A fourteenth letter to Sir Joseph Banks ... on the subject of cochineal insects, discovered at Madras / [James Anderson].

Contributors

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A

FOURTEENTH LETTER

To Sir JOSEPH BANKS Baronet

President of the Royal Society,

ON THE

Subject of Cochineal Insects, discovered at Madras,

By JAMES ANDERSON M. D.

With a Copper Plate Engraving Annexed, of the different Insects mentioned in the Letters, from the Drawings of Baron Reichel.

Also an Engraving of the *Opuntia Major Spinulis obtusis mollibus, & innocentibus,* and the Plan of a Nopalry in the Bishoprick of Guaxaca in the Kingdom of Mexico, Extracted fr om the Second Volume of Sir Hans Sloane's History of Jamaica, for the use of Gentlemen in India who may be disposed to make Plantations, and are not in possession of that Work.

——————— Milesia magno
Vellera mutentur, Tyrios incocta Rubores.
Virg. Geor. Lib. 3.

MADRAS: Printed by CHARLES FORD.

MDCCLXXXVIII.

To Sir Joseph Banks Baronet,

President of the Royal Society.

Dear Sir,

I Have the pleaſure to acquaint you that Mr. Kincaid of this Eſtabliſhment on a voyage to Europe by the way of China, has found a ſpecies of *Cactus* at Canton of which I have received two very healthy plants out of three which had been ſent.

As far as I can ſpeak to plants that are not in Flower this is the *Cactus Cochinilifer*; and the pains taken to diſcover, diſpatch, and bring them here, as well as the hopes of getting more from the ſame place, induce me to inſert the Letters that accompanyed them.

My Dear Sir,

" I have very great pleaſure in informing you, that I am in hopes this will be delivered " with three plants of what I ſuppoſe to be the true *Opuntia Cochinilifera*—upon the young leaves " are innumerable ſoft inoffenſive prickles of the ſame green colour with the leaf, and about " half an inch in length; the old leaves ſeem to be moſtly without Prickles, a few ſhort ones " only appearing in the place where the Flowers have dropp'd off.—I believe it poſſeſſes all " the other Characters of the Plant you are in queſt of, but I am not Botaniſt enough to deter- " mine. I hope it will arrive ſafe, and if upon Culture you find it the ſame ſpecies, you may be " ſupplied with any quantity from this place, where it is cultivated in the great men's gardens " as a curioſity, principally for its Flowers.

" Chance threw one of theſe plants in my way; as I was gazing over the tops of the Houſes, " I perceived one of them growing on the top of a Houſe, I then examined more accurately with " a Spy-glaſs, and having marked the Houſe; I went and aſked permiſſion to inſpect it nearer, " when I found it to be what I have deſcribed above, and upon enquiry was informed I " could have ſome to purchaſe, which I immediately procured.—Thus chance directed me to " what Mr. Duncan has been looking for in vain for a length of time; and in fact it is only by " chance that any thing curious is to be obtained here, for all communication with the Coun- " try being cut off, prevents one from ſearching for any thing oneſelf, and unleſs you know " the Chineſe name, or can produce a ſample of what you are in queſt of, it is vain making any " enquiries; no Gentleman here is the leaſt acquainted with the language of China, and the " Natives know very little Engliſh—if you ſhould in future want any thing from this place, you " had better ſend a ſample of it, or if that is not to be done, ſend a Painting coloured as Nature, " by this means there is probability of ſucceeding, but none without.

" By means of Mr. Duncan I have got the things ſent in Captain Bruce's Ship the Yar- " mouth, who promiſes to take care of them: the China name of the Prickly-pear plant is *Pau,* " *Wang*.

Canton Nov. 10th 1787. } " Farewell, and believe me &c.
" JOHN KINCAID."

Dear Sir,

" I was favoured with yours by Mr. Kincaid and received the printed copies of the Letters " regarding the Cochineal Inſect, for which I return you many thanks—Two or three plants " of the *Opuntia* Mr. Kincaid has procured, which I have forwarded by Captain Bruce—from " the appearance of the plants, I think it anſwers nearly to the deſcription of the ſpecies you " want—There is great plenty of it here, and I ſhall ſend a few more plants by another conveyance.

Canton Nov. 10th 1787. } " I am with regard &c.
" JOHN DUNCAN.

Since

Since the receipt of the above I have had two more plants from the ſame hand by the Ship Indus, but one of them is gnaw'd by Rats or Vermine, and the other damaged by too much Water: had it occurr'd to the gentlemen, that this plant is ſo ſucculent, it will live for ſome months without Earth, the quantity they mention might have afforded branches enough to have been pack'd amongſt ſtraw, in Baſkets or Cheſts to lay out Plantations here without loſs of time.

On ſome young Citron Trees juſt landed from China, I find a Coccus Inſect more deeply interſected between the abdominal rings than any of thoſe on the Coaſt, which I have therefore called *Diacopeis*, and on a Tree which is very common here named *Wodier* by the *Tamuls*, ſome of the Branches are covered with a very Torpid *Coccus* Inſect, to which I have given the Specific name *Narcodes*.

Being poſſeſſ'd only of an old Copy of Linnæus, I do not find any genus under which the *Wodier* Tree can be brought, and will only remark, that its Leaves are oppoſitely and compleatly Pinnated. The *Racemi* iſſue from the trunk at the axis of the leaf. The Calyx *Tetrapetalous*,— The *Stamina* eight Filaments with Kidney-ſhap'd ſingle Seſſile *autheræ*, The *Germen* terminates in two Seſſile *Stigmata*, and becomes an oblong *Drupa* containing one ſeed.

As Mr. Kincaid's diſcovery at a place of ſuch reſort as Canton, ſtamps more value on the ſubject of theſe Letters, it comes within the plan I have laid out, to correct every error, and fill up as many omiſſions in the Journal of the two laſt years, as the experience of the preſent Seaſon will warrant. A material circumſtance here merits my particular notice, that I find the *Coccus Erion*, as well as the *Coccus Trichodes* on the *Hibiſcus Roſa Sinenſis*, and now perceive Figure No. 8. is a repreſentation of the *Coccus Erion*, which is leſs hairy, and without the excreſcence at the extremity of the abdomen, ſo remarkable in the *Coccus Trichodes*, as will appear by the Plates.—In my Letter of the Feb. 20th, too; the *Agaty* and *Jumbo* Trees are unneceſſarily blended together, as no *Coccus* Inſects have yet been found on the *Agaty*.

By the Ship Buſbridge which left this place ſometime ago, I acquainted you by addition to the 13th Letter, that the *Motchey* or *Painters Tree*, was the *Erythrina Orientalis*, and that I had found a Coco Nut Tree, *Cocos Nucifera* entirely covered with the *Coccus Erion*, which it is proper to notice here, for the information of thoſe who had Copies of that Letter previous to her ſailing.

A want of perſpicuity being what I ever wiſh to avoid, I muſt ſtate, that although the Trivial names of plants is ſufficient to enable perſons in this Country, to diſcover any of thoſe I have had occaſion to mention; yet wiſhing to be generally underſtood, I have likewiſe been ſolicitous to inſert their Botanical Names, as I ſoon perceived a particular deſcription of every plant on which *Coccus Inſects* were found would far exceed the bounds of a Letter. Where I could fix on any authority I have in general quoted it; but in ſome caſes the minuteneſs of Flowers, or the impoſſibility of finding plants in Bloſſom, has laid me under the neceſſity of uſing indefinite terms, as *Gramen Muticum Pratenſe* for the *Oopuncarugu*, which I had ſuppoſed an *Aira*; but finding the *Aira Subſpicata* Bearded, and the leaf Plain, I ſhall only obſerve, it is the moſt common Paſture for Horſes here, being the moſt eaſily procured; and have no doubt the Drawings and Sepcimen, ſent with the firſt Letters will afford you an adequate Idea of it.

However foreign to the Subject of theſe Letters, it may be of uſe to add, that I have obſerved Horſes in beſt plight that had Straw of the *Kaka-Tsjoalm* for Fodder; which being a *Triandria Digynia* may be an *Elymus*, but not the *Zizania* of *Linnæus*; they likewiſe prefer *Argum-Pilley*, *Agroſtis Radiata*, and *Mattunga-Pilley*, *Agroſtis Cruciata*, to the *Oopuncarugu*; In the *Syſtema Naturæ*, Publiſhed in 1770, the *Stigmata* of the *Agroſtis* is *Longitudinaliter hiſpida*, and differs from the *Genera Plantarum* Printed at VIENNA in 1767. Where authorities differ from themſelves and from Nature, I ſhall hold by the *Tamul* Name, and my own obſervations.

The

Doctor Ruſſell thinks the *Ammam Patcherichi Poondoo*, is the *Euphorbia Hirta*, and not a *Parietaria* as I had ſuppoſed from the habit of the plant, and finding it *Tricoccous* I have thought proper to admit this amendment in conformity to the Sexual-Syſtem.

The *Poorſa Tree* having the exterior *Calyx Triphyllous*, I conſidered a *Malva*, but Dr. Ruſſell whoſe knowledge in Botany is more extenſive, ſays it is the *Hibiſcus Populneus*, or *Bupariti* of the *Hort. Mal.* and that latter Botaniſts have called it *Theſpeſia Populnea*, for reaſons he is not acquainted with.

It may for aught I ſee be removed from both theſe *Genera*, and the name *Theſpeſia* continued; becauſe a Milky juice which iſſues from any wound of the unripe Fruit, is ſerviceable like ſome other vegetable aſtringent juices, to check that *Species* of *Herpes* called a Ring-worm.

The *Tamuls* diſtinguiſh two kinds (*viz*) the *Phu Poorſa*, or Flowering; and *Kay Poorſa*, or *Fruteſcent Poorſa*; which laſt only, brings the Seeds to maturity and capable of vegetation; I ſhall therefore in future be underſtood by the name *Theſpeſia Populnea Diöecia*..

In the generation of vegetables there exiſts conſiderable variety, (*e. g.*) the *Muſa* or Plantain cultivated here by Suckers, will never produce Flowers or Fruit, if the Sucker is removed before the Parent ſtock has Flowered.

The Timber of the *Poorſa* Tree is ſtrong, tough, and of a ſmooth even grain, like the wood of the Apple or Pear Tree, and not being very heavy is the moſt proper Timber in this Country, for Naves, and Fellies of Wheels, for Wheel Carriages.

With regard to the *Erythrina*, as *Linnæus* mentions a difference in the Colour of the prickles of the Oriental and Occidental, I have been guided by that diſtinction—it is called the *Motchey* or *Painters* Tree, a ſpecies of *Painters* called *Motcheymen*, finding it the moſt proper in the conſtruction of their works, in Toys, Scabbards of Swords, and Trunks, for which the lightneſs of the wood, almoſt equal to that of Cork, renders it very fit—Two or three of theſe Trees tied together, forms the water conveyance called *Catamaram*.

Its beautiful Red Flowers are uſed as Feſtoons and garlands at Weddings, from whence the *Tamuls* call it the wedding *Mouricu*.

The *Mardana* Tree mentioned in Letter tenth was marked *Poligamia Monöecia Terminalia*, by Doctor Koning, from drawings of it which I laid before him; the *Ara Nellicay* or *Cheramela* muſt be the *Averrhoa Acida*, although I can find only an octofid ſeſſile ſtigma in the *Umbilicus* of the *Drupa*, but no *Felaments* or *Antheræ*: I muſt likewiſe add, that having lately ſeen ſome rude Engravings of the *Kirmes* on the *Ilex* in a Hiſtory of Drugs, tranſlated from the French by Dr. Hill, they appear ſo like the *Chloeoon* on the graſs, I have my doubts whither *Linnæus* may not have given the Character *Saltatoria* to the *Kirmes*, on account of the greater activity of the male Fly in this *genus*, than thoſe of the *genus Coccus*, which farther obſervation confirms.

A material difficulty in curing the *Chloeoon* is the trouble of Picking off the ſilk *Cacoon*, with which it is covered, and this I think may now be unneceſſary, and that it will be ſufficient to kill the Inſects by two or three days Immerſion in Vinegar, and afterwards dry them in the Sunſhine, without taking the trouble to remove their ſilky Envelope, as is practiſed with the *Kirmes*; to which the *Chloeoon* likewiſe bears an affinity in its nature as a Dye, ſeeing it penetrates into the fibre of Wool.

The great number of *Paraſitical* Inſects as well as *Paraſitical* Plants, leads me to ſet aſide the Caterpillars, mentioned in the former Letters; nor will the circumſtance of finding them within the *Cacoons* of the *Chloeoon*, preſerve their connection with the ſpecies, ſeeing I have ſince found ſimilar Caterpillars on the leaves of Plants, where there was no *Coccus* Inſects; many Inſects are found within the pulp of different kinds of Fruit, in the rind of which no perforation can be traced.

A more intimate connection may be perceived, where we are certain their is no affinity of ſpecies, (*e. g.*) Horſes hereare ſubject to blindneſs, from a worm in the *Aquæous* humuor of the Eye, which

in

in ſhape and activity reſembles a Snake. In the Fiſh called *Bonitoe*, I have often found a Maggot in ſize, ſhape, and colour, reſembling a grain of boiled Rice, pervading every part of its ſubſtance. The *Dracunculus* worm iſſues not only from the Legs and Feet of Men, but likewiſe from the Breaſts and Genitals as I have ſometimes ſeen. A man named ROBERT MASTERS in the year 1758 died of the Scurvy at Sea on board the Ship *Drake* Captain Fiſher, who had during his illneſs the *Morbus Pediculoſus* to that degree, that the *Pediculi* having penetrated through both the *Cuticula* and *Cutis*, lodged themſelves in the *Cellular* Membrane, and reſiſted the uſe of Bathing in ſalt water, as well as the application of *Phlogiſtic* and *Mercurial* remedies.

It is time however to return to the ſubject, and ſtate the ſituation theſe Botanical amendments and further diſcoveries, have produced on the arrangement of the Inſects.

1ſt, The *Chloeoon*, or *Kirmes Choromandelenſis*, is found on the *Oopuncarugu*.

2d, The *Coccus Oogenes*, on the *Phyllanthus Emblica*, *Euphorbia Hirta*, *Meniſpermum Cordifolium* and *Theſpesia Populnea*.

3d, The *Coccus Trichodes*, on the *Pſidium Guajava*, *Annona Squamoſa*, *Solanum Lycoperſicon*, *Hibiſcus Roſa Sinenſis* and *Phaſeoli*.

4th, The *Coccus Erion*, on the *Robinia Mitis*, *Ficus Maxima*, *Erythrinæ Orientalis* and *Cocos Nucifera*.

5th, The *Coccus Micro-ogenes*, on the *Vitis Venifera* and *Galega Proſtrata*.

6th, The *Coccus Koleos*, on the *Solanum Melongena*.

7th, The *Coccus Diacopeis*, on the *Citrus Sinenſis*.

8th, The *Coccus Narcodes*, on the *Wodier*.

It is of conſequence to obſerve that only one of theſe Inſects—The *Coccus Trichodes*, is found on a Plant of the claſs *Icoſandria*, and that only the *Chloeoon*, *Coccus Oogenes*, and *Micro-ogenes* poſſeſs much red colour, the reſt being almoſt of the colour of the Bark or Leaves on which they are found, excepting the *Erion*, ſome of the full grown of which I have lately found on the *Erythrina* of a ſtrong red colour.

To aſcertain the identity of the *Coccus Oogenes*, *Trichodes*, and *Erion*, more fully, I have tranſpoſed them from one Plant to another, through all the Plants on which they are reſpectively found.

I am with eſteem
Dear Sir,
your very obedient Servant,
JAMES ANDERSON.

Fort St. George,
Jan. 28th 1788.

TYPOGRAPHICAL ERRORS.

Letter 1ſt, for *Oopungiriki* read *Oopuncarugu*. Letter 2d, *Salecornia* read *Salicornia*. Letter 3d, *Glaſs* read *Graſs*. *Hebiſcus* read *Hibiſcus*. Letter 5th, *Cochinlifer* read *Cochinilifer*. *Dellinius* read *Dillenius*. Letter 9th, *Eighty miles* read *Ninety miles*. *Ficus Maximus* read *Ficus Maxima*. "*In my Letter of April 26th*, read "*In my Letter of May 27th*, Letter 10th, for "*In my laſt Letter*" read "*In my Letter of July 18th*." *Termiualia* read *Terminalia*. *Miniſpermum* read *Meniſpermum* throughout. Letter 11th, *Spondius* read *Spondias*. *Hernandez Rhedi* and *Lyncius* read *Hermander*, *Reccho* and others, Letter 12th, *Portia* read *Poorſa*. Letter 13th, *Ficus Maximus* read *Ficus Maxima*.