

# A Jamaica Slave Plantation

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*This article is reprinted by kind permission of THE AMERICAN HISTORICAL REVIEW—(from Vol. XIX, No. 3). We hope to follow it in our next issue of CARIBBEAN QUARTERLY with an article by James Wright, B.Sc., of the Department of Agriculture, Jamaica, on the Lucky Hill Community Project. These two accounts span a period of 150 years of West Indian development and taken together show something of the startling changes in agricultural production and in the lives of the people.—Ed.*

WHEN LORD CHESTERFIELD endeavoured in 1767 to buy his son a seat in Parliament, he learned "that there was no such thing as a borough to be had now, for that the rich East and West Indians had secured them all at the rate of three thousand pounds at least". The nabobs from the Antilles were rivalling those from India in their display. The sugar islands were the most cherished of the imperial possessions, and the sugar estates were the greatest and most famous industrial enterprises in the world. Bulky descriptions of the West Indian regime, of an excellence never attained by the accounts of the continental colonies, found sale in large editions, and few were the moneyed men of England who felt no stir at the rumours of Jamaica planters' profits. But Jamaica's heyday was already waning, for her soils were becoming depleted and sugar prices had fallen. Of the three chief writers on Jamaica in the later eighteenth century, Long, Edwards, and Beckford, the two last illustrated in their own lives the extremes of planters' fortunes. Edwards was one of the nabobs who sat in the British House of Commons, but Beckford wrote his *Descriptive Account of Jamaica* in the fleet prison where he lay in 1790, an insolvent debtor at the end of a planting career.

## ROSE PRICE, ESQ.—HIS GREAT PLANTATION BOOK

Rose Price, Esq., was the manager of Worthy Park plantation and its outlying properties in St. John's Parish, Jamaica, belonging to "Robert Price of Penzance in the Kingdom of Great Britain Esquire"; and Rose Price had an eye to the edification of posterity. Seeing that "the Books of Estates are the only Records by which future Generations can inform themselves of the management of plantations", he set directions in detail for the making and preservation of elaborate accounts of current operations. The special books for the sugar mill, the rum distillery, the commissary, and the field labour routine, which he ordered to be kept, have apparently been lost; but the "great plantation book" for the years from 1792 to 1796 inclusive has survived and come to my hands. This comprises yearly inventories, records of the increase and decrease of slaves and draught animals, vestry returns, salary lists, vouchers, crop summaries, and accounts of the receipt and distribution of implements, clothing, food-stuffs, and other supplies.

#### WORTHY PARK PLANTATION

This plantation, which in its organization and experience appears to have been fully typical of the estates of the largest scale, lay near the centre of the island, perhaps 20 miles from the sea, on the rugged slope of the mountain chain. One of its dependencies was Spring Garden "cattle pen", lying higher on a near-by mountainside and serving as a place of recuperation for slaves and cattle as well as yielding a few oxen and some foodstuffs for the plantation. The other was Mickleton, presumably a farmstead used as a relay station for the teams hauling sugar and rum to Port Henderson, where they were embarked for Kingston on the way to market at London. The plantation itself probably contained several thousand acres, of which about 560 were in sugar-cane, several score in guinea-grass for grazing, and a few in plantain and cocoa groves, while the rest was in woodland with occasional clearings where the Negro families cultivated their own food crops in their hours of release from gang labor.

A cane field was not ripe for its first harvest (the "plant cane") until the second winter after its planting. When the stalks were then cut, new shoots ("ratoons") would spring up from the old roots and yield a diminished second crop the next winter, and so on for several years more, the output steadily growing smaller. After the fourth crop, according to the routine on Worthy Park, the field was planted anew. Thus in any year, while 560 acres were in constant cultivation, about one-fifth of the fields were freshly planted and four-fifths were harvested.

The slaves on the estate at the beginning of 1792 numbered 355, of whom 150 constituted the main field gangs; 34 were artificers and gang foremen; 40 were watchmen, gardeners, and cattle tenders; 13 were in the hospital corps; 22 were on the domestic staff; 24 girls and boys made up the "grass gang"; 39 were young children; and 33 were invalids and superannuated. From the absence of indications that any of these were freshly imported Africans it may be assumed that all were seasoned Negroes. The draught animals comprised 80 mules and 140 oxen. The stock of slaves was not adequate for the full routine of the plantation, for in this year "jobbing gangs" from the outside were employed at a cost of £1,832. The jobbing contracts were recorded at rates from 2s. 6d. to 3s. per laborer per day.

#### SEASONING

During the year the proprietor began to make additions to his working force, with a view apparently to dispensing with the services of jobbing gangs. In March he bought ten new Africans, five men and five women; and in October 90 more, comprising 25 men, 27 women, 16 boys, 16 girls, and six children, all new Congoes. In 1793 he added 81 more, 51 males and 30 females, part Congoes and part Coromantees, and nearly all of them about 18 to 20 years old.

The advice of experienced planters was entirely opposed to such a proceeding as this. Edward Long, for example, had written:

"The introduction of too many recruits at once has sometimes proved fatal to them. It is very evident, that a small number can be much easier and better provided for, lodged, fed, and taken care of, than a multitude. The planter therefore, who buys only eight or ten at a time, will in the end derive more advantage for them, than the planter who buys 30; for, by the greater leisure and attention in his power to bestow upon them, he will greatly lessen the ordinary chances against their life, and the sooner prepare them for an effectual course of labor. The comparison, indeed, founded

upon fact and observation, is, that, at the end of three years, the former may possibly have lost one-fifth, but the other will most probably have lost one-half, of their respective numbers."

All of the island authorities who wrote on the subject endorsed these precepts, but the Worthy Park administration was nothing daunted thereby. Thirty new huts were built; special cooks and nurses were detailed for the service of the new Negroes; and quantities of special food-stuffs were bought—yams, plantains, flour, fresh and salt fish, and fresh beef heads, tongues, hearts and bellies; but it is not surprising to find that the next outlay for equipment was for a large new hospital in 1794, costing £341 for building its brick walls alone. The emergency became pressing. Some of the newcomers, as was common in such cases, developed yaws. These had to be lodged in an isolation hospital tended by a special nurse and cook, and worked, when worked at all, in a separate gang under a separate foreman. But yaws was a trifle as compared with dysentery—the "bloody flux" as it was then called. Pleurisy, pneumonia, fever, and dropsy had also to be reckoned with. About 50 of the new Negroes were quartered for several years in a sort of hospital camp at Spring Garden, where the work for even the able-bodied was much lighter than on Worthy Park.

With the spring of 1794 the period of heavy mortality began. From the damaged manuscript one gathers that 52 died in that year, mainly from dysentery. But by 1795, this disease was no longer epidemic. Of the 23 who died that year, at least five were new Negroes, two of these dying from dirt-eating, one from yaws and two from ulcers. The three years of the seasoning period were now ended, with about three-fourths of the number imported still alive. This loss was perhaps less than was usual in such cases; but it demonstrates the strength of shock involved in the transplantation from Africa, even after the severities of the "middle passage" had been survived, and after the most debilitated Negroes had been culled out at the ports. In 1796 the new Negroes were no longer discriminated in the mortality record. The outlay for jobbing gangs declined to £1,374 in 1793 and to £506 in 1794. It rose to £632 in 1795, but disappeared in the final year of the record.

#### ORGANISATION OF SLAVE LABOUR

The list of slaves made at the beginning of 1794 is the only one in which full data are preserved as to ages, colours, health, and occupation. The ages given were of course in many cases mere approximations. First are listed the "great house Negroes",<sup>1</sup> then the slaves of the overseer's house.<sup>2</sup> In the nursing and

1 No.	Work	Colour	Age	2 No.	Work	Colour	Age
2	Housekeepers	...	S 40	1	Housekeeper	...	M 27
1	Housekeeper	...	M 19	1	Housekeeper	...	S 24
1	Housekeeper	...	M 8	1	Housekeeper	...	B 60
1	Waiting-boy	...	M 20	1	"Simstress"	...	M 13
1	Waiting-boy	...	M 19	1	"Simstress"	...	M 14
1	Waiting-boy	...	B 10	2	Washers	...	B & M 35 & 19
1	Washer	...	B 55	1	Cook	...	B
1	Washer	...	S 26	1	Waiting-boy	...	B 21
1	Cook	...	B 50	1	Waiting-boy	...	B 15
1	(manumitted)	...	Q	1	Waiting-boy	...	B 14

COLOUR S—Sambo (black and mulatto mixed)      B—Black  
M—Mulatto      Q—Quadroon.

industrial groups all were black except one mulatto boy of ten years, a hog tender. Will Morris, with a 60 year old midwife, two younger nurses and two older women, an old man and "Blind Olive" to tend the new Negroes. Four old women were in charge of children, one having charge of the suckling children of women in the gangs. There were two cooks to the big gang (one had lost a hand) and one to the second gang. A 35 year old with elephantiasis was groom, and two women of 60 had charge of the poultry house. A ruptured man and a "distempered man" along with the mulatto boy, tended the hogs, and nine others, mainly old people, were engaged in mending pads, gathering grass and feeding the hogs.

Next are listed the watchmen, 31 in number, ranging from 27 to 75 years in age, and all black but the mulatto foreman. Only six were described as able-bodied. Among the disabilities mentioned were a bad sore leg, a broken back, lameness, partial blindness, distemper, weakness, and cocobeas. The number in this night-watch was apparently not unusual. When the cane crop was green it might be severely damaged by the invasion of hungry cattle, and when it approached maturity a spark might set the fields into conflagration. A law of Barbados, in precaution against fire, prohibited the smoking of tobacco on paths bordering cane-fields.

A considerable number of Negroes already mentioned were in such condition that little work could be required of them. Those completely laid off were nine superannuated, two men and seven women ranging from 70 to 85 years old ; four invalids from 14 to 35 ; and three women relieved from work, as by law required, for having reared six children each.

Among the tradesmen, virtually all the blacks were stated to be fit for field work, but the five mulattoes and the one quadroon, though mostly youthful and healthy, were described as not fit for the field. There were 11 carpenters, eight coopers, four sawyers, two blacksmiths, three masons, and 12 cattlemen, each squad with a foreman ; and there were two ratcatchers. The tradesmen were all in early manhood or middle age except Old Quashy, the head carpenter, Old England, a sawyer, three cattlemen between 60 and 65, and Reeves and Little Sam, cattle boys, of 15 and 14 years. There were also two ratcatchers, who followed an essential trade.<sup>1</sup>

In the "weeding gang", a sort of industrial kindergarten in which most of the children from five to eight years old were kept, as much for control as for achievement, there were 20 pickaninnies, all black, under Mirtilla as "driveress", who had borne and lost seven children of her own. Thirty-nine children were too young for the weeding gang, at least six of whom were quadroons. Two of these children, Joanne's Henry Richards, quadroon, and Joanne's Valentina, whose colour is

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<sup>1</sup> Beckford writes—The rats are very great enemies to this plant, but particularly in proportion to its advance to ripeness. It will hardly be credited what destruction they annually commit upon a plantation : in a not less proportion do they injure the crops than a diminution of five hogsheds of sugar in every hundred. Many and unremitting endeavours are daily put into practice for their extirpation . . . great numbers are taken off by poison immediately after the crop, and when their natural food is apparently exhausted ; many are killed by dogs ; and prodigious quantities destroyed by the negroes in the fields, when the canes are cut ; and such innumerable proportions by the watchmen who are dispersed over the different parts of the plantation, that I was informed by a man of observation and veracity, that upon the estate of which, as overseer, he had charge, not less than thirty and nine thousand were caught by the latter, and, if I remember right, in the short space of five or six months.

not stated, were manumitted in 1795. Fifty-five, all new Negroes of about 20-21 years old, except Darby the foreman, and including Blossom the infant daughter of one of the women, comprised the Spring Garden squad. Seventeen of the number died within the year.

The "big gang" on Worthy Park numbered 137, comprising 64 men and 73 women, four of the women and nine of the men, including Quashy, 60, the "head driver" or foreman, were past 40 years. The gang included a "head road wainman" and ploughman of 23, a "head home wainman", head mule man, boiler, and 2 distillers, all of 40, one distiller of 25, two sugar potters of 45, two "sugar-guards" of 25 for the wagons carrying the crop to port. All members of the gang were described as healthy, able-bodied, and black. It was this battalion of the stalwart, armed with hoes and "bills" (sugar knives), whose work would "make or break" the proprietor. A considerable number in the gang were new Negroes, but only seven of the whole died in this year of heaviest mortality.

The "second gang" employed in a somewhat lighter routine under Sharper, 50, as foreman, comprised 40 women, and 27 men ranging from 15 to 60 years old, all black. While most of them were healthy, five were consumptive, four were ulcerated, one was "inclined to be bloated", one was "very weak", and Pheba was "healthy but worthless". Eleven of this gang died within the year.

Finally, in the third or "small gang", for yet lighter work under Baddy as driveress with Old Robin, 60, as assistant, were listed 68 boys and girls, all black mostly between 12 and 15 years old, but including Mutton, 18, and Cyrus, six. Cyrus and the few others below the normal age may have been allowed to join this gang for the companionship of brothers or sisters, or some of them may have been among Baddy's own four children. Five of the gang died within the year.

Among the 528 slaves all told—284 males and 244 females—74, equally divided between the sexes, were 50 years old and upwards. If the number of the new Negroes, virtually all of whom were doubtless in early life, be subtracted from the gross, it appears that one-fifth of the seasoned stock had reached the half-century, and one-eighth were 60 years old and over. This is a good showing of longevity.

#### CHILDBIRTH AND CHILD REARING

About 80 of the seasoned women were within the age limits of childbearing. The births entered in the chronological record averaged nine per year for the five years covered. This was hardly half as many as might have been expected under favourable conditions. Rose Price entered special note in 1795 of the number of children each woman had borne during her life, the number of these living at the time this record was made, and the number of miscarriages each woman had had. The total of births thus recorded was 345 ; of children then living 159 ; of miscarriages 75. Old Quasheba and Betty Madge each had borne 15 children ; and 16 other women had borne from six to 11 each. On the other hand, 17 women of 30 years and upwards had had no children and no miscarriages.

The childbearing records of the women past middle age ran higher than those of the younger ones, to a somewhat surprising degree. Perhaps conditions on Worthy Park had been more favourable at an earlier period, when the owner and his family may possibly have been resident there. The fact that more than half of

the children whom these women had borne were dead at the time of the record comports with the reputation of the sugar colonies for heavy infant mortality. With births so infrequent and infant deaths so many, it may well appear that the notorious failure of the island-bred stock to maintain its own numbers was not due to the working of the slaves to death.

The poor care of the young children may be attributed largely to the absence of a white mistress, an absence characteristic of the Jamaica plantations. The only white woman mentioned in the parish returns to this estate was Susannah Phelps, doubtless the wife of Edward Phelps, who drew no salary but received a yearly food allowance "for saving deficiency", and who probably lived not on Worthy Park but at Mickleton.

#### WHITE STAFF

In addition to Rose Price, who was not salarised, but who may have received a manager's commission of 60 per cent. upon gross crop sales as contemplated in the laws of the colony, the administrative staff of white men on Worthy Park comprised an overseer at £200, later £300 a year, and four bookkeepers at £50 to £60. There was also a white carpenter at £120, and a white ploughman at £56. The overseer was changed three times during the time of the record, and the bookkeepers were generally replaced annually. The bachelor staff were most probably responsible for the mulatto and quadroon offspring and were doubtless responsible also for the occasional manumission of women and children. In 1795 and perhaps in other years the plantation had a contract for medical attendance by "J. Quier and G. Clark" at the rate of £140 per year.

#### PROCESS OF PRODUCTION

There is no true summer and winter in Jamaica, but a wet and dry season instead—the former extending generally from May to November, the latter from December to April. The sugar-cane got its growth during the rains; it ripened and was harvested during the drought. If things went well the harvest, or "grinding", began in January. All available hands were provided with bills and sent to the fields to cut the stalks and trim off their leaves and tops. The tainted canes were laid aside for the distillery; the sound ones were sent at once to the mill. On the steepest hillsides the crop had oftentimes to be carried on the heads of the Negroes or on the backs of mules to points which the carts could reach.

The mill consisted merely of three cylinders, two of them set against the third, turned by wind, water, or cattle. The canes, tied into small bundles for better compression, were given a double squeezing while passing through the mill. The juice expressed found its way through a trough into the "boiling house" while the "mill trash" or "megass" was carted off to sheds and left to dry for later use as fuel under the coppers and stills.

In the boiling house the cane-juice flowed into a large receptacle, the clarifier, where by treatment with lime and moderate heat it was separated from its grosser impurities. The juice then passed into the first copper, where evaporation by boiling began. This vessel on Worthy Park was of such a size that in 1795 one of the Negroes fell in while it was full of boiling liquor and died ten days after his scalding. After further evaporation in smaller coppers the juice, now reduced to a syrup, was ladled into a final copper, the teache, for a last boiling and concentration; and when the product of the teache was ready for crystallization it was carried to the "curing house".

The mill, unless it were a most exceptional one for the time, expressed barely two-thirds of the juice from the cates ; the clarifier was not supplemented by filters ; the coppers were wasteful of labor and fuel. But if the apparatus and processes thus far were crude by comparison with modern standards, the curing process was primitive by any standard whatever. The curing house was merely a roof above, a timber framework on the main level, and a great shallow sloping vat at the bottom. The syrup from the teache was potted directly into hogsheads resting on the timbers, and was allowed to cool with too great rapidity and with occasional stirrings which are said by modern critics to have hindered more than they helped the crystallization. Most of the sugar stayed in the hogsheads, while the mother liquor, molasses, still carrying some of the sugar, trickled through perforations in the hogshead bottoms into the vat below. When the hogsheads were full of the crudely cured, moist, and impure "muscovado" sugar they were headed up and sent to port. The molasses was carried to vats in the distillery where with yeast and water added it fermented and when passed twice through the distilling process yielded rum.

The grinding season, extending from January to spring or summer according to the speed of harvesting, was the time of heaviest labor on the plantations. If the rains came before the reaping was ended the work became increasingly severe, particularly for the draught animals, which must haul their loads over the muddy fields and roads. On Worthy Park the grinding was ended in May in some years ; in others it extended to July.

As soon as the harvest was ended preparations were begun for replanting the fields from which the crop of third ratoons had just been taken. The chief operation in this was the opening of broad furrows or "cane holes" about six feet apart. Five ploughs were mentioned in the Worthy Park inventories, but only three ploughmen were listed, one hired white and two Negro slaves. Some of the hillside fields were doubtless too rough for convenient ploughing, and the heat of the climate prevented the use of teams for such heavy work more than a few hours daily ; but the lack of thrift and enterprise was doubtless more influential. The smallness of the area planted each year demonstrates that the hoe was by far the main reliance. After the cane holes were made and manure spread, four canes were laid side by side continuously in each furrow, and a shallow covering of earth was drawn over them. This completed the planting process.

The holing and the planting occupied the major part of the "big gang" for most of the summer and fall. Meanwhile the wagons were hauling the sugar and rum to port, and the second and third gangs, with occasional assistance from the first, were cleaning the grass and weeds from the fields of growing cane and stripping the dry leaves from the stalks and drawing earth to the roots. With the return of the dry season cordwood must be cut in the mountains and brought to the boiling house to supplement the megass, and the roads and the works must be put in order for the stress of the coming harvest. Then came Christmas when oxen were slaughtered for the Negroes and a feast was made and rules relaxed for a week of celebration by Christians and pagans alike.

#### REWARDS AND PUNISHMENTS

Rewards for zeal in service were given chiefly to the "drivers" or gang foremen. Each of these had for example a "doubled milled cloth coloured great coat" costing

11s. 6d. and a "fine bound hat with girdle and buckle" costing 10s. 6d. As a more direct and frequent stimulus a quart of rum was served weekly to each of three drivers, three carpenters, four boilers, two head cattlemen, two head mulemen, the "stoke-hole boatswain", and the black doctor, and to the foremen respectively of the sawyers, coopers, blacksmiths, watchmen, and road wainmen, and a pint weekly to the head home wainman, the potter, the midwife, and the young children's field nurse. These allowances totalled about 300 gallons yearly. But a considerably greater quantity than this was distributed, mostly at Christmas perhaps, for in 1796 for example 922 gallons were recorded of "rum used for the Negroes on the estate". Upon the birth of each child the mother was given a Scotch rug and a silver dollar.

No records of whippings appear to have been kept, nor of crimes or misdemeanors except absconding. In the list of deaths for 1793, however, it was noted that Roman was shot and killed by a watchman on the neighbouring estate while stealing provisions from the Negro grounds. The account gives a quarterly list of runaway slaves, with a few listed at each quarter, most of the fugitives appearing to return of their own free will. Obviously the impulse to run away was not confined to either sex nor to any age or class. The fugitives were utterly miscellaneous and their flights were apparently not organised but sporadic.

#### TRIBAL ORIGINS AND TRIBAL QUALITIES

These conclusions seem to be borne out by an analysis of the notices of runaway slaves published by the workhouse in the newspapers. Throughout the year 1803, for which I have procured these statistics from a file of the *Royal Gazette of Kingston*, the number of runaways taken into custody each week was fairly constant; and no group of slaves appears over-represented. Of the grand total of 1,721 runaways advertised as in custody, 187 were merely stated to be Negroes without further classification, 426 were "creoles", *i.e.*, native Jamaicans; and the neighbouring islands had scattering representations. Sixty per cent. (1,046) were of African birth. Of these 101 were Mandingoes from Senegambia and the upper Niger; 60 were Chambas from the region since known as Liberia; 70 were Coromantees from the Gold Coast; 33 were Nagoes and 24 Pawpaws from the Slave Coast (Dahomey); and 185 were Eboes and 97 Mocoos from the Bight of Benin. All of the foregoing were from regions North of the equator. From the Southern tropic there were 185 Congoes, 165 Mungolas, and 94 Angolas. The remaining 30 were mostly from places which I have not been able to identify in maps old or new. Only one, a Gaza, was positively from the East coast of Africa.

The Congoes and Coromantees, the tribal stocks with which Worthy Park was chiefly concerned, were as wide apart in their characteristics as Negro nature permitted. The former were noted for lightness of heart, mildness of temper, and dullness of intellect. Of the latter Christopher Codrington, Governor of the Leeward Islands, wrote in 1701 to the British Board of Trade:

The Coromantees, . . . are not only the best and most faithful of our slaves, but are really all born Heroes. . . . There never was a raskal or coward of that nation, intrepid to the last degree, not a man of them but will stand to be cut to pieces without a sigh or groan, grateful and obedient to a kind master, but implacably revengeful when ill-treated. My father, who had studied the genius and temper of all kinds of negroes 45 years with a very nice observation, would say, Noe man deserved a Corramante that would not treat him like a Friend rather than a Slave.



Byran Edwards endorsed the staunchness and industry of the Coromantees, but attributed to them the plotting of the serious Jamaica revolt of 1760.

A large proportion of the fugitive slaves in custody were described as bearing brands on their breasts or shoulders. It is not surprising to find in a Worthy Park inventory "1 silver mark LP for negroes". Edwards wrote that a friend of his who had bought a parcel of young Ebo and Coromantee boys told him that at the branding,

when the first boy, who happened to be one of the Eboes, and the stoutest of the whole, was led forward to receive the mark, he screamed dreadfully, while his companions of the same nation manifested strong emotions of sympathetic terror. The gentleman stopped his hand ; but the Koromantyn boys, laughing aloud, and, immediately coming forward of their own accord, offered their bosoms undauntedly to the brand, and receiving its impression without flinching in the least, snap their fingers in exultation over the poor Eboes.

#### PLANTATION ECONOMICS

Worthy Park bought nearly all of its hardware, dry goods, drugs and sundries in London, and its herrings for the Negroes and salt pork and beef for the white staff in Cork. Staves and heading were procured locally, but hoops were imported. Corn was cultivated between the rows in some of the cane fields on the plantation, and some guinea-corn was bought from neighbours. The Negroes raised their own yams and other vegetables, and doubtless pigs and poultry as well. Plantains were likely to be plentiful, and the island abounded in edible land crabs.

Every October cloth was issued, at the rate of seven yards of osnaburgs, three of checks, and three of baize for each adult, and proportionally for children. The first was to be made into coats, trousers, and frocks, the second into shirts and waists, the third into bedclothes. The cutting and sewing were done in the cabins. A hat and a cap were also issued to each slave old enough to go to the field, and a clasp-knife to each one above the age of the third gang. The slaves' feet were not pinched by shoes.

The Irish provisions cost annually about £300, and the English supplies about £1,000, not including such extra outlays as that of £1,355 in 1793 for new stills, worms and coppers. Local expenditures were probably reckoned in currency. Converted into sterling, the salary list amounted to about £500, and the local outlay for medical services, wharfage, and petty supplies came to a like amount. Taxes, manager's commissions, and the depreciation of apparatus must have amounted collectively to £800. The net death-loss of slaves, not including that from the breaking-in of new Negroes, averaged about two and a quarter per cent. ; that of the mules and oxen ten per cent. When reckoned upon the numbers on hand in 1796 when the plantation, with 470 slaves, was operating with no outside help, these losses, which must be replaced by new purchases if the scale of output was to be maintained, amounted to about £900. Thus a total of £3,000 sterling is reached as the average current expense in years when no mishaps occurred.

The crops during the years of the record averaged 311 hogsheads of sugar, 16 cwt. each, worth in the island about £15 sterling per hogshead, and 133 puncheons of rum, 110 gallons each, about £6,000, and the net earnings of the establishment not above £3,000. The investment in slaves, mules, and oxen was

about £28,000, and that in land, buildings, and equipment, according to the general reckoning of the island authorities, reached a similar sum. The net earnings in good years were thus barely more than five per cent. on the investment ; but the liability to hurricanes, earthquakes, fires, epidemics, and mutinies would lead conservative investors to reckon the safe expectations considerably lower. A mere pestilence which carried off about 60 mules and 200 oxen on Worthy Park in 1793-1794 wiped out more than a year's earnings.

Byran Edwards gave statistics showing that between 1772 and 1791 more than one-third of the 767 sugar plantations in Jamaica had gone through bankruptcy, 55 had been abandoned, and 47 new ones established. It was generally agreed that, within the limits of efficient operation, the larger a plantation was, the better its prospects for net earnings. But though Worthy Park had more than twice the number of slaves that the average plantation employed, it was barely paying its way.

## Some Aspects of Botany

PROFESSOR ASPREY  
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*Botany is the science that deals with plants and plant life. This brief article is intended to give the reader an example of the kind of work which botanists do.*

PEOPLE WHO ARE INTERESTED in growing plants, whether as gardeners or farmers, know that to obtain the best results one must supply the plant with nutriment. The fact has indeed been known from the earliest times and it has long been the practice to apply animal manure to the soil. But there is not an unlimited supply of natural manures and nearly 200 years ago it was stated that in less than 100 years from that time the human race would cease to multiply because it would be impossible to grow enough food to support any further increase in population. This prophecy has not yet materialised, thanks largely to increased crop production brought about by the use of artificial fertilisers.

What does the growing plant need for its nourishment ? Scientists asked themselves this question many years ago, and the story of the search for an answer is a long and interesting one.