more valuable than Africans; they had more skills, including a better command of English, and they were more amenable to plantation discipline. So in this way the average quality of plantation slaves was rising. However, in another way it was falling. Most slaves imported from Africa were aged between 10 and 30 years. Therefore, because they were no longer imported after 1808 an unfavourable change occurred in the age distribution of plantation slaves. The most productive slaves aged between about 20 and 40 became relatively less numerous, older and less productive slaves became relatively more numerous. Table 4 sets out the details of these changes, and of the relative values of the different classes of slaves, taken from plantation listings and valuations. In estimating relative values all variables except the ones under consideration have been held constant. Thus, for example, the average value of creoles in relation to Africans is the average relative value of creoles of similar age and employment. Relative values may reasonably be used as a measure of quality. On this assumption the information set out in Table 4 has been used to compile the following index of the average quality of plantation slaves:

1799–1819 100·0 1820–34 100·2

[1] These assumptions, and information about prices, the costs of medical attendance, and taxes per slave, are taken from plantation accounts. See also J. H. Bennett, *Bondsmen and Bishops: Slavery and Apprenticeship on the Codrington Plantations of Barbados, 1710–1838* (Berkeley, 1958), esp. pp. 37–43, 102, 132. Of course, as I have already indicated that only a part of the slaves' food was usually bought in, it is inconsistent to use market prices as a measure of costs. But this seems to be the least unsatisfactory solution that is possible for the problem. On another occasion I hope to discuss more thoroughly the economics of food-growing on sugar plantations.

Table 4. *Relative Values and Age Distributions of Slaves, 1799–1834*

Ages	Relative values (Average value age 20–9 = 100)	1799–1819 Age distribution (%)	1799–1819 Percentage of creoles in age group	1820–34 Age distribution (%)	1820–34 Percentage of creoles in age group
0–4	15	11	100	11	100
5–9	35	9	100	10	100
10–19	80	18	80	17	100
20–9	100	20	50	18	85
30–9	80	19	50	18	50
40–9	65	12	50	12	50
50–9	40	6	45	9	50
60–	10	5	40	5	45
Percentage of creoles in total poulation			65		75

Average relative value of Africans 1799–1834 = 100
Average relative value of creoles 1799–1834 = 120

Sources: Plantation valuations and listings.

Table 5. *Capital Employed per Slave*
(£ sterling)

	Slave	Livestock	Buildings utensils	Cultivated land	Total
Lesser Antilles				(2 acres per slave)	
1650–1748	22	5	8	10	45
1749–82	35	5	15	14	69
1783–91	40	6	20	16	82
1792–8	45	7	25	20	97
1799–1819	64	8	30	24	126
1820–34	39	6	25	20	90
Jamaica				(3 acres per slave)	
1670–1748	22	10	10	15	57
1749–82	35	10	25	21	91
1783–91	40	12	30	24	106
1792–8	45	13	35	30	123
1799–1819	64	14	40	36	154
1820–34	39	12	35	30	116
British Guiana				(2 acres per slave)	
1820–34	39	1	45	35	120

Sources: Inventory data in Sheridan, *Sugar and Slavery*; plantation records.

The change that occurs is trivial: most of the effect of the increasing proportion of creoles is cancelled out by the deterioration of the age distribution. I have therefore ignored it in my calculations.

The estimates of capital employed per slave yielded by these procedures are set out in Table 5. Between the middle of the eighteenth century and the early nineteenth century prices rose; in the 1820's they fell. Equipment became more elaborate; for example wind- and water-mills replaced the cattle-mills of the pioneers. In Jamaica more livestock was kept and more cultivated land was needed to pasture it. British Guiana used more fixed capital per slave than the other colonies, for example, steam engines and unusually large boiling-houses

for year-round operation, and its drainage systems made the cost of developing land for cultivation greater. But less livestock was needed because of the natural fertility of the soil and the transport facilities provided by its canals.

II.

Table 6 summarizes the results of these calculations. It gives for each colony or group of colonies the average rate of profit of the plantations studied, weighted by the number of their slaves. It distinguishes the main periods of West Indian

Table 6. *Average Rate of Profit of Sample Plantations*
(number of plantations in brackets)

		Barbados (%)	*Leeward Islands* (%)	*Jamaica* (%)	*Ceded Islands* (%)	*Trinidad, British Guiana* (%)
1689–97	War	—	10·3 (1)	2·1 (1)	—	—
1698–1702	Peace	—	13·6 (1)	7·3 (2)	—	—
1703–13	War	6·2 (1)	8·3 (1)	3·2 (2)	—	—
1714–38	Peace	13·7 (2)	16·1 (1)	4·1 (1)	—	—
1739–48		—	16·4 (1)	13·4 (1)	—	—
1749–55	Peace	3·4 (1)	10·6 (1)	13·0 (2)	—	—
1756–62	War	11·2 (4)	12·9 (1)	14·8 (2)	—	—
1763–75	Peace	5·6 (4)	12·3 (2)	8·9 (2)	5·2 (1)	—
1776–82	War	2·3 (4)	2·4 (3)	3·0 (3)	7·0 (1)	—
1783–91	Peace	5·3 (3)	12·1 (2)	6·4 (4)	15·5 (1)	—
1792–8	War, high prices	6·1 (3)	12·0 (2)	13·9 (2)	22·2 (3)	—
1799–1819	War	5·8 (3)	9·1 (6)	9·6 (3)	10·0 (7)	—
1820–34	Peace, low prices	7·7 (1)	3·9 (6)	5·3 (5)	5·7 (3)	13·3 (2)

Sources: Plantation records.

history, of war and peace, and of high and low prices. How representative is the sample of plantations likely to be? That is the first problem raised by these estimates. It has been chosen to give, so far as is possible, a fair coverage of British West Indian sugar planting as it extended over time and space, but the distribution of evidence is uneven. Before the middle of the eighteenth century plantation records are comparatively scarce; they are scarce also for the colonies of Trinidad and British Guiana, which were added to the British Empire much later, and probably this is not fortuitous. West Indian plantation records survive most frequently if their owners became country gentlemen in England or Scotland. In the eighteenth century it was quite easy for them to do so, but changing circumstances made it more difficult for anyone acquiring a plantation for the first time in the last years of slavery. Some obvious problems arise from this. We have no estimates for Jamaica or the Leeward Islands before 1689, or for Barbados before 1703. The rates of profit suggested for Jamaica between 1689 and 1739 are almost certainly too low, for they are taken from the accounts of the Bybrook and Spring plantations, which were being seriously mismanaged during these years.[1] The Ceded Islands between 1763 and 1775 are represented only by two years of the Grand Bras plantation, and the figure of 5·2 per cent seems too

[1] For Bybrook plantation see R. S. Dunn, *Sugar and Slaves* (1973), pp. 212–22; for Spring see D. K. Jones, 'The Elbridge, Woolnough and Smyth Families of Bristol in the Eighteenth Century, with Special Reference to the Spring Plantation, Jamaica' (unpublished M.Litt. thesis, Bristol University, 1972).

low for territories as productive as these. On the other hand, the estimate for them of 22·2 per cent in the years 1792–8 seems too high, for many plantations in Grenada and St Vincent were seriously disturbed by the French and Carib revolts of 1795, but this episode does not appear in the records which have been studied.[1] Lastly, no calculations have been made from plantation records for Trinidad and British Guiana between 1799 and 1819 because none has been found.

As early plantation records are so scarce, it may never be possible to establish conclusively what were the usual rates of profit before the middle of the eighteenth century, but the meagre information can be supplemented with the evidence of hiring rates for slaves. If the market for hirings was competitive—and there is no reason to suppose that it was not—then the ratio between the value of a slave and the rate at which it could be hired should reflect the rates of return usual on this type of capital. Table 7 gives information on this subject. In the late seventeenth

Table 7. *Slave Hiring Rates*

	(1) *Hiring rates** (*pence sterling per day*)		(2)	(3) *Slave values†* (*£ sterling*)	(4)	(5)
	Barbados	*Jamaica*			(1) ÷ (3)	(2) ÷ (3)
1670–1725	6	8		22	0·0011	0·0015
1761–3	6	—		35	0·0007	—
1783–91	7½	16		40	0·0008	0·0017
1792–8	9	22		45	0·0008	0·0020
1799–1819	12	24		64	0·0008	0·0016
1820–34	11	22		39	0·0012	0·0024

Sources: Plantation records; British Library, Sloane 3984, f. 216; Scottish R.O. Airlie Papers, GD 16/27/291.

* Rates for adult field hands. † Average values for all slaves.

and early eighteenth centuries the ratio between a slave's daily hire rate and its market value was much the same as it was to be a hundred years later; presumably the usual rates of profit were much the same also, that is about 10 per cent in Jamaica and 5 or 6 per cent in Barbados where the productivity of the slaves had fallen with the fertility of the soil.[2] We can only guess what the situation was

[1] Of the plantations studied only Grand Bras was affected by rebellion, and its accounts do not survive for the period 1795–1801.

[2] Slaves were usually hired by the day. It is difficult to convert a daily rate of hiring into an annual return without knowing how regularly they were employed or what were the incidental costs of ownership. But in the late eighteenth and early nineteenth centuries the usual rate of return to owners of hired slaves was considered to be about 10 per cent.—Rhodes House Library, Oxford, Ramsay Papers, MS Brit. Emp. s. 2, f. 91; Young Papers, MS West Ind. t. 1, vol. III, f. 11, vol. V, f. 48. It may seem puzzling that hiring rates fell so little in Jamaica in the 1820's when plantation profits were almost certainly reduced. I think that the discrepancy is due to the nature of the market for hirings. Slaves were usually hired to dig cane holes, the hardest of plantation work. Much of this kind of labour was provided by specialist jobbing gangs built up for the purpose by middle-class whites as a form of investment. Before the ending of the slave trade these jobbing gangs had usually been recruited by purchase from Africa. So because of this, and because of the nature of their work, their rate of depletion after 1808 was particularly high. At the same time plantation owners were increasingly reluctant to hire out their slaves, because they were more anxious to raise fertility and reduce mortality. For both of these reasons the supply of labour for hire was greatly lessened. The decline in the value-to-hire ratio may reflect the increased pessimism of slave owners because of the deterioration of the economic climate and the progress of the British campaign for emancipation.

in the Leeward Islands. Before the middle of the eighteenth century their sugar plantations progressed more rapidly than Jamaica's, and therefore they were probably more profitable. Perhaps they yielded as much as 15 per cent on average; this was the experience of the Parham plantations in Antigua.

From 1749 the sample of plantations becomes larger and it is worth trying to make the estimates more precise. On the plantations of the Ceded Islands between 1763 and 1775 the average output of sugar per slave was probably about 12 cwt (see Table 8). During these years the average rate of profit on three

Table 8. *Average Sugar Production per Slave*
(production per slave on sample plantation in brackets)
(cwt)

	Barbados	*Leeward Islands*	*Jamaica*	*Ceded Islands*	*Trinidad, British Guiana*
1650–9	14·5	—	—	—	—
1660–88	9·0	14·0	9·0	—	—
1689–1702	9·0	11·0	9·0 (7·6)	—	—
1703–13	5·2 (4·4)	11·0	9·0 (7·6)	—	—
1714–38	5·2 (6·1)	10·9 (11·6)	8·4 (8·5)	—	—
1739–48	3·5	9·1 (12·2)	7·8 (11·5)	—	—
1749–55	3·7	9·1 (10·1)	8·0 (10·6)	—	—
1756–62	4·0 (3·8)	10·4 (10·2)	8·4 (11·5)	—	—
1763–75	3·9 (3·6)	8·9 (9·7)	9·2 (9·7)	n.d. (14·8)	—
1776–82	2·4	6·9 (6·9)	7·6 (6·3)	n.d. (12·3)	—
1783–91	n.d. (3·9)	n.d. (8·5)	n.d. (10·6)	n.d. (12·5)	—
1792–8	n.d. (5·0)	n.d. (6·9)	10·5 (14·8)	n.d. (12·9)	—
1799–1819	5·5 (7·1)	9·9 (10·1)	12·0 (13·7)	10·9 (15·7)	n.d.
1820–34	6·0 (6·2)	8·3 (9·2)	11·1 (11·7)	13·2 (12·2)	18·9 (19.4)

Sources: Sugar production estimated from statistics of sugar imports into England and Wales or Great Britain (adding 30 per cent to take account of losses in shipment and sales in other markets) from Dunn, op. cit. p. 203; Sheridan, *Sugar and Slavery*, pp. 487–92; N. Deerr, *The History of Sugar* (2 vols. 1949–50), I, 193–202; Ragatz, *Statistics*, p. 20. Number of slaves in each colony from Dunn, op. cit. pp. 87–8, 127, 141, 155, 169, 171; Sheridan, *Sugar and Slavery*, pp. 124–233, 452–9; R. Pares, *Merchants and Planters* (Cambridge, 1960), p. 84; Ragatz, *Statistics*, p. 5; *Number of Slaves Registered Originally and at each Subsequent Registration* (P.P. 1833, XXVI, 474); *Population Returns Received from the Slave Colonies by the Colonial Registry Office since 1833* (P.P. 1835, LI, 289). I assume that the following proportions of each colony's slaves were employed on sugar plantations: Jamaica 1670–1748, 1792–1834, 50 per cent; Jamaica 1749–91, Dominica, St Lucia, 60 per cent; Barbados, Trinidad, British Guiana, 70 per cent; Leeward Islands, Grenada, St Vincent, Tobago, 80 per cent.

plantations of similar productivity on other islands was 10·6 per cent, and I substitute this for the estimate of 5·2 per cent.[1] As for the Ceded Islands in the period 1792–8, it seems that the rebellions of 1795 affected almost all the plantations of Grenada and a fifth of St Vincent's; it cost these estates on average three years' output and a quarter of their slaves. On these assumptions I revise the sample estimate of profit downwards from 22·2 per cent to 13·8 per cent.[2] The average output per slave in Trinidad and British Guiana was about 19 cwt. I suggest as their proxy for the years 1799–1819 Amity Hall, Jamaica, and Calliagua and Pembroke, St Vincent. At this time the average output per slave on

[1] The plantations are Spring, Jamaica, Mountravers, Nevis, and Parham, Antigua. Their average output per slave was 10 cwt.

[2] See Ragatz, *Downfall of the Planter Class*, pp. 220–3; G. Turnbull, *Narrative of the Revolt and Insurrection of the French Inhabitants in the Island of Grenada* (Edinburgh, 1795), p. 163; Greater London Record Office (Middlesex Records), Cooper-Franks Papers, Acc. 775/953/13.

these plantations was 17·8 cwt and their rate of profit was 16 per cent. These additions and corrections are combined with the sample estimates for 1749–1834 in Table 9. The calculation of the British West Indian average rate of profit has been weighted by an estimate of the amount of capital employed on sugar plantations in each colony.

Table 9. *Adjusted Estimates of Average Rates of Profit*
(per cent)

	Barbados	*Leeward Islands*	*Jamaica*	*Ceded Islands*	*Trinidad, British Guiana*	*All British West Indies*
1749–55	3·4	10·6	13·0	—	—	10·1
1756–62	11·2	12·9	14·8	—	—	13·5
1763–75	5·6	12·3	8·9	10·5	—	9·3
1776–82	2·3	2·4	3·0	7·0	—	3·4
1783–91	5·3	12·1	6·4	15·5	—	8·5
1792–8	6·1	12·0	13·9	13·8	—	12·6
1799–1819	5·8	9·1	9·6	10·0	16·0	9·6
1820–34	7·7	3·9	5·3	5·7	13·3	7·1

Sources: Plantation records.

Having made these adjustments, may we now accept the sample of plantations as representative? It comes out well by the two criteria most readily available: the productivity of their slaves was close to the average for their colonies, and the quality of their sugar, as measured by the prices that it fetched, was close to the market average.[1] But in one way the sample is certainly unrepresentative: it is composed almost wholly of the estates of absentees, while among plantation owners in general the rate of absenteeism probably did not exceed 50 per cent for most of the eighteenth century, although it had reached about 70 per cent by the 1820's.[2] But it has been suggested that absenteeism caused much inefficiency and waste, so is it not possible that on this account the sample seriously understates the average rate of profit?

Unfortunately, there is information for only a handful of estates owned wholly or in part by residents, to compare with the performance of those owned by absentees. Ownership of the Jamaican plantations Bybrook and Spring was shared between a resident and an absentee. Both yielded low profits early in the eighteenth century, but from the 1750's Spring improved greatly. There are also John Pinney's accounts for his Mountravers plantation on Nevis, which cover both his years as a resident between 1768 and 1783 and his subsequent experience as an absentee. For the period 1768–75 his profits, at 10 per cent per annum, were no better than those of many absentee estates, but during the difficult years of the American War of Independence they were exceptionally good. As an absentee,

[1] For productivity see Table 8. To assess quality the average prices of sugar reported in the *London Gazette* have been compared with the London prices for sugar from the following estates: Newton, Barbados, 1793–1802; Parham, Antigua, 1791–1832; Windward and Clare Hall, Antigua, 1815–24; Dickenson, Jamaica, 1821–9; Cane Garden, St Vincent, and Hillsborough, Dominica, 1796–1828; Calliagua and Pembroke, St Vincent, 1809; Success and Vreedenhoop, Demerara, 1824–32. The price of sugar from the sample estates was on average 1·4 per cent higher than the *Gazette* average.

[2] Absentees owned 30 per cent of Jamaica's sugar estates in 1775, and 84 per cent in 1832.—R. B. Sheridan, 'Simon Taylor, Sugar Tycoon of Jamaica, 1740–1813', *Agricultural History*, XLV (1971), 287. For the 1820's see also P.R.O. Colonial Registers of Slaves, T71, which usually indicate whether the return for a plantation was made by its owner or by his attorney.

Pinney found his rate of profit slightly reduced, to about 9 per cent on average. But probably much of this shortfall was due to the arrival at Nevis in 1787 of the borer worm, a highly destructive cane parasite. This affected all plantations on the island more or less, whether they were owned by residents or absentees.[1] So on this subject the plantation accounts are inconclusive: residence might be accompanied by either high or low profits. It has already been noticed that the quantities and qualities of sugar produced by the plantations of the sample, most of which belonged to absentees, did not differ much from the averages for their colonies. So what evidence there is suggests that absenteeism had little effect upon profits and that the sample is representative.

III

What conclusions may now be drawn on the problems mentioned in the introduction? First, it seems that sugar planting in the British West Indies was profitable throughout the years of slavery. In the 1650's the pioneers of Barbados probably made very large profits indeed, perhaps as much as 40 or 50 per cent,[2] but these were the result of special circumstances, in particular the disruption of the plantations of Brazil by the war between the Dutch and the Portuguese. The reduction of sugar prices through the normal processes of competition seems to have brought West Indian profits to a more modest level by the later seventeenth century. They declined furthest in Barbados, where a fall in yields accompanied the fall in prices, and the clamours of this colony were mainly responsible for the protective laws passed in favour of the sugar planters in the 1730's, and for the spread of the notion of "soil exhaustion" as the nemesis of West Indian agriculture. The other colonies were more prosperous. On the whole, West Indian profits compare well with those made elsewhere. Dr Grassby has suggested that a return of about 10 per cent was usual for seventeenth-century merchants.[3] Prof. Anstey has estimated an average rate of 9·5 per cent for the British slave trade between 1761 and 1807, and the profits of other businesses are not likely to have been any higher than this in the eighteenth century, except perhaps during the early years of important technical innovations.[4]

With planters' profits averaging about 10 per cent, is it likely that the British West Indies were profitable to society at large when account has been taken of their incidental costs? This is not the place to discuss fully the examinations of this subject by Profs. Sheridan and Thomas, but it should be noticed that the estimates of profits from planting which they use seem too low. Their calculations are made for Jamaica in the early 1770's and scaled up for the British West Indies as a whole. They derive from Edward Long's *History of Jamaica* a figure of

[1] For the borer's effects on other plantations on Nevis, see Department of Manuscripts, University College of North Wales, Bangor, Stapleton-Cotton Papers, esp. Bundle 18.

[2] Output per slave was about 14·5 cwt. The average price of a hundredweight of sugar in Europe in the 1650's was about 54s. or 38s. to the planter net of marketing costs.—N. W. Posthumus, *Inquiry into the History of Prices in Holland* (Leiden, 1946), p. 119. Revenue per slave: £27 6s. On the evidence of plantation accounts for later years costs per slave are not likely to have exceeded £6–7. Profits per slave: £21 on a capital of £45.

[3] R. Grassby, 'The Rate of Profit in Seventeenth-Century England', *English Historical Review*, LXXXIV (1969), 733.

[4] R. Anstey, *The Atlantic Slave Trade and British Abolition* (1975), ch. 2; F. Crouzet, ed. *Capital Formation in the Industrial Revolution* (1972), pp. 195–6.

£450,000 for profits on production in the colony. Perhaps £300,000 of this can be attributed to the sugar plantations, which suggests a yearly profit of about £3 per slave and a rate of return of 3 per cent on capital.[1] But this is much less than my sample estimate for Jamaica in the years 1763–75 (8·9 per cent), less than the rate suggested by Long himself as usual for particular plantations (about 10 per cent),[2] and indeed less than Long's average earnings from his own estate (9·5 per cent).[3] The sample estimates suggest instead an annual profit on sugar production of £800,000 in Jamaica and £1,700,000 in the British West Indies as a whole, or about £1,200,000 and £2,500,000 respectively if profits from other staples were included. Perhaps discussion of the social profitability of the British West Indies could usefully be reopened.

Lastly, what was happening to the plantations during the last half-century before emancipation? Were they sliding towards bankruptcy as Ragatz argued? It seems to me, as to other recent writers, that his story of dilapidation and futility is too pessimistic. Certainly the years of the American War of Independence were miserable. For the first and only time in the eighteenth century Britain lost command of the sea to her commercial rivals, supplies from North America were cut off, and the slaves starved. But profits recovered well in the next decade and were maintained through the vicissitudes of the French wars; production costs may have risen, but sugar prices rose also. Depression came only in the 1820's. Then prices fell with the end of wartime scarcities, and with the growth of production in the newly acquired territories the older colonies lost their monopoly power in the British market. Also the burden of the sugar duties, levied at specific rates, increased with the postwar deflation. The effective rate *ad valorem* on British West Indian muscovado sugar, which had been 20 per cent in the 1770's and 35 per cent during the Napoleonic Wars, reached 50 per cent in 1829. The rates of duty were kept up, with some slight relief in 1830, partly for fiscal reasons, partly from political convenience (the sugar planters were one of the weakest interest groups in contemporary society), and partly to put pressure on the colonies to improve the condition of their slaves. In this way it was the growth of anti-slavery feeling in England that caused the decline of plantation profits and not the decline of profits that encouraged anti-slavery feeling, as some have supposed. But in spite of their difficulties the plantations were still viable, covering their costs and yielding modest profits. Productivity was maintained everywhere and increased in Barbados with improved techniques. However much they complained, the planters still sought to maintain their capital and go on making sugar.

University of Edinburgh

[1] Sheridan, 'Wealth of Jamaica', 305; Thomas, loc. cit. 34–6. Sheridan, 'Rejoinder', 56, revised his estimate of profits upwards from £450,000 to £534,700. About 114,000 of Jamaica's 190,000 slaves worked on sugar plantations at this time.

[2] E. Long, *The History of Jamaica* (3 vols. 1774), I, 459–62.

[3] F. W. Pitman, 'The Settlement and Financing of British West India Plantations in the Eighteenth Century', in *Essays in Colonial History presented to Charles McLean Andrews by his Students* (New Haven, 1931), p. 275.

APPENDIX

This Appendix sets out the estimates of plantation profits summarized in Table 6 and the sources upon which they are based.

Name of colony and plantation	*Average annual profits (£ sterling)*	*Average number of slaves*	*Average rate of profit (%)*
1. BARBADOS			
Newton			
1706–13	477	171	6·2
1714–16, 1724	1,448	171	18·8
1756–62	1,777	243	10·6
1763–75	1,068	255	6·1
1776–82	391	242	2·3
1783–91	1,570	251	7·6
1792–8	1,495	262	5·9
1799–1815	2,313	255	7·2
Seawells			
1756–62	1,103	103	15·5
1763–75	1,119	162	10·0
1776–82	829	179	6·7
1783–91	575	189	3·7
1792–8	1,509	186	8·4
1799–1804	837	180	3·7
Mount Alleyne			
1756–62	642	158	5·9
1768–75	721	161	6·5
1776–82	709	161	6·4

Source: London University Library, Newton Papers, MS 523.

Codrington			
1722–30	1,003	227	9·8
1750–5	469	198	3·4
1756–62	1,879	194	14·0
1763–75	412	287	2·1
1776–82	−546 (loss)	284	−2·8 (loss)
1783–91	958	270	4·3
1792–8	1,215	261	4·8
1799–1819	2,151	293	5·8
1820–9	2,472	359	7·7

Sources: United Society for the Propagation of the Gospel, London, Codrington Plantation Papers; F. J. Klingberg, ed. *Codrington Chronicle* (Berkeley, 1949), pp. 78–82.

2. LEEWARD ISLANDS			
Parham, Antigua			
1689–97	694	150	10·3
1698–1702	915	150	13·6
1703–13	561	150	8·3
1714–38	1,235	170	16·1
1739–48	2,106	285	16·4
1749–55	2,401	329	10·6
1756–62	3,375	379	12·9
1763–75	4,190	464	13·1

Name of colony and plantation	*Average annual profits (£ sterling)*	*Average number of slaves*	*Average rate of profit (%)*
2. LEEWARD ISLANDS (*continued*)			
1776–82	1,996	515	5·6
1783–91	5,457	502	13·3
1792–8	6,385	532	12·4
1799–1819	5,009	561	7·1
1820–6	2,349	574	4·5
Source: Somerset R.O. Tudway Papers.			
Windward, Antigua			
1776–82	−863 (loss)	900	−1·4 (loss)
Windward and Clare Hall, Antigua			
1815–19	14,758	1,100	10·6
1820–30	4,376	1,100	4·4
Source: Gloucestershire R.O. Codrington Papers, D1610, A12, A49.			
Mountravers, Nevis			
1768–75	1,217	174	10·1
1776–82	1,554	186	12·1
1783–91	1,436	191	9·2
1792–8	2,221	209	11·0
1799–1802	1,574	206	6·1
Stoney Grove, Nevis			
1826–34	−45 (loss)	209	−0·2 (loss)
Sources: Bristol University Library, Pinney Papers; R. Pares, *A West-India Fortune* (1956), pp. 89, 91.			
Hill Estate, St Christopher			
1816–19	3,309	206	12·7
1820–4	851	196	4·8
Lower Estate, St Christopher			
1816–19	435	103	3·4
1820–4	97	97	1·1
Source: Berkshire R.O. Estridge Papers, D/EX 292 El.			
3. JAMAICA			
Bybrook			
1687–91	520	139	6·6
1697–8	−410 (loss)	103	−7·0 (loss)
1698–1702	297	109	4·8
1703–13	196	121	2·8
Source: Somerset R.O. Helyar of Coker Court Papers.			
Spring			
1700–2	439	69	11·2
1703–13	149	69	3·8
1714–38	163	69	4·1
1746–8	543	71	13·4
1749–55	1,123	83	14·9
1756–62	1,415	103	15·1
1763–75	1,048	132	8·7

(*continued overleaf*)

Name of colony and plantation	*Average annual profits (£ sterling)*	*Average number of slaves*	*Average rate of profit (%)*
3. JAMAICA (*continued*)			
1776–82	78	124	0·7
1783–91	199	90	2·1
1792–8	1,904	84	18·4
1799–1800	2,014	100	13·1
Source: Bristol Archives Office, Smyth of Ashton Court Papers, AC/WO/16.			
Mesopotamia			
1751–5	3,150	280	12·4
1756–62	3,580	268	14·7
1763–75	2,124	260	9·0
1776–82	870	261	3·7
1783–7	3,704	274	12·8
1821–31	1,509	382	3·4
Island			
1822–7	2,388	184	11·2
Source: Bodleian Library, Oxford, Clarendon Deposited Papers.			
Dickenson Estates			
1779–82	1,351	468	3·2
1783–7	2,328	480	4·6
1821, 1827, 1829	3,209	631	4·4
Sources: Wiltshire R.O. Dickenson Papers, 282/1, 282/3; Somerset R.O., Dickenson Papers, DD/DN 469, 478–80.			
York			
1785–91	2,563	452	5·3
Source: Exeter University Library, Gale-Morant Papers.			
Trouthall			
1792–8	2,600	179	11·8
Source: National Library of Scotland, Nisbet Papers, MS 5479.			
Dundee			
1803–14	628	219	1·9
Source: Scottish R.O. Thomson, Dickson & Shaw Papers, GD 241/172.			
Amity Hall			
1805–19	5,788	253	14·9
1820–33	1,845	248	6·4
Source: Surrey R.O. Goulburn Papers.			
4. CEDED ISLANDS			
Grand Bras, Grenada			
1774–5	1,512	421	5·2
1776–82	2,002	416	7·0
1783–91	5,036	395	15·5
1792–5	7,828	430	18·8
1802–8, 1811–13	2,107	360	4·6
Source: Greater London R.O. (Middlesex Records), Cooper-Franks Papers, Acc. 775/953.			

Name of colony and plantation	*Average annual profits (£ sterling)*	*Average number of slaves*	*Average rate of profit (%)*
4. CEDED ISLANDS *(continued)*			
Hillsborough, Dominica, and Cane Garden, St Vincent			
1796–8	6,612	240	28·4
1799–1819	2,747	230	9·5
1820–2	1,551	230	7·5
Sources: Royal Commonwealth Society Library, London, Greg Papers; Rhodes House Library, Oxford, Greg Papers, MS West Ind. t. 2.			
Melville Hall, Dominica			
1802–7	2,678	198	10·7
Source: Scottish R.O. Balfour-Melville Papers, GD 126.			
Pembroke, St Vincent			
1801–6	5,741	261	17·5
Calliagua, St Vincent			
1801–6	3,672	185	15·8
Source: Rhodes House Library, Oxford, Young Papers, MS West Ind. t. l.			
Richland Park, St Vincent			
1810–17	216	131	1·3
1826–34	236	120	2·2
Source: Bristol University Library, Pinney Papers.			
5. DEMERARA			
Success			
1821, 1825, 1827–31	7,489	485	12·9
Vreedenhoop			
1823, 1827–30	6,567	394	13·9
Source: Clwyd County R.O. Gladstone Papers, CH 39, 79, 144.			