

merely a commentator on Edwards, who has entered more largely upon the subject, I shall condense from the latter statements connected with the manufacture and decay of this branch of industry, once the staple of Jamaica.

Edwards (West Ind. vol. ii. p. 275, 2nd edition) reckons three kinds of indigo—the wild, Guatemala, and French. The first is the hardest, and the dye extracted **from** it of the best quality as regards colour and grain ; but one or other of the two species is commonly preferred by the planter, as yielding a greater return. Of these the French surpasses the Guatemala in quantity, but yields to it in fineness of grain and beauty of colour. The indigo thrives almost on any land, though the richest soils produce the most luxuriant plants, and the longest dry weather will not kill it. The cultivation and manufacture **our** author thus describes :—“The land being prepared, trenches, two or three inches in depth, are made by the hoe. These are ten or twelve inches asunder. The seeds are then strewed in the trenches by the hand, and slightly covered with **mould**. When the plants shoot, they are **carefully** weeded, and kept constantly clean, until they rise high enough to cover the ground. A bushel of seed is **sufficient** for four or five acres. The best season for planting is March ; but if the land be good, it may be sown **at** any time, and in three months the plants attain maturity. In seasonable situations, they have four cuttings in the year. The subsequent growths **from** the plants ripen in six or eight weeks ; but the produce **diminishes** after the second cutting, so that the seeds should be sown every second year. A species of grub, or worm, which infests the plant on the second year, *is avoided by changing the soil*; or, in other words, by a rotation of crops. The produce per acre of the first cutting is about 60 lbs. It is nearly as much in North America ; but when the thermometer falls to sixty, the **returns** are very uncertain, that degree of heat being too low for the necessary **vegetation**, maceration, and fermentation. The yieldings for the subsequent cuttings somewhat diminish ; but in Jamaica and St. Domingo, if the land is new, about 300 lbs. *per* acre of the second quality may be expected annually from all the cuttings together ; and four negroes are sufficient to carry **on** the cultivation of five acres, besides doing other occasional work, **sufficient** to reimburse the *expenses of their maintenance and clothing.”

The process for obtaining the dye, according to the same author, was conducted through the means of two cisterns, the one elevated above the other, in the manner of steps, The higher, which was also the longer, was named the *sleepers*—its dimensions, sixteen feet square, and two and a half feet in depth. The second, into which the fluid was

discharged, was called the *battery* ; it was about twelve feet square, and four and a half in depth. **These cisterns** were of stone ; but strong timber answered equally well. **There was** also a lime-vat, six feet square and four feet deep, the plug of which was at least eight inches above the bottom. **This** was for the purpose of permitting the lime to **subside, before the lime-water was withdrawn.** The plants then being ripe, or fit for cutting, were cut with reaping-hooks, or sickles, a few inches **from the ground**—six was the minimum—and placed by **strata** in the *sleepers*, until it was about three parts full. They were then pressed by boards, either loaded with weights or wedged down, so as to prevent the plants from floating loosely ; and as much water was **admitted** as they would imbibe, until it covered the mass four or five inches deep. In this state, it was allowed to ferment until the water had extracted the pulp. To know when this had been thoroughly effected, required extreme attention and great practical knowledge ; for if the fluid was drawn off too soon, much of the **pulp** was **left** behind ; and if the fermentation continued too long, the tender tops of the plants were decomposed, and the whole crop lost. To acquire this desirable knowledge, **viz.,** the exact time when the liquor was to be drawn off, two modes were **practised.** But as I do not pretend to write a treatise on the cultivation and manufacture of Indigo, I must refer the inquisitive reader to Edwards, or to those works which treat expressly on the subject. At the same time, however, I must record my opinion, that all fixed rules on this and similar subjects are delusive, and that, like the proper quantity of lime required in the manufacture of sugar, they must depend chiefly, if not entirely, on experience, observation, and practice.* When the tincture or extract was received in the battery, it was agitated or churned until the dye **began** to granulate, or float in little flakes upon the surface. **This** was accomplished at **one** period in Jamaica by paddles, worked by **manual labour**, and, in the French islands, by

• “The application of lime to the raw cane-juice is necessary to carry off the *animal* substances which it contains, and the experience of the boiler (manufacturer) till point out the exact quantity required for the purpose, which varies much according to the nature of the soil and other circumstances : I shall therefore not attempt to treat at any length on the subject., for I am satisfied that volumes written on it would tend but little to assist the practical man in the process, and although my experience enables me on entering a boil&-house at once to discover any error and to understand the cause of it, it does not enable me to convey my ideas in such a manner, by writing, as to aid the uninitiated.”—*Prize Essay on the Cultivation of Sugar*, by Thomas Henney, Esq., published in the COLONIAL MAGAZINE for January.

buckets or cylinders, worked by long poles ; but subsequently-that is, at the time Edwards wrote-convenient apparatus was constructed, the levers of which were worked by a cog-wheel, kept in motion by a horse or mule, When the fluid had been churned for fifteen or twenty minutes, a small quantity was examined in a cup or plate, and if it appeared curdled or coagulated, strongly impregnated lime-water was **gradually** added, not only with a view to promote separation, but to prevent decomposition. Browne remarks (Civil and Nat. Hist. of Jam., art. "Tndigo"), the planters " must carefully distinguish the different **stages** of this part of the operation also, and attentively examine the appearance and **colour** as the work advances,-for the grain passes **gradually from** a greenish to a fine purple, which is the proper **colour** when the liquor is sufficiently worked,-too small a degree of agitation **leaving** the indigo green and coarse, while too vigorous an action brings it to be almost black." The liquor being then, as we shall suppose, properly worked, and granulation established, it was left undisturbed **until** the flakes settled at the bottom, when the liquor was drawn **off**, and the sediment (which is the indigo) placed in little bags to drain, after which it was carefully packed in little square boxes, and suffered to dry gradually in the shade.

Such is the account, nearly word for word, which Edwards gives of the mode of manufacturing Indigo. I shall now quote his remarks upon the outlay and gain upon the article *verbatim*.—" To what has been said above of the nature of the plant suiting itself to every **soil**, and producing four cuttings in the year, if we add the cheapness of the buildings, apparatus, and **labour**, and the great value of the commodity, there will seem but little cause for wonder at the splendid accounts which are transmitted down to us concerning the great opulence of the first indigo-planters. Allowing the produce of an *acre* to be **300 lbs.**, and the produce no more than 4s. per pound, the gross profit of twenty acres will be **£1200**, produced by the **labour** of only sixteen **negroes**, and on capital in land and buildings scarce deserving consideration." Yet, notwithstanding this statement, the **author** informs us afterwards that he **knew**, in the course of eighteen years' residence in the West Indies, upwards of twenty persons who tried to re-establish indigo **manu-**factories, but failed. This appears strange, since it is plain that **what** has once been done can be done again, but especially in the **manu-**facture of an article requiring a capital so very small in proportion to the profits as almost to tempt the most cautious and the most timid man to embark in it.

I quote the following passage from the same author, for the purpose

of showing the very loose manner in which statements are made on the authority of others, who are as incompetent to decide the merits of a question as the party himself chronicling their opinion. . Speaking of the twenty unfortunate indigo-planters, our author thus writes :—
 “ Many of them were men of foresight, knowledge, and property. That they failed is certain ; but of *the causes of their* FAILURE *I can give no satisfactory account.* I was told that disappointment trod close upon their heels at every step. At one time the fermentation was too long continued, at another the liquor was drawn off too soon ; now the pulp was not duly granulated, and now it was worked too much. To these inconveniences, for which practice would doubtless have found a remedy, were added others of a much greater magnitude—the **mortality** of the negroes, from the vapour of the fermented liquor (an alarming circumstance, that, I am informed, both by the French and English planters, constantly attends the process), the failure of the seasons, and the ravages of the worm. These, or some of these evils, drove them at length to other pursuits, where industry might find a surer **recompense.**”—(p. 283.)

The fallacy of much of this requires no comment, as it must strike even the most careless reader, - for if the so-called indigo-growers did not know the process of manufacturing the commodity, then it could, not be surprising that they failed. Thus the cause of their **failure required** no comment, and no explanation. Were a **ploughman** taken from the field and placed at the helm of a ship, and the vessel in consequence wrecked, would any one be astonished but at the folly of those who placed him there ? This was the case with the **indigo-growers,—** they attempted what they did not understand, and, consequently, lost their **labour** and their money. The mortality of the negroes employed, stated as another reason for abandoning the attempt, requires a **some-** what more lengthy notice. I can briefly say, that I have learned that in the Central States of America, deaths among indigo-labourers are not more **frequent** than in other branches of tropical industry ; and I never heard or have read that the *original* growers complained of the mortality attending the process. The truth is, that this statement is not founded on fact. There is nothing whatever in the manufacture of indigo, either in the cultivation or the granulation, or even in the maceration and fermentation of the plant, which is directly or indirectly, per se, injurious to human life. I have certainly never seen the indigo plant macerated on a large scale ; but **I** have myself steeped much of it in water, and allowed it even to rot, and found nothing in the mass differing in any *marked degree **from** decomposed vegetable matter. It seems

to me that this idea of the manufacture of indigo being especially inimical to human life, is as unfounded as the belief, even by Humboldt, up to a very recent period, that none of the *Cerealia* would grow in tropical climates ; but as I shall speak hereafter of the cultivation of Wheat in Jamaica, I need not here dilate upon this prejudice.—To return to the subject of Indigo, In conversing with an old gentleman in Jamaica, some twelve years since, who had tried the **manufacture** of indigo, and with every prospect of success, but abandoned it, as he confessed, for the cultivation of the sugar cane, since it was then more profitable, he suggested the solution, that as the manufacture was light work, probably aged and debilitated, in place of youthful and vigorous slaves, *were* too frequently employed in the process—hence the **mortality**. This may be correct to a certain extent; but I am also inclined to think that another cause of mortality might be found in the mode and manner in which the negro was fed and clothed, and not because aged persons were exclusively engaged in the manufacture. Even so late as seventy or eighty years ago, the African was scarcely considered by any of the European nations as a human creature,—nay, the unhappy aborigines of the West Indies, whose place, through the mistaken piety of Las Cases, he was destined to supply **in the doubly-cursed** mines of the Spaniards, were not ranked among *men*, until Pope **Paul the Third**, by a Bull **dated at Rome** in 1537, determined that they **were** men, *really* men, and *not* brutes ; while Long, “ the elegant historian,” as he has been called, with more ingenuity than knowledge, and more prejudice than judgment, laboured to prove that he was a monkey! After this, if **he** were treated as one of **the** beasts of the field, can any one venture to express surprise ? It is to the harsh treatment of the **negro**, therefore, in those dark pages of Colonial history, that we **must** look, in my opinion, for much of the mortality complained of, “ both by the French and English ” indigo-growers, and which was common, not only in the manufacture of this commodity, but in all others in which the earlier settlers were engaged. I believe I may state, without fear of contradiction, that the real cause of the decline and consequent abandonment of the indigo plant was the monstrous duty levied upon it by the English Government. Indeed, this has been already stated in the extract from Bridges; while the cause of the failure of the attempt to renew it, over and above the reasons we have given, was the greater temptation to embark capital in sugar plantations,—the West Indies enjoying a monopoly **in** this article, while they had competitors in the Southern States of America in the other. I have, therefore, no hesitation in saying, that, with a trifling capital, under prudent management,

indigo might be cultivated to a very great extent, and with considerable **profit**, even now, in Jamaica. But the adventurer is not to expect to count his gains, as the original growers did, by thousands ; he must be content with hundreds, if not **fifties** ; for at the present day every branch of industry is laden with difficulties, encumbered by taxation, and obstructed by competition. There are two objections, however, which I have not **removed**,—I allude to “ the failure of the seasons and the ravages of the worm.” Very little need be said to combat these. Seasons are mutable, and the same heaven that frowns this year on the **labours** of the husbandman may smile the next ; while a remedy for the “ ravages of the worm ” may be found in the mutation of the soil, the destruction of the grub, or the rotation of crops,-accessories to success which seem not to have entered into the vocabularies of the twenty pseudo indigo-growers, “ many of them men of knowledge, foresight, and property.”

I was just about to close what I had to **offer** on this subject, which perhaps has already detained us too long, when I stumbled on the following passage in Edwards, which will corroborate much that I have endeavoured to enforce. **It** furnishes not only a solution which has been hinted at before, of the enigma why indigo ceased to be cultivated in Jamaica, but also *an incentive* to re-introduce the culture. He says (p. 444), “ It is a remarkable and well-known circumstance, after the cultivation of indigo was suppressed by an exorbitant duty of near **£20** the hundred-weight, Great Britain was’ compelled to pay her rivals and enemies \$200,000 annually for this commodity, so essential to a great variety of her most important manufactures. At length, the duty being repealed, and a bounty some time after substituted in its place, the States of Georgia and South Carolina entered upon, and succeeding in the **culture** of this valuable plant, supplied at a far cheaper rate than the French and Spaniards (receiving too our **manufactures** in payment) not only the ‘British consumption, but also enabled Great Britain to export a surplus at an advanced **price**’ to foreign markets.“-It is therefore plain that the **manufacturing** of indigo was lost to Jamaica, not from any **difficulty** in growing the plant, or from any loss of life attending the process of manufacturing it, but **from** the ruinously heavy duty of **£20** the hundred-weight-and that now when no duty exists, it **might** be again cultivated **with** great advantage. I need scarcely refer to a similar **fiscal** blunder in imposing a heavy duty on coffee, as Mr. R. Montgomery Martin has so fully treated it in his work on the Colonies, and I shall therefore proceed to speak **of**—

Corron, which, it must be apparent to all, could be cultivated in

Jamaica and the other islands, not only as an article that would in process of time give birth to a native manufacturing population, but would act in the mean while as a check upon the American growers, and insure a resource for the cotton-mills of England, in case of a rupture with the United States, nearer home than Egypt or the East Indies. How much may be done for the cultivation of this commodity is easily learned by referring to the exertions of Mehemet **Ali**, whose bales, I perceive by the Liverpool prices of the 2nd January, 1844, sold at $6\frac{1}{2}d.$ and $6\frac{3}{4}d.$ per lb. Besides, this plant was once extensively cultivated in the West Indies, and when Jamaica became a British colony, she continued to export, for some time after, a considerable portion of what was spun in England. Bridges, with his characteristic emphasis, says (*Annals Jam.* vol. i. p. 385, Append.) “The cultivation of indigo had been nearly abandoned when that of cotton was renewed ; for amongst the Indians it had been one of their most valued indigenous plants ; so that when its culture had decayed in the other British settlements, it flourished most in Jamaica. The consequence was, that the English colonies were unable to supply sufficient to keep the manufactories employed, and the duty on foreign cotton being withdrawn, a deathblow was given to the profitable production here.”

Now here again the intelligent reader must be struck with the fallacy of the last remark. The cultivation of cotton was newer unprofitable in Jamaica; but it, unfortunately, was seldom carefully prepared for the market, and, what was still more unfortunate, even when well prepared, it was *less* profitable than sugar; for Colonial sugar enjoying a monopoly to the exclusion of French, Spanish, and even Portuguese, adventurers and capitalists who flocked in hundreds to the West Indies as the arena of Plutus, in which they were to struggle for a few brief years and then return to their native land laden with the largess of Fortune, turned all their attention to the sugar cane—perhaps the most unlucky, ash has been to its cultivators the most fatal, of all the products of the tropics. This I consider to have been induced by the monopoly—that very monopoly for which the West **Indians** so long contended. I am not advocating the equalisation of duties on foreign sugars—nothing could be more unjust to the West Indians, or more stultifying to the British nation—but I allude to the condition of the West Indies *at* the period when giving them a monopoly—the cultivation of sugar was in a manner forced upon them, not only by this monopoly, but by fiscal restrictions on indigo, the lowering of the duty on foreign cotton, the excessive import on coffee (subsequently removed), and the non-cultivation of wheat, rice, cocoa, and other available products of these munificent lands. It must be confessed, I admit, that the Portuguese at one

period enjoyed the monopoly of the supply of sugar to Great Britain,* and that it was but natural-nay, it was politic, as evinced by Napoleon in his introduction into France of the manufacture of sugar from the beet-root when France had lost all her colonies-that Great Britain should have attempted to **remove**, or at least to restrict it, by encouraging **her** own colonies to produce sugar. But in **endeavouring** to accomplish this desirable end, a great principle was overlooked, viz. that it is not only hazardous, but positively baneful, to attempt to establish new manufactures by bounties and monopolies, so that, by the **greater** prospect of gain which the latter present, to induce capitalists to remove capital from one investment to another. Now this false step has never been retraced in the instances of indigo and cotton, and but for a most providential alteration in the duties on coffee, that valuable necessary of life would have shared the same fate. Had this monopoly not been granted to the planter, and had they not adhered to the undue cultivation of the sugar cane, to the **exclusion** of nearly all other **tropical** products, without calling the discoveries of modern chemistry in the value of manures to their aid, and without availing themselves of the assistance of the scanty knowledge and clumsy practice of the worst agriculturists in Britain, where, even at the present day, agriculture -scarcely attains the eminence of an art, much less a science, they would not now have been so painfully-I may almost add, hopelessly-in' **the power** of their enemies.+

• “Portuguese sugar, before we had plantations of our own, sold for seven and eight pounds the quintal or hundred-weight” [Sir Joshua Child ; *v.* Ed. wards, vol. ii. p. 444, ed. 2, 4to] ; and Postlethwaite [*Dict. of Trade and Commerce*] makes these very pertinent remarks : “Before the settlement of our colonies, our manufactures were few, and those but indierent. In those days we had not only our naval stores, but even ships, from our neighbours Germany furnished us with all things made of metal even to nails ; wine paper, linens, and a thousand other things, *came* from France. Portugal supplied us with sugar. All the products of America were poured in upon us from Spain ; and the Venetians and Genoese retailed to us the commodities of the East Indies at their own price.”

† Mr. Russel, a member of the Jamaica Assembly, published in the *Jamaica Almanac* for 1842 a very excellent paper on the crude agriculture of Jamaica and though that gentleman has fallen into several errors from which the Royal Agricultural Society of England in the person of its members and professors are equally involved with himself, still it is highly creditable to him, and should be carefully perused by all who have any interest in the soil of Jamaica For the errors of Mr. Russel (some of which are even Liebig's!) and those Messrs. Pusey, Trimmer, and other the *élite* of the R. A. Soc., together with the Editor of the *Farmer's Magazine*, *vide* an excellent paper in the September number of the *Dublin Review*, No. xxix. 1843.

No independent country, much less a colony, can flourish for any length of time by the cultivation or manufacture of one staple. The very demand for that staple which at first renders it a profitable investment, creates a host of competitors, who, guided by the experience of the first cultivators or manufacturers, aided by machinery and assisted by capital and enterprize, soon lower the price of the commodity, and at length drive the original cultivators or manufacturers out of the market, as is exemplified in the case of the Manchester cotton-spinners, and the luckless natives of India ; unless—which is not always the case—they possess **sufficient** capital to remodel their buildings and machinery, and commence in fact de *ново*—or over again.

If the **Pacha** of Egypt, in a country which, until he—perhaps the most extraordinary man of his age—assumed’ despotic sway, was but a horde of barbarians, could establish cotton plantations, what is to prevent Englishmen and English capital from effecting the same in a country like Jamaica, which even in the most humid parts is twenty times more healthy than Egypt ? Nay, while writing this very paragraph, my hopes of the **renewal** of cotton cultivation in Jamaica seem almost **realised** ; for in the last number of **your** Magazine, I find an article by my learned friend Dr. **Macfayden** on the cultivation of cotton, upon the contents of which I need not now dilate. But, as I said before, when speaking of indigo, those who attempt to establish cotton-fields in Jamaica, or any other West India island, must be content to receive a **fair** and equitable, not a **gigantic** and monstrous return for the investment of their capital. If, as I have every reason to believe, there are vast sums of money now lying idle in London, Liverpool, Bristol, and other large cities of Great Britain, for want of good investments, in **what** better manner can they be employed than in the establishment of new manufactures or the renewal of old staples in the West Indies ? Is not Great Britain with respect to cotton and the United States in the same predicament as she was with Portugal in the article of sugar before the establishment of our colonies ? And ought this to continue ?

I cannot here enter upon a calculation of the expenses attendant upon the cultivation of any given number of acres of cotton—this would be ‘foreign to the subject of this paper, which is not intended as a treatise on this or that product of **the** West Indies, but is simply an attempt to attract the attention of the West Indians, and British capitalists in particular, to the vast fields opened **for** their enterprise and capital. Any Encyclopedia—the **Penny**, for example—will give the requisite information, independent of those works which treat **exclusively** of this plant, its cultivation, growth, and produce. The **fol-**

lowing brief account of the species generally cultivated, and the method of planting and preparing the cotton for the market, chiefly condensed from Long [Jam. vol. iii. p. 686, &c.], Brown [Civil and Nat. Hist. Jam., art. "Cotton"], Edwards [vol. ii. 2nd ed. 4to, Lond. 1794], and Loudon [Encyclop. Plants, p. 588], will therefore suffice for my present purpose.

Ciossygium-the generic name for the plant-consists of numerous species ; those most generally cultivated being *G. hirsutum* [olim], occasionally grown in the West Indies; *G. Barbadense*, which is the most common ; *G. herbaceum* and *arboretum*, which are cultivated in the East Indies and China; besides numerous other species, among which is that which furnishes the famous yellow cotton of which **nankin**, the formerly very fashionable yellow stuff, was and is manufactured. An oil is obtained from the seeds of all the species ; but this product has been always a very inconsiderable article, so far as I can learn, at least in the West Indies, In the **Levant**, the seeds of *G. herbaceum* are considered wholesome food, and, as such, are eaten in those parts. That they are nutritive and fattening I can vouch; for pigs, to which I have seen them given, after being bruised and boiled with plantains, **cocoas**, yams, peas, &c., rapidly increase in size and fat. The method of planting the *G. herbaceum* in the Levant is by sowing it, in well-prepared land, in March, in lines three feet distant from each other, and the patches of seeds two feet apart in the lines. The plants, after having acquired something like stamina, are thinned, so as to leave but two or three in a place, and the ground is then stirred by a one-horse plough, or by **manual labour** by hoes. They are also irrigated once or twice a week, according to the state of the atmosphere, by directing water along the **furrows** between the rows. " The flowering season is generally over about the middle of September, and then the ends of the shoots are pinched off, to determine the sap to the capsules. The capsules are collected by hand as they ripen,-a tedious process, which lasts till the end of November. The cotton and the seeds are then separated by manual **labour**, and the former packed in bags or **bales** for sale. The seeds are bruised for oil, or eaten, and a portion kept for sowing," The *G. Barbadense* is usually sown in rows, five feet asunder, at the end of September or the beginning of October. The seeds are at first slightly covered ; but when the plants have grown up, they are well moulded at the roots. The soil should be light, friable, and deep ; not **stiff** and shallow, for the plant has a tap-root. Until they rise to the height of four or **five** feet, the ground is **frequently** hoed, and kept clear of weeds, The average height of the plant is between five and six feet ; many