could be introduced with the Inſects peculiar to them, no exertion ſhould be wanting on my part, of ſeconding your philanthropic views, by endeavouring to render the gift a valuable one, to the Country, the Company, and the Public.

For the trouble which you muſt have in executing the various requeſts I have juſt taken the liberty to make, permit me to offer you a return in ſimilar good offices here. Coffee and Pepper are the great objects propoſed to be cultivated, in the Plantation I have undertaken: but there are alſo others of leſſer importance, viz. Sandal Wood, Caſſia and the Native Nutmeg of Malabar, any or all of which ſpecies, I ſhall have much pleaſure in forwarding to you. At preſent however, I can only offer you the two former, as the ſeaſon has not yet enabled me to procure either the Fruits or Plants of the three latter, which are indigenous productions of the neighbouring Foreſts.

MURDOCK BROWN.

MAHE, *February 2d*, 1798.

To DOCTOR ANDERSON,

PHYSICIAN GENERAL,

DEAR SIR,

AMONG your various attempts to benefit the Public, I underſtand that one of the moſt ſucceſsful, is your cultivation of the Cotton Shrub. It is ſaid to be ſuperior to that of the Iſle of Bourbon.

Since our acquiſition of this Colony, a trial has been made here, and I now ſend you, a ſmall ſpecimen of the Cotton produced from it, but I doubt much of its being likely to rival your's. We ought nevertheleſs to aim at perfection, however we may fall ſhort of attaining it, allow me then, My Dear Sir, to addreſs myſelf to you to aſſiſt my purſuits, and to requeſt that you would be ſo good as to ſend me a bag of Cotton Seed; for ſowing, by the earlieſt opportunity, with any ſuch directions or inſtructions as you may think uſeful for the management of them.

I am extremely glad to have this opportunity of renewing my acquaintance with an old friend, and of aſſuring you, that

if

if you think my ſituation here, can enable me to promote any of your wiſhes, I ſhall be happy to receive your Commands.

MACARTNEY.

CASTLE OF GOOD HOPE
Sept. 18*th*, 1797.

TO THE RIGHT HON. EARL MACARTNEY,
&c. &c. &c.

MY LORD,

I AM favoured with your letter of September laſt, and am happy to find that the purſuits in which I have taken ſome concern, are likewiſe pleaſing to you. The Cotton you mention is not yet arrived, and therefore I am unable to make the compariſon you wiſh; and indeed the Letter muſt have come by a circuitous paſſage, as I only received it yeſterday, but relying on the ſucceſs that may attend your Lordſhip's endeavours, in introducing the culture of ſo valuable an Article, I ſend by Captain Price of the Lord Hawkeſbury 100 lbs. of the Bourbon Cotton Seed which is now cultivated here. By a report to the Peterſburgh Academy which is publiſhed in the Bee at Edinburgh, it appears that this Cotton is a native of Buchara in the heart of Aſia, a Country as far from the equator as the Cape of Good Hope, and in this reſpect favourable to your ſucceſs, and it is ſaid here, to be of a finer grain about Madras, than that which grows more to the Southward. I have encloſed the copy of a Letter to the Committee of Government on the Malabar Coaſt, containing all the directions that appear neceſſary for the culture of Cotton; as what depends upon times and ſeaſons for ſowing, muſt ever be a local conſideration. Young plants of the Oak, Silver Protea, and Candleberry Myrtle, will be very acceptable here.

There are two ways by which the ſafe conveyance of them may be effected, one is to let them be well rooted for ſome months in the Earth, before they are ſhipped: the other is, to apply a pellet of ſoft Clay round the Roots, and pack them in a Cheſt with holes through the ſides for the admiſſion of air. The Seeds of theſe or any other Trees, may likewiſe be tranſported with advantage, provided they are gathered when ripe, and put immediately into a box of

Garden

Garden mould. I ſhall not fail to forward a Sack of Cotton Seed by every opportunity, until ſuch time, as I learn that it is eſtabliſhed at the Cape, and by every means in my power, ſupport an agreeable correſpondence that long abſence has rendered more intereſting, and remain.

JAMES ANDERSON.

FORT ST. GEORGE, *February 19th*, 1798.

To MURDOCK BROWN, Eſq.

Superintendant of the HONORABLE COMPANY'S *Plantations at Mahé.*

DEAR SIR,

I HAD the pleaſure to receive your Letter of the 21 inſtant, a few days ago, acquainting me of the pains you had taken in pointing out, the utility of cultivating various articles of Trade, a duty which I truſt you will ever recollect with ſatisfaction, as the articles you mention although natives of the hills, may all be reared to great advantage upon the Coaſt.

By Captain Henderſon of the Apollo bound for your Coaſt, I ſend you 100 lbs. of Bourbon Cotton Seed, and will ſend the like quantity by every Ship that ſails, that you may diſtribute it immediately over the whole Province, without loſs of time, by waiting for Seed from your own plantation, and Mr. Martin of Palamcottah has promiſed to ſend you Mulberry Cuttings, and Kew Nopals. It is needleſs to ſend you Silk Worms, until you have ſome hundred Acres covered with Mulberry and the Mexican Cochineal is not yet arrived, nor is there any reſource or means left, or thought of, for bringing it.

I will thank you, for a few well rooted Plants of Black Pepper by every opportunity, as our Botaniſt only ſupplied us with ſuch as produce male flowers, but no female flowers or fruits.

It is to be hoped that you will be amply ſupplied with the beſt kinds of Cinnamon Plants and Seeds from Ceylon,

as

as well as Clove and Nutmeg Trees, from Amboyna and Banda.

JAMES ANDERSON.

FORT ST. GEORGE, *February* 19*th*, 1798.

TO JAMES ANDERSON, ESQ.
PHYSICIAN GENERAL, &c. &c.

DEAR SIR,

PERSUADED that every thing which may have a tendency, however remote, to the improvement of the Country, we reſide in, and particularly an object, that you have had the merit of introducing, will meet with your unqualified approbation. I take the liberty of encloſing a few obſervations, the produce of my leiſure hours, on the manner of rearing Silk Worms, in Europe. I am perſuaded, the ſame method may be purſued in this Country, to advantage, with only the trifling alterations, that the difference of climate may require.

Before the Æra of that fatal revolution, which among a multitude of other calamities, has coſt France, the tenth part of its moſt valuable Inhabitants, and before the violent perſecutions, particularly directed againſt people of my profeſſion, obliged to bid an eternal farewel, to my diſtracted Country, and to all I held moſt dear to me, to ſeek for ſecurity and tranquillity, in theſe remote and unknown regions, (happy indeed, ſhould I have felt myſelf, in the poſſeſſion of theſe ineſtimable bleſſings, if the ſpirit of fanaticiſm, and cabal, had not lately troubled my repoſe, by erecting againſt me, a perſecution nearly as violent, and fully as unjuſt, as that I had the happineſs to eſcape from,) I occupied a ſtation for a long period, that obliged me, to attend to the rearing of Silk Worms; and the obſervations. I now ſend you, are the reſult of many years practical experience, and is the method univerſally purſued in thoſe parts of France, where the Silk Worm is cultivated. I earneſtly wiſh, that my obſervations may throw any light, on the important object, which thro' your unwearied exertions, has been introduced into this Country.

Some months ago, I had the pleaſure of ſeeing at Trippaſore, the

the Silk Worms, that along with many other objects of public utility, have been lately introduced, into that diſtrict by Colonel Read; they were in a very thriving ſtate, and the climate of that part of the country, appears well adapted to the rearing, of that kind of Inſects: but at the ſame time, I muſt obſerve, that the breed in India, is by far inferior to that of Europe, and the Cacoons, and Silk of courſe are of an inferior quality. It will be impoſſible, to obtain Silk, that will equal the fineneſs, and ſolidity of the beautiful Silks, of Lyons and Peedmont, unleſs a better breed is obtained. It would be an eaſy matter to get a breed, from either of the Countries juſt mentioned, in order to endeavour to naturalize, in this. The Commercial Correſpondence, that in time of peace, ſubſiſts between Lyons, and the principal cities of the Britiſh Empire, would make it an eaſy matter to get a good breed from that Town, and import it, into this Country, only great care muſt be taken, to prevent the Eggs from hatching, during the paſſage. Such an experiment, is at leaſt worth the making, and if it ſhould ſucceed, I entertain no doubt, but that the Honorable Company, might in a few years, make Silks in this Country, that might rival the beſt Silks manufactured in Europe, which I fear cannot take place, unleſs a better breed is procured.

You will be able to judge of the difference between the breed of this Country, and that of Europe, by the following ſtatement. An Ounce of the Eggs of the European Worm, as you will ſee is detailed at large, in my obſervations, contain 40,000 Eggs, between two hundred and two hundred and twenty Cacoons, are equivalent, to a lb. avoirdupoiſe, the price in France, is from 24 to 36 Sous, according to the plenty or ſcarcity, and ten or eleven Pounds of Cacoons, will produce a pound of ſuperfine raw Silk, which is uſually ſold, from eighteen to twenty-four or twenty-five Livres. Now though I have not made the experiment, yet if I may judge from the Cacoons, I ſaw at Trippaſore, (and I ſuppoſe they are the ſame in every other place,) I am perſuaded, that one third more in quantity, will be requiſite, to produce the ſame return.

Excuſe Sir, my inaccuracy of ſtyle, occaſioned by my imperfect acquaintence, with the Engliſh Language. Should the accompanying obſervations, be attended with no other effect, than to convince you, of my readineſs to promote any

object

object that may have a tendency to Public utility, I ſhall conſider myſelf as amply rewarded, for the time I have employed in committing them to Paper, as it is my earneſt deſire, as far as in me lies, to promote the welfare of the Governments under whoſe protection, I have the happineſs of living.

Being with particular eſteem and regard,
DEAR SIR,
Your very obedient humble Servant,

DUBOIS,
MISSIONARY.

DARAMPOORY, IN THE BARAMAHL,
March 6th, 1798.

METHOD

OF REARING SILK WORMS IN FRANCE,

addreſſed to

DOCTOR JAMES ANDERSON,

PHYSICIAN GENERAL, &c.

THE rearing of Silk Worms, though well known in Europe for many Centuries paſt, was very little attended to, till the Epocha, when the arts and luxury deſpiſing the ancient ſimplicity of manners, began to look round in ſearch of novelty, and thoſe objects, whoſe chief merit conſiſted in their being obtained at a vaſt trouble, and expence. In France Louis XIII. was the firſt who wore Silk Stockings, and till towards the middle of the preſent Century, the rearing of the Inſect that produces the materials was univerſally neglected throughout the Kingdom, or at leaſt, was entirely abandoned to the lower claſſes of the People, who conducting it, according to an eſtabliſhed routine, as oppoſite as poſſible to the dictates of Nature, the fruit of their labours, could not do much more than repay their care and trouble, which it ſometimes did not: among them it was regarded as a wonder, if from an Ounce of Eggs, they got 40 or 50 lbs. of Cacoons, and the major part of them, were ſatisfied if they obtained even one half of that quantity.

However,

However, towards the middle of this Century, a ſenſible and enlightened man, who had the good of his Country much at heart, (Mr. L'Abbe Sauvage), was the firſt who attacked thoſe abſurd prejudices, that hindered men of judgement and property, from rearing this truly valuable Inſect, and reſcued it from the barbarous hands of an ignorant Populace. He firſt applied himſelf to ſtudy the nature, inſtinct, and various inclinations of the Inſects, from the time it lays dormant in the Grain, till after many different changes from a crawling Worm, it becomes a winged Fly, and by its aſtoniſhing fecundity, before it finally dies, it gives birth to an infinite number of Inſects like the Parent; and this ſkilful obſerver, the more effectually to vanquiſh the prejudices of thoſe, who regarded the rearing of it, as below their dignity, compoſed a Treatiſe, in which after entering fully into the Hiſtory of this King of Inſects, and of the great attention it requires, before it finally rewards the labours of thoſe who rear it, he relates the method he purſued himſelf. He calculated the number of Eggs neceſſary to make an Ounce in weight, and found, that not leſs than 40,000 were required, he found likewiſe, that 200 Cacoons of the firſt quality, would make 1 lb. and conſequently, on a ſuppoſition, that every Egg made its Cacoon, one Ounce or 40,000, ſhould produce 200 lbs. of Cacoons: he then clearly demonſtrated, that he, who from one Ounce of Eggs, only obtained 25 or 30 lbs. of Cacoons, loſt above eight tenths. Theſe happy experiments, were a powerful ſupport to his arguments, and every body was aſtoniſhed, when they learned, that from the ſame quantity of Eggs, from which, they commonly got no more, than 20, 30 or 40 lbs. Mr. L'Abbe Sauvage, obtained 130 or 140. His ſimple and natural method, ſoon made great progreſs, and thoſe Perſons who had hitherto regarded this ſpecies of occupation, as beneath their dignity, now ſacrificed their prejudices, and puerile vanity, at the potent ſhrine of intereſt, and this valuable Inſect, the origin of the greateſt ornament of vanity, and luxury, was reſcued from the Stables, and other inconvenient places, to which it had been hitherto confined, and placed in ſituations worthier of its future deſtiny, being ſnatched from the barbarous hands, of ignorance of prejudice, to be given into hands, who knew better how to eſtimate its importance. After many ſucceſsful experiments, People found themſelves ſpurred on by intereſt, and no one thought himſelf degraded, by rearing Silk Worms.

The

The method of Mr. Savvage, was approved, and followed by all; the Ladies in particular, even many of the higheſt rank, dedicated their time, to this agreeable, as well as uſeful occupation, and in the proper ſeaſon, voluntarily abandoned the faſcinating pleaſures of the City, to taſte the infinitely purer and more delightful pleaſures of the Country, and employ their time, in an occupation both uſeful and amuſing. From that time, all were buſy in endeavouring to purſue it, upon a large Scale. Plantations of Mulberrys, were made in every place, where the Climate would admit of their rearing Worms. The long Alleys of uſeleſs Trees, that before, ſerved both for ſhade and ornament, to the Chateaux and Country Houſes of the affluent, were in many places rooted up, to give place to thoſe Trees, that unite the utile and dulce as being the food of thoſe Inſects. The Hedges, the Rows of Elms, Labyrinths &c. that were compoſed of uſeleſs Trees, and Shrubs only; were rooted up, to ſubſtitute in their room, Mulberry Trees, that were juſt as pleaſing to the ſight, and infinitely more uſeful. The Government, wiſhing to ſecond the zeal of the Inhabitants, and avoid as much as poſſible, the loſs of Land appropriated to other purpoſes, ordained, that on thoſe Provinces, where the Silk Worms beſt ſucceeded, the ſides of the road ſhould be planted with thoſe uſeful Trees, and it is from theſe united efforts of the Government, and the People, that the rearing of the Silk Worm, is ſo univerſally eſtabliſhed all over the kingdom, and now forms one of the principal ſources of the reſources of France. However, it is only in ſome of the Southern Provinces of France, and even only in ſome particular parts of them, that the rearing of the Worms is ſucceſsful. Theſe Provinces, are, a part of Touraine, where the Silk is of an inferior quality, however Dauphiny, (I ſpeak according to the old diviſion of the kingdom, and not according to the new tangled ſyſtem of the Anarchiſts), Lower Provence, Lower Languedoc, and a part of Guienne. In the other parts of France, the Silk Worm, is as unknown as it was in this Country, before the diſintereſted efforts of Dr. Anderſon, had ſurmounted the obſtacles, and prejudices, that prevented its introduction. In the other parts of France the Climate will not permit them to rear the Tree, that furniſhes it with Food. In thoſe Provinces that rear them, the Worms hatch but once a year, ſometime in the middle of April, perhaps ten days

ſooner or later, according as the Mulberry Trees, whoſe vegetation is ſtopped during the Winter, ſooner or later begins to bloſſom; and end in the middle of June. It ſometimes happens, when the Trees begin to bloſſom too early, which is often the caſe after a mild Winter, that the Froſts that happen in the Month of April, ſtop the vegetation, and the Leaves periſh, which put an end to expectations for that year. But this evil is not very common, and beſides that, it can never take place in this Country, where vegetation is never impeded. The time being then arrived, when the Eggs ought to be hatched, the following is the method generally practiſed in France, and which eight years experience has ſhewn me the advantage of: nothing more is requiſite to adopt it in this Country, than to make thoſe alterations, that the difference of Climate naturally requires. One of the things, that contribute the moſt to the health, and ſucceſs of the Worms, or the contrary, is the ſituation of the Building deſtined for them; one of the principal cauſes why the People ſeldom or ever reap the fruit of their labours, when the rearing of the Inſects was excluſively confined to them, was, becauſe they were obliged almoſt always to rear them in Stables along with the Cattle, in Hay-lofts, Caves, and other places where the corrupted Air, cauſed great ravages: nothing can be more prejudicial to their health, than a corrupted or confined Air, which has no outlet, by which it may be renewed; if you wiſh to have large and healthy Worms, they muſt be placed, in a pure and elaſtic Air, and they muſt be arranged in ſuch a manner, that the Air may not be interrupted in any part, but circulate freely throughout the whole Building: the drieſt and the moſt elaſtic Air, is undoubtedly the beſt. I have not had an opportunity ſince I have been in this Country, to make any Meteorological obſervations, to determine which of the four Winds, poſſeſſes theſe qualities in the greateſt degree, but in my native Country, it is the North Wind, for which reaſon, all the Buildings deſtined for that purpoſe, conſtantly front the North, and the Windows for the admiſſion of freſh Air, are uniformly in the North end, whilſt the Southerly Winds, that are generally moiſt and humid, are excluded, and the Windows on that ſide kept almoſt always ſhut. The Buildings ought to be raiſed above the uſual level of the ground, in order to prevent the effects of moiſture. Marſhy Places,

or thoſe ſurrounded by Ditches, are prejudicial to the Worms, as well on account of their humidity, as the noxious ſmells they emit; nothing ought to be kept near them, that can corrupt the purity of the Air, ſuch as Dung, Straw &c. as noxious ſmells are, to theſe Inſects real Poiſon, great care muſt be taken to clean and whiten the Building deſtined for them, with Quick Lime, every time that freſh Worms are placed there, and afterwards, to perfume the Room, by burning Lavender, Thyme, Sage, or any other aromatic Plants eaſily procurable: care ſhould be taken, to clean the Mats before you put them on, eſpecially, if they have been uſed before by other Worms; care likewiſe muſt be taken, that no Rats, Bats, or other miſchievous Reptiles, get into the Buildings, for they might, when the Worms are very young, make great havock, before they are perceived. The Building being thus far prepared, ſeveral rows of ſeats, ſhould be ranged along the whole length, to ſupport the Mats or Hurdles, upon which the Worms are placed, you may indeed range them, one over the other, the whole height of the Building, taking care to leave the ſpace of a cubit between the Ranks, in order that the Air may have free circulation. The Hurdles or Mats ſhould not be more than 4 feet broad, in order that one Perſon, on each ſide, may without inconvenience, remove the Leaves and diſtribute freſh ones. All being thus arranged, the next thing is to hatch the Eggs. I do not know, the method uſed in this Country, in France there are ſeveral. Many Perſons put them upon ſmall Stoves, made on purpoſe, in which they keep up a regular degree of heat, which may be augmented, or diminiſhed, as occaſion requires. Some years ago, a Gentleman invented a ſquare Tin Machine, conſtructed in ſuch a manner, that Water might be introduced in every part of it; empty ſpaces were left in middle of it, in order to put in little Drawers, with the Eggs in them. The Machine reſts upon a Cylinder, and four Pivots; below you light a Lamp, which you may raiſe, or lower according to the degree heat wanted. This Lamp when lighted, gradually warms the Water contained in the Machine, and this heat is communicated to the Eggs, and by this very ſimple method, with no other expence, than a bottle of Oil, you may hatch 10 or 12 Ounces of Eggs, this method has another great advantage, in retaining the heat required, and gradually augmenting

menting it, by which means, almoſt all the Eggs are hatched at the ſame time. If Dr. Anderſon is diſpoſed to adopt it, I can give him a more ample deſcription of this Machine, whoſe conſtruction is very ſimple, ſo that a ſkilful Workman might very eaſily imitate it, and which not only on account of its ſimplicity, but becauſe it likewiſe conſiderably diminiſhes the expence, and trouble that thoſe People are put to, who make uſe of Stoves, has been almoſt univerſally adopted.

When the Eggs are hatched, great care muſt be taken to range the Worms according to the order of their Birth, and by no means mix thoſe that were hatched one day, with thoſe that were hatched on a different one. Such a miſtake, would derange the whole economy of their education, and cauſe numbers of them to die, therefore they muſt be kept in ſeparate places, till they form their Cacoon. The ſame degree of heat, as near as poſſible, ought to be kept in the Room, in the night, as well as in the day; whilſt they are young, the heat ought to be 2 or 3 degrees ſtronger; that is to ſay, before their third ſickneſs: from their Birth till that time, the heat ought to be, from 18 to 20 degrees of Reamur's Thermometors, and after that period, from 15 to 18 degrees: it is in order to keep up that degree of heat in the Room, that in Europe, they keep a fire in every corner, both night and day. Theſe Inſects are ſubject to five periodical maladies, before they arrive at the time of forming their Cacoons, in each of theſe diſeaſes they change their ſkin; it is uſually at theſe periods, and eſpecially about the 2d or 3d ſickneſs, that they catch thoſe diſeaſes, that often deſtroy them, or elſe throw them into ſuch a ſtate of inability, as prevents them from arriving at maturity, and producing their Cacoons. To prevent theſe diſeaſes, beſides what has been already ſaid, upon the precautions neceſſary to be taken, to give them a pure and elaſtic Air, to hinder any moiſt Air from entering the Room, to keep them as much as poſſible in equal temperature of Air, to keep the Building clear, and prevent all noxious ſmells, the following method is purſued. As ſoon as the Eggs are hatched, Food ſhould be given to the young Worms, the Leaves at the beginning, and during the firſt 8 days, ſhould be tender. In Europe for the firſt 10 days, the Leaves of thoſe Trees, that have not yet been grafted, are given them, the other kinds being generally harder. At that time you ought not give them the whole Leaf, but take a handful of Leaves and cut them in pieces; for being cut in that manner

rer, they present more Edges, for the young one to nibble, you must continue giving them the Leaves cut in that manner, till they have recovered from their 2d sickness, after which time, you may give them whole. The knife with which you cut the Leaves, ought to be clean, and never made use of for other services: those Persons who pick the Leaves, as well as those who distribute them to the worms, should alway have their hands clean. Women at certain periods should be excluded, from these Functions, you ought not to give them the Leaves either moist, or warm or even newly gathered: when they are wet, you must give time to dry: when they are warm you must put them in a cool place, and not give them to the Worms, till they are refreshed in a manner; it is much better not to give them Leaves at all, unless you take these precautions. Their meals ought to be regulated, the most common custom is, during the 3 first periods, that is, between the first and third sickness, to give them food 6 times a day, that is, every 4 hours during the 24; many Persons give them food 8 times a day, or every 3 hours, a small quantity. The practice of giving them food only 3 or 4 times a day, while they are young is dangerous; it is the same with these Insects as with all other Animals, who generally want food most frequently, during their infancy and cannot support hunger, for any length of time. It is usually after their recovery from the second or third sickness, that you may discover the greater part of the diseases of Silk Worms, and that you conjecture whether they will have a good or bad issue: besides the five revolutions, though which they pass before they arrive at maturity, and which are real and serious maladies, they are subject to three other principal ones, the yellow, the fat, and the decay. The yellow disease begins soon after their recovery from the second sickness, the symptoms are their becoming yellow or brown; when only a few of them are affected, you must immediately take them away, because it is contagious, and they will communicate it to the others: when a great number are in this situation, you must look upon them all as lost, as in the end this disease will become general, the best way therefore is, in order to avoid trouble and useless expence, to throw them away. In general it is a bad sign, when in the beginning you observe some of the Worms of a yellow tint, however small the number. Often you do not perceive the disease till late, and it does not begin to make its ravages before the Worms are recovered from their fourth sickness. I

have

have ſeen them often even when the Worms were already a little advanced in it, uſe a very ſimple remedy, and ſometimes with ſucceſs. Spread all the Worms in the Room, out in the air upon the Mats or Hurdles, and then ſprinkle them plentifully 3 or 4 times with freſh Water, after that leave them expoſed about an hour upon Mats, during that time the diſeaſed ones die, and leave behind only thoſe that are healthy and vigorous.

The ſecond diſeaſe is the fat one, you may know this diſeaſe by obſerving the Worms become ſwelled, ſhining and tranſparent, as if they were ripe for ſpinning, this diſeaſe as well as the firſt attacks them after their recovery from the ſecond or 3d ſickneſs. It happens ſometimes from radical defect, from having hatched bad Eggs, but often from having kept up too great a degree of heat in the Room, and frequently, from an infected Air, or from having eat bad Leaves. When this diſeaſe gains ground, and a number are affected there is no hope, you muſt if poſſible prevent it as well as the preceding one, by taking care to procure Eggs of a good breed, keep a pure atmoſphere in the Room, and guarding the Worms from the extremes of heat and cold, &c. &c.

The third diſeaſe is the decay, which never ſhows itſelf, before the Worms are on the point of making their Cocoons, till that very period perhaps, they appear healthy and vigorous, then become all at once flacid, and have not ſufficient ſtrength to get upon the Mat, prepared for them to make their Cocoon on, or if they do get on it, they produce very bad ones, though the greater part die without having produced any: their Body becomes ſo decayed, that it burſts on a ſimple touch and emits a viſcous ſtinking matter; this diſeaſe which attacks them after all your cares are at an end, and at the very moment when you naturally expect to reap the fruit of your labours, makes its appearance after a wet or rainy ſeaſon, it may perhaps be occaſioned by having given them, the Leaves wet, or warm, or if you have kept up a too great degree of heat in the Room, or if you have left them too long upon the ſame Leaves, if they have been too thick together, or if I may be allowed the expreſſion, one upon the other, if you have not taken care to give a certain degree of elaſticity to the air, by burning now and then in the Room, perfumes of ſome kind. You may be led to expect this diſeaſe, if after the ſecond ſickneſs, you perceive any of them tinted with a light yellow colour; the only means

of

of preventing it, is by uſing the precautions before mentioned. The Worms during the 15 firſt days, do not demand any particular attention, it is ſufficient to give them food frequently, to keep them as far as poſſible, in a pure and equal atmoſphere, and to perfume the Room, every two or three days, with any of thoſe odoriferous ſhrubs moſt common, and which are the moſt conducive to purify the Air, and give it proper elaſticity, generally Vinegar when good, is uſed for that purpoſe, and poured upon a Plate of Iron, heated red hot, that the fumes ariſing may fill the whole Room, if Vinegar is not to be obtained, they uſe common Salt, and throw it upon burning Coals, you may likewiſe uſe Incenſe, and any aromatic Plants, when you can obtain them, you ſhould frequently fumigate the Room with Vinegar or common Salt, when the heat is too powerful, and ſuffocating, and the Air has loſt its elaſticity, which if you neglect to do, the Worms will be ſtifled or contract ſome of the above mentioned diſeaſes; but after their recovery from the fourth ſickneſs, the room ſhould be perfumed regularly once a day, if it is only to prevent the noxious ſmell, ariſing from their own excrements, and from the ſtale Leaves.

When the Worms are in their periodical ſickneſs, which happens every ſeventh day, or as they ſay commonly, while they ſleep, they want nothing more than reſt, and quiet, and you ſhould on no account whatever diſturb them, till they have quitted their old Skin, which uſually happens in the ſpace of 24 Hours: when you perceive that nearly the half of them are aſleep as they commonly call it, which you may know, by obſerving if they remain fixed on the Leaf with their heads immoveable and elevated, and if they refuſe food, you muſt wholly diſcontinue giving them, any during 20 or even 24 hours, in this time the more backward ones, who may want a little food, before they ſleep, will find it on the Leaf, and thoſe that are more forward muſt faſt a few hours, and wait for the others, by this means all the Worms will keep an equal pace and ripen together, if you on the contrary were to give them food as uſual, the Worms would never encreaſe together, their repoſe during their ſickneſs would be diſturbed, and a great number would be ſuffocated, under the Leaves, from which they have not power to extricate themſelves; at that period, you muſt abſtain from all fumigation, or perfumes during the time they ſleep, unleſs a too great degree of heat ſhould render it neceſſary to burn a little common Salt, to give

a freſh ſpring to the Air. In a word, the Worms at theſe critical periods, want nothing but tranquillity, and repoſe, after having been in this ſtate during the ſpace of 20 or 24 hours, and when you begin to ſee them all ſtir, in ſearch of food you may give it them as uſual; they are then in a ſtate of weakneſs, and do not recover their wonted vigour till after two or three repaſts, which when they have perfectly recovered, you may take away the old leaves, and clean and perfume the Room. I again repeat, that cleanlineſs moſt contributes to the health of the Worms, and that nothing is more pernicious than letting them remain too long on the ſame leaves, for if you do not often change them, their excrements, joined to the humidity that iſſues from their bodies, forms an infection that may be dangerous, even to the Perſon who has the care of them, the firſt 8 days after their birth, you may keep them on the ſame leaves, without danger, but you muſt change them twice, during the firſt and ſecond ſickneſs: between the ſecond and third, three times: from the third to the fourth every other day; and after the fourth, every day regularly, this ought always to be done in the morning, before the heat of the day, and thoſe Perſons whoſe buſineſs it is, ought to take care, to have their hands always clean. Care ought to be taken, as has been already ſaid, that no ſtale leaves, or excrements, are kept near the Room, but always at a good diſtance, every time the leaves are taken away, you ſhould perfume the Room, with Incenſe, Vinegar, or Salt, &c. to purge the atmoſphere from the exhalations ariſing from the removal: after the Worms have recovered from their fourth Sickneſs it will be attended with great advantage, if you perfume the Room, night and morning, and at noon, when the heat is more concentrated, and has deprived the atmoſphere of its elaſticity, you may burn a little common Salt; another eſſential precaution, to which great attention ought to be paid, is, not to keep too many Worms in too narrow a ſpace and croud them one upon another. At their recovery from every ſickneſs, you ſhould give them, double, treble, or quadruple, the ſpace they before occupied, according to circumſtances, and he who at the beginning, has one table of Worms, before the end, will want at leaſt thirty. In proportion as the Worms increaſe, and acquire ſtrength, you may diminiſh the number of Meals, after the third ſickneſs, you may reduce them to five, and from the fourth to the end, 4 Meals will be ſufficient, but not leſs, and you muſt always

give

give them, at fixed hours; after the Worms have gone through all the different changes, that they paſs through, before arriving at a ſtate of maturity, which in France, happens in the courſe of 40 or 45 days, and after they have recovered from the fifth ſickneſs, they yet will want food during five or ſix days longer, and during that ſpace, will conſume as many leaves, as they did from the period of their Birth till that time. If the Worms have been well taken care of, they ought to begin making their Cacoon on the 7th or 8th day, after having quitted their fifth ſkin, as ſoon as you perceive a number of them arrived at maturity, which you may know, by their ſkin being clear, and tranſparent, almoſt like criſtal, you muſt without delay, put them in a ſituation, to begin their labours, for if the Worm when he is ripe, does not immediately find a convenient place, to make his Cacoon in, he exhauſts himſelf, in crawling to and fro upon the Mat, in ſearch of a place to attach the firſt threads to.

Being at Trepatore ſome months ago, I ſaw what appeared to me, a new and extraordinary method. I do not know whether it is univerſally followed in this Country, but I think it is ſubject to many inconveniences. A large circular Mat, round which were placed three or four range of circles, forming all round, ſo many little holes, this Mat was fixed to a Wall, and the Man who took care of the Worms, was obliged to chuſe from the Hurdles, thoſe that were ripe, and place them one after the other, in theſe holes, where they made their Cacoons; but beſides, that in purſuing this method, ſeveral ripe Worms, muſt eſcape the vigilance of him who performs that duty, and that many others, that appear ripe, are not perfectly ſo, but yet want ſome hours more food, without which they will not make their Cacoon: for being taken away too ſoon, they fatigue themſelves in looking for the food, they are in want of, as experience has proved: ſuch a method muſt be very fatigueing, and muſt conſiderably augment the expences in thoſe places, where a conſiderable quantity is kept, and further, you cannot rely on a mercenary Servant, being ſo conſtantly vigilant and aſſiduous, as he ought to be at thoſe periods. The method followed in Europe, is much more ſimple, and natural. When the Worms have arrived at maturity, they fix tranſverſely the whole length of the Tables, on which the Worms repoſe, ſmall branches of Bruſhwood, the lower part fixed on the inferior Mats, and the branches over the upper ones, thus,

little

little Alleys are formed the whole length of the Benches, at the diſtance of a foot and a half from each other; for this uſe, they chuſe that kind of Bruſhwood, that has the moſt branches, in order that the Worms may have more ends, thereby to attach the firſt threads, that envelope, and ſupport the Cocoon, you ſhould take care that the Bruſhwood is quite dry, and ſhake all the leaves off it, before you uſe it: things being thus ſituated, the Worms get upon the Wood themſelves without any help, and at the proper period, chuſe the moſt convenient place: it muſt however be obſerved, that all kinds of Bruſhwood, are not proper, for there are ſome ſpecies, on which they will never make their Cocoons. In France, they make uſe of Lavender, Thyme, and other aromatic Plants, upon which they get with alacrity, in places where theſe Plants are not common, they uſe a ſpecies of Bruſhwood, but as the ſame Wood, cannot be obtained in this Country, you might make uſe of a ſpecies of Bruſhwood, very common here, and which I have reaſon to think the Worms would attach themſelves to, it is called by the Natives Vilary.

When the Worms have begun their Cocoons, you ſhould take greater care than ever, to procure a pure and elaſtic atmoſphere, and guard them from the effects of humid Air, by fumigating the Room often, with Vinegar and common Salt, after the Worms are attached to the Wood; and four or five days afterwards, the Wood is taken away, in order to obtain the Cocoons, when the Cocoons thus detached, and put in Baſkets, cannot be reeled off directly, you muſt put them in an heated oven, for 2 or 3 hours, in order to ſtifle the Worms that are within: without this precaution, the Fly that would form, in a few days, would pierce the Cocoon, and prevent its being reeled off. If you wiſh to have another race, take the fineſt, hardeſt, and beſt formed Cocoons, and ſuſpend them from a Wall, upon which hang pieces of black or blue Silk, for it has been obſerved, that theſe colours are moſt pleaſing to the Flies, and on thoſe colours will they depoſit their Eggs, in preference, when the Flies have pierced the Cocoons, they are placed on theſe pieces of ſtuff, and the males are put near the females, to facilitate their intercourſe, if you wiſh to have a ſtrong and vigorous breed, you muſt leave the male and female together, for the ſpace of 24 hours, after which they mutually diſengage themſelves, and the

male

male dies, exhauſted by his efforts, whilſt the female, ſome hours after impregnature, depoſits her Eggs, upon the Cloth with ſome degree of ſymmetry : if there are more females than males, which often happens, you may make ſome of the moſt vigorous males, ſerve two females, but in that caſe you muſt not let the male be coupled with the firſt female, longer than ſeven or eight hours, but ſeparate them by force, in order to make the Male impregnate the 2d Female, before his ſtrength is entirely exhauſted.

After all the females have depoſited their Eggs, the Cloth is folded, and you put them in a place where no Vermin or Inſects can have acceſs to them, and when you want to hatch them, you muſt detach the Eggs from the Cloth, with the blade of a knife, or elſe dip the Cloth lightly, in luke warm Water, and the Eggs will fall off themſelves, you then dry them, and proceed to hatch them. I cannot finiſh theſe curſory remarks, without ſaying a word or two concerning the valuable Tree, that furniſhes this Inſect with food. Many Men of learning, both Botaniſts, and Naturaliſts, have to this day, in vain endeavoured to find out, another ſpecies of food, that might nouriſh the Silk Worm, in default of Mulberry leaves, their efforts have been wholly uſeleſs, and the Inſect has conſtantly rejected all other ſpecies of leaves offered to it, in place of that, which nature ſeems to have excluſively deſtined for its ſupport, or if they have taken any other Food, it has only been a poiſon to them, and ſoon deſtroyed them. Some perſons however, have endeavoured to rear a ſmall quantity, with the leaves of the Roſe-buſh, and have tolerably ſucceeded, as the moſt part of the Worms, made their Cocoons ; but this ſpecies of leaf being yet more difficult to obtain, than the Mulberry leaf, this diſcovery has been regarded as uſeleſs, and conſequently little attention has been paid to it. But, it ſtill remains to be known, if in this Country where the vegetable creation is ſo much more extended, than it is in Europe, ſome leaf might not be found, which in caſe of real neceſſity might prove a ſubſtitute for the Mulberry. At any rate ſuch a reſearch might be made by thoſe who rear them. Nature ſo liberal in her giſts to all created beings, ſurely could not have condemned this Inſect, to one ſingle vegetable, and that ſo difficult to be procured, and reared. Thoſe who want to make plantations of Mulberrys, begin, by taking

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from a vigorous Tree, cuttings, that they plant in beds, in the months of March and April; others, ſow the fruit of the Tree, which germinates and encreaſes, but this laſt method is ſo ſlow, that every one prefers the firſt: after having planted theſe cuttings, they ſuffer them to grow to the height of about five feet, and every now and then, take care to prune the ſmall collateral branches, in order that the principal branch, only, may increaſe. In Europe, where the vegetation is ſlower, the cuttings are near three years in the ground, before they acquire ſtrength, and growth ſufficient, to be tranſplanted into a freſh bed; but in this Country, where the vegetation is ſo quick, and where nothing ever impedes it, I think, that if you wiſh to eſtaliſh beds, in order to rear large Trees, the cuttings would be ſufficiently advanced, in fifteen or eighteen months to be tranſplanted.

Theſe cuttings having arrived at a proper growth, and height, are taken from their bed, and planted in a freſh one, at the diſtance of ſix or ſeven feet from one another, and thus tranſplanted into a good ſoil, will become large Trees, and every one of theſe ought, at one time, to furniſh, 100 lbs, of leaves, and the quantity augments, as the Trees increaſe in ſize. It is very common to ſee, thoſe arrived at their full growth, furniſh 4 or 500 lbs. of good leaves. The young Mulberrys, after they have been planted, ought to be dug round, two or three times every year, you ought likewiſe to prune them, every two years, this cuſtom ſhould be obſerved with regard to thoſe, that have arrived at their full growth, without which, they would ſoon decay, but if ever this method of raiſing large Trees, in this Country, without which, it is impoſſible to rear Silk Worms upon a large ſcale, ſhould take place, they ſhould be pruned at leaſt, once a year, on account of the quickneſs of vegetation; theſe Trees do not require any other particular attention, as the reſt muſt be left to Nature. In Europe, they do not water them, but the extreme heat, and dryneſs that reigns in this Country, at certain ſeaſons of the year, would perhaps render it neceſſary. It has been obſerved, that thoſe places where the Mulberry thrives beſt, are near the borders of Rivers, Lakes, &c. thus theſe places ſhould be choſen, in preference, as in thoſe ſituations, they will encreaſe faſter, and grow more conveniently, than elſewhere.

You

You might try to plant them on the borders of the Tanks, that are are ſo numerous in this Country. However care muſt be taken to plant them, in thoſe places where they may not be liable to have their Roots remain, for any length of time, under Water, as that would deſtroy them, in a ſhort time.

To the REVEREND Mr. DUBOIS, Missionary.

Dear Sir,

I am favoured with your Letter of the 6th inſtant accompanied with the hiſtory of Silk in France, which although quite the reverſe of what has been practiſed here, is perhaps on that very account, the more valuable. In France, the crude attempts of the People, were improved, and carried into better effect, by the more affluent, but here, although founded in adminiſtration, no ſufficient means have yet been applied, to paſs it, into the hands of the People.

The countenance of Government has however brought to light, the practicability of rearing both Mulberrys and Silk Worms, on the whole extent of this Coaſt, as eaſily as any other crop, and therefore I can have no doubt of its becoming one time or other, an object of more public importance.

The great light you have thrown on Air, dry ſituation, and cleanlineſs, correſponds ſo perfectly with my own obſervation, that I ſhall certainly endeavour to publiſh your Letter and Memoir, in our weekly prints.

The product of Silk from ſo few Cacoons, as you mention, is ſo great, that even the quick returns of our monthly Worms, is not to be compared to it, nor do I think that the annual Worm, which I have now likewiſe got from Bengal, is of the ſame kind as the European, although it is of a large ſize, as they are ſubject to no ſickneſs, or moulting whatever.

Being thus clearly relieved from all ſickneſs among the Worms we have got, and provided with remedies in caſe any diſeaſe ſhould occur, we poſſeſs another advantage, that no firing is at any ſeaſon required in the Worm Houſes, but

but as the yearly Worm, hatches only during the coldeſt time of the year, and that very irregularly, the Tin machine you mention, may be of uſe, to hatch them all at once.

I will thank you therefore, to take the trouble of making a model of it, in Paper, that may be conveyed under cover of a Letter, for the white Iron-ſmith to work by.

Experience has taught us, that nothing is better than the dallies and chunderkies, or baſkets in which the Worms are fed, and the bamboo fillagree, on which they are placed to ſpin, in which no improvement can be made, excepting that the fillagree work ſhould be placed horizontally, in parallel lines, upon the frames and not circularly as has hitherto been the cuſtom, ſeeing every part of this Country poſſeſſes baſket makers that may be employed at an eaſy rate.

It can be of no uſe to look for other kinds of food, as no Plant is now reared with more facility than the Mulberry, and we have nine different kinds that they devour with avidity.

Sincerely wiſhing you health and happineſs,
I remain, your much obliged
and very obedient Servant,
JAMES ANDERSON,

Fort St. George, *March* 12*th*, 1798.

To JAMES ANDERSON, Esq.
Physician General, &c. *Madras.*

Dear Sir,

On the firſt inſtant, I was favored with your very obliging Letter, of the 19th ultimo.

The ſupply of Cotton Seed, forwarded by Captain Henderſon, if it arrives ſafe will be nearly as much as I ſhall be able to make uſe of this ſeaſon, and therefore a ſimilar quantity, ſent by another conveyance, in caſe of accident

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is all that you need take the trouble to ſend; for the Natives here are ſo averſe to every thing new, that diſtributing the ſeed among them, would be only throwing it away.

I ſhall be extremely obliged to you, for the Mulberry Cuttings, and Kew Nopal, which Mr. Martin has been ſo obliging as to undertake to ſend me, of which I ſhall make the beſt uſe in my power.

The Pepper plants I ſhall prepare without loſs of time and forward a few pots of them, by every Sea conveyance that offers for your Coaſt.

MURDOCK BROWN,

CALICUT, *March 3d*, 1798.

To MURDOCK BROWN, Esq.

DEAR SIR,

I am favored with your Letter, on the 3d inſtant, and beg leave to aſſure you, that the culture of Cotton on on your Coaſt, is nothing new: witneſs the lines of Travancore, filled with Cotton by Tippoo, as the readieſt and cheapeſt material, nor is the Cotton, I ſend you to be diſtinguiſhed, from that in the Country, but by a very nice inveſtigation.

I can aſſure you, that any mode of cultivating Cotton in the Country, will likewiſe prove ſufficient for this, as I have ſeen in a thouſand inſtances, although not carried into the hands of the Natives, for the ſame reaſon, that you have aſſigned. I cannot for a moment however allow myſelf to ſuppoſe, that Government, would require Cotton merely to ſow in a Garden, and therefore having a thouſand pounds weight, by me, I ſhall certainly forward it, by the firſt opportunity in compliance with their deſire.

Let them make it the intereſt of the Natives to ſow it, and it will be cultivated.

JAMES ANDERSON,

FORT ST. GEORGE, *March 21ſt*, 1798.

To

To JAMES ANDERSON, Esq.
Physician General, &c. *Madras.*

Dear Sir,

We have a Commiſſion from Bengal, for a Bag of Bourbon Cotton Seed, and cannot procure it in the Bazar, can you oblige us with a ſmall quantity.

DRING, GORDON & CONNEL,

February 14th.

Messrs. DRING, GORDON & CONNELL,

Gentlemen,

I have the pleaſure to ſend you by the bearer Forty Pounds of Bourbon Cotton Seed.

JAMES ANDERSON.

February 14th, 1798.

To DOCTOR ANDERSON, *P. G.*

It is now a long time, ſince I have given you any information concerning the buſineſs in which I am engaged, but I hope that you will not think it is owing to negligence, but entirely to the hurry of the buſineſs in which I am concerned, and which I am determined to uſe every effort to bring forward, as far as may be in my power, and although I have entered but in a ſmall ſcale, I hope to be able to open the eyes of the Inhabitants ſo, as at a future period, to bring it farther on.

The want of money, is the only thing which prevents me from trying, to make the Sugar manufactory in every diſtrict in the Baramahl, where I could gain permiſſion from the Superintendent to erect them, but as ſimple as the concerns may be, I have the pleaſure to inform you, that I have now two Manufactories carrying on in the diſtrict of Trippatore, the one of Canes of my own cultivation, and the other of Canes that I purchaſed from the Inhabitants, the latter I find to be moſt profitable,

and

and the Natives ſo well ſatisfied, that I am of opinion they will double the quantity, that they have given me this year, in the next.

There are ſeveral diſadvantages which I lie under, but the moſt particular is, the want of Iron Cylinders, for my Mills, which occaſions me, to be at double expence of labour, that I ſhould be at, if I had them.

EYRE W. LYTE.

TRIPPATORE, *March 13th*, 1798.

To MR. LYTE.

WORKS of leſs extent even require time, but you have already got over the principal difficulty that has been held up to view, the oppoſition of the Natives; and you will merit in my humble opinion, every poſſible attention in the Sugar Manufactory.

As it will require time to have Men, that can caſt Iron Cylinders true; I can only tell you, that the Erimboo or Iron Wood, the Prerocarpus or Red Wood and the Ebenum Verum or Ebony, all of which are very hard, grow on the Baramahl Hills, and in caſe you find theſe yield, the Smiths who make Buckets for drawing Water, of Iron Plates, can ſheath your Cylinders with Iron.

JAMES ANDERSON.

FORT ST. GEORGE, *April 4th*, 1798.

To JAMES ANDERSON, Esq.
PHYSICIAN GENERAL, &c.

DEAR SIR,

I HAVE the pleaſure to acknowledge the receipt of the Parcel of Nankeen Cotton Seed, with which you have been pleaſed to oblige me, and beg that you will accept of my beſt thanks for the ſame. As ſoon as the ſeaſon will admit of it, I will endeavour to promote its cultivation here, and will do myſelf the pleaſure to inform you, in proceſs of time, of the ſucceſs it may be attended with.

In

In the trial I have made of the Mauritius Cotton, I ſo far ſucceeded, as fully to convince me, of the very great advantage the Country would derive from its cultivation, could it be made common among the Natives. But from what I have already experienced on the ſubject, I have reaſon to apprehend that this will be attended with great difficulty, on account of their obſtinate attachment to old habits and prejudices.

I am, DEAR SIR,
With reſpectful conſideration,
Your moſt obedient humble Servant.
J. MARKUS DORMIEUX.

BIMLIPATAM, *March 26th*, 1798.

To J. MARKUS DORMIEUX, ESQ.

DEAR SIR,

I AM favored with your Letter of the 26th ultimo and conſider that the approbation of a perſon of your experience in the Cloth Manufacture, is a great recommendation to the culture of our Bourbon Cotton, as the oppoſition of the Natives appears to me to be nothing more, than a juſt claim, to ſome remittance of duties or encouragement of its cultivation.

I am, your obliged
and very obedient Servant,
J. ANDERSON.

FORT ST. GEORGE, *April 4th*, 1798.

To JAMES ANDERSON, ESQ.
PHYSICIAN GENERAL.

DEAR SIR,

I HAD yeſterday the pleaſure of receiving yours of the 21ſt ultimo.

The cultivation of Cotton, ſo far from being any thing new in Malabar, has been in practice, I fancy from time immemorial,

immemorial, and the produce forms an article of exchange between the inhabitants of the eaſtern parts, and thoſe on the Sea Shore.

This cultivation is however confined entirely to the mountainous parts of the Country, where after clearing away the Jungle on the ſides of the Hills, the Natives raiſe one crop of Cotton, previous to their ſowing Paddy.

The Cotton thus produced, is brought down here with the Seeds, and is eſteemed by the Natives, who ſpin it into yarn, to be of a finer ſtaple than that of Guzarat, but though fine it appears to me ſhort, which defect muſt of courſe leſſen its value.

I am however preparing a ſample of it to be ſent to Europe, where ſhould it be found, to be even of a middling quality between the Bourbon and Guzarat, it may be found worth the Companys while to buy it up for that Market. An increaſe in the demand being thus created, the price will riſe, and the cultivation of it be thence encouraged.

The circumſtance of Cotton being a well known Product of Malabar, the ſeeds of which it is in every perſons power to procure, was one among many reaſons, on which I grounded my opinion, mentioned in my letter of the third ultimo, "that diſtributing the ſeeds of the Bourbon Cotton among the Natives, would not induce them to cultivate it"; and as the quantity of ſeed you have, is not probably more than you can uſefully diſpoſe of in other quarters, I ſhould have blamed myſelf as being the cauſe of negligent waſte, had I not ſpecified the quantity which I think it probable I ſhall be able to employ, at the commencement of a Plantation, the Ground of which I have to clear from a thick Jungle.

However, as you are reſolved on ſending round the whole of the quantity firſt mentioned, I ſhall certainly do what lies in my power to inſure its being uſefully employed.

In my enquiries reſpecting the Mulberry Tree, (which though rare, is to be had in the Province,) and the Silk Worm, I have received a piece of information relative to the latter, which however incredible it appears, I am induced to communicate to you, becauſe it comes from the moſt reſpectable authority. On the Iſland of Madagaſcar, (ſays a Gentleman of moſt reputable character, who reſided ſome

years

years in the command of the French Garriſon there,) the Natives breed Silk Worms, from whoſe labours they procure Silk of a moſt excellent quality, exceeding in ſtrength, what is commonly procured in Europe. With it they weave webs, of different ſizes, and textures, which are in great eſteem in the Iſlands of France and Bourbon. Theſe Silk Worms, though they differ very little, either in ſize, or appearance from thoſe of Europe, are fed ſolely with the leaves of the Dholl Plant, on which they thrive equally well as those in the other parts of the World do on the leaves of the Mulberry Tree. This appeared to me ſo extraordinary but at the ſame time ſo worthy of attention, that fearful of there being ſome miſtake as to the Plant, or difference in the ſpecies produced on Madagaſcar and on this Coaſt, I was not ſatisfied on this head, until I had ſhewn him a Dholl Shrub which he aſſured me was in every reſpect the ſame as that of Madagaſcar. This Gentleman's Authority is the more to be relied on from his having reared the Silk Worm, for his amuſement while in Europe, and being thence well acquainted with the Animal, and its œconomy. He is of opinion that the Silk Worm of India, would thrive equally well on the leaves of the Dholl Plant, as those of Madagaſcar do, and I therefore think it is worth the trial. This Shrub being very common, in almoſt every part of India, muſt I conclude, be eaſily procurable on your Coaſt, here it is in great abundance, and is called by the Native To warra ( ) however for the greater certainty, and to avoid all loſs of time, I encloſe a few of the Grains.

MURDOCH BROWN.

COMPANY'S PLANTATION IN RUNDATARRA, *April 2d*, 1798.

To MURDOCH BROWN Esq.

DEAR SIR,

I AM favoured with your letter of the ſecond inſtant, and obſerve what you propoſe regarding the means of promoting

moting the culture of Cotton, by the Company giving an advanced price, which in caſe you mean the Honorable Company or the Government, amounts to nearly the ſame, as what I have hitherto urged, of remiſſion of duties or encouragement.

From what you further ſtate, however, I ſuppoſe that the Inland people on your Coaſt, bring down Cotton in exchange for Sea Salt: as here, they bring Cotton, Caſtor Oil Seeds and Wheat, for the ſame purpoſe, but barely ſufficient for the Manufactures, and therefore it would be of conſequence either to encourage the Inland Trade, or to have Cotton likewiſe cultivated on the Coaſt.

What you mention regarding Silk Worms being fed with the leaves of the Towarra of the Tamuls, the Tala cundaloo of the Talingas, the Certiſus Cajan of Linnœus, the Seeds of which afford an article of food to the Bramins, is not at all ſingular, as the Bombyx Mylitta, and Bombyx Luna here, feed on various Trees, but it is probable that the Silk Worms in Madagaſcar, differ from thoſe we have.

Since the Apollo ſailed I have found no Veſſel bound to your Coaſt and the winds being now ſoutherly it is probable no opportunity will offer of ſending any more Bourbon Cotton Seed till January next year.

JAMES ANDERSON.

Fort St. George, 17*th April*, 1798.

To JAMES ANDERSON, Esq. *P. G.*

My dear Sir,

A Friend of mine who embarked on the lately intended Manilla expedition, obſerved to me, that to the eaſtward, the people turned the leaves of the Pine Apple to account, in making Fiſhing Lines, &c. it then occurred to me, that the leaves of the Aloe might be applied to ſome ſuch uſeful purpoſe, and I believe you will allow from the muſters of Rope which I ſend, that I have not been miſtaken in my idea.

Should this communication have been anticipated by any prior

prior diſcovery, you will of courſe ſuppreſs it, but ſhould you be of opinion that it may lead to Public benefit or Private advantage, I can have no objection to its being publiſhed.

It may not be improper to remark, I have heard that in South America, the Aloe is of great utility in various ways, and that the Natives extract a courſe ſort of Sugar from it, ſuperior to the Jaggery of this Coaſt.

WILLIAM WEBB.

MADRAS, *April 15th.*

To WILLIAM WEBB, Esq.

DEAR SIR,

YOUR attention to the Aloe, of which you have made ſo elegant a fence round your Garden, by the communication obtained from your friend, enhances the merit of thoſe who turn their minds to uſeful purpoſes, as the ſhipping intereſt renders every thing that may be converted into Rope of importance, but the fibres of the Pine ſoon rot in water.

The Aloe however is a Plant, the leaves of which are infinitely more ſtately, nor can there be any doubt of the abundant uſe to which it may be converted, ſeeing the Banks of the Arcot River are covered with this Plant, as well as many patches of ground in the Foreſts.

The prepared fibres of the Aloe, are ſo like in Colour to the white Tiller Rope of China, that it is probable the ſtrength of this famous Rope is likewiſe owing to theſe fibres entering into its compoſition, or perhaps being entirely made of it.

The ſpecimen you have ſent, excepting that it is ſmaller in ſize, reminds me of the Tiller Ropes I have ſeen, purchaſed at any price by the Captains of our Ships at Canton, but farther enquiries ſhould be made into this matter.

Beſides the Cocoa-nut covering, of which the Ropes for ſhipping conſiſt, your ſpecimen is a clear proof, that better Cordage may be made of the great Aloe, and I may add

add the Crotularia Juncea, or Janump of the Tamuls, Hybiſcus Annibinus, or Kalſi of the Tamuls, Aletris Hyacinthoides or Sangahar of the Tamuls, Robina Cannabina, or Kulcheddy of the Tamuls and Cannabis Satava, the Genji of the Tamuls.

JAMES ANDERSON.

FORT ST. GEORGE, *April 18th*, 1798.

Extract of two Letters from Captain KIRKPATRICK at Hydrabad, dated the 7th and 11th Inſtant, to Doctor ANDERSON.

"I have juſt received by the way of Bombay, a paper of enquiries drawn up by a Gentleman in England, who muſt be a great Philanthropiſt, his name is Morton Pitt:—They go to aſcertain the annual expenditure of the labouring poor of the community in the different parts of India, and the means they have of defraying it.—I propoſe tranſlating it into Perſian and Mahrattas, and diſtributing Copies to the different Amildars in the Nizams Dominions."

"As I know no one ſo well qualified in every reſpect as yourſelf to gratify the Philanthropic Inquirer's wiſhes, I propoſe ſending you a Copy, leſt you ſhould not already have received one, though it certainly is moſt likely you have."

"I now do myſelf the pleaſure of tranſmitting to you the Copy of Mr. Morton Pitt's Queries, and an Extract from that Gentleman's Letter, announced to you in mine of the ſeventh Inſtant."

"The rich have of late complained much of the rapid increaſe of poor's rates, whilſt the poor have been more than ever diſſatisfied with the relief afforded them by it. Many plans have therefore, been propoſed, with the twofold deſign

ſign of providing more effectually for the Poor, and of reducing gradually the rate: but, either becauſe they appear impracticable in themſelves, or becauſe they innovated too much upon our eſtabliſhed ſyſtem of poor laws, none of them has hitherto received the public approbation.

Certainly, a perfect knowledge of the ſtate of the Poor is the only baſis, on which any new regulations reſpecting them can be ſafely founded; and as the Claſs of *Labourers in Huſbandry* forms the moſt numerous, as well as the moſt uſeful part of the community, a minute enquiry into their circumſtances is eſpecially neceſſary, previous to the framing of any ſuch regulations.

The abſtract of accounts here given, ſhew the *real* earnings and expences of ſix labouring Families having young Children, in a Country Pariſh in Berkſhire, they were collected at Eaſter 1797, by the Miniſter of the Pariſh, in perſon, who received the particulars from the Families themſelves reſpectively, guarding as well as he could againſt error and deception.

The abſtract exhibits, a faithful, but melancholy view of the poverty and diſtreſs of ſuch families in that part of the Country, and the great increaſe of poor's rate, *every where* the ſubject of complaint, makes it very probable that the ſame miſery has overſpread the kingdom.

To aſcertain this point, *whether the earnings of labouring families, in general, are inſufficient for the ſupply of their neceſſities*, is the firſt and immediate intention in printing and diſtributing this paper. Two or three papers returned from ſo many diſtant pariſhes in every Country, carefully filled up in the manner marked out by theſe accounts; would furniſh the neceſſary information for determining that important queſtion.

But care ſhould be taken, that the Families, whoſe circumſtances are ſcrutinized, be of the *Common run* of labourers, and not ſuch, as having peculiar dexterity at various kinds of work, can thereby earn extraordinary Wages. And the enquirer ſhould firſt ſatisfy himſelf (by writing the particulars in his Pocket Book) of the accuracy of the ſeveral items, which conſtitute the Weekly or annual expences of each family, before he inſerts them in the blank columns of the Half ſheet prepared to receive them.

Every enquirer will obſerve, that as different articles are accounted

counted *neceſſaries of life* in different places, according to the various productions of the Soil and other circumſtances, the ſpace correſponding to that which in the printed leaf contains thoſe articles, is left in the other leaf without print, in order that ſuch things as are reckoned neceſſaries in any place, may be inſerted by the enquirer in writing."

*** Thoſe Perſons who ſhall take the trouble to make theſe enquiries, are requeſted to mention the names of the Pariſh and County.

Extract from MR. MORTON PITT'S LETTER.

"You would very eſſentially oblige me, if you could procure for me ſome accounts from your part of India, as to the ſtate of that deſcription of men anſwering to our labourers in Huſbandry, as to their income and expenditure. The incloſed will ſhew you my object, better than any deſcription I can give of it, and though a ſimilar account, from the difference of habits, &c. of the People, may not be obtainable from India, yet this paper may ſuggeſt to you, a line of inquiry, which may anſwer my end, which is to draw out a compariſon between the caſe of theſe uſeful People, in various parts of the World, perhaps you may have opportunities, which I have not of getting me information from other parts of the Eaſt on theſe ſubjects, which would be conferring the higheſt obligation upon me, particularly from Arabia, Perſia, &c. I have written for a memorial on this ſubject to two friends on the Coromandel Coaſt, and I wiſh you would endeavour to ſupply me with one or more from your ſide of the Country.—A detail of the price, at a medium, of the articles of neceſſary conſumption, of the Food, Cloathing, Fuel, rent of habitation, if any paid by thoſe of this deſcription, the wages of ordinary labour, and whether paid in ſpecie, or in articles of Food, &c. whether the labourer poſſeſſes Land of his own and cultivates it, and what proportion of rent he pays, what quantity of Land, he may ſo rent, and whether he maintains himſelf wholly by working Land on his own account, wholly on account of others,

or

(No. 1)

Expences and Earnings of Families of Labourers by the Week, and by the Year.

Neceſſaries,	No: 1 *Perſons*	No 2 *Perſons*	No: 3 *Perſons,*	No: 4 *Perſons,*	No: 5 *Perſons,*	No: 6 *Perſons,*
Expences per Week,	L. S. D.	L. S. D.	L. S. D	L: S: D:	L. S: D:	L: S: D:
Total : : : Amount per Annum,						
Earnings per Week,	L: S: D:	L: S: D:	L: S: D:	L: S. D:	L: S: D:	L: S: D:
Total : : : Amount per Annum,						
	L: S: D:	L: S: D:	L: S: D:	L: S: D:	L: S: D:	L: S: D:
Total expences pr Annum						
Total earnings pr Annum						

Annual ex

or in part the one, and in part the other, what proportion the rent bears to the produce of the years crop, what proviſion there is made for the relief of old age or infirmity what happens when the Father of a Family dies, and leaves a numerous offſpring, who takes care of the orphans, whether there is any national ſuperintendence of theſe matters, whether they are left to caſual charity, if ſo, whether that charity is very extenſive, whether the neareſt relations and friends, provide for their ſick relations, impotent people, orphans, &.—all theſe points I am very anxious to be informed of, and your furniſhing me with any materials will moſt highly oblige me."

The annexed TABLE No. 1

Contains a form to be filled up agreeably to the above Scheme

TABLE No. 2

Will ſhew the exact manner in which the Form is to be filled up.

To Capt. JAMES ACHILLES KIRKPATRICK.

I am favoured with your enclosure of Mr. Morton Pitts Queries, and as the distributions of charity stated in Perkshire does not apply to this country, I have drawn out the Questions in detail, that they may be answered as separately and distinctly as possible.

In this way the subject presents great variety, on account of the different kinds of grain and the fluctuation of price.—for example in the Northern Circars, where only five years ago many died of Famine, grain sells now at less than one half the price it bears at Madras.

Q.—What is the medium expence of food for a labourer per day?

A.—The General practice of Hindostan is one measure of Grain, and a quarter of a fanam per day, for the purchase of seasoning; and as Women and Children mix in the labours of transplanting and reaping the Crop, their subsistence amounts to two thirds *or one half each* of that expence. In some places the labourer has a greater quantity of grain, as well as a small annual present for Beetle and Tobacco.

Q.—What is the annual expence of Clothing?

A.—Most of the labourers go with only a bandage round their loins—the price of which is too little for calculation.

But the Women are clothed, and many men wear a Cloth and Turban, the annual expence of which cannot be estimated at less than two pagodas.

Q.—What House Rent is paid?

A.—In the country any one builds his own House.

Q.—Wages of ordinary labour, and whether paid in money or grain.

A.—Those who cultivate the ground are paid in kind.

Q.—Whether the labourer works his own land, or works for another?

A.—Some labourers work their own land, and many work for hire, or as partners with the land holders, who are generally the whole village, or community.

Q.—What quantity of land a labourer commonly cultivates?

A.—In the course of a year a labourer can cultivate five or six acres, with one plough in a light soil—The usual method they pursue is this—Three or more labourers join for the sake of working together, and they cultivate each others ground in turn.

Q.

Q.—Whether the labourer is employed wholly on his own land, wholly on that of another, or part one, and part the other?

A.—This queſtion is anſwered by the preceding?

Q.—What proportion the rent bears to the years crop.

A.—Upon the fixed total amount of the grain crop, the labouring inhabitant gets only four tenths from the Renter; but in caſe a Bramin or other perſon who hires labourers to cultivate the ground produces a crop, he gets ſix tenths—between theſe two extremes various agreements take place.

Q.—What proviſion is made for Old Age, and infirmity?

A.—Shame and diſgrace would attach to the relations of ſuch, if they were not maintained, but without creditable relations, Age and infirmity have no other ſupport than begging.

Q.—What happens when the Father of a family dies, and who take care of the Orphans.

A.—In the caſe of Orphans the neareſt relations ſupply the place of Parents, in default of which, the Caſt may be looked to—but as this is uncertain, the Orphan may become the Child of chance.

Q.—Whether there is any national ſuperintendence of theſe matters?

A.—There is no ſuperintendence on every poſſible enquiry into this matter.

Q.—Whether they are left to caſual charity, if ſo whether that charity is very extenſive?

A.—There is no appointed place or perſon to receive or take notice of ſuch Children, who therefore muſt depend upon the feelings of the benevolent.

Q.—Whether the neareſt relations and friends provide for their ſick Relations—Impotent people, Orphans, &c.

A—In general I believe it is expected the head man in the Village ſhould take cognizance of theſe matters and in the Baramahl there are a number of poor maintained at the public expence.

Having no poor's rates to go upon, it may be difficult to ſatisfy your Correſpondent's wiſhes, as beſides the various kinds of Grain, fluctuation in its price and different local cuſtoms, the labour of the field is carried on by very different deſcriptions of Maſters, Servants, and Slaves, or Adami, as thoſe latter are called by the Tamuls, all of whom are nevertheleſs included in the Hindoo Claſs of Scoder, and as there muſt

muſt be many Muſſlemen in the extenſive dominions of the Soubah, who at leaſt hold the plough, the difficulty of anſwering theſe queſtions with you, muſt be greater.

JAMES ANDERSON,

FORT ST. GEORGE, *April 30th*, 1798.

To JAMES ANDERSON, ESQ. *P. G.*

LIEUTENANTS Grant and Hawkins preſent their compliments to Doctor Anderſon, and requeſt his acceptance of a Peach,* the produce of a layer about two years old in their garden.

There are from three to four hundred on the Tree now nearly ripe, which occupies nearly the ſame ſpot, from which the Doctor may recollect receiving a very large Cabbage,† when the garden belonged to Lieutenants Grant and Mc Krae. The Tree is ſmall, and is particularly well Watered.

ROYACOTTAH, *April 28th*, 1798.

Note by Dr. Anderſon.

* This Peach is as large as a middle ſize Guava.
† The Cabbage alluded to was 15 Inches diameter.

To JAMES ANDERSON, ESQ. *P. G.*

MY DEAR SIR,

As the patron of the Arts, and indeed of every undertaking in this country that tends to promote the welfare and increaſe the happineſs of mankind, I take the liberty to ſend you a piece of Cloth manufactured from the Malta Cotton, ſeventeen ſeeds of the plant, were given to me, when at Bombay, and planted in my Garden, they have produced Cotton ſufficient to make eight yards of the width I ſend you.

I

I have increaſed my plantation, and ſhall in the courſe of this year, have ſeveral acres cultivated after the manner of the Malteſe, that is, in the event of your approval of the ſpecimen, I have ſent to you. I have the honour to be, with the utmoſt deference and reſpect.

J. STUART HALL.

MAY 13*th*, 1798.

To J. STUART HALL, Eſq.

DEAR SIR,

THE Cloth you have juſt ſent me is certainly a very beautiful ſample of what may be done for the Trade of this Country, as you may be aſſured by the Premium offered by the Society for the encouragement of Arts &c. for Cotton of this brown Colour, although merely honorary.

The rearing and manufacturing ſo much Cotton of this kind from ſo ſmall a beginning points to the means of being relieved from ſending Caſh to China for Nankeen.

I have the pleaſure to tell you that the Alphonſo Mango and Mammee trees which you brought me laſt year from Bombay, are thriving exceedingly, and what you had been told was the Baſis of Soy proves to be the Goa Bean of our Tables.

I ſincerely congratulate you on the ſucceſs that has attended the laudable exertions you have made, and am with eſteem.

JAMES ANDERSON.

MAY 13*th*, 1798.

To JAMES ANDERSON, Eſq.
PHYSICIAN GENERAL,

DEAR SIR,

I HAVE to acknowledge the receipt of your favour of the 17th ultimo, and to beg you will accept my beſt thanks, for

for the Cotton Seed ſent by the Apollo, which I have received, and ſhall proceed to make uſe of, in the enſuing month.

I have alſo the pleaſure to inform you, that the Cotton Seed I ſowed in November laſt, as mentioned in my Letter of the 2d of February, has come up, much beyond my expectations (only two ſhowers of Rain having fallen ſince it was ſown,) and that the plants began to yield Cotton, about the beginning of April, ſince when I have daily gathered more or leſs while new flowers and pods continue to come out in great luxuriance.

As this experiment was made in the moſt unfavourable ſeaſon of the year, there can be no doubt of its yielding very abundantly, when ſown with the rains. As this plant continues to yield for three or four years, though the Natives cultivate it as an annual, I ſhall deem myſelf extremely obliged to you if you can inform me, whether the Cotton produced in its different ſtages of age, differs in quality; and whether the Seeds of the firſt, ſecond third and fourth years, are of a equal goodneſs for the propagation of the plant, or whether any of them are preferable for that purpoſe.

MURDOCH BROWN.

ANJARKANDY, *May 2d*, 1798.

To MURDOCH BROWN, Esq.

DEAR SIR,

I AM favoured with your Letter of the 2d Inſtant, and am glad you have received the Bourbon Cotton Seed by the Apollo, to fill up the meaſure of your preſent Eſtabliſhment; and in caſe Government ſhould make any arrangement to extend the cultivation, the plants you now have growing will ſupply abundance of Seed before the month of January.

In anſwer to what you wiſh to be informed regarding the produce of the 1ſt, 2d, 3d and 4th years; I can only tell you, that the Plant appears to be perennial, as what was ſown here half a dozen Years ago, is ſtill in perfection, to which end watering in the dry, and draining in the wet ſeaſon conſiderably contributes, if the ground is flat: but as the plant delights

in

in declivities it may be ſufficient to Water, as thoſe who neglect this have only a crop, after falls of rain.

JAMES ANDERSON.

Fort St. George, *May 16th*, 1798.

To CAPTAIN JAMES ACHILLES KIRKPATRICK.

Dear Sir,

The compaſs of a Letter hardly admitting room for anſwers to Mr Morton Pitt's queries, I muſt again trouble you to render the anſwer which I have given to his queſtion of "what proportion the rent bears to the years crop" more intelligible, by ſtating the practice, at the Village of Nungambacum, where I am ſituated, which may ſerve to give an idea of the diſtribution of Grain the greateſt neceſſary of life, from the very ſpot where it grows; a practice that ſeems favorable to the preſervation of good will between the different ranks of Society.

In this Village twelve Families of labourers have twenty-five Ploughs with which they cultivate 160 Cawnies* of ground, paying rent to Government, and 40 Cawnies of free Land, and as the queſtion only relates to the firſt, it will be ſufficient to ſay that the Cawnie generally produces ſixty† Marcals of Paddy, which when cut and gathered into a heap, the Cultivator muſt give one Marcal to the Carpenter and Iron Smith, and another to the Waſherman and Barber.

A Bundle of the Straw containing one ‡ Meaſure of § Paddy is folded up and given away when the Crop is divided with Government, to Pulliar Church, another to Eeſvaren Church, Permall Church, the Vadum Schoolmaſter, the Water Charity Pandall, the Village Beadle, the Hamildar Office Water-woman, the Doctor, the Taylor, the Man who burns the Dead and Waters the Fields.

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*One Cawnie is 57,600 ſquare feet.
†One Marcal is eight Meaſures.
‡A Meaſure is thirty four Ounces.
§Paddy, is Rice in the huſk.

When

When the heap is trodden and ſeparated from the Straw, the Taylor ſings a Song to render the Crop propitious for which he gets a Meaſure of the unwinnowed grain.

When the Crop is properly cleaned, the Church of Eeſvaren, the Church of Permall, the Church of Peduareear, the Village extra Servant, the Vadum School-maſter, the dancing Girl who attends Marriages and Funerals, and the Lamp Oil for the Amildar's Office have each two Meaſures.

The Village Clerk ſix Meaſures, the Watchman by gueſs of hand one Meaſure, Pulliar Church half a Meaſure, the Water charity Pandall the ſame quantity, as well as the Village Carpenter, Ironſmith, Waſherman, Barber, Beadle, Water-woman, and Doctor.

After the above buſineſs is over, the Village Clerk diſtributes to the Cultivator two Marcals and ſeven Meaſures, the head Man of the Village one Marcal and two Meaſures, the Watchman one Marcal, the Village Servants altogether ſix Meaſures, the head Bramin two Meaſures, Caulatapetty Church five Meaſures, Eeſvaren Church one Meaſure and a half, Permall Church one and a half, repair of the Tank, one Marcal and four Meaſures.

The remaining grain is then divided between the Cultivator and Government, deducting one Marcal and a half from Government's ſhare for the Watchman and Clerk's Fees.

As the ſubject of fewel has likewiſe been omitted in my Letter, of the 30th ultimo, I will here obſerve that dried Cow Dung, is the moſt general firing of the Country, which as well as ſuch Wood as they uſe to dreſs their food is collected by Women and Children when better employment is wanting, and in the neighbourhood of towns, ſome earn a livelihood by diſpoſing of ſuch materials.

JAMES ANDERSON.

Fort St. George, *May* 21*ſt*, 1798.

TO JAMES ANDERSON, Esq.
Physician General &c. &c.

Dear Sir,

The knowledge of the extent of your literary and philanthropic purſuits, to which your life is conſecrated; and let

let me add the kind encouragement you are known to give to inferior proficients, to communicate their reſpective acquiſitions, would have long ſince inſpired me with confidence to lay before you, the few obſervations that have fallen within my compaſs: had not the communicative friendſhip that I was informed, exiſted between you and my late and much lamented friend and patron Mr. Roſs, made it in ſome degree unneceſſary. But alas, that Channel of communication has been interrupted! and if at all, I muſt beg to be allowed addreſſing myſelf to you directly.

At preſent I take the liberty of ſubmitting a few ſheets written, in addition to my former Eſſays on Diamond Mines; with the ſincere requeſt to deſtroy the ſame if unworthy of attention.

I have had under my hands for almoſt theſe two years paſt, a Tranſlation of the Kalpaſtannam (Pharmacea and Materia Medica) from the Telingana, and have found it indeed a very difficult taſk, in the firſt inſtance to underſtand it, and ſecondly, to aſcertain the Linnæan names, of the different vegetable Medicines, mentioned in the ſame: in a ſhort time however, I hope to be able to finiſh the firſt ſection of it, and with your permiſſion, ſhall have the honor of laying it before you. The ſecond ſection might have appeared at the ſame time, if it had been poſſible to get a ſufficient knowledge of all the Minerals, of which it treats, that cannot be procured in the Bazars or Medical Shops, in the Northern Circars. The purification that ſeveral drugs are thought neceſſary to undergo, before their adminiſtration as Medicines, is amply deſcribed in this latter ſection, though as it may be imagined, no chemical principles are aſſigned, for the often very curious proceſſes.

At Madras, I underſtand moſt of theſe articles may be had, together with information from whence originally brought, partly on which account I have reſolved upon a tour to the Preſidency, next July, provided I can obtain leave from the Board of Revenue, in which caſe I have agreed to meet Captain Mackenzie, of the Engineers, at Budrachellum, to go with him to Hydrabad, and from thence further to the Southward. I ſhall be happy to be favoured with your commands on any ſubject to collect or get information about.

The

The rains in the Circars that commenced about the 1ſt of this Month, have been in ſome degree inceſſant. This day a ſhower fell that laſted two hours, and filled all the Tanks, being equal to any heavy Monſoon Rain in the Month of October. We have had no land winds this year, and the Thermometer has only once been at 96 degrees.

My Salt Petre concern ſuffers very much in conſequence, and the country at large will not benefit by it.

BEN. HEYNE.

SAMULCOTTAH, *May 15th*, 1798.

TO DOCTOR HEYNE,

DEAR SIR,

I am favoured with your Letter of the 15th Inſtant, and ſhall be happy to contribute to the promotion of your very able and ſcientific researches, conſidering as I do, every thing from you of too much Sterling worth to be deſtroyed or neglected. You may rely on the Papers being forwarded to Mr Dalrymple, agreeable to the practice of our much lamented Friend. In the ceſſion of the Circars, the Soubah reſerved to his own Family, the Diamond Mines; The Patronage of them, therefore lies at Hydrabad, and it is probable they may now be worked to much more advantage than ever, by means of the Steam Engine; your conjecture that the famous Mogul Diamond was brought from Colour Gane, in the Condapilly Diſtrict is ſupported by more than probability. In caſe you reach Budrachellum before the River ſwells, I ſhall be glad to ſee your obſervations on the Hot Spring in its Bed, and as the Meneralogy of the Inland Country will engage your attention, will thank you for Specimens of the Salt which is lixiviated from the ſoil for Culinary purpoſes.

The Materia Medica of the Talingas is rich in vegetable Lore, although as you obſerve the materials are not always to be found at the places of enquiry, yet the Names being taken down in all the different Languages by which they are known in the Bazar, will afford a clue whereby to inveſtigate them, as the Shaſter names are frequently obſolete, and the Articles

from

from foreign countries decayed. When we conſider their perſeverance in repeating proceſſes in the Dying Buſineſs, till a colour apparently depending on the due application of Sun Beams is obtained, which is the caſe in ſtriking ſome particular ſhades of red with the Che Root, we ſhall be diſpoſed to admit principles in the Chemiſtry of their Materia Medica, or experience and obſervation to which many of our theories have yielded.

JAMES ANDERSON,

Fort St. George, *May 23d*, 1798.

To JAMES ANDERSON, Esq. *P. G.*

Dear Sir,

The Subſcription of this letter, may perhaps call to your remembrance, a ſupply of Ankree ſeed, or Tares, from Bengal, through the medium of our friend Captain Wilks, and I wiſh you to be aſſured, I ſhall have much pleaſure in executing any further commiſſions you may think of in that way from the Province of Behar,

From my public ſituation, I have an opportunity and will be infinitely indebted to you, for ſupplying me with the means of ſpreading the Cultivation of the Bourbon Cotton over this fertile Country.

The Zemindars who bring Mares from all Quarters, to be covered by the Horſes of Government, being now fully convinced of our fairneſs and liberality, will be very thankful for the ſmalleſt quantity of ſeed, and if you will do me the favour of ſending me what you can ſpare, addreſſed to the care of Meſſrs. Cockerell, Trail and Co Calcutta, the ſatisfaction derived from public-ſpirited, and I doubt not, ſucceſsful exertion will be all your own.

W. FRASER, Captain.
Superintendent of the Stud.

Tirhoot, *May 4th*, 1797.

To

To CAPTAIN WILLIAM FRASER

DEAR SIR,

The Ankree Vetch did not come up here, owing no doubt, to ſome error in chuſing the ſoil or ſeaſon, but knowing your attention to promote objects of rural economy, I am at a loſs to account for my omitting to ſend you the Bourbon Cotton Seed.

To make up for this omiſſion in the beſt manner I am able, above 100lbs. weight in two bags, will be delivered for your diſtribution, to Meſſrs. Cockerell, Trail and Co. when the Triton arrives in the River, as Mr. Chriſtopher Smith who is juſt come here from Amboyna, has been ſo good as to take charge of it, and you will allow, that it is in very good keeping, when I tell you the zeal, ability and ſkill, with which he has executed the commiſſion of tranſporting the Deſiderata of the Eaſtern Iſlands, to various parts of the world, as the following liſt will ſhew.

In November, 1796, he ſhipped on the Suffolk, Eliza, Swift, Glouceſter, Yarmouth, Ewer, and Fly. 2900 Plants, conſiſting of Clove, Canaree, Kaiapootie, or Meloleuka Leucodendron, Almond of Otaheite, Inocarpus Edulis, Garcinia Mangoſtein, and Coeſſamby for different places. In the ſame month and year, he embarked on the Jane, Captain Stewart, from Amboyna to Banda, by order of Admiral Rainer, with 750 Clove Trees, and 275 Sago Trees.

In January, 1797, he ſent 2367 Nutmeg and Clove Plants, on the Jane, to Pulo Penang, Bombay, Madras, and Bengal, and at the ſame time, ſent on the Cartier, Captain Naſh, 155 Nutmeg Trees, which have been ſafely delivered at Calcutta. In the ſame month and year, he ſhipped on board the Walmer Caſtle, Captain Bond, for St. Helena, and the Royal Garden at Kew, 270 Nutmeg and two large Clove Trees, and on board the Carnatic, Captain Jackſon, 241 Clove and Nutmeg Plants via Canton, for the Cape of Good Hope, St. Helena, and Kew. In February, 1797, he ſhipped on board the Union, Captain Macaul, 1365 Nutmeg and 100 Jamboo-dye Trees, which have been delivered at Calcutta. In Auguſt 1797, he ſhipped on Board the Taunton Caſtle, Captain

tain Stud, for the Cape of Good Hope, 259 Trees, conſiſting of Nutmeg, Clove, Ganemoo and Lanſſa; for St. Helena, 478, and for Kew Garden, 50 Plants of various ſorts. In September, 1797, he ſhipped on the Intrepid, Captain Selby, 208 Nutmeg, and 20 Chocolate Trees, for Pulo Penang, as alſo on the Hope, Captain Purſer, 296 Nutmeg, 200 Clove, 142 Sago, 120 Java Coffee, 50 Ganemoo, 50 Salatry, 65 Lanſſa, 37 Toomy Toomy, 200 Canango, and 20 Chocolate Plants, for Pulo Penang and Bengal. In October, 1797, he ſhipped on the Ganges, Captain Patrickſon, 4012 Clove, Nutmeg, and other Plants, for Bengal. On the Duke of Buccleugh, Captain Wall, 720 Plants, conſiſting of Cloves, Sago, Kaiapootie, Lanſſa, Royal Dammer, Coole Lawa, Toomy toomy, Cata-Cooty, Ganemoo, Canaree, Inocarpus, Edulis, Nutmegs, and Epidendrums. On the Echo, Captain Catline, for the Cape of Good Hope, 297 Cloves, 292 Nutmegs and Chocolate Plants, with 1000 ſeeds of the Canaree Tree. Shipped on Board the Bellona, Captain Ferror, 1328 Plants, conſiſting of 523 Nutmeg, 489 Clove, and 318 various kinds for St. Helena, Kew, and the Weſt Indies, and on Board the Phœnix, Captain Moore, ſhe ſhipped for Bencoolen, 1004 Nutmegs and 581 Clove Trees. In January, 1798, he ſhipped on Board the Union (the 2d time) Captain Sparram, 2978 Plants, of Cloves, Nutmeg, and other valuable plants, of the ſpice iſlands, for Pulo Penang, Madras and Bengal, he has now brought here with him, on board the Triton, Captain Wright, 33,448 Nutmeg, 2763 Cloves, and other Trees, and 824 Chocolate plants; of theſe, a portion will be left here, for the Tinnevelly, Baramahl, and Dindigul diſtrict, and the Malabar Coaſt, the reſt he will carry with him to Bengal.

Theſe plants on the Triton, although brought from ſo great a diſtance, are all in perfect health, ſo much ſo, that one of the Nutmeg Trees which is fourteen Feet high, has Fruit growing upon it, and as many Perſons may be deſirous of promoting their eſtabliſhment in Hindoſtan, I will obſerve that Mr. Smith ſays the ſurface of the Iſlands is undulated, and both nutmegs and Cloves grow in all ſituations, regard being only had to break the force of high Winds; by the neighbourhood of Clumps of other Trees, the Earth in which he has brought the Plants, is a friable rich Garden Mould, the Atmoſphere being moiſter there than here, points to the

uſe

uſe of ſhading the young Plants in the day time, and ſprinkling the leaves from a watering pot at Night.

All the other Trees are alſo valuable, the Cancree Produces a Nut equal in ſize and Sweetneſs to the Almond, which ſupplies the place of Bread to the Natives, as well as Sago: from the leaves of the Caiapootee, is obtained an Oil uſed as a Remedy for ſprains, Bruiſes and Rheumatiſm, the Lanſſa is a delicious Fruit, the Wood of the Ganemoo is ſo ſtrong a Cordage that beſt Fiſhing Nets are made of it, and the leaves when boiled make delicate Greens, equal in flavour to Spinage, the young and tender Fruit is excellent in Curries; the Royal Dammar yields a roſin uſed for Lights, and paying the Bottom of Veſſels, the Cooly-lawa yields an eſſential Oil of Saſſafras, the Toomy-toomy bears a Fruit like the Morella Cherry, the Cata Cooty bears a delicate Fruit in cluſters like the Currant.

JAMES ANDERSON.

Fort St. George, *May 29th*, 1798.

Extract of a Letter from an Officer at Banda Neira,

To DR. ANDERSON,

" At length I found time to make a party to the Mount Veſuvius or Ætna of theſe latitudes.

Goonong Api, (or the hill of fire) is open to the Sea on the South and N. W. and the other ſides form part of the Bay of Banda—From the time we landed from our boats, until we reached the top of the hill, we were an hour and a half, including the time we ſpent in recruiting our breath. We were 40 Minutes more in walking round the Crater, which is not leſs than two miles and a quarter in circumference; all the way round we found the ſtones in a ſtate of fuſion, an inch and a half below the ſurface, and Smoke burſting through Fiſſures in various parts of the hill, ſome half way down it. Within the Crater we found natural caldrons of boiling ſulphur, which had taken the ſhape of round boilers, with ſmall openings at the top, from which thick ſuffocating ſteams ruſhed forth; we broke the outer (or convex) ſide of ſeveral of theſe, and found chriſtalliza-

tions

tions, the points in a liquid ſtate: ſome pieces we broke off and dropped in, made a noiſe like that of dropping Oil in a fire, (I brought down ſeveral of theſe lumps of Sulphur, which I ſend you by this occaſion) The laſt eruption this Volcano made was in 1773, and the Inhabitants look for one in all this year, as they ſay it regularly happens once every twenty-five years. The hill is not above 720 feet high, but its aſcent is very difficult, on account of the looſeneſs of the aſhes and ſtones, which renders treading inſecure and tireſome. In its laſt convulſion, it threw up vaſt maſſes of ſtones, and conſiderably narrowed the ſouthern paſſage into this Bay. Banda Neira, (where the town is,) is only ſeparated from the hill, by a narrow ſlip of water, at one place only half a mile broad, ſo that I think it is probable, in the event of another eruption, the Channel may be filled up, and Goonong Api joined to Banda Neira, which would not make us more or leſs ſafe."

To JAMES ANDERSON, Eſq.
PHYSICIAN GENERAL.

DEAR SIR,

I EMBRACE the opportunity of Mr. Gerdon's return to the Coaſt, to forward four boxes of Fruit Trees which have been taken up with much care, before committing them to their preſent conveyance, and I hope will arrive ſafe.

In No. 1. Four Mangoſteins and two Doorians.
2. Two yellow and two red Rambooſteins, and two Pulaſangs,
3. Two Nam Nam, two Bua Dokoo, and two Rambē.
4. One Doorian, one Pulaſang, one Nam Nam, one Bua Dokoo, one Sawol, and four Sago Trees in baſkets, in addition to two Mr. Gordon brings with him. I hope by future opportunities to have the further pleaſure of improving your collection, from time to time, by ſimilar contributions, and to be able to furniſh you with drawings,

drawings, (and botanically correct) of them, as well as thoſe I now ſend. The Nam Nam Tree is the only one at preſent finiſhed, though all the others are in hand and in much forwardneſs, and I embrace the opportunity of ſending the former as a ſpecimen of my performer's capacity.

H. HARRIS.

MALACCA, *March 8th*, 1798.

To DOCTOR HARRIS, *Malacca.*

DEAR SIR,

I AM favored with your Letter of March 8th, encloſing a drawing of the Nam Nam, which is very well executed; Mr. Gordon likewiſe delivered the boxes, which I am ſorry to ſay, contained nothing but dead plants, and indeed this muſt ever be the caſe, in things of this nature, which are hurried on Shipboard before they have taken to the new ſoil, and drenched with too much water at ſea; ſeveral embarkations from Colonel Parr have failed by the ſame means, whereas young Trees intended for exportation ſhould be well rooted in the boxes or packages for ſome months before they are put on Shipboard, and only ſprinkled with water occaſionally during the paſſage at ſea; I am much obliged however by this attempt, having no doubt that with care and attention all the moſt valuable Trees and plants of the eaſtern Peninſula and Iſlands may be eſtabliſhed on ſome part or other of this promontory, and you may rely on every aſſiſtance in my power to promote ſo uſeful a purpoſe.

MR. C. Smith deſires me to tell you that the Liriodendrum Liliifera or Champaka Puta, a moſt beautiful flowering Tree, grows in the garden of the Tavern-keeper in the Lower Street, of whom he wiſhes you to get ſome plants, not having found the Trees elſewhere.

JAMES ANDERSON,

FORT ST. GEORGE, *June 5th*, 1798.

To JAMES ANDERSON, Esq.
PHYSICIAN GENERAL.

DEAR SIR,

A VARIETY of valuable curioſities from the vegetable world have found their way to your Garden, and I ſhould have been proud, had my abilities enabled me to gratify you with any ſubjects worthy a botaniſt's attention—however, as any thing good is always acceptable, and the ſtomach is an organ as neceſſary to attend to, and furniſh food for, as any of our other faculties—I beg leave to introduce into your garden, with the hopes it may ultimately reach your palate, a yam peculiar to this place or diſtrict—it looks very like our country potatoes as we call them on the coaſt, but grows exactly in the ſtile of yams, and although they are ſmall, will grow to a conſiderable ſize; it is far preferable to the Bengal yam, or China potatoes, nay, nearly as good as Europe ones, particularly when roaſted, which is the beſt mode of dreſſing them, the natives call them Oobee-Troepong, ſpy-glaſs, or teleſcope yam, why ſo I cannot imagine, nor does it import much.

The ſeaſon is out juſt now, but I will take ſome future opportunity of ſending much finer and larger.

J. DURAND.

MALACCA, *March 10th*, 1798.

To MAJOR J. DURAND, *Malacca*.

DEAR SIR,

I AM favoured with your letter of the 10th of March, with the yams which I planted immediately, and their tendrills are now ſix feet above ground, ſo that you may conſider it as eſtabliſhed; the plantation I have raiſed being ſufficient to ſupply every one who may wiſh to extend its cultivation.

To aſcertain an adequate knowledge of proper food for man, is not one of the leaſt uſes of botany, and I have the pleaſure to acquaint you, that Mr. Stephens of this place, has introduced a potatoe from Amboyna of an orange colour, and larger ſize than the common Convovulus potatoe, of which it is a ſpecies, as perhaps your yam may prove to be a ſpecies of the Dioſcorea, of the Botaniſts. I will thank you to continue your envoys, of ſuch plants as you think may be uſeful, eſpe-

cially