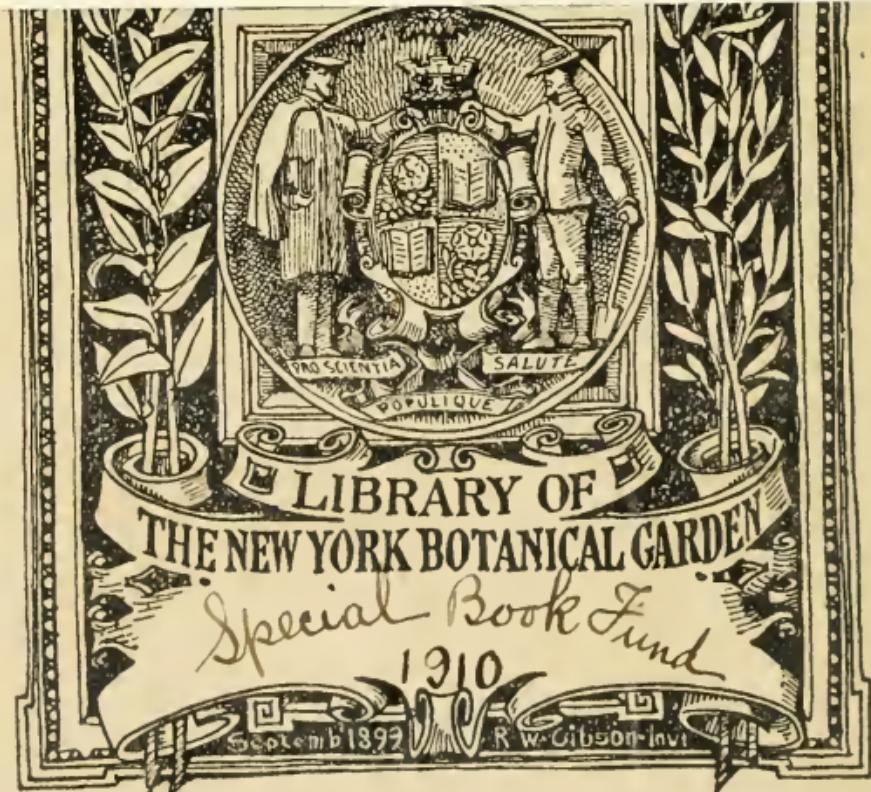
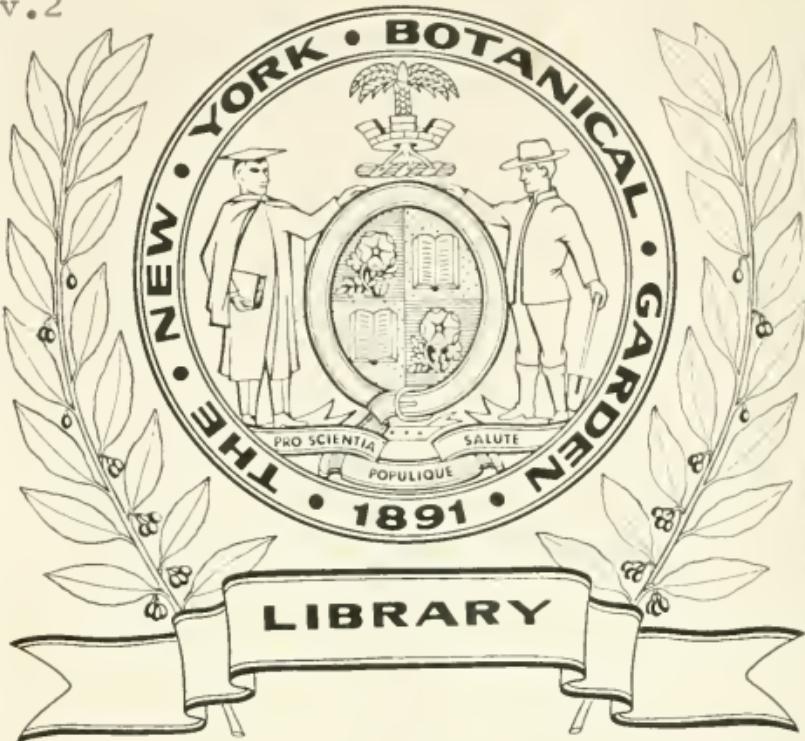




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CHINA AND THE EAST INDIES,

By P E T E R O S B E C K ,

R E C T O R of H A S L O E F and W O X T O R P ,

M e m b e r of the A C A D E M Y of S T O C K H O L M , and of the

S O C I E T Y of U P S A L .

Together with A VOYAGE TO SURATTE;

By O L O F T O R E E N ,

C h a p l a i n of the G O T H I C L I O N E A S T I N D I A M A N .

A N D

An Account of the CHINESE HUSBANDRY,

By Captain C H A R L E S G U S T A V U S E C K E B E R G .

T r a n s l a t e d from the G E R M A N ,

B y J O H N R E I N H O L D F O R S T E R , F . A . S .

To which are added,

A FAUNULA and FLORA SINENSIS.

V O L . II.

L O N D O N ,

P r i n t e d for B E N J A M I N W H I T E ,
at Horace's Head, in Fleet-street.

M D C C L X X I .

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PETER OSBECK'S VOYAGE to CHINA.

October 24th.

TO-DAY I had another opportunity of gathering plants near the watering-place:

Utricularia bifida [Tab. iii. fig. 2. *a. b.*] is a plant which looks very like our Swedish *Utricularia vulgaris*, but is somewhat less. It grew in a valley in low swampy ground, which however was not under water. As this plant had never been found before, I immediately drew up the following description: the calyx is diphylous: the foliola are oval, excavated, persistent: the corolla is ringent: the upper-

lip is without incisions, oval, with reflected sides: the *lower-lip* is bifid, with deflected sides: the *mouth* is elevated: the *nectarium* conical: the *capsule* is egg-shaped, and is dehiscent on the sides: the *seeds* are numerous: the plant in length is an hand's breadth: the *root* is fibrous and ramoso: the *bracteæ* are very small, oval, alternate: the *peduncles* grow alternately, and are compressed: the *flowers* are small and yellow. It grows in wet places.

Phyllanthus Niuri. The *corolla* is monopetalous, sexdentated, and white: the *capsule* is sixlocular: the *root* is fibrous: the *stem* is erected, undivided.

Hypericum Chinense differs from the *Hypericum quadrangulum* in the following particulars: *Hypericum Chinense* is much less, and lies on the ground. The segments of the *calyx* have five veins, and are somewhat longer than the flowers: the *petals* are narrow, lanceolated, excavated, erect, and of the length of the *calyx*: the 13 *filaments* are filiform: the *antheræ* globose and very small: the *germen* is egg-shaped, and with three filiform *styli*: the *stigma* is obtuse; and the *capsule* egg-shaped: the *seeds* are numerous, oblong, and small: the *leaves* are oval, coming out of the *stem* from the angles: the *peduncles* bear but one flower

flower each, and grow at the top of the *stalk*. It is found on steep hills.

Scutellaria Indica grew in shady places, on an earthen wall, and was a great rarity. I have never found it any where else. On a cursory view it looks very like the *Glecoma hederaea*, *Ground-ivy*, which in our apothecaries shops is sold by the name of *Hedera terrestris*. This plant not yet being described by any botanist, I have here drawn up an accurate description of it :

The *calyx* is divided into two equal segments, very short ; it has behind an elevated, spoon-like, sharp-pointed scale, whose margins are bent down, and close after the flower is withered : the *corolla* is ringent : the *tube* is cylindrical, or almost quadrangular : the *upper-lip* is trifid : the middlemost *lacinia* is emarginated, and inflated : the *laciniae* on the sides bend towards each other, and cover the *stamina* with their sides which are bent inwards : the *lower-lip* is divided into four *laciniae*, expanded, excavated, and the *laciniae* on the sides dotted : the four *stamina* are covered by the *upper-lip* : two of them are shorter, and are the length of the *stylus* : the *antheræ* are round and short : the *germen* is divided into four parts : the *stylus*

is filiform, and the *stigma* is entire: the four *seeds* are uncovered, small, and round. The plant lies on the ground, and has the appearance of ground-ivy (*Glecoma hederacea*): the *root* is fibrous: the *stalk* is quadrangular, somewhat rough, ramosè: the *branches* are composite, and stand at the top: the *flowers* grow on short *peduncles*, commonly by pairs: the *bractæ* are small, lanceolated, oval: the *leaves* are opposite, cordated, oval, crenated, petiolated, pilose, except the small leaves coming from the corners of the greater ones, which are kidney-shaped. I found in a shady place no more than two single plants of this kind. The Chinese call it *Tim-gam-sa*.

Hedyotis herbacea? the *calyx* is quadrifid, short, with pointed, reflected segments: the *corolla* is monopetalous: the *tube* is cylindrical, very short: the *limbus* is quinquefid, cylindrical below, bearded in the inside, with equal reflected *lacinia*: the four *filaments* are shorter than the *corolla*, bearded, and rest on the incisions between the *lacinia*: the *antheræ* are of equal breadth, of the length of the *filaments*, erect, simple: the *germen* is almost round, and below the *corolla*: the *stylus* is filiform, bearded, longer than the *corolla*: the *stigma*

ma is double, club-shaped, trigonal. It grows on dry places.

Croton sebiferum. A little tree, which the Chinese call *O-ka-o*, and at first sight looks like an *asp* or *aspin* (*Populus tremula*). The male flower. The *calyx* is very small, bidentated: the *corolla* is wanting: the *filaments* are numerous, very short: the *antheræ* are double, almost round, erected: the female flowers sit below the male ones, six, seven, or more together, on common peduncles: the *calyx* is trifid, with pointed, erected *segments*: the *germen* is oval: the three *styli* are somewhat reflected. The tree is very branchy, and as high as a man: the *branches* are round, smooth, with buds of leaves: the *leaves* are alternate, smooth, and like those of the *Black Poplar-tree* (*Populus nigra*): on the inferior side they are somewhat woolly, and have long, filiform, softly striated *petioli*, or foot-stalks. The *leaves* have about twelve veins, which on the lower side are stronger: the *flowers* are yellow, stand at the top; the male and female in a *corymbus*. This tree is to be met with on the shores and ditches, though but seldom. *Du Halde* says, the fruit of the *Candle-tree* is covered with an hard, lignous, smooth, triangular shell; these shells contain three little seeds of the size of

6 OSBECK'S VOYAGE.

pease, each of which is surrounded with a white tallow-like skin. When the fruit is ripe, the shell opens into three parts. For my part, I have never seen the fruit of the *Croton*, and therefore cannot be sure whether it is the same tree of which the *Lappt-yacks* candles are said to be made, as I have been told.

Chrysanthemum Indicum grew here and there, both on the mountains and on the walls of *Canton*, and likewise before the rooms of the *Chinese* in flower-pots. The flowers not only serve as an ornament, but are used instead of tea. The *Chinese* call it *Kock-fa*.

Lattsä is the *Chinese* name of a little tree which here grew on a high field, and looked like the *Tew-tree*; but the leaves were ornamented on the inferior side with white stripes, running length-ways as in *Pinus balsamea*, or the *Phalaris picta*, known among us. It seemed to be *Taxus nucifera Fi*, *vulgo Kajo. Kæmph.*
Aman. 814.

Briza elegans? spicis oblongis, valvulis carinatis, an exceeding fine grass, which grew near the highest plantations.

Daphne Indica. The *calyx* is wanting: the *corolla* is quadrifid: the *laciniae* are all of an

equal breadth: the eight filiform *stamina* are as long as the *corolla*, or the *pistillum*: the *antheræ* are small, almost round, and stand on the sides: the *germen* is oval and rough: the *stylus* pointed: the *stigma* entire: the *branches* are round and axillar: the *leaves* are opposite, petiolated, oblong-oval, smooth, without incision. The plant is of a span's length. It grows in high places.

October the 25th.

THIS day I took a journey to the watering-place, after the sermon, and from thence proceeded to the European burying-place, on the *Danish Island*. I observed the following natural curiosities:

Celosia argentea grew as a weed on the potato fields.

I found tendrils lying every where in the low grounds hereabouts; they were like the *Hydrocotyle Asiatica*, but had no parts of fructification.

Adiantum flabellulatum. The *stalk* (*stipes*) is triquetrous, and striated on one side: the *branches* are alternate: the *leaves* are unequal,

and form semicircles, quadrants, or octogons. The Chinese call it *Siag mao quang*.

Sambucus nigra looked like a shrub, and was wreathed with the *Caffytha*.

A sort of *moss*, which was like our *Lichen parietarius*, lay dry on the hills by the side of the plantations, but without the parts of fructification.

A climbing plant with white berries was found on the Chinese Pine-trees and stones.

Hedysarum maculatum on the hills.

Hedysarum (Styracifolium) foliis simplicibus cordato orbiculatis, retusis, supra glabris.

Holcus (latifolius) glumis trifloris, flosculo primo inermi, duabus margine aculeatis, foliis subovatis. The stalk is smooth, and scarce a foot high: the leaves are very broad, and almost oval, with broad striped *vagineæ*: the *panicula* consists of simple branches like rods: the flowers stand alternate, single, on hair-like peduncles: each flower is oblong and oval: the *calyx* is shorter than the flower, and consists of two skins, and contains three flowers; of these the first is smooth, but the second and third

third are armed on the upper margin with crooked spines.

Ko-su, or *Yam ko-suā*, is the name which the Chinese gave to the great trees which grew near the plantations.

Palamm is the name of the leaves with which they covered their fruit baskets.

Paulinia Asiatica was planted round the wall of a little spot of ground. If this shrub would grow in our country, it would make the best hedges about our gardens, &c. for in case any one should attempt to pass through it, he would scarce escape without marks in his hands and cloaths from the sharp-pointed hamated thorns of this plant.

Olom-fio was the name given to a certain great tree. Its *leaves* were pinnated, smooth, with opposite *foliola*. A rosin came out of the tree, very much like the *Gum arabick*.

Polypodium varium.

Trichomanes Chinense.

Smilax China. This little shrub grew but sparingly on this island. Its *root* is universally known amongst us by the name of *Radix Chinæ*,

TO OSBECK'S VOYAGE.

Chinæ, and is annually brought from thence to Sweden in great quantities.

Smilax Saffaparilla.

Saccharum Chinense grows in the river like reeds. The Chinese call it *Mao*.

The 29th of October.

QUONG-FONG, or Chinese wasps (bees), often tormented us in great numbers, both in town and on board the ship. It is *Apis lavis flavofulvoque varia, abdomine, lineis transversis undatis nigris*.

I TOOK another journey to Canton to-day. Near the first custom-house grew *Hibiscus mutabilis*, which began to blossom in the beginning of this month, and still continued to do so. Enquiring for the name of this tree, I was answered, that it was called *Fa*, which seemed a much too general denomination, for *Fa* denotes a flower. It is possible that the Chinese have imposed upon me on this and many other occasions; but it is indifferent which is the true Chinese name of a plant, since we can do better with the Latin name.

The

The *calyx* is like the head of a hat squeezed together. On the entrance towards the house a fine *Pomegranate-tree* was planted, which was then in fruit. Both this and *Rosa Indica*, together with *Rubus parvifolius*, are tokens of the taste this nation has for all sorts of plants to adorn their habitations. You will scarce meet with a family either in town or in the boats without some herbs or trees in flower-pots, if not for use, yet for the sake of pleasure.

Kow-sonn is the *Chinese* name of white long roots, of the thickness of *Parsnips*, the extremes of which had been cut off, and with which a sampane that passed by was quite filled. They were tied into bunches with their ensiform leaves, and were offered to sale.

THE *Feast of Lanthorns* began this day, and was to be celebrated for three successive nights, in honour of the god of fire, *Fa-kong*, which is done in the following manner: Many hundred lanthorns made of skins were so hung up, that they together made a sort of arches over the street; and besides these, many chandeliers in form of trees were made use of. Before the houses on the outside they had placed great

great paper-men, and horses; commonly all the rooms in the houses were flung open, and were every where illuminated. The musicians were in the rooms towards the street, and played on instruments which I had never before heard. I was met by three sacrificing priests, who walked about in the house sacrificing and burning incense. They were cloathed in long, wide, red robes, and wore high caps. The Chinese said that they thus annually prayed for security against fire.

The 30th of October.

BASELLA rubra, which is here called *Tand-foy*, climbed up the walls of the factory of the merchant *Soyon-quas*. It had flowers and fruits at present. The spots which the berries make in white linen are very hard to be got out.

November 2d.

^a *SITTA (Chincensis) palpebrâ inferiore purpureâ.* (*Diff. Chin. Lagerstr. 6.*) The Chinese call it *Kow-kay-konn*. This bird was somewhat

^a This bird is not in the Syft. Nat. Edit. 12.

longer

longer than a gold-finch. It sometimes sung a little, and was beautifully marked. A couple of these were sold here at half a piastre. Its description is as follows: the *back* from head to tail is dark, ferruginous, with bluish downs: the *breast* and the *belly* are white; but toward the throat it is black: the *bill* and *head* are black: the *crest* consists of black feathers, and is longer than the bill: near the eyes is an oblong, small, scarlet spot, and close to this a large one as white as snow: from the temples to the throat runs a black line: the *chin* (*mentum*) and the *throat* itself are white, but this white is encompassed with black, except a white line in the middle of the breast, which joins the white of the throat with the snowy breast: the *uropygium* is yellow at the top: the nineteen *quill-feathers* have ferruginous dark coverts: the twelve blackish *tail-feathers* have white tops: the *feet* have four toes: the *hind-toe* is the length of the toes on the sides: of the *fore-toes* the middlemost is the longest.

THIS bird is kept in *China* more for the sake of its beauty, than for its fine song. It is fed with boiled rice.

The

The 3d of November.

WE dined to-day with the merchant *Tantinqua*, at whose house tea was packing up for us. Here again the high value which the *Chinese* set upon flowers planted for ornament was observable. Before the dining-room was a fine garden, laid out with stones, and in it was :

Quaifa, a tree about six yards high, with small, white, sweet-scented flowers, whereof three or four were in one *Involucrum*. The tree belongs to the *Tetrandria* class.

Laan-fa, a tree with yellow, corymbose flowers, and pinnated leaves.

Dracæna ferrea, the iron-tree^b, which in the *Chinese* language is called *Tat-sio*, was higher than the preceding ; and for this reason I could not reach the flowers, which were at the top in bunches. The branches were sup-

^b (*Dracæna ferrea*, Linn. *Syst. Nat. Ed. 12.* p. 246.) *D. S.* remarks that it is called *Asparagus terminalis*, in *Species Plantar.* and *Terminalis alba* by *Rumph. Am.* vol. iv. p. 79. tab. 34, but *Linnæus*, in his new system, page aforesaid, calls that species of *Asparagus*, *Dracæna terminalis*. F.

ported by *Bamboo* sticks. What follows is its description: the *calyx* is monophyllous, bi-dentated: the *corolla* is monopetalous: its *tube* filiform, shorter than the *limbus*; which is sexfid, with oblong *laciniae*, of which the exterior ones are somewhat larger, and include the *filaments*; which are shorter than the *corolla*, and fastened at the base of the *limbus*: the *antheræ* are oblong, narrow, erected: the *pistillum* is longer than the *filaments*: the *germen* is oval, and rests on the tube of the *corolla*: the *stylus* runs into a point: the *stigma* is entire, and inflected. The tree is more than twice the height of a man. The *stem* is very ramoso, uncovered, rough: the *branches* are bent, naked, and have bunches of leaves at their ends: the *leaves* are lanceolated, sword-shaped, only grow at the top, are numerous, reddish, with striated foot-stalks, or with revoluted margins: the *flowers* grow at the top, in form of *Corymbi*; each of them is small and red.

Epidendron ensifolium was planted in flower-pots. Its flowers had an exceeding fine scent, especially after sun-set.

Chrysanthemum Indicum. About 30 plants of this species were put into each flower-pot. They

They were disposed in circles one about another, and each had a little *Bamboo* stick to support it. The flowers were as large as those of the *Tagetes patula*, commonly called *Flos Africanus*, white, double, or full, and each by itself, as well as all together, like a round brush.

IN the corner of the garden was something which resembled an altar, composed of pebbles; on it was placed a little vase, in which some small stones and some rubbish lay, which were all as wet as if they were continually immersed in water. I did not learn its use; but perhaps it served to water the *Bamboo-tree*, which stood between the stones and the wall.

The 7th of November.

I WENT by water to *Sto-namm*, but was forced to take the interpreter, or *comprador*, with me; who greatly circumscribed my pleasure by being in such haste to return. I found no new things, except

Nyctanthes hirsuta.

Lycium barbarum, a shrub on the road.

Jussiaeæ

Juncæa repens, in a ditch, with a *Lemna*.

Carpesium abrotanoides, in a shady place.

The 9th of November.

CAMELLIA Japonica, (its Chinese name is *Fo-kai*), a tree which was carried about and exposed to sale in the streets. I bought one of a blind man in the street, which had fine double white and red flowers. But by further observing it in my room, I found that the flowers were taken from another tree, and one calyx was so neatly fixed in the other with nails of Bamboo, that I should scarce have found it out, if the flowers had not begun to wither. The tree itself had only buds, but no open flowers. I learned from this instance, that whoever will deal with the Chinese, must make use of his utmost circumspection; and even then must run the risk of being cheated.

I HAD a mind to see the situation of the environs of the suburbs, in that part where I had not yet been; and was forced to go by myself for want of company. As soon as I had passed the usual trading streets, the boys

gathered about me in thousands, throwing sand, stones, and dirt at me, and shouted all together *Akia, aque ya, quailo*; and with this music they followed me through the whole town. At the end of the suburbs begins a plantation with *Sagittaria bulbis oblongis* close to the houses. A large, low, clayey field was employed in the culture of this plant. And as I stopped here, and only gathered now and then a plant, my disagreeable company stopped their noise, especially when I turned to them. Here was no road which carried directly into the country, nor did I venture any farther; but returned whence I came. However, in the afternoon, I went out of town in a *palan-kin*, by this means avoiding my disagreeable forenoon companions. Returning again, I went on foot about the wall of *Canton*, on the side from the country, and there found *Chrysanthemum Indicum*, *Urtica nivea*, little clumps of *Fern*; and other plants between the stones, but they were out of my reach.

WHEN we came to the first city-gate, towards the side of the *European* burying-place, a *mandarin*, with a whip in his hand, joined us to accompany us about the city. Near this gate was a *Chinese* inn, where brandy and tea
were

were sold. The people stood by the side of the round-house on the wall, and stared at us; however, we got by without hurt, though not without fear, because we remembered that a person was some time before pelted with stones from this very place. When we approached nearer to the suburbs, we every where, and almost close up to the wall, found houses; they were all full of men, and especially children and youths, who sang their old song, of which they were put in mind by the grown people, if they did not begin it themselves. Yet we likewise found an old reverend man who had more sense than the others, and made his children or grandchildren greet us civilly. The persons of rank in this country teach their children from their earliest years the dictates of virtue and honesty, and spare no expences towards a good education: but the common sort of people train their children up with their dogs; for which reason neither of them can bear strangers. We afterwards passed by many gates, and over a little canal into a lane along the side of the wall, in which *China-oranges*, *Plaintains*, *China-olives*, or *Packia*, and many other fruits, were sold. An intolerable stench, and the noise and clamour of the populace, obliged us to make haste to the *Swedish* factory.

The 17th of November.

To-day I went to the ship, and afterwards to the *Danish Island*, on which some Chinese oyster-shells had been thrown.

Of these shells I have seen an entire wall of a garden made, on the other side of the river near Canton. The shells were in substance like ours; but larger, longer, and narrower at one end. The Chinese call them *O-a*, or *O-ha*.

The 21st of November.

CLOUDY sky, and drizzling rain.

ON account of the sands which are in the river, the *European* ships are obliged to go somewhat lower towards the mouth of the river, before they take in their full cargo; which we did to-day, after we had taken a pilot on board. We now anchored at *South-Haven*.

The

The 22d of November.

IN the fore-noon we went on further against the tide, as far as the first bank, or bear, as our sailors call the sands. In the afternoon we had an agreeable country, with villages and woods, on our left; but along the river side a narrow rice-field, and in the river two small islands. We sailed very near the most outward of the two, by means of the sampanes keeping always at an equal distance: but we afterwards steered off from it, as if we were going full upon a little house on the right, surrounded with trees: but before we had quite reached the middle of the river, we went strait on again, and were said to have passed the first sand. Somewhat nearer the *Lion-tower*, (which we saw on our right) we approached the shore on the left hand, in expectation of another sand. We lay at anchor all night.

The 23d of November.

IN the morning we passed the *Lion-tower*. We kept near the shore on the left, to escape

the third bank, which is said to be 1500 fathoms in circumference. Having got past the river which goes to *Little Canton*, by the help of 16 sampanes (whence the water for the voyage homeward is fetched with more conveniency than from *Bocca Tiger*, where the water-tubs must be rolled a good way in deep clay), we anchored not far from the great rice-field on the left ; where already two *French*, a *Danish*, two *Dutch*, and two *English* ships, were at anchor.

THE people brought an unpalatable fruit from the watering-place, which was almost round, larger than an apple, and contained great dry rhomboidal seeds, which grew narrower towards the bottom.

The 24th of November.

WE lay in a very bad birth here, and were exposed to storms and to the cold air of the sea. Here we learnt that though the *Chinese* winter is but just cold enough to produce an ice in the night, which is melted away in the day-time ; yet the air about this season is very sharp and piercing.

WE

WE were now almost as far again from *Canton* as in our first station, at least we were forced to pay a double price in order to go thither. It was not possible to go on shore, on account of the great rice-fields, which occupied both sides of the river. In these rice-fields we every day saw ducks, and great long-legged white birds, but they were too far off for us to know their *genus*. I visited the *Danish* ship, which was full laden, and had a far greater number of men than ours: the cabbin of the chaplain, *Lawrence Hercks*, was one of the finest and largest in the ship. This person told me, that the *Danish* sea chaplains had, besides their settled income, a considerable contribution from the ship's company; and that accordingly their income was reckoned treble to that of the *Swedish* chaplains. But they are sufficiently rewarded in our country if they can gain the love of their audience.

CHINESE *turtle-doves* were bought for our return, and we kept them alive a good while aboard the ship. Their characters are these: the *bill* is red: the *upper jaw* is the longest, and has a protuberance like a nail: the

tongue is triangular : the *body* and the *wings* below are ferruginous : the *head* and the *neck* are darker at the top : the *back* is marked near the wings with reddish yellow spots; but a little farther on it is red, verging towards black, where likewise two black lines run over the edges of the feathers : they have twenty-two *quill-feathers* whose coverts change from green to gold ; and eleven feathers in the *tail*.

The 27th of November.

To-DAY the *Danish* ship sailed for *Europe*. The *Danes* hasten their departure, but lose more time in the refreshments they take on their voyage. On their going to the *Indies* they choose an agreeable port which our ships pass by ; for they stop at the *Cape of Good Hope*, where they can purchase the finest wines at low prices, besides the pleasure of visiting a people who adorn their bodies with what would turn our stomachs but to hear of : I mean the *Hottentot* girls, who twist raw guts about their legs to shew that they are beauties ; and have many other strange customs, as travellers relate.

FOR want of other diversion, I described the following fishes, which were caught here :

Clupea

Clupea *Mystus*: the *membrana branchiostega* has ten rays: the *dorsal-fin* is oblong, directly opposite to the ventral-fins, and has thirteen rays, of which the first is the shortest: the *pectoral-fins* have seventeen rays, of which the seven upper ones are divided, and of such a length as to reach beyond the anus: the *ventral-fins* are oval, and have seven rays: the *anal-fin* has eighty-six linear rays, and reaches from above the middle of the fish to the tail: the *tail* is sharpened, and has thirteen or fourteen rays: on the *belly* are 43 little teeth (*denticuli*): the *body* is narrow, compressed, the hind-part decreases very much: the *upper jaw* is the longest, and ends in a prominent, serrated beak, shaped like a sword: the *mouth* is in the form of a rhombus, and large. The fish is of a span's length, and white.

Perca Chinenis. The *dorsal-fin* reaches from the head almost to the tail, is lower in the middle, and has thirty-six rays, of which the ten first are spinose, and the ninth is the shortest, and unarmed: the *pectoral-fins* have eighteen rays: the *ventral-fins* have six unarmed rays: the *anal-fin* has ten rays, of which the two first are spinose: the *tail* is oval, and has seventeen rays: the *mouth* is oblong, the
teeth

teeth are in the *branchiostegæ*. The fish has the outward appearance of the *Perca fluviatilis*, but is less. The *linea lateralis* is bent. The fish is pale yellow: the *lower-jaw* is shorter than the upper.

Clupea Thrissa. The *membrana branchiostega* has seven rays: the single *dorsal-fin* takes up the middle, and has 16 rays, of which the last is double the length of the rest: the *pectoral-fins* have fourteen rays: the *ventral-fins* have seven rays, and are very small: the *anal-fin* has twenty-four rays; it does not begin quite in the middle, and reaches to the tail: the *tail* is furcated, and has 24 rays: the *mouth* is large, oblong: the *lower-jaw* is the longest, and dotted with black towards the top: the *body* is narrow, white: the *denticuli* on the *belly* are thirty in number.

THE *Mandarin fish*, *Sparus nobilis*. The *membrana branchiostega* has three rays: the first *dorsal-fin* has four, and the other nine rays: the *pectoral-fins* have sixteen rays: the *ventral-fins* have six rays: the *anal fin* has twelve, and the *tail* twenty-four rays. The length of the fish is hardly a foot: the *body* is narrow, the *scales* are white: the *head* is egg-shaped, and round:

round: the *mouth* small, globose: the *upper-jaw* is the longest: the *eyes* are small, near the upper margin of the *mouth*: the *opercula branchiostega* consist of three bones.

Snow-white *Dolphins* (*Delphinus Chinensis*) tumbled about the ship; but at a distance they seemed in nothing different from the common species, except in the white colour.

THE next day I again went to *Canton*.

The 11th of *December*.

THIS day, which is the sixth in the eleven month of the *Chinese*, or *Shienghio*, is very remarkable among them; if it is clear, it foretells a good year to come; but when beginning with rain, they expect a sterility of crop. They bring sacrifices to their idols, in order to be preserved from the dearth. It was fine weather all the day along, whence they prophesied a plentiful year.

The 17th of *December*.

IN the forenoon I buried the Purser *Hubin*, who died yesterday of the dysentery. He was born

born in *France*, and brought up to the Roman Catholic religion : he afterwards embraced the *Lutheran* religion at *Gothenburgh*, and possessed great knowledge in both religions. He kept his good-humour on to a great age ; and indeed it never forsook him to his death. In the afternoon I gave him the sacrament, and immediately after he departed peaceably. To bury him, we passed the river to a peninsula, and afterwards through a great canal, over which many bridges were made, till we at last arrived at the burying-place, which had been bought for him in an inclosed place on the left. The *Chinese* took six *tale* for the grave. Near the burying-place was a number of coffins above the ground, as I have already remarked elsewhere.

THE mob was very riotous, and we made haste to finish the service. Afterwards we went to the aforementioned *pagode*, which lies on the other side of the canal, in *Honang*. In the fields hereabouts were little holes here and there, in which seeds were put and covered over with ashes. A spot, on which according to the account of the *Chinese* a medicinal herb was planted, was covered with mats, which were expanded a yard high above the ground.

ground. This plant was as yet so small, that I could not tell whether it was or was not the *Amaranthus tristis*. I was shewn, but at a great distance, how the high fields about *Bocca Tiger* were green with a plant out of whose seeds the Chinese press their oil, which they call *loam*. It is said they have a trick of boiling the seed before they sell it. It is most probably *Sesamum*. We visited their sail-cloth manufacture of *bambou* splints on which *bambou* leaves are laid. They call it *Tiock-yee*. The ropes are likewise made of *bambou* threads. Here also was a place where both great and small boats were built ; and rudders, and several mills to grind rice, &c. were made. On the fields the *Poa Malabarica* was growing ; and near the pales and enclosures a sort of reed, which the Chinese call *Luta*, and looks like *Arundo donax*. I at last got for a piastre twenty-five kinds of pot-herbs.

The 21st of December.

I AGAIN returned to the ship, and met the ship chaplain *Toreen* in the bancshal ; he had buried a sailor on the *French Island*, who died of a pain in his side aboard our ship.

SCOLOPENDRA

SCOLOPENDRA pedibus utrinque viginti was here found near the bancshal.

THE ships prepared for their voyage home, except the *Dutch* commodore ship, which was to stay till *March*, and bring the ships accounts into order.

The 25th of December.

CLEAR, calm weather.

OYSTERS, which the *Chinese* called *Hao*, were sold quite fresh to us. It was a different species from those whose shells have been aforementioned; they were rounder, five or six, or more of them grew together, and are extremely difficult to open: for the purpose of opening, the *Chinese* always have a proper piece of iron about them when they sell *Oysters*. Some of them were fastened to great stones, and on them the *Sertularia confervæ formis* was fastened. It was plainly visible that they came out of a clayey bottom. They were very like our oysters, but larger, in particular the animal in them; which the *Chinese* take out,

out, put into water, and thus sell them to their countrymen without the shell.

SPARUS *Chinenis*, or the *Little mandarin fish*, which is like the *Sarfe* (*Cyprinus Erythrophthalmus*) were here caught in plenty, and by the Chinese called *Kya-yo*. The following is its description: the *membrana branchiostega* has five rays: the first *dorsal-fin* has four simple rays, of which the hindmost is quite soft; this fin has a lanceolated appendage on each side: the second *dorsal-fin* is not armed, has eleven divided rays, and is of the length of the former: the *pectoral-fins* have 14 rays: the *ventral-fins* have six rays, they have on both sides and in the middle a soft appendage: the *anal-fin* has twelve rays: the *tail* is furcated, and has sixteen and more rays: the *head* is narrow, flat; the *mouth* is small; it has no teeth: the *eyes* are near the mouth: the *irides* are white: the *body* is narrow, and lanceolated: the *linea lateralis* does not appear: the *back* is blue, and the rest white: the *opercula branchiostega* consist of two entire leaves. The length of the fish is scarcely a span. The *scales* are white rhombs.

Gobius Eleotris, by the Chinese called *Sinn-has*, is a greenish, almost round fish, which is somewhat less than the preceding. The *membrana branchiostega* has five rays: the *dorsal-fins* have from six to eleven rays: the *pectoral-fins* have eighteen rays: the *ventral-fins* have eight rays, and are joined together into one infundibuliform fin: the entire tail has twelve rays: the body is almost round, covered with little rhomboidal green scales: the lower-jaw is the longest: the teeth are fixed in four rows in the mouth, are small and very sharp: the eyes are in the upper part of the head.

The 27th of December.

IN the afternoon I went in the floop along the shore, and passed by the *Lion-toiver*. Here was a great mountain on the shore where a reddish sand-stone appears, which is here squared, and afterwards sent to *Canton* and other places hereabouts for coffins, flags, stone-dykes, walls, &c. The workmen had erected a number of little houses in the quarry, which made the mountain on the side towards the sea look like a little town. The mountain was covered

covered with *Chinese* (as an ant-hill is with ants) from the top to the bottom. At the summit was a little redoubt, and paved roads led towards the shore. On the fields where rice had been growing, some shallow furrows were made to keep the fishes back in them when the water ran off. I would have landed with the sloop, but it was out of my power. One might have made a pretty collection of fossils here. We were astonished to see that the *Chinese*, who had put their nets into the water, shot continually without aiming at any thing : but upon enquiry we were told that they were forced to watch their fisheries continually, and to frighten away the ducks, who would else empty the nets sooner than men could. I never saw such fearless and numerous flights of ducks as here : one flight after another came, notwithstanding the noise that was made on all sides, and endeavoured to settle near the nets ; but were always hindered in the above manner : these wild ducks were not quite like ours, as will appear from the following description :

*Anas (Chinen sis) regione oculorum maris vi-
ridi.* The male : the wings have about twenty-eight quill-feathers, of which the first ten

are the longest, and ash-coloured; their upper margin is black, and the ground grey: the four or five next are ash-coloured, with green upper margins and white bordered tops: the four hindmost ones are longer than those in the middle, and ash-coloured: the greater coverts are white on the margins of the upper side; the rest are ash-coloured: the eleven *tail-feathers* go tapering, have white borders, and are grey at the bottom: the *bill* is of a blackish grey, and soft: the *upper mandible* covers the lower: the *teeth* in the margin of the lower *mandible* are lamellated: the *head* is brown like the chin: a white line passes below the eyes: all about the eyes is green: the *neck* and the fore part of the *back* are covered with white feathers, spotted with black: the hindmost part of the *back* and the *uropygium* are ash-coloured: the *feathers* which cover the upper part of the *neck* are white, with black spots: the black feathers covering the *uropygium* have white borders: the *breast* and the *belly* are white, and spotted with black backwards: the *feet* and *legs* are ash-coloured: the three *fore-toes* are joined; the *hind-toe* is free: the *membranes* have crenated edges: the *female* is covered at the top with black feathers, but at the extremities with reddish white ones; it is

is white below, with black spots: the chin is white: the head and all about the eyes is of a whitish grey: the quill and tail-feathers are almost the same as in the male. The Chinese call this sort of ducks *Hina-ao*. There is another sort of ducks to be met with at *Canton*, which is called *Kong-ao*, but this I have not seen.

THE bird which the Chinese make use of for fishing is represented in several voyages, and is here called *Lou-foo*^a; but no author has given a full description of it: I offered a reasonable reward to any one who would procure me such a bird for a short time; but in vain, though this way of fishing is said to be used in *Macao*. According to the representations of this bird in the books of travellers, it must be very like the *Man of War* (*Pelecanus aquilus*). They describe the fishery to be performed in the following manner: the fisherman fastens an iron ring about the bird's neck, so that it may not swallow any fishes: on the ring is a rope with which the bird is held: As soon as a fish is observed about the boat, the fisherman tosses the bird into the water, who imme-

* In the Ambassade de la C. O. des Provinces unies, p. 172. t. 173. it is called *Louva*.

dately does its duty, and then is pulled up with the fish in its bill. This method of fishing is very expensive. Its price is settled, and is said to amount very often to fifty *tale*. Besides this, the fisherman pays a certain sum of money as an annual contribution.

1752.

The 1st of January.

HAVING taken in our cargo in porcellane, tea, silk, &c. according to the following account, and provided ourselves with water for our return as far as Java, we yet took in this day some Chinese potatoes, turneps, yams, carrots, leeks, cabbages, and other garden stuff.

Bill of Lading.

Teas.

1,030,642 pounds of *Bohea-tea*, in 2885
chests.

96,589 lb. *Congo-tea*, in 1071 large, and
288 lesser chests.

67,383

67,388 lb. *Soatchoun-tea*, in 573 large and
1367 lesser chests.

17,205 lb. *Pecko-tea*, in 323 chests.

6,670 lb. *Bing-tea*, in 119 chests.

7,930 lb. of *Hyson-Skinn-tea*, in 140 chests.

2,206 lb. of *Hyson-tea*, in 31 tubs.

3,557 lb. of several sorts of tea, in 1720
canisters.

Silk Stuffs.

961 Pieces of poisies damask.

67 Pieces of ditto, of two colours.

143 Pieces of damask for furniture.

673 Pieces of fattin.

15 Pieces of fattin, of two colours.

16 Pieces of ditto, coloured flowers.

681 Pieces of paduafoy.

192 Pieces of gorgoron.

1,291 Pieces of taffety.

16 Pieces of lampasses.

5,319 Pieces of yellow cotton *Nankin* stuffs.

5,047 lb. of raw silk, in 33 chests.

Sundries.

35,314 lb. of *Galanga* roots.

6,359 lb. of *China* roots.

2,165 lb. of mother of pearl.

- 6,325 lb. of thin canes for hoops.
 10,709 lb. of sagoe.
 4,171 lb. of rhubarb, in 24 chests.
 9,314 lb. of painted paper.
 1,250 Pieces of flowers, &c.
 3,400 round jettoons of mother of pearl,
 140 in each set.
 62 ditto, 10 in each set.
 108 japaned play-boxes, with mother of
 pearl jettoons.
 18 japaned tablets, or boxes for a toi-
 let.
 10 japaned tablets.
 6 tons of arrack.

Porcellane.

222 chests, 70 tubs, 52 lesser chests, and
 919 packs.

THE ship was twenty-one feet ten inches
 behind, and twenty feet five inches before, in
 the water.

The 4th of *January*.

AFTER a stay of four months and ten days
 in *China*, our ship and the other *Swedish* ship
 began

began their voyage home. Every one leaped for joy, and my *Tea-shrub*, which stood in a pot, fell upon the deck during the firing of the canons, and was thrown over-board without my knowledge, after I had nursed and taken care of it a long while on board the ship. Thus I saw my hopes of bringing a growing tea-tree to my countrymen at an end; a pleasure which no one in *Europe* has been able as yet to feel, notwithstanding all possible care and expences. Some have brought tea-nuts as they get them from the *Chinese*; but in case they could get them fresh (which I very much doubt), they are spoiled on the voyage: others have bought tea-shrubs in pots, which they commonly get in flower just before their departure from *China*, but they withered about the *Cape of Good Hope*.

If the *Europeans* were themselves allowed to go into the tea-woods, and to gather there such seeds as are neither too dry nor unripe, nor boiled, they might be kept in any thing; but without this they can only get shrubs (in the factories) in little flower pots, with too little earth, or with such as is not fit for their tender roots. The tea-shrub would doubtless habituate itself to our climate; but if we want

to receive the benefit of it, we should first learn to prepare tea, which may turn out more difficult than we have hitherto imagined; for some prepare tea so ill even in *China*, that it does not taste so well as one of our *Swedish* teas. But, supposing we knew the best method of drying it, we could never sell a pound of home-made tea so cheap as the *Chinese* tea, while *Sweden* has not proportionably the same number of industrious inhabitants as *China*^b.

AFTER we had sailed a good way, we saw a great mouth of the river opening into the sea on the right; but we sailed to *Bocca Tiger*, whose castles were situated on the naked hills of two islands, about which only some trees were planted. They were exactly opposite to each other. That which is nearest to the continent is the highest,

IN the evening we cast our anchor along with a *French* ship bound for *Macao*.

^b Dr. *Linnaeus* has had since (the 3d of *October*, 1763,) a fine tea-shrub brought him from *China*, by Captain *Carl Gustav. Eckeborg*, which is, as far as we know, the only one in *Europe*. F.

The 5th of *January*.

IN the morning we weighed our anchor, and soon after passed the sands at *Bocca Tiger*, where we found ground at four fathoms depth, in high water,

The 6th of *January*.

CLOUDY sky. Fresh gale.

THE pilot left us. We directed our course from the great *Ladrone Island*, to the *English Sand*, and afterwards to the island of *Zapata*, which the *Portuguese* call a *Last* on account of its form.

THE *Monsoons* are constant winds which blow for half a year together in the *East Indian sea*, and they were now N. E. and sometimes varied a degree or so on either side. They continue N. E. all *November*, *December*, *January*, *February*, and *March*, with dry weather. In *April* and *September* they turn about, and at that time the most frightful storms blow from all sides. The worst of all is that which the
Chinese

Chinese call *Taifun*; for (as I have been told by a *Swede* who had been in the *East Indies*) it continues often for twenty-four hours together with such violence, that nobody is able to walk up and down, but is as it were confined to his place. At least it is always reckoned the worst hurricane which can possibly happen on a voyage to the *East Indies*. In *May*, *June*, *July*, and *August*, the wind is always southern hereabouts, and generally attended with rain.

The 8th of *January*, 15°. 45'. N. L.

THE *English Sand* had thirty-six fathoms of water. The ground was red sand, mixed with corals.

The 10th of *January*, 10°. 38'. N. L.

CHANGEABLE weather, sometimes clear, sometimes cloudy. The wind blew hard, and the sea was very boisterous. About four o'clock in the afternoon we had the island of *Zapata* west.

Sterna nigra, fronte albicante, caudâ cuneiformi, (*Chin. Lagerstr. 9.*) was here caught. It had

had twenty-seven quill-feathers and eleven tail-feathers, and was of the size of a jack-daw.

The 11th of January, 8°. 11'. N. L.

GENERALLY clear sky. Fresh gale.

WE thought we passed *Polo Candor* in the morning dawn, at least we did not see it this time. (*Polo* is the Indian name of an island.)

The 15th of January.

CLOUDY, changeable, rainy weather, which was looked upon as very uncommon in this latitude.

THE *Isle of Lingen* (which is exactly under the equator) we passed the night before. Though this place is very hot, yet it is not sufficient to produce men without parents, as a *Pagan* writer from the island of *Wack-wack* relates. See *Bayeri Comment. de Orig. Sin.* 278. *Polo Toya* was on our right in the forenoon. At noon we had the seven islands on our left, two of which are higher than the rest. Near the first high island there seemed to

to be another small one: but perhaps it is not separated from the other.

The 16th of January.

GENERALLY rainy and inconstant weather.

THE last night we anchored in the *Straits of Banka*, near the shores of *Sumatra*, where the river *Palimbanka* discharges itself in the sea, after we had, the night before, passed by *Monopin*, or the last high mountain on the island of *Banka*, opposite *Sumatra*.

FREDERICK-Henry, a rock hidden under the water, (which has formerly been the ruin of many ships) was passed very happily.

ABOUT noon we saw the third (but counting from *Canton* the first) *Cape on Sumatra*, covered with the finest and scarcest trees, so that it looked as if the whole country consisted of a cut garden-hedge. The most outward were probably *Indian canes*, and the rest some kinds of *Palm trees*. The country appeared finer at this distance than I am able to describe. The people were described to me as assassins; and

and it was believed that in every bush were crocodiles and other hurtful animals : but if I should have met lions and tigers, I must nevertheless have wished myself on shore, had it been but for an hour. But we steered towards *Salari*, a mountain on *Banka*. And after we had likewise passed the second neck of land, we cast anchors at night.

The 17th of January.

TO-DAY, excepting the morning, we had fine clear weather, but little wind. We began to sail very early, as did the other ships, which we left near *China*, but joined here again. At noon we passed the isle of *Lucipara*: the passage for great ships between *Sumatra* and this island is very inconvenient, because there is but three and a half fathom of water on the sand bank ; but as soon as you are got by, and have *Lucipara* (I speak as coming from *China*) N. E. you are then out of danger.

The 18th of January.

AFTER eight o'clock in the morning we had the *Two Brothers* on the left, quite near us.

This

This is the name of two islands covered with trees, between which the water is said to be so low, that not even a little boat can pass.

WE here observed considerable breakers.

ABOUT four o'clock in the afternoon we had *Toppers Hat* and the high woody shore of *Bantam* on the left; but somewhat farther on, about six o'clock, we had the *Hat of Brabant*, a little woody rock, on the same hand: and directly opposite to it, on our right, a long, narrow island, which is called *Across the Way*.

The 19th of January.

AFTER a fortnight's voyage from the *Ladrones*, we anchored about noon in the *New-Bay*, the usual harbour; and we took as much water from *Java* as would suffice for the whole voyage. In the afternoon I went in a boat on shore near the place whence we took in water. It is difficult to reach the shore, because the ground is so full of corals (*Millepora Javanensis*), that we were obliged to leave the boat a good way behind us, and the people got out and waded up to their breasts in water, and with difficulty carried me to the shore on their

their shoulders. The country here is very high, and the water which comes hither from the fens in the wood runs roaring into the sea. The sailors fix a leatheren spout which reaches to the boat, and thus fill their tubs. The wa-
ter itself was pretty good, and in my opinion the best I ever drank on my voyage. The soil on the shore consists of a fine whitish grey sand, in which all sorts of corals, such as *Madrepora organum*, and *Star-stones (Millepora)*, and likewise *Cowries (Cypræa)* and other shells, were to be met with. But I left all these and went into the forest with the carpenter, who looked for some timber for his purposes. We kept close together, because we were in danger of not meeting again in case we had separated. The forest was so close, that we passed through with great difficulty ; and the cries of birds, and lizards, and other noises, would not permit us to call to each other. In some places it was so wet, that I followed my companion with reluctance, for it rained about this time every night and forenoon, and sometimes even all the day long. The excessive high but slender trees make the forest dark ; and a quantity of *Palm* trees of six yards high, whose leaves were prickly, tore our cloaths, nay even the

skin off our hands and faces. This little *Palm* tree is

Caryota urens Linn.^c) *frondibus bipinnatis, aculeatis, foliolis cuneiformibus, rotundato præmorsis.* I did not see the parts of fructification, and therefore am not quite certain of the genus. The *frondes* are, as in the *Caryota*, bipinnated and whitish below: the *leaves* are opposite, almost oval, plicated; the upper margin as it were lacerated: the *petaoli* are covered with many opposite, hamated spines, not only at the beginning of the *foliola*, but even at the second and third pair of them.

ANOTHER sort of little *Palm* trees^d (*Calamus Rotang* Linn.) was likewise in our road. The stem was without branches, had a crown at top, and was every where beset with straight spines. This is the true *Indian cane*, which was not visible on the outside; but the bark being taken off, discovered the smooth stick, which has no marks of spines on the bark, and is exactly like those which the *Dutch* sell to us, keeping this matter very secret, lest travellers going by should take as many canes as they want out of these woods. *Sumatra* is said to be the place where most of these sticks

^c *Javanica*. Osbeck.

^d *Palma Baculus*. Osbeck.

grow.

grow. I took two to try them, but left them behind during my voyage. Such plants ought to be chosen as are of a proper growth between two joints, suitable to the fashionable length of canes as they are then worn: but such are scarce. I do not know that any one before has given an account of the *Indian* canes while they are growing.

AFTER we had got a good way in this forest, which is reckoned so dangerous on account of tigers and other beasts of prey, my honest carpenter, having tried several sorts of wood, at last met with a long naked stem, which he felled. The timber of the tree was of a fine yellow colour, at least while it was newly cut. I looked for the parts of fructification in this felled tree; but these not appearing, I could not ascertain it. On its bark grew,

Hypnum Javanense.

Lichen pulverulentus viridis et albus, and

Asplenium Nidus; this formed a sort of cup in the angles between the branches, in which the birds made their nests.

CALAMUS *Rotang (varietas)* is a little slender tree without branches or twigs, winding about

the high trees near it, even to their tops, and tying them as it were together. I saw here a tree with eight branches, each of which (being of the thickness of a finger) bent down and formed roots, by a natural direction, unassisted by art. These branches were beset with ensiform leaves; but I found neither flower nor fruit on the tree.

THE *Sio-lock-tao* of the Chinese was twisted round the trees. On an unknown tree, which had no flowers at that time, I saw a fruit both in colour and shape like *Hips*.

LITTLE *Palm* trees, whose fruit was like the *Nux vomica*, with green or brown shells, grew not far from the shore. In the same place I found a plant resembling the *Alpinia racemosa*, together with many other uncommon trees and herbs, which I could not ascertain, because I could find no parts of fructification.

EPIDENDRUM *amabile* grew on the branches of trees on the shore. This plant hath great white odoriferous flowers, such as I never observed before. I had this plant lying in my room for some days together; but the flowers did

did not wither, and filled it with the most agreeable smell. On the *Isle of Ternate* none but princesses are allowed to wear this precious flower, which is but too scarce². The shape of it is as follows:

The *corolla* is pentapetalous; the three exterior *petals* are oblong: the two interior ones are roundish oval, expanded; the upper lip of the *nectarium* is shorter and inflected; the lower is pinnatifid and inflected; it has four *laciniae*, of which the two greater ones are obtuse at the bottom, but the two others are very small and sharp: the gland at the bottom of the *nectarium* is bifid, yellow, with little red dots: the point of the *lower-lip* has two filiform appendages: the *roots* are numerous, soft, flat, and stick to the barks of trees. It has only three *leaves*, which stand at the root, are undivided, and without nerves, almost falcated: the *stalk* is undivided: the *flowers* are alternate at the top.

PAVETTA *Indica*, a little tree, which was not far off the watering-place.

JASMINUM *azoreum* grew below the high trees.

² *Rumph.* Herb. Amb. *Angræcum alb. majus*.

HIBISCUS *populneus*, a tree with fine great flowers, stood below the aforementioned plant. Its leaves were somewhat soft beneath, and had stalks which were reflected: the bractæ are round: the outward calyx is short, divided into eleven parts; the inner is quinquefid, six times longer than the outer: its leaves are lanceolated,

THE shore was almost every where covered with corals, especially *Madrepores* and *Coral-organs*; besides these, petrified sponges (without stalks) and shells were to be met with. But the trees (which in most places hung over the water) did not afford us a free passage.

THE Hermit crab, or *Cancer Eremita Javanica*, was found in a shell. Its left claw was larger than the right, but it is however a different species from our common *Cancer bernhardus*.

LICHEN *marinus*, Clus. Hist. p. ccl. was in plenty on the shore.

NIGHT obliged me to break off this agreeable employment sooner than I could have wished:

wished: and having seen the trees with many branches, from which a number of roots hung down perpendicularly, near the watering-place, I was forced to go on board again with the boat. Here I found two scarce fishes, which a friend of mine had got for me, that I might put them into spirits. They were:

Chætodon saxatilis? a yellowish flounder-like fish, with broad black transversal *fasciæ*: the single *dorsal-fin* is low, and reaches to the tail: its thirteen *foremost rays* are prickly, the remaining twenty-six are longer, have a black stripe below, and likewise black tops: the *pectoral-fins* have sixteen rays: the *ventral-fins* have six rays: the three first rays of the *anal-fin* are prickly, but the other twenty have black spots, which taken together make a narrow stripe: the *tail* is entire, and has twenty rays: the *body* is broad and compressed, with quadrangular scales: the *opercula branchiost.* are scaly.

Sparus Spinus was like a sort of dried fish which we bought at *Canton* for our voyage. The *dorsal-fin* reaches from the head to the tail, and has twenty-four rays, of which the thirteen *foremost* are prickly and shorter: the *pectoral-fins* have fifteen rays: the *ventral-fins*

have five rays, of which the two extreme ones are prickly: the *anal-fin* begins at the middle of the fish, and goes to the tail, and has fifteen rays, of which the first seven are prickly: the *tail* is bifid, and has eighteen rays: the *sides* are grey, except towards the belly, and have a bent lateral line: the *belly* is white: the *lips* are soft: the length of the *body* is a span.

THE Javanese brought the following things to sell on board our ship: apes, shells, Turkish corn, and

JAVA deer (*Cervus Javanicus*). The *upper primary teeth* are wanting: of the inferior eight lower the two middle ones are three times broader at the ends than the rest: the three *cutting teeth* on the *sides* are pointed: the *upper-jaw* has a sharp canine tooth on each side, which is of the length of the cutting teeth; therefore this animal is not *Capra perpusilla*, *Mus. Reg. Suec.* p. 12. I have seen the buck and the doe, neither of which had horns, though our sailors assured me they have seen them with horns. Of the nine grinders the six inner ones are double, and the three exterior ones are laciniated (*lobati*^b). This

^b The feet of this species of deer are sometimes set in silver, and used as tobacco-stoppers.

species of deer equals a new-born lamb in size. The colour is a reddish brown. The buck (whose head I have now been describing) is larger than the doe, and has white stripes on his sides which run longitudinally. They lived upon fresh blades of rice, which we sowed in pots for that purpose.

It has been said that *Parrot fishes* were to be found hereabouts, but I never was so happy as to get one.

The 20th of January.

A HEAVY rain kept me from going on shore in the forenoon ; but in the afternoon I went to the little uninhabited island called *New Island*, (see vol. i. p. 131.) which was a good way off our ship, and near *Java*. We landed at a little brook, in which our people washed their linen. Formerly, as the ship *Ritterhouse* was on her voyage to *China* she came too late to *Java*, and the contrary monsoon being already set in, she was obliged to stay here till the wind changed. During that time the sailors built huts on this island, and cut the year of our LORD 1743 on a good many trees, as we

observed in several places. The bottom of the sea, which was at the depth of two fathoms, more or less, was full of sharp ramosè corals. On the shore were to be met with coral-stones, coral-organs, *hippuris saxeæ*, and several shells, most of which were spoiled and worn away by the water. Among the shells were principally *cypreaæ*, *harpago 5 cornibus*, (*Strombus Chiragra* Linn.) and others.

I ADVANCED somewhat further on the island, and saw the *Plantain-tree* (*Musa Paradisiaca*) growing spontaneously, and the monkeys jumping from one tree to another, as squirrels do in our country. The continual cracking noise which I heard was, as our people said, made by a sort of lizards, of which I could not procure one specimen.

SEVERAL butterflies flew about me; but my eyes were fixed upon the *Flora*. I went along the shore because the woods appeared too crowded for me, and observed the following scarce trees:

Sophona alopecuroides, a little tree with a soft stem.

Morinda citrifolia.

Guettarda

Guettarda speciosa, a rameous tree with odorous flowers. The *calyx* is cylindrical, with an almost entire margin: the *corolla* is monopetalous: the *tube* cylindrical, longer than the *calyx*: the *limbus* is divided into seven oblong *laciniae*: seven short *filaments*: the *antheræ* are longer than the filaments, and of equal thickness: the *germen* is almost round: the *stylus* is filiform, longer than the *stamina*: the *stigma* is shaped almost like an egg. The *fruit* is nearly round, and contains many nuts: the *branches* of the tree are quadrangular, with dots, and horse-shoe-like spots.

Lobelia Plumieri is a little tree which stood on the shore, and had the following characters: the *calyx* is very short, quinquefid: the *segments* of equal breadth, and equidistant from each other: the *corolla* is monopetalous, on one side split open down to the bottom, four times longer than the *calyx*: the *tube* is cylindrical, hairy in the insides, longer than the *limbus*, hiant on one side: the *limbus* is quinquefid, hairy, with lanceolated *laciniae*, which are curled up on the margin; the middlemost is the thickest: the five *filaments* are filiform, fastened to the *receptaculum*, and of the length of the *pistillum*: the *antheræ* are oblong,

long, narrow, and surround the *stigma*: the *germen* is egg-shaped, pentagonal, compressed, and below the flower: the *stylus* cylindrical, of the length of the filaments, bent so as to incline through the incisions of the *corolla*; the *stigma* is scyphiform, and hairy: the *nut* is almost round, and of the size of a pea: the *tree* has wrinkled and hanging branches, and grows on the sea-shore. The *leaves* are inverted-oval, mucronated, smooth, without incisions, almost without nerves, petiolated: the *stalks* of the leaves are of equal thickness all the way: the *flowers* are white, and axillar.

Crinum Asiaticum with its glorious white flowers, enriched the sandy shore. I brought both the *plant* itself in a flower pot, and the *bulbs* or roots of it preserved in sand, to Sweden.

Corypha umbraculifera was likewise growing here. Of this the great round fans are made, with which the mosquitoes or gnats are expelled in *China*.

Cordia Myxa flowered on the shore: the *leaves* are oval, petiolated, without incisions, alternate: the *tree* is very ramoso: the *branches* are

are wrinkled, round: the *flowers* are yellow, and stand in *corymbi* at the top.

Phytolocca Javanica, a large tree on the shore, whose leaves are smooth, but its branches villose: the *calyx* is wanting: the *corolla* is monopetalous, quinquefid: the segments are oval, very small: the ten *filaments* are bent at the top, fastened to the receptacle, and longer than the *corolla*: the *antheræ* are almost round: the *tree* is very ramoso: the *branches* and *leaf-stalks* are woolly: the *leaves* are broad, lanceolated, petiolated, without incisions, smooth, and have seven nerves: the *flowers* are corybose and small.

Flagellaria Indica. Its *boughs* twine about other trees, as the stem is no thicker than a tobacco-pipe, but generally some fathoms long: the *calyx* is monopetalous, bidentated, very short, on the outside of the flower: the *corolla* is monopetalous, oval, globose, and closed up: the *filaments* are short, filiform, fastened to the receptacle, the *antheræ* are oblong, erect, and longer than the filaments: the *stylus* is single: the *stigma* obtuse: the *flowers* grow at the extremities in bunches like grapes (*Corymbi*): the *stalk* is round, ramoso:

the

the leaves are alternate, arundinaceous, scarcely petiolated, and end in tendrils.

Convolvulus pes caprae grew in the sand by the water side.

Chiton marginibus dorsi spinosis was found in the sea by a sailor.

We weighed anchor; but were forced by the contrary wind to cast again not far from the first place, namely near

Prince Island, which is larger than *New Island*. It has been said, that a petty prince, master of this island, lives on it, and that he formerly used to visit the ships, and was satisfied with trifling presents. In the afternoon we went on shore near a little river, where we could take in water, which however is not so good as that in *Java*. I did not observe any mountains here, nor on *New Island*. On the river we found a little hut, which our people believed to be built by some *Englishmen*. We pressed into the woods, but were forced to turn back to the shore, where the great trees (which hung quite over the water) likewise greatly opposed my passage. On those trees I found two species of ferns, one of which was

was *Polypodium Parasiticum*. But I lost both while I was carried back over the river. On the trees grew:

¶ *Lichen pulverulentus viridis et albus*, and under it,

¶ *Boletus caulescens, coriaceus, pileo cinereo et rubro.*

Calla Javanica foliis lanceolatis, and

Amomum Zerumbet, or wild ginger; of which I made the following description: the *calyx* is wanting, instead of it are two egg-shaped *bracteæ*: the *corolla* is dipetalous: the two *filaments* are short, filiform: the *antheræ* are long, of equal breadth, and fastened to the side of the *corolla*: the *germen* is cylindrical and short: the *stylus* filiform, longer than the *stamina*: the *stigma* is oblong: the *capsula* is egg-shaped, oblong, flat on the inner side, obtuse on the outer, triangular, multilocular, full of juice, white: the *seeds* are egg-shaped, narrow, red, covered, and about six in number: the *plant* grows on shady shores: the *root* is like that of ginger, and has long fibres: the *stalk* is round with obtuse *bracteæ*, which stick very close to it: the *flowers* and *fruit* make an oval catkin (*amentum*): the radical leaf

leaf is pinnated, with lanceolated, entire *folia*.

MAMMEA *Asiatica*, a great tree, generally stands on the shore and hangs over the water. Almost every tree, particularly this, was full of great black ants, for which reason I could not easily mount the branches; however I was forced to do so, before I could make the following description:

The *calyx* is biphylloous, with great, oval, concave, persistent leaves, which include the *corolla*; this consists of four oval, closed petals, which are deciduous at the same time with the filaments, and are like them longer than the *calyx*: the *filaments* are numerous, filiform, bent, shorter than the *stylus*, but longer than the *corolla* and the *calyx*, and at the bottom joined with the petals: the *antheræ* are almost round and small: the *germen* is below the *corolla*; it is obovated: the *stylus* is very long: the *stigma* pointed: the *tree* is very ramose, and bends down with its top: the little *branches* are round: the *leaves* grow in bunches at the extremity of the little branches; they are entire, without stalks, smooth, carnose or pulpy, somewhat crenated

at

at the top, and have alternate transversal nerves.

HERNANDIA sonora. Of this great remarkable tree I only saw two on the shore. It affords a sure antidote against poison, if you either put its small roots on the wounds, or eat them; as was discovered to *Rumphius* by a captive woman in the war between the People of *Macasar* and the *Dutch* in the year 1667. The soldiers of the former always carry this root about them, as a remedy against wounds with poisonous arrows. The *leaves* of this tree are thick and smooth. Another tree like this, which likewise grew here, had not such thick and smooth leaves.

MELIA Parasitica, a little plant of scarce a finger's length, grew on the stems of the trees. It is so scarce, that, as far as I know, it has never been noticed before. The *calyx* is monophyllous, tridentated, cylindrical, and is half the length of the *corolla*: the *corolla* is monopetalous, cylindrical, quinquefid, with oblong *laciniae*: the *nectarium* is bell-shaped, obtuse on the margin: on the inner side of the margin ten extremely small filaments are situated: the *antheræ* are almost quadrangular: the

the *germen* is cylindrical, pentagonal: the *stylus* is pointed below, and villose: the *stigma* elevated: the *flowers* grow in the form of a bunch of grapes. The plant had little leaves.

AFTER so short a visit on this excellent isle, I was forced to go on board again, to wait for a fair wind that might forward us on our voyage.

The 22d of January, 8°. 34'. S. L.

RAIN.

EARLY in the morning we sailed from Prince *Iland*, and in the afternoon left *Java* out of sight.

The 26th of January.

VERY rainy weather. Almost calm. We caught two *bonets* (*Scomber Pelamis*). Its two *pectoral-fins* were put upon a fishing-hook, to represent a likeness of a flying-fish, which the *bonet* often pursues with all its might, and frequently jumps up very high above the water.

The

The 27th of January, 10°. 38'. S. L.

CLOUDY and rainy weather.

CAMELLIA, which I had in a pot, began to open its flower buds. *Obs. Gemmæ axillares, conico-imbricatæ, foliola gemmæ ovata, obtusa alterna, imbricata. Foliatio equitans.*

The 28th of January, 12°. 35'. S. L.

ALMOST all the day fine weather ; and contrary wind.

FOUR dolphins (*Coryphaena Hippurus*) appeared near the ship. This fish looks like the salmon, but has a colour which changes from blue to green in the water. It was thought to be the best fish that we had caught during the voyage.

The 29th of January, 13°. S. L.

CLEAR weather. The trade-wind was just now beginning.

WE discovered a whale in our neighbourhood, by its throwing up the water.

The 3d of February, 15°. 44'. S. L.

LARVA fenestrata, which I found the 13th of September of the past year on the *Croton sebiferum*, and which changed a second time the next following night, now got out of its grave, where it had been near five months, and became *Phalæna Atlas* Linn. as far as I could see, though it was very ill shaped.

DERMESTES subrotunda atra was busy in eating the *Deontsai*-feed which I bought in China. As soon as it had eaten the kernel, the empty husk just fitted it: and accordingly I found some time after each of them dead in its husk.

The 6th of February, 18°. 50'. S. L.

CLEAR weather. Fresh gale.

I HAD no thermometer; but the leaves of *Camellia* and of the *Baiatas* shewed that it was colder

colder here than in *China*. The accounts of seamen of a greater degree of cold at the south pole are pretty probable.

The 8th of *February*, 20°. 47'. S. L.

A FLYING fish was now and then observed in these parts.

The 11th of *February*, 22°. 54'. S. L.

CLEAR weather. Temperate wind.

A LIZARD had accompanied us from *Canton*, and was now found in a cabbin. It was *Lacerata (Chinenfis) cinerea, caudâ ancipiti, corpore paulo longiore, pedibus pentadactylis omnibus unguiculatis*. The head is flat, shallow, oblong, even: the eyes are covered with a skin, which at its transversal opening has in the middle three gold coloured points opposite to each other: the nostrils are round, largest near the snout, one on each side: higher up are three less ones on each side; and besides these are a good many less holes near the eyes: the teeth are numerous, small: the tongue is flat, obtuse, crenated in the middle; the body is

F 2 broad,

broad, flat, with compressed sides: the *back* is covered with blackish and whitish elevations: the *anus* is transversal: the *tail* is a little longer than the body, has two sides, is compressed, and has yellowish scales, which are here and there on the sides: the *fore* and *hind feet* have five toes, are divided, and all the toes have hamated nails: the *fifth toe* is the shortest; all the toes are webbed below, and the webs fit cross-ways: the upper side of the body is ash coloured: the *tail* has eleven black spots: the *belly* is white.

The 13th of February, 24°. 7'. S. L.

CLOUDY sky, rainy, inconstant weather; and afterwards a uniform wind.

THE water which we had taken with us from Java was now full of sea *Millepedes* (*Onisci*), which skipped about in it like young frogs.

THE bulbs of the *Crinum Asiaticum*, which I had put into a flower-pot at Java, now began to shoot leaves.

The

The 17th of *February*, 27°. 20'. S. L.

THE trade-wind ceased to-day.

The 19th of *February*, 27°. 59'. S. L.

CLEAR, calm, sultry weather.

WE saw a whale; and a great dog-fish passed us, accompanied by four of the fishes called pilots. We put half a chicken on our fishing-hook to catch the dog-fish, but he was not hungry. In the dawn we saw some porpoises.

The 20th of *February*, 28°. 32'. S. L.

RAIN, but afterwards clear weather. Fresh wind.

The 22d of *February*, 29°. 49', S. L.

CLEAR weather, calm sea, moderate wind. We were now almost directly opposite *Madagascar*.

The 23d of *February*, 30°. 2'. S. L.

CLEAR and calm, toward the evening middling wind.

We saw a dolphin near the ship. The water flowered, as it is usually said.

The 26th of *February*, 29°. 52'. S. L.

CLEAR weather. Contrary wind. It was cold in the morning.

A PIECE of wood with some sea-grass swam by us.

DOLPHINS and porpoises gathered about the ship.

The 5th of *March*, 34°. 23'. S. L.

TOWARDS evening we had thunder, lightning, and a great deal of rain.

THE flames, which have been mentioned before, shewed themselves now on all the three

three tops, at seven o'clock at night, when it was quite dark after the storm.

The 7th of *March*, $35^{\circ}. 41'. S. L.$

Good weather and wind, almost calm in the afternoon.

GANNETS (*Pelecanus Bassanas* Linn.) a sort of great white birds with long necks, and black tops of the wings, flew very high in the air. They are said to be a sure mark of the sand at the *Cape*. About noon therefore we heaved the lead, but could not find ground. Some thought we were half a degree more to the south than appeared from the ship's reckoning.

THE next night about twelve we missed a second mate, by calling the watch, whom we never saw again. It was thought that in his sleep he fell into the sea through a port-hole.

The 8th of *March*, $35^{\circ}. 36'. S. L.$

CLEAR and almost calm weather. Wind towards night.

THE porpoises were observed here tumbling about in great numbers.

THE sailors affirmed to me that the water flowered; when drawn up, some-what in it looked like the roe of a fish. I put some of it by in a glass, which at night gave a pale blue light, as if a million of little pearls lay close together, but the next day the light was gone. This matter swam every where on the sea water, with which it was mixed. By day-light or candle-light it looked like a red, brown, thick, *sago* soup; and when it was put on paper, it looked like little water-coloured *sago* grains, or fish-roe; but I observed no motion in them. The next morning every thing was sunk to the bottom, and was curdled in the glass; the water above it was quite clear, tho' somewhat reddish. I again put some of it on paper, and found the grains water-coloured, but the paper was stained with red spots from the water.

THE next night we found ground with the lead at ninety fathoms. We had now been sixty-three days on our voyage from *China*.

The 10th of *March*, 33°. 13'. S. L.

A SPECIES of sea-weed swam by our ship several times this afternoon, and was called *Trumpet-weed* by our sailors ^a. It was above a yard and a half long, as thick as an *Indian cane*, and commonly some stalks were joined together: it formed as it were fly-flaps at the tops. My company on the ship thought it came from the islands west of the *Cape of Good Hope*. When the sailors see *Trumpet-weed* on their voyage, they are pretty certain that the *Cape* is not above ten *Swedish miles* off.

The 17th of *March*, 28°. 34'. S. L.

CLEAR and calm weather.

BESANTIES swam on the water, and seemed to have a little bow-shaped expanded sail on their backs. These little animals change

^a *Fucus (Maximus) caule tereti, fistuloſo, simplici, flabello quasi terminato.* An *Fucus pavonicus*? confer *Trombas. G. M. A. V. V. L. Descriptio itin. navalis in Ind. p. 51. fig. mala.* The leaves stand at the top in bunches in two rows (*disticha*), and decrease in size by little and little. The stalk had no leaves.

their

their colours. We caught a *Besantie*, but it was small and like the air-bladder of a fish. I had scarce had it one day in sea-water, when it died, as might be observed by the *tentacula*, which were dissolved into a slime ; and it became as distorted as those which are sometimes brought to *Europe* in *Spanish brandy*. The description was made as soon as the animal was got out of the water, and is as follows :

Holothuria Physalis. *Besanties.* *Rumph.*
Amboin. p. 49. The body is blown up, egg-shaped, transparent, with a yellowish green tail : the back is dark green, sharp ; seven or more veins came out of it, which are yellowish red before : the bill is spiral, and of a yellowish-red colour : the *tentacula* are numerous, the shortest are round, the middlemost are the tenderest, transparent, and globose at the top : the remaining *tentacula* are petiolated, and are longer than the rest ; the one in the middle is thicker and much longer than the others, and dark blue : opposite to these is a compounded blue elevation on the other side, which is perhaps the sail which the animal expands in the sea.

The 25th of March, 12°. 10'. S. L.

CLOUDY, and afterwards clear weather.

BONETS (*Scomber Pelamis*) and TUNNYS (*Scomber Thynnus*) were now caught again. We used the Cuttle-fish (*Sepia Loligo*) when we could get it, for a bait.

THE *Camellia*, which I brought with me from *China*, now began to wither. The tea-shrub, birds, and whatever is taken alive from *China*, commonly die in the latitude of the *Cape of Good Hope*, though it is the same latitude as *Spain*, or rather nearer the æquator. I do not remember to have seen an entirely clear horizon on the south side of the line.

The 30th of March, 16°. 63'. S. L.

ALMOST clear; afterwards cloudy. Favourable wind.

A TROPICK bird flew very high as usual hereabouts (*Phaëton æthereus*).

FLYING

FLYING *fishes* and *bonets* were here in great numbers.

ST. HELENA, an island belonging to the *English*, came in sight of us. This island, according to the accounts we have, is said to be near three *Swedish* miles in circumference, and two in breadth. It is situated in $15^{\circ} 56' S.$ L. in the open sea, nearer to *Africa* than to *America*, about 200 *Swedish* miles from the nearest continent, and 600 leagues from the *Cape of Good Hope*. This island, which is said to be very agreeable, and to produce many *Indian* fruits, is very high, and mountainous on the sea-side, for which reason it can be seen at the distance of twenty leagues. It first got its name from the *Portuguese*, who discovered it in the year 1501, on *St. Helen's* day. In the year 1600 the *English East India* company conquered it; and in the year 1672 the *Dutch* took it; but the *English* have since, 1673, inhabited and fortified it; in 1701, two hundred families, mostly *English*, were settled on it.

YAMS (*Dioscorea alata*) are here, as I am told, planted and eaten instead of bread by the poor.

THE

THE navigators who will land at *St. Helena*, must take care not to take their course too high, else they cannot reach the shore. The *Swedish* ships generally stop here to take in refreshments, but we steered strait on to the *Isle of Ascension*.

The 3d of *April*, 8°. 50'. S. L.

CLEAR weather, middling wind.

TO-DAY and the day before we saw *flying fishes*.

The 4th of *April*.

GENERALLY clear weather, and middling wind.

WE steered from W. by N. to get the longitude of *Ascension Island*, near which we sailed in the forenoon; and at last cast anchor in the *Cross-bay* on the same island, with twenty-four fathoms ground.

The

The 5th of April.

THIRTY-one *tortoises* were caught last night.

IN the morning we went on shore on the right side of the *Cross-bay*.

Ascension is an island which is situated under the 8th degree of latitude south of the æquator, and $8^{\circ} 24'$. from *St. Helena* in the great *Ethiopic Ocean*, at a great distance from the continent. Its length is reckoned above a Swedish mile, and its breadth about half a Swedish mile. The *Portuguese* gave it this name because they discovered it on *Ascension-day*. It is entirely uninhabited, and without woods. The largest turtles, or sea-tortoises, have their residence on it, and are sometimes caught by hundreds in one night. The *European* ships on their return from the *East Indies* seldom sail by this island without going on shore to catch as many turtles as they want; but they never come in sight of it on their going to those parts.

THE breakers on the shore are very violent, and would astonish those who have never seen the

the like before. A boat may be thrown a good way on the shore by them, as happened to the *Swedish East India* man the *Gothic Lion*, whose sloop, with some men, was lost by this accident. The best times to go on shore here are the first months in the year, and as early in the morning as possible. The shore for the greatest part is cover'd with a species of sand, which consists of little else than broken shells, which form roundish grains, larger or smaller, shining like pearls. This sand deserves to be called *Shell-sand*.

THE tortoises creep out of the water upon the shell-sand which is loose, and occupy some fathoms in breadth upon the shore, and often lie so high that it is inconceivable how they can get up, since it is troublesome even for men to get along, because the sand slips under their feet, as if they walked upon pease. As soon as a tortoise is got a little way from the water, she makes a round hole in the sand, in which she lays her eggs, and covers them over again with sand so neatly that no one can find out where she has been. She afterwards gets into the water again, and is quite unconcerned about her young ones, which are hatched by the sun, and find the way to the sea as well

as their mother, as soon as they have broken the shell.

THE sailors lurk at night on the shore; and when a tortoise is crept up they turn it upon its back, with hooks (or, if they can, with their hands alone). In the latter case, they must take care of the animal's mouth, for it bites off a finger with ease; a misfortune which one of our sailors experienced this time.

THE *tortoises* (*Testudo Mydas*) are principally caught in two well-known bays; namely, in the *English-bay*, where the taking them is said to be attended with difficulties, and in the *Cross bay*, on the right hand of which our captain had pitched his tent, on the side of a mountain. In this mountain were two grottoes, or natural caves, at a little distance from each other. In that which was next the shore were several *French* and *English* letters, of last year, as advices to new-comers: the upper one is said to have been the habitation of an *English* supercargo, who some years ago was left here as a punishment for a detestable crime, with some victuals, and an ax, to kill tortoises, which he was forced to roast by the heat of the sun on the mountains. It is likewise related

lated that another nation afterwards helped him away.

I NEVER saw a more disagreeable place in all the world than this island. The climate in itself is hot, being so near the line; but it would be tolerable if there were only some trees under whose shade one could take shelter. The island has formerly had woods, as appears from several perfect petrefactions of branches of trees, and pieces of wood; but in particular from a large petrified stump. The island is every where covered with stones; they are not pebbles, but angulated pumice-stones, containing more or less iron. When you meet with a plain, it is covered between the stones with a coarse earth which looks like foot, and under it you meet with a reddish fine sand. Here and there, especially on the shore, are some rocks. On the low places, where the water gathers during the rainy season, the earth was covered with a brown crust, which would break like thin ice under one's feet. Here and there some pieces of glimmer were found. A mineralogist might have collected many sorts of stones here, which are not to be met with in other places. The heat is intolerable, and disables one from carrying

any thing, it being difficult to support even the cloaths upon one's back, especially as walking is so difficult. He who chooses to walk here must wear shoes with thick soles ; and must notwithstanding expect to bring aching feet home at night. If the stony *Arabia* is like this place, I pity those who are forced to wander through it.

THERE are several great hills on this island, which consist of the abovementioned earth and coarse blackish brown sand : in the latter lie larger or smaller pumice-stones ^b, which are dangerous to walk on, as by their rolling down one may break one's limbs.

As soon as we got on shore I went to a conic mountain a good way off the place where we landed. It was steep, and of difficult access, because with each step the sand and stones rolled down : the heat increased, and I was forced to rest several times. In my opinion, this mountain was quite as large as our *Kinnekulle*. Neither on the sides, nor at the top, did I meet with one single plant ; on the summit, where the air was very cool, stood a pole

three fathoms long, which was provided with the necessary ropes for hoisting a flag. From the pole hung two crosses, the lower of which was wooden, and had the letters I. N. R. I. carved on it. Scarce a fathom above the wooden cross was a brazen one, at the bottom of which we could see 1748, the 15th of November; and higher up a French Inscription, which could not be read, it being too high. On the pole and the wooden cross several dates of years, and several names, were carved.

THE country hereabouts looks like the rocks about our mines. The birds rested here and there without being frightened, after they had filled themselves with fishes in the sea. In some places they had stained with their dung the heaps of stones quite white, which then looked like ruined towns, of which nothing but some white-washed chimneys remained.

THE assistant Thollander, a friend and promoter of science, parted from me a little while, and found in the mean time the scarce *Aristida Ascensionis*. It is said there is a spring, or rather a cave, where the rain water gathers, on the same mountain: but it was dried up at this time.

THE goats, which the *French* brought upon this island, were by this means forced to live without water; for, besides sea-water, none is to be met with. But they eat the juicy wild *Purflane* (*Portulaca oleracea*), which grew in several places between the stones, was very young at this time, and had but two or three leaves.

THE *French* had buried some of their dead this year in one part of the island, and in remembrance of them had put upon the graves crosses and white banners.

The following are the natural curiosities which I found on the island, besides the abovementioned stones:

RATS abound here, being brought by *Dam-pier's* ship, which was forced to put in at the island after it had sprung a leak, and to stay here till another ship came and took the crew away. Sailors that have been here before relate, that though they hung up their bags of meat on upright poles, they were by no means safe from these vermin; nay, that when the people sat down to meals, they came out

out as if they demanded a share of the victuals with them.

THE goats have increased pretty well. I saw a flock or two which were very shy, yet they might be caught by any one on foot, for they do not run very fast. One of them was taken and brought to our ship. It was of the least sort, and very lean. We observed immediately that it was not used to water; for tho' it drank some, it immediately ran through it, as if the water had been poured through an inclined tube. It was killed, but its flesh was liked but by few.

SEA birds are numerous here, and, what is remarkable, they were so bold, that they would let any one come up and take them with his hands,

THE birds which appeared at this time were:

Tropick birds (*Phaëton aethereus*) Grew's *Mus. R. 74. Avis Tropicorum. Willoughby.* This bird is of the size of a duck: the feathers on the under side of the neck, breast, and belly, and below the tail, together with some of the most outward coverts of the wings, are quite

G 3 white:

white : the feathers which cover the head, the upper part of the neck, the wings, and the whole back, are all marked with black transversal stripes of the breadth of a pack-thread. But the *vent-feathers* are somewhat blacker : the seven *quill-feathers* have black edges at the extremities, and are white towards the inside ; but the secondary ones are black in the middle, with white tops : the *coverts* below the wings are quite white : the *wings* are short : the *bill* is above two inches long, sharp, very narrow, somewhat inflected on the sides, and entirely red : the *jaws* are almost equal, though the upper seems to be rather shorter : the *margins* are serrated towards the inside, for the advantage of holding their prey : the *nostrils*, which are almost in the middle, between the point of the bill and the eyes, are narrow, and end in a little furrow towards the point of the bill ; the feathers hang down about the eyes : a black stripe runs down to the head from the eyes : the *feet* are half naked and footy : the *back-toes* are very small : two of the *tail-feathers* are longer than the whole bird ; and, like all the other *tail-feathers*, white, with black shafts. We saw these birds in several places within the *Tropics* at an excessive height, often far from land ; and generally hovering over

over the same place: from whence some sailors have concluded that they continually remained in the air at that height.

THE *Pelican* (*Pelecanus Onocratalus*^c), with the red bag under its neck, flew up and down, but would never settle. It is the same which in hieroglyphical descriptions is used as the emblem of great tenderness towards its young. It lives generally in the great African sandy desarts, where no water is to be met with; but it brings it for many miles in the bag below its throat, and fills the nest of its young ones; whither camels and other animals likewise resort to assuage their thirst. People who have seen it emptying its red water bag, have thought that it ripped up its breast and gave its young ones blood for want of water; but they were mistaken.

PELECANUS *Aquilus*: its bill is more than a hand's breadth long, and is narrow: the upper-jaw is somewhat the longest, with a hook-shaped point: the cere, which is blue, covers the bill from the eyes to the hook-shaped point: the mandibles have no such serrated incisions (supplying the place of teeth) as are usually found in sea birds: the head is covered

^c *Orientalis.*

with short feathers as far as the eyes, which are pretty large; the *tongue* is large, almost trifid at the top; the corner at its bottom is split: the *temples* are naked: the *wings* consist of three parts, and are very long; of the twenty-two *quill-feathers*, the first ten are of a considerable length; the two inner joints contain, besides the coverts, twenty-two *secondary feathers*: the outward of the twelve *tail-feathers* are much longer than the middle ones, which make the tail look like a pair of scissars. The bird is about the size of a goose, and is a yard long: the colour of the whole *body*, and of the *toes*, is black: but the *head*, *breast*, *belly*, and fore part of the *neck*, are of a fine white. Its food is fishes, which it takes from others, because it is not formed to catch them itself: the *English*, for this reason, call it *Man of War* (*Q. an Fregata Barere?*)⁴

ON our arrival at the isle of *Ascension* these birds met us, and generally kept hovering about the streamers as if astonished at them. They fly slowly like kites (*Falco Milvus*).

⁴ The *Fregata of Barrere* is, with Dr. *Linnaeus*, *Procellaria*, *ris Fregata*. F.

DIOMEDEA *Adscensionis* was caught here. It was entirely white, not even the thirteen feathers in the tail excepted; had red feet, formed chiefly for swimming; and only black tips to its wings: for the rest, it is like the *Diomedea pectoralis* (*Pelecanus Piscator*), which is likewise to be met with here. We also saw a species of little black sea birds, but only upon the wing.

TORTOISES (*Testudo Mydas*) ^e. They are ash-coloured at top, and pale yellow below: the *fore-feet* are longer than the hind-feet; the first are two feet, and the latter about six inches, long: the *neck* is two feet in circumference: on the middle of the *back*, longitudinally, are five scales, and next to these, on each side, four pair of scales, of which the two next are oblong, and very large; but the other two pair are unequal: all about the sides are twenty-five scales: the *breast* is longitudinally covered with thirteen scales, which have four pair of larger ones on each side: besides these, there are seven or more pair of less ones about the jaws, one at the tail, and

^e *Testudo atra. Mus. Regis. p. 50. Amaen. Acad. I. p. 84. Vulg. Turtles.*

likewise

likewise some scales on the sides : the *eyes* are large, and on one of their sides the raw flesh appeared ; the skin of the eyes is as it were covered with several red points or scales : on the *fore-foot*, quite at the paw, is a round scale like a coin : the *shield* which covers the back is frequently above four feet long, and of a proportionable breadth. These tortoises weigh from 500 to 700 pounds of *Swedish* grocery weight. Their flesh being boiled swells exceedingly, and for this reason a tortoise from *Ascension Island* is reckoned equal to an ox, and sufficient to make a meal for 130 men. The catching of tortoises is a great saving to the company, as they can keep them alive without food for five or six weeks together^f, if they are only watered with sea-water four or five times every day, sometimes laid on the back, and sometimes on the belly (in which latter case something is put under their neck), and if guarded from rain and heat. When they are to be killed, the head is first severed from the body, and the shell is next cut off. The flesh is grey, and the blacker it is, the fatter it is reckoned. When

^f In 1755 a great tortoise was brought alive to *Götterburg*, but was killed there soon after its arrival.

the fat is boiled, it grows green, and tastes like marrow; the rest of the flesh is mostly white, and tastes like beef. The flesh is boiled in a broth prepared with tortoise eggs, and is eaten with vinegar. It is an excellent remedy against scurvy, costiveness, and other diseases. The breast is roasted, with shell and flesh, by the name of *callopée*, and eats exceedingly well, especially while the animal is yet fat; but after it has been without food for some weeks, it is no wonder that the flesh should become lean and unpalatable. The bowels and liver are likewise eaten. A tortoise has frequently 500, or 600, and as I have been told, sometimes 1500 eggs: they are quite round, have no white, and are surrounded with a soft skin: they are never eaten by themselves, but either in soups or pancakes; but the fishy taste prevails, however they are dressed.

SQUALUS Adscensionis, is a fish whose body is blueish at top, and white below: the head is very flat: the eyes are on the sides, and not at the top: the *anal-fin* is near the tail: its *length* is above two feet: the *membrana branchiostega* are below the *spiracles*, and have six rays.

BALISTES *vetula*, which is called the *Old Wife fish* by the mariners: the first *dorsal-fin* has three, the second thirty, the *pectoral-fin* fourteen, the *ventral-fin* twelve, the *anal-fin* twenty-eight, and the *tail* twelve, rays. In size and figure it is like the *Cyprinus Ballerus*. It is of ash colour, approaching towards yellow: the *skin* is rough, thick, and covered with rhomboidal scales. When the fish is caught, it mutters, whence it has got the name of *Old Wife*. The first *dorsal-fin* is triangular, with excavated semi-circles: it has three rays, of which the first is the strongest, and has a sharp edge on the foremost side, with a great many very short teeth; this fin can be folded into the furrow on the back of the fish, so that it will scarce be visible: the second *dorsal-fin* is not armed, but crenated on the upper margin; it has the figure of a parallelogram, is opposite the anus, and has thirty rays, which (except the second, which is very long) are all equal in length: the *pectoral-fins* are oval, opposite the first *dorsal-fin*, and have fourteen rays: the *ventral-fin* is single, on the middle of the belly, and reaches to the anus; the first ray of it is strong, sharp edged on the out side: the twelve lower rays have

have twelve teeth in three rows at the bottom, which accordingly make thirty-six: the *anal-fin* reaches from the *anus* almost to the tail, is like the second dorsal-fin, and has twenty-eight rays: the *tail* is falcated, and has twelve rays, of which the outermost are the longest: the *length* of the whole fish is scarce a foot: the *teeth* are broad, and eight in each jaw: the *lips* are thick, moveable, and marked with a blue line on the inside: on each side run two blue lines, and above these a green one, from the mouth to the pectoral-fins: from each *eye* arise nine crooked green rays on each side: the *eyes* are in the upper part of the head, near the first dorsal-fin; towards the pectoral-fins they are large, have a green circle, and are marked with six oblong blue points at the top: the *anal-fin* and last *dorsal-fin* are blue, and this colour is likewise at the bottom and margin of the tail: the sides are shaded green below the second dorsal-fin: the *belly* is white, oblong, thick. The fish eats oysters and snails, and is generally caught at the bottom of the sea.

BALISTES *ringens* Linn. *Nigra* Osbeck.
This fish may frequently be caught with the hands, namely, when the water throws its waves a great way on the land, and

you throw some bread to the fish; for here both birds and fishes are as it were tame. The first *dorsal-fin* has two, and the second thirty-four rays: the *pectoral-fins* have sixteen rays: instead of the ventral-fins, there is only one single ray: the *anal-fin* has thirty-one rays: the *tail* is falcated, and has thirteen rays; eight lines run towards the tail: the *scales* are rough and rhomboidal: the *teeth* are like mens teeth, but double: the *anal-fin* and second *dorsal-fin* have a blue stripe at the bottom: the rest of the body is black. The fish is like the preceding (*Balistes Vetula*), but generally larger.

SEA Blewling, Scomber (glaucus^g) eminentiis lateralibus caudæ aculeatis. The first *dorsal-fin* has seven, the second twenty-five, the *pectoral-fins* twenty, the *ventral* five, and the *anal-fin* twenty-five, rays: the seven rays of the first *dorsal-fin* are somewhat prickly: the first seven rays of the second *dorsal-fin* are the longest, and begin before the *anus*: all the other rays are shorter, round, and do not prickle: the space between both is very small: the *pectoral-fins* are bent, and have twenty rays, of which the most outward ones are four inches long: the *ventral-fins* are but half the length of the

^g *Adscensionis*. Osbeck.

pectoral-fins, and have five rays: the *anal-fin* is higher forwards: the *body* is narrow, grey at the top, white below, above a foot long, and covered with a skin: the prominences on the sides of the tail consist of many close spines, (27, 49) which form the hind part of the lateral line: its fore-part is bent and unarmed: the *head* is obtuse: the *mouth* oblong: the *teeth* small: the *lower jaw* is the longest: the *opercula branchiostega* have no incisions.

PERCA *Adscensionis*: the *membrana branchiostega* has eight, the *dorsal-fin* twenty-seven, the *pectoral-fins* sixteen, the *ventral-fin* eight, the *anal-fin* fourteen, and the furcated *tail* twenty-six, rays: the *dorsal-fin* is towards the middle of the fish: its first eleven rays are pungent, the sixteen following (of which the two first are the highest) are not armed: the *opercula branchiostega* consist of two plates, which are dentated; two of these teeth are large, the others small and numerous: the *jawes* are dentated above the nostrils: the first ray of the *dorsal-fin* is the shortest; the second is the strongest, sharp pointed, and striated backwards; the third is somewhat shorter and thinner; the rest are not armed: the *body* is narrow, reddish at the top, and whitish below:
the

the scales lie transversally, are oblong, and dentated before.

TRACHINUS Adscensionis. This fish tastes exceedingly well, and is distinguished from others by the following marks: the *dorsal-fin* has twenty-eight rays, the *pectoral-fins* eighteen, the *ventral-fins* five, the *anal-fin* eleven, the *tail* sixteen, and the *membrana branchiostega* six rays; the latter is white with brown spots: the single *dorsal-fin* is every where of equal breadth, and runs from the head to the tail: its first eleven rays are sharp pointed: the *pectoral-fins* are obovated; and so are the *ventral-fins*; and their first ray is prickly: the three first rays of the *anal-fin*, which is likewise obovated, are prickly: the *tail* is wedge-shaped, with short rays: the *body* is somewhat compressed, and not quite round, covered with a white skin, on which the brown spots run into one another: the *head* is somewhat compressed: the *opercula branchiostega* consist of three scales, of which the middlemost ends in two teeth; one of them is long and pointed: the *eyes* are near each other, in the upper part of the head, and are large: the *nostrils* are round; besides them are two greater holes in the forehead: the *teeth* are fixed in the gums-

gums and throat in several rows; they are numerous, long, and very sharp; five of them are longer, namely, three in the upper-jaw, and two in the lower: the jaws are equal in length.

Of insects I found:

Dermestes elytris hirsutis cinereis, in the sand.

Hippobosca nigra, on the *Pelecanus Aquilo*.

Musca vulgatissima.

Musca nivea.

Cancer Adscensionis. A sort of crabs with white points on the feet. They run on the sea-shore between the stones, and are difficult to be caught; for as soon as they are pursued, they jump very nimbly between the stones.

Asterias. Of this Mr. Toreen said he had found one petrified on the shore. Several shells lay on the shore, but were generally broken by the waves.

VERY small oysters (*Ostrea Adscensionis*) lay on the rocks on the shore.

Of plants I found only the following :

Aristida Adscensionis, on a mountain.

Sherardia fruticosa, a single plant on a plain.

Convolvulus pes caprae, on the shore.

Euphorbia origanoides, between the stones, the food of the goats.

Portulaca oleracea, among the stones; tho' as yet very tender. This plant was the most common. Such a poor Flora is seldom to be met with on so great an island. Where the soil was not covered with stones, it looked like a district where a forest had been burnt down. And some of the aforementioned plants grew here and there. However, on the stones grows yet

Lichen foliaceus albus, and *farinaceus*, namely, green and yellow, but I was not able to carry any stones on account of the great heat : Yet I took a couple of pieces of perfect petrified wood with me. One of these petrefactions was half a branch of a tree, in which the bark, wood, and grain, were all distinguishable. The other was a branch which was so similar

similar to wood, that without a knife it was impossible to distinguish whether it was stone or wood. After we had been quite spent with the unspeakable heat, such as I had never experienced before, we reached, with some difficulty, the place where we had landed, and regaled our parched bodies. Afterwards, I found on the mountains along the shore:

Fucus lendigerus, } which the water some-
Fucus muscoides, } times washed up.
Ulva lactuca, }

AT last we went about the *Cross-bay*, over several mountains, to a little creek, where our sloop waited for us. As I was just going upon this dangerous road, over a heap of stones which by little and little had rolled down the hill, a huge stone rolled down, and was within an hair's breadth of making an end of me; but I happily escaped, although in the greatest consternation. In this bay boats can land very securely, and lie very quietly; for it is surrounded with rocks on both sides, which hinders the water from beating against the shore with such violence. Though here is but little sand, yet a ship is said to have caught eighteen tortoises in one

night. We caught most of ours in the *Cross-bay*, because it was nearer to our ship than the *English bay*: though in the latter more tortoises come on shore than in the former; but it would be too difficult, if not impossible, to bring them over by land from one bay to another; and for this reason the boats ought to land where the tortoises are to be had.

The 8th of April.

CLEAR weather. Little wind.

AFTER we had got all our men on board again, and 41 tortoises on the deck, we weighed anchor. With the cable we pulled up a piece of coral, on which a red shell (*Pecten Adscensionis*) was growing, which on its valves represented many branches. We took it with us, and at present it is preserved in one of the greatest cabinets of natural curiosities in *Sweden*. In the forenoon we set sail towards *Fayal*, in company with the *Gothic Lion*.

The

The 15th of April, 1°. 34'. S. L.

AFTER a calm for three days together, we got a little wind.

WE met a *Dutch* ship, which had sailed two months from *Capon*, an *African* province exactly under the æquator. Her cargo consisted of gold-dust and ivory from the *Guinea* coast; but she was in great distress. The captain and the greatest part of the crew were sick, so that this ship, notwithstanding her rich lading, was in a very deplorable condition. We assisted her with some victuals from our ship *gratis*.

WE caught two bonets.

The 16th of April, 15'. S. L.

CLEAR weather. Little wind; but excessive heat.

IN the bonets which we caught to-day were little worms surrounded with wrinkles or circles, having a proboscis on the side of the opening at the head, and a globose tail.

WE likewise caught a species of small fishes, which in size were equal to stickle-backs. It was

Gobius tropicus. The *membrana branchiostega* has three or four rays: the *dorsal-fin*, from the head almost to the tail, has twelve and more rays: the *pectoral fins* have fifteen, the *ventral-fins* have eight, and the *anal-fin* has twelve, rays: the *tail* is round: the *body* likewise, and thin towards the tail: the *scales* are sharp: the *head* is great, wrinkly: the *opercula branchiostega* consist of two long, linear, dentated *orbiculi*: the *mouth* is great, almost round, and covered with the skin of the head: the *eyes* are large, and stand on the sides.

WE again saw a grampus, which spouted up the water with great force.

The 20th of April, 3°. 4'. N. L.

THE sea was entirely calm. We caught bonets and tunnies both to-day and yesterday, and the day before.

The

The 22d of April, 3°. 23'. N. L.

LITTLE wind. Thick air.

In the tunnies (*Scomber Thynnus*), we found two sorts of fishes, besides the *Sepia Loligo*, or cuttle-fish. The one was very like a *Cruian*. It was

Clupea Tropica. The *membrana branchiostega* has seven rays: the single *dorsal-fin* runs from the middle of the back to the tail, and has twenty-six rays: the *pectoral-fins* have seventeen rays: the *ventral-fins* six, and the *anal-fin*, which is the length of the dorsal, twenty-six rays: the *body* is sharp, deep, with white scales: the *lateral-line* is strait, and runs away near the back: the *belly* is serrated: the *head* is obtuse: the *lower-jaw* is longer than the upper: the *mouth* oblong, great: the *teeth* are in one row in the jaws; they are numerous, small, and sharp: the *eyes* are near the mouth: the *opercula branchiostega* consist of two *orbiculi*, which are both covered with scales: the *tail* forms a wedge, and has twenty rays. This is a new species.

THE other species of fish was reckoned a *Flying-fish*, but its *pectoral-fins* were very short.

The 23d of April, 3°. 25'. N. L.

IN the forenoon heavy rain.

The 24th of April, 3°. 36'. N. L.

RAINY weather, and good wind.

SOME *tunnies* were caught.

The 25th of April, 5°. N. L.

DARK sky. About noon heavy rain.

A DOG-FISH was caught as usual with a hook baited with an *Old Wife* fish (*Balistes Vetula*.)

THE two next days were calm, and we likewise caught dog-fishes.

The

The 28th of April, 6°. 2'. N. L.

THE N. E. wind now began to blow, and in the space of a fortnight helped us over the tropic of *Cancer*.

THIS wind is constant here all the year long, though it varies sometimes to one and sometimes to the other side. The ships, both on their going and return, are obliged to avail themselves of the same trade wind. They are therefore obliged to get on against the wind, and sail with a considerable bend till they at last gain the right course with western winds, and are enabled to get out of this calm sea.

BONETS and tunnies were caught, and in their bellies we found Cuttle-fish and little crabs.

WE saw a ship to the leeward, which we thought was an *East Indiaman* on her voyage to *India*.

IN the next twenty-four hours we caught sixty-eight tunnies and bonets.

The

The 1st of May, 8°. 57'. N. L.

CLEAR weather. Fresh trade wind.

FLYING-FISH (*Exocætus volitans*), which were three or four inches long, and somewhat different from the *Exocætus* of *Artedi*, were caught here. The *membrana branchiostega* has eight, the *dorsal-fin* four, the *pectoral-fins* twelve or fifteen, the *ventral-fins*, which are in the middle between the *pectoral* and the *anal-fins*, have six, the *anal-fin* nine, and the *tail* nineteen, rays; those of the tail are very small.

SOME *tunnies* were caught, whose bellies were quite empty.

The 2d of May, 10°. 6'. N. L.

CLEAR weather. Fresh trade wind.

BONETS, *tunnies*, and *flying-fishes* were seen in great numbers. In a *tunny* we found a narrow, white fish, seven inches and a half long, which the sailors call the *Chinese Garter*. It

It is *Syngnathus argenteus*. The *membrana branchiostega* has one ray: the *dorsal-fin*, which extends from the head to the tail, has forty-six rays: the *pectoral-fins* are near the head, and have fourteen rays: the *ventral-fin* consists of a single very small ossicle or ray, which stands under the belly very near the breast: the *anal-fin* is an inch and a half before the end of the tail, and has twelve rays: the *tail* is entire, and has twenty-four rays: the *head* is pointed, and is somewhat above an inch long: the *lower-jaw* is the longest: the *teeth* are sharp-pointed, stand in one row; thirty-one of the largest stand before in the *upper-jaw*: the *eyes* are great: the *body* is narrow, of the thickness of a finger: the *scales* are small.

SOME of our sailors said, that when they were at *Aynom* in the ship called *The Queen*, they had eaten a species of dried fishes which were very like this; that if they were eaten fresh they would do no hurt, but would be more unwholesome if dried.

AN eclipse of the sun, which could not be observed in our country, was very considerable here. The clouds hid the sun from us before the

the beginning of the eclipse, which hindered our observations till three quarters past five o'clock, when the moon covered two thirds of the sun, after which the sky presently became cloudy.

The 9th of May, 19°. 20'. N. L.

IN the night we were past the sun (for so the sailors call the sun's passing through the Zenith) for which reason we could make no observations to-day, though it was fair. In the afternoon the wind grew changeable and calm. *Tunnies*, *bonets*, and *flying-fishes* were still caught as in the last week. The sea-weed which swam by us, and had been observed yesterday, was a fore-runner of the so much wished for *Grass-sea*.

SOME of our people suffered a great deal from head-aches: some of them thought that the complaint arose from the smoaked *tunnies* and *bonets*; and remembered that when they were on board *The Queen*, where they had the same food, they suffered by the same disorder.

WE now again observed a *Tropick-bird*.

The

The 10th of May, 22°. N. L.

CLEAR weather. Weak trade wind.

THE *Grass-sea* is that part of the ocean in which the *East India* sailors meet with sea-weed (*Fucus natans*) swimming in greater or less quantities; though all sorts of *Fucus* are called sea-weeds. We entered the *Grass-sea* in our return on the 7th of *May*, in seventeen degrees and a half north latitude, and twenty-two degrees and a half of west longitude, from *Ascension Island*, and 37°. 21'. west longitude from *London*. The weed in the first days came but ever now and then, in small quantities; but in 26°. latitude in great heaps, sometimes several fathoms long. This appearance continued to the 25th of this month; when a fresh southerly wind at twenty-four degrees and a half latitude, twenty-four degrees and a half west from *Ascension Island*, and 39°. 9'. west from *London*, brought us out of the *Grass-sea*, on which we had sufficient time to make observations, by the calms and very gentle winds which then prevailed.

IT seemed at first as if this wandering sea-plant (*Fucus natans*), which met us with a northern wind, came from the *African* coast, or the isles on that side. But in that case, it is plain we should have met it on our going out; because in this very latitude we sailed much nearer to that continent, but yet never saw any such sea-weed there. The northern trade wind, which pushed us onward from the sixth degree of latitude on this side the æquator, makes the *East Indianmen* on their return take their course more to the west than would else be necessary; and then they meet with more or less sea-weed in proportion as they approach more or less to the *American* continent. From whence we may conclude, that this plant comes from *America*, since it likewise appears from the accounts we have, that it is to be met with in great quantities in the *Gulf of Florida*, whence a great storm drives it into the open sea; and the westerly winds carry it so far, that even those who come from the *East Indies* get a sight of some of the produce of the *West Indies*: but other winds keep it from coming quite to *Africa*, and keep it floating about the ocean. From this, *bonets*, *tunnies*, and other fishes get their subsistence; they

they search this weed well, and take what they like out of it: not to mention that one sort of little fishes or insects which inhabit this seaweed, serves as food to others.

THE stalk of this ramosc plant, which however is scarce distinguishable in thickness from the branches, was not above a foot long, and without all appearances of roots; yet it was able to push out new leaves for further encrease: the globose parts of fructification were (like some of the leaves, stalks, and branches) harder than usual; occasioned, as it seemed, by the slime which sometimes fastens itself on the leaves, branches, or other parts: in this some very small blackish grains, or rather eggs of crabs, and insects, are inclosed: when these insects afterwards forsake their habitations, they leave marks in the hardened slime behind them. Sometimes a slime exceedingly like the whites of eggs sticks to the leaves, in which an innumerable quantity of snail's eggs joined together make a white or yellow chain, like a *Tænia*, so wound backwards and forwards that one can neither find its beginning or its end. I could neither in these nor in the preceding ones, observe any sort of shape or life, with the microscope. After they had
been

been put into water, for some hours every part was put into disorder and dissolved. If this and the preceding matter is not *Dampier's fish-roe*, which is said to swim in the *Sargazo*, I have not met with it. In stormy weather the *Sargazo* does not sink, but keeps on the surface of the water, except when the force of the waves or the course of the water (when it approaches the ship) suppress it; in this case it sinks lower, and gives a green light, though its colour is yellow. If it is again thrown into the water, it makes the latter to foam violently. In wet weather it exudes a saltish substance, tho' it was well dried before. If it is prepared with vinegar, it is reckoned as good as *samphire* (*Critchmum*), which in *Spain* and *England* relishes so well with roasted meat. Why may not some of our species of sea-weed serve the same purpose? In this case we should have a sufficient quantity both for inland use and for exportation. In this migratory sea-weed were the following animals:

THE American frog-fish, *Lophius Histrio* Linn. *Syst. Nat.* or *Lophius tumidus Mus. Reg.* p. 56, and Dr. Linnaeus's *Westgothic Journey*, tab. iii. fig. 3. Its *cirrus* and first *dorsal-fin* are bristly at the top, and those bristles are soft.

The

The whole body is covered with a slimy skin, and little foliaceous *fulcra*, which are scarce observable while the fish is in the water, because they fit so close to the body. The *mouth* and *belly* are large, in order to receive many species of crabs or young shell-fish. Perhaps Providence has clothed this fish with *fulcra* resembling leaves, that the fishes of prey might mistake it for sea-weed, and not entirely destroy the breed.

Cyprinus pelagicus. The *dorsal-fin* reaches from the head to the tail, is lower in the middle, and has thirty-six rays: the *pectoral-fins* have fifteen, the *ventral-fins* six, the *anal-fin* twenty-eight, and the furcated *tail* twenty-two rays: the *irides* of the eyes are yellow like gold: the *mouth* is oblong: the *body* is very narrow, whitish, and every where covered with very small scales.

Syngnathus pelagicus, corpore medio heptagono pinnâ dorsi anum versus. The *dorsal-fin* has thirty-one, the *pectoral-fins* have fourteen, rays: the *ventral* and *anal-fins* are wanting: the flabelliform *tail* has ten rays: the whole length of the fish is about a span: it is as thick as a goose-quill. From the head to the

anus, or nearly to the middle, it is heptagonal, and has eighteen rings; but lower down it is quadrangular to the tail, and has thirty-two rings. The *female* (according to Artedi's *Syn.* iii. p. 3.) has the ovary near the *anus*, where he likewise says, that the *body* is polygonal, and broader below: the *beak* is long, cylindrical, and narrow.

Scyllaea pelagica, or the *Sea-hare*. Seba took them for the young ones of the *Lophius tumidus*, *Mus. Reg.*: but it is difficult to persuade one's self of the truth of this; unless somebody would keep them, and observe their changes. The following is their description: the *body* is like a jelly, oblong, narrow, of a yellow-grey colour, and has a longitudinal fissure below, by means of which it can surround the sea-weed (*Fucus*) both lengthways and cross-ways with the fore-part or hind-part: it is two inches long, and scarce one inch broad: the *sides* are flat, with little carnose, cone-shaped, whitish prominences: the *back* (which by some has been mistaken for the lower-part) is almost flat, with very short, dark bristles, and sharp-pointed margins, to which some appendages (*Fulcra*) or *arms* and *fins* are fastened: the *head* is compressed,

pressed, somewhat pointed, and difficult to be distinguished when dead: the *antennæ* are shorter than the head: the *mouth* has no teeth, and has a pilose margin below the beak: the *throat* is small, almost round: the *tentacula* are upwards, not far from the top of the beak; they are oblong, foliaceous, shorter than the fins, somewhat broader before, with a deflected hairy margin, and a carnose cone in the middle; they likewise serve to grasp the sea-weed. The animal has on each side two fins at equal distances; they are foliaceous, oblong, somewhat broader before, curled, with bristly or lacerated edges, and are placed on the rough margin of the back: the *belly* is in the middle of the body, narrow, oblong. The parts of fructification of the sea-weed, which it eats, were visible in it. The *tail* is perpendicular, foliaceous, almost round, broader, but shorter than the appendages, and ciliated. This animal moves very slowly in the water^a, by bending its extremities.

Cancer pelagicus, brachiperus, manuum articulis omnibus dentatis, extimo heptagono. The pinchers of the *chely* bend out very little, are

^a I should perhaps have called the tentacula, *hands*, and the fins, *four feet*.

streaked, dentated, and of equal length: the other feet have but one toe: the sides of the *thorax* are ferrated; the hind-part is long, strong, sharp-pointed: the colour is a brownish yellow, with whitish unequal spots: the tail of the *female* is much broader, round (with a short point), and consists of seven articulations: the tail of the *male* is almost triangular, and has four articulations: on each side of the tail is a single, long, bent bristle, which is thicker below, and bears a great resemblance to the lateral rays of a fin.

Cancer minutus is the most numerous of all insects here, and feeds upon *sepias* and little crabs. It skipped about on the surface of the water with exceeding great agility, from one heap of sea-weed to another, which is sometimes several fathoms distant, and when it caught a worm, it tore it with its *chely*, and crammed it into its mouth bit by bit.

The 12th of May, 24°. 15'. N. L.

YESTERDAY and to-day we had generally a calm.

THE *dolphin*, or *Coryphaena hippurus*, had the following characters: the *membrana branchiostega* has seven rays: the *body* is greenish dotted with blue, two feet long, narrow, sharp-pointed: the *head* is obtuse, short: the *lower-jaw* is the longest: the *eyes* are globose: the *irides* are gold-coloured: the *teeth*, which are short and numerous, stand in the jaws and gums: the *back* and *belly* are sharp: the *tail* is furcated: the single *dorsal-fin* begins on the middle of the head, and goes to the tail; towards the head it is the broadest; it has sixty rays: the *pectoral-fins* have nineteen, the *ventral-fins* six, and the *anal-fin*, which extends from the *anus*, or from the middle of the fish to the tail, has twenty-six rays: the *tail* is bifid, and each of its parts has twenty rays. The fish is exceedingly quick in its motions, and in the water seems shaded with black and green: the *ovary* is oblong, double, and large: the *lateral-line* is bent, runs directly by the back, and is scarce distinguishable between the head and the *anus*. This fish is very seldom met with, except in such places where the winds are changeable, that is, only within the *Tropics*.

BONETS and tunnies were more scarce at present; but appeared in shoals the next day towards evening. To-day, as well as the following days, the afore-mentioned natural curiosities were caught in the *Grass-sea*, and put into spirits, to be brought home.

The 20th of May, 28°. 34'. N. L.

AMONG other fish we met with the *Dorado*, which is about a yard long, and very like the *dolphin*, for which reason *Artedi* makes it the same species of *Coryphæna*. But that which we caught at this time was different in the following particulars:

Coryphæna Equiselis. The *dorsal-fin*, which extends from the middle of the head to the tail, has fifty-three, the *pectoral-fins* have nineteen, the *ventral-fins* have six, the *anal-fin* has twenty-three, the *membrana branchiostega* six, and the *tail* has twenty, rays. This *Dorado* is in general much more scarce than all the rest, so that many people have often been in the *East Indies*, without ever having seen it.

The

The 22d of May, 30°. 45'. N. L.

A VESSEL which we had seen for some days together, now came near us. The name of the ship was *Duc de Parme*; it was commanded by Chevalier *d'Arquis*, came from *Bengal*, and was destined for *Port l'Orient* in *France*. The clear weather and moderate wind gave us opportunities of visiting each other on the open sea. Our first supercargo dined aboard the aforesaid ship; and two gentlemen from the other *Swedish* ship which accompanied us, dined with us.

THE following days there was generally a calm, which likewise permitted the ships to keep company with each other.

The 26th of May, 35°. 24'. N. L.

BONETS and tunnies were caught for the last time; though we saw the latter in the following days. Now we took leave of the *Grass-sea*.

The 28th of May, $38^{\circ}. 24'$. N. L.

STORM. Cloudy in the forenoon; but generally clear afterwards. In the forenoon we were on the latitude of *Fayal*, which, as well as the other *Azores*, belongs to the *Portuguese*. We then sailed across the longitude, till we saw the *Pico of Fayal*, on the 30th of May at four o'clock in the afternoon; but the 31st we passed the *Pico of Fayal* and *St. George*, which lie in $38^{\circ}. 38'$. latitude. The ships had orders to stop at *Fayal*, and to make enquiry concerning the state of *Europe*: but on account of the strong wind it was thought expedient to sail on. I therefore missed of a great number of unknown plants, which are undoubtedly to be met with in these islands, lying almost in the middle between *Europe*, *Africa*, and *America*.

The 1st of June, $41^{\circ}. 10'$. N. L.

CLEAR weather; and likewise cloudy. Brisk contrary wind.

TURDUS

TURDUS *Chinenis*, *Diff. Lbin. Lagerstr.* 11.
is by the Chinese called *Whammay* (*Linnæus* in
his *New Systema Naturæ* calls it *Turdus cano-
rus*), and might, on account of its strong voice,
be called the *Crying Thrush*. It was sold for
a piastre at *Canton*, and died here: for which
reason I put down the following remarks:
the *bill* is angulated-conic, the back part of
it somewhat angulose: the *tongue* is as it were
torn and emarginated before. The *whole body* of the *female* is ferruginous, except
three quill and three tail feathers, which for
the greater part are white (this circumstance
is seldom to be met with in the other species
of this genus): about and near the eyes is a
short white line: the *belly* is blueish: behind
the *nostrils* are some bristles: the *bill, legs,*
and feet, are whitish: it has twelve *quill-fea-
thers*, and twelve in the *tail*, which latter are
the same length with the body: in *size* it
equals our black bird. It eats rice, moths,
flies, and flesh. To-day we met an *English*
ship which had sailed from *London* sixteen days
ago, and was bound for *America*, having both
male and female slaves on board.

The 13th of June, 49°. 16'. N. L.

WITH the lead we found ground at ninety fathoms last night; it was a fine brownish sand.

The 14th of June.

CLEAR weather. Moderate wind.

WE at last saw the *Scilly Islands* in the forenoon. These islands and rocks are very low, and therefore do not appear before one is quite up with them, for which reason many ships have been lost just at the entrance of the *British Channel*, notwithstanding there are two light-houses erected for the use of seamen. The rocks discovered themselves to us by the breakers. *Fucus divaricatus*, *vesiculosus*, *et Zoster*, came swimming from the shore. English boats came from the *Scilly Islands* to us, with butter, lean sheep, geese, ducks, chicken, eggs, plaices (*Pleuronectes Platea* Linn.), rock-fish (*Labrus scyllus* Linn.), potatoes in baskets, turneps, cabbages, long and purple-red beet, fallads, and (*Crithmum maritimum*) samphire; which latter, when cleared of its roots,

roots, coarse stalks, and the adherent *Nardus stricta*, *statia armeria*, *Arenaria rubra* et *Lichenes scyphiferi*, is put into salt-water for twelve hours together, and afterwards boiled with vinegar, alum, cloves, and ginger (which two spices are however not necessary).

IN the afternoon we passed the *Land's End*, the first promontory of *England* in the *Channel*, where the tides make up for the loss of wind. The tide met us at the *Lizard*, in the evening; a neck of land from which the *English* generally count the longitude of places; as do likewise *Swedish* seamen, who generally make use of *English* books.

The 15th of June.

CLEAR weather. Little wind.

WE sailed by *Plymouth*. The fine fields hereabout, and grounds which are surrounded with quick-set hedges, afforded a charming view. The chalk hills on the shore made it appear white and high.

The

The 16th of June.

HEAVY rain, and contrary wind all day.

WE passed *Devonshire* and *Dorsetshire*, and came in the afternoon to *Dover*, that well-known *English* town and castle, which is exactly opposite to *Calais* in *France*, and is not far from it; so that both kingdoms may be seen at once, if you sail through the *Channel*. At *Dover* we went on shore, and purchased beef and mutton, cabbages and cauliflowers, cucumbers, carrots, fallads, parsley, sage, leeks, artichoaks, beans, beer, bread, &c.

THE people came on-board us, and offered men's cloaths, shoes, wigs, hats, stockings, watches, and such things, for money, or *East India* goods; preferring green teas to most other things: the brown teas are not reckoned of any great value with them. After we had taken in the necessary refreshments, we directed our course to *Gottenburgh*. On this voyage we met amongst several other ships an *English* one bound for *Petersburgh*.

The

The 25th of June.

AFTER a voyage of eight days, we happily got sight of *Jutland*.

The 26th of June.

WE saw *Marstrand* and the *Gottenburgh Rocks*; and yet in the forenoon we cast anchor under the castle of *Elfsborg*. After the custom-house officers had put the seal to our cabins, I went on shore again with great satisfaction and in perfect health.

WE lost eight men on the voyage: of these one died of a dysentery, one of the pleuresy, three of agues, and three lost their lives by accidents. But thanks be to GOD, who has so successfully brought 124 men back to their own country.

LINNÆUS'S

LINNÆUSS'S LETTER

TO

MR. OSBECK.

SIR!

I HAVE read your excellent book with pleasure and surprize. It cannot be disputed, that few books are so agreeable to the public as accounts of voyages, where something new is always found to gratify the reader's curiosity, and enlarge his understanding. But most of the voyages hitherto published, by imposing barbarous names on their discoveries, have rather sharpened our desire after knowledge, than afforded any real instruction. You, Sir, have every where travelled with the light of science : you have named every thing so precisely, that it may be comprehended by the learned world ; and have discovered and settled

tled both the genera and species. For this reason, I seem myself to have travelled with you, and to have examined every object you saw with my own eyes.

If voyages were thus written, science might truly reap advantage from them. I congratulate you, Sir, for having traced out a way in which the world will follow your steps hereafter ; and, pursuing this career, will remember the man who first pointed it out.

CHARLES LINNÉ.

A SPEECH.

A

S P E E C H,

S H E W I N G

What should be attended to in VOYAGES
to CHINA,

DELIVERED BY

P E T E R O S B E C K,

On his being chosen a Member of the ROYAL
SWEDISH ACADEMY OF SCIENCES, at Stock-
holm, the 25th of February, 1758.

Gentlemen!

THE greatest rivers often come from the least springs; and so the least causes may produce the most considerable effects. The ablest men in all sciences therefore pay great attention even to the minutest information, which is despised by persons of inferior abilities: they expect no fruit without a preceding flower, no scientific knowledge without simple but fundamental principles, and no experi-

ments without previous introductions. To prove this at present is hardly necessary, when all you, Gentlemen, are living instances of the truth of my assertion; you protect even the slightest sketches, if the intention be good, and are continually labouring for after-ages. The honour you have conferred on me in particular, in chusing me a member of your learned Society, will raise my respect and veneration, and encourage me to proceed in the same career.

GIVE me leave now, Gentlemen, to begin with making a short discourse upon some *Instructions how far attention may be useful to the public in voyages from Sweden to China.*

ATTENTION has always its use, which in part appears immediately, and in part avails posterity. Whatever serves for food, or the amendment of health, is looked upon as useful by all without exception; they are two of the most considerable advantages; for the calls of hunger admit of no delay, and sickness is the first step to death. But our enquiries may be extended to other objects, which are considered as necessary. Each of our sences expects its peculiar gratification, and this sometimes

from

from the most distant parts of the world. That other nations may not run away with all the advantages arising from carrying merchandize from place to place, we are obliged to fetch foreign goods ourselves by long voyages. It is advantageous to trade to take time, and to have a free uninterrupted course ; and therefore we prefer going by sea : to this the compass is not only useful, but absolutely requisite ; yet it is probable that at first the effects of the load-stone were looked upon as trivial, and it is doubtful whether the inventor got a proportionable reward for its discovery : but time has shewn, that the first attention to this object has been of great and almost inestimable use. Our attention must therefore not merely extend to those things of which we already see the use, but likewise to those from which we still may expect it.

FOLLOW me therefore, Gentlemen, over the foaming waves to the *Spanish* shores, and over a boisterous sea to the riches of the *Indies* : but we shall here mention only a small part of what will gratify a laudable curiosity, and confine ourselves to domestick œconomy and natural history, which will be amply suf-

ficient to give birth to such reflections as may be useful to yourselves and your country.

SUCH a voyage is undertaken in the coldest season, in the stormy *November*, the dark *December*, and the following winter months. This regulation is made on account of fetching money from *Spain*, and lest the monsoons in the *Chinese* sea should be lost. I do not speak of those voyages which are made first to *Suratt*, and thence to *China*; for these are begun in the spring, and have only the voyage home in common with the other.

THE exchange of a good warm room for a cold ship-cabin (for there is no other fire on-board except that by which the meat is boiled) is a most sensible change, when the body is not well secured against the rigours of the season; and especially to those who cannot keep in continual motion. The penetrating cold of the sea can hardly be kept off by any thing else than furs. The most common cloathing of our sailors about this time are sheep-skins, which are bought of the *Danes* in the *Sound*; and are said to be so well prepared, that they do not lose their softness even if they are worn in the heaviest rains and snow. I should think

think they might be prepared in *Sweden* too; skins cannot be wanting in a country which is not only capable of, but obliged to breed sheep, and without which it cannot subsist.

FOR fear of missing the true entrance into the *Channel*, the ships chuse rather to go north about *Ireland*; for a secure road, though round about, is always preferable to a dangerous one though more direct.

OUR *East India* ships should not wish to see the *Færœ Islands*, were it not to escape their foggy rocks. Yet there is no country but has its peculiar advantages. It is cold, but it has plenty of furs for cloathing. The sheep, whose delight are hills and dry pastures, grow very fat here. The want of bread is supplied by dried fish; a food which, with some others, might be introduced to great advantage in such places of our country where fisheries obtain, especially during these times, when every thing bears so high a price. The wise institutions of the Creator are glorious in directing nature to supply us with one thing instead of another which we want: if some places have barren mountains and dry hills, they are generally counter-balanced by fine rivers or seas swarm-

ing with fishes. But we deviate too far from our voyage; the providence of GOD, and the light we derive from that source, may well enrapture our senses, and for a time engross all our ideas.

WE left off at the seventeen *Færoe Islands*, but must haste from them to the *Spanish Sea*, and its majestic waves. On the way we meet with a species of whales called the *Grampus*, but are obliged to leave them to the nicer observations of those who may for the future find better opportunities of enriching the science with a perfect natural history of whales. The *Gothenburgh* merchant, Mr. Peter Bagge, who by means of this *Royal Academy* has offered to bear the expences of a natural historian that shall attend the *Swedish* whale fishery, deserves honour and thanks for so generous a design.

ON our voyage, *Spain* is the first continent where we rest: here is a considerable degree of warmth even in *January*. The finest fruits are then gathering from those trees which we keep in our hot-houses, and the fields are adorned with beautiful flowers. We meet with people who understand several languages in

In the port towns hereabouts, of which *Cadiz* and *Port Mary* are the first we see.

CADIZ, which in the times of the *Phœnicians* and *Romans*, and before its destruction by the *Moors*, was very splendid, may afford many objects of enquiry to an antiquary. The bishop here might be able to produce several curiosities out of his own library, and perhaps some remains of our ancient *Goths* in *Spain*. This is what I leave to others. The eating of flesh in Lent is allowed only to such invalids as have express leave to do it. I could not during my stay observe that fasting was any way conducive to religion; but it might be a momentous circumstance with regard to diet and œconomy. The *Spanish* meat is (at least about this time) very bad. By this they see themselves obliged to procure the more fish, for which they have sufficient opportunities; but more especially to cultivate fruits, which are here sold in plenty. Perhaps such a periodical fast would put our gardens into a better condition, and prevent many diseases, which if they do not arise from, yet are increased by, the superfluous consumption of flesh.

CABINETS of natural curiosities cannot be greatly enriched at *Cadiz*, if you except fishes; the exact enquiry into which requires some time and patience. If they are put into Spanish brandy, which is strong enough for the purpose of preserving, it would be too expensive to have each sort in a particular bottle; and it would likewise take up too much room; but if a thread is fastened to the fish, and a piece of lead or somewhat else with holes or numbers, hangs on it, you may put many into one glass, and mark the Spanish names on the leads. Quadrupeds, birds, amphibious animals, and insects, are not so frequent here, unless a cabinet of natural curiosities could be found at *Cadiz* by some future naturalist. Plants belonging to physic may here be examined in the apothecaries shops. Those who have bought our common fumitory (*Fumaria spicata*), which by our *East Indianmen* is used against the scurvy, and who probably profited by it much, can assure you that it is to be got here likewise; but I can ascertain its growth about *Port Mary*, in case it should not be found in the apothecaries shops. It is the same thing with many of our common remedies. *Ninfi*, the most valuable root, is brought

brought hither from the *West Indian* plantations. Such a fresh root, if it could be found and brought to *Sweden*, would be very well received in our hot-houses. As for stones, you find a great number of varieties of marble near the great church, which they have already been so long building. The stones with which the *Spaniards* build are composed of shells, and are to be met with every where. If we go out of town, we find the flying loose sand most plentifully, which often spoils the finest spots of ground, and seldom leaves any thing but the *Spartium monospermum* behind it, which withstands its utmost fury, and the seeds of which lie in great quantity on the sand, and will keep for a long time. This plant is as yet unknown in our country, and might at least be made use of to surround beds containing tender plants.

ON going from hence on the high road to the towns of *Chiclana*, *Isla*, *Port Real*, *Xerez*, and *Port Mary*, which an attentive natural historian ought to do, on foot, you are doubtful what to fix your eyes upon. A good company and *Spanish* dress (I mean a white cap, a hat flapp'd down, and a thin brown great coat over the common cloaths) ease the inconveniencies

veniences of the journey. A bound folio with writing paper to put plants into, a box or two with pins to collect insects, a pair of scissars, and a pocket book to write upon, may be hid under the great-coat. The scissars must supply the place of a knife, which it is forbidden to wear. Books of natural history would be very useful on such a journey; but, to avoid the suspicion of their containing any thing against the religion of the country, one is obliged to leave them on-board the ship.

AFTER we have seen these towns and what they contain, we at last stop in *Port Mary*, where we have more opportunities than at *Cadiz* of making collections from the neighbouring gardens, meadows, and fields.

THE plants which are to be met with here about this season are mentioned in my voyage; but at other times more may be added. Each requires a particular attention, but I will only speak of one or two. It ought to be tried whether the *Coccus cacti*, the insect which gives us the cochineal, is to be met with on the *Cactus opuntia*, which here grows in the quick-hedges. Our flax, which grows spontaneously here, takes shelter under a little shrub
under

(under the *Palmito*) : ought not we to follow nature, and to support flax as we do pease, especially in the open field, where it is apt to be damaged by the wind, beat down by the rain, and frequently rots while it is yet standing in the ground. I have seen that they put sticks among the flax in *Wingacker*, and have heard that the same was practised at *Wadstenæ* by the foreigners who live there, and work at the cambrick manufacture.

THE lovers of insects find several very scarce beetles in the *Spanish* flying sand : these are *Scarabæus typhaeus*, *Tenebrio muricatus*, *Meloe majalis*; and magnificent butter-flies, such as *Papilio rumina*, and several others.

THE water requisite for the voyage to *China* is, for the most part, fetched from this town by our ships, and it is certainly exceeding clear ; but in time it becomes so full of worms, that they creep about in it as maggots in cheese : by boiling, it gets a brownish colour, and always maintains a bad taste. In a country where lemons bear such a low price, it might be tried, whether the growth of these worms could not be stopped, by mixing the water with lemon juice as soon as the vessel is filled ;

filled ; perhaps the little eggs of the worms, which are undoubtedly already in the water, might be killed by it in the beginning, and by this means hindered from becoming sea wood-lice (*Oniscus aquaticus*), and other insects, which make the water nauseous and unhealthy. Such experiments ought to be tried before credible persons, and not be pronounced as good before they have been often repeated. If this expedient succeeds, we are delivered from a great inconvenience ; and if it fails, it does not hurt the water, but makes it capable of assuaging thirst much better. We reckon lemon juice very wholesome for internal use : but, according to the account of our *Spaniard* passenger, it occasions a pain in the hands if you frequently wash them in it.

BUT we linger too long in *Spain* : we must go past the *Canaries* and the Cape of *Good Hope* into the wide ocean, between *Java* and *Sumatra*, to *Canton* in *China*, there to employ our attention in those distant parts.

OF the fishes and birds which we meet with on our voyage, we ought to keep some, the former in *Spanish* spirits, and the latter stuffed with tow, though their entire drying requires

requires a long time and frequent care. Their manner of living ought likewise as much as possible to be observed.

THE minutest animals ought not to be forgot. We frequently find some which shine in water. The knowledge of these animals and of their place of abode may perhaps hereafter be as sure a mark to determine in what parts of the sea we are, as the trumpet weed (*Fucus maximus*) together with the cape pigeons are an undoubted token that we begin to approach the Cape.

IT is more advantageous (if circumstances allow of it) to go on shore in *Java* when we sail to, and not when we sail from, *China*; since in the season of our return the rain usually occasions many interruptions. We here meet with a collection of the most magnificent productions of nature: the most remarkable animals, the finest insects, the prettiest shells, the most wondrous corals, the rarest plants, especially many sorts of palm-trees, which might afford many a year's work for an admirer of nature. The civility of the inhabitants is no small encouragement to us: and we forget the fury of wild beasts, in consideration

of

of the rarities of this island. We admire, and are astonished. The remarkable trade wind, which blows south-west one half of the year, and north-east the other half (including the time of change), in the *Chinese* sea, has obliged some *Swedish* ships, which arrived after the setting in of the contrary wind, to lie by half a year together at *Java*, or some other island. If one attentive person should be found among so many people, the disadvantage arising to the company from this delay would be balanced by enriching Natural History and other sciences. The *Indian* medicinal herbs, and other things which the *Dutch* pour in upon us from *East India*, whose native soil we are in general unacquainted with, would, at least, in part become more known: but the traveller ought first to be acquainted with an apothecary's shop, and the writers on *Indian* natural productions. It is worth enquiring, besides, whether the *Dutch* take in natural saltpetre as ballast at *Java*, refine it, and afterwards sell it to us and to others at a great profit.

PASSING by *Sumatra*, we were all reminded of its gold mines, but probably may never have any opportunity to see them. The inconstancy of the wind, the falling of the water, and

a dangerous passage between the neighbouring islands, forced us frequently to cast our anchor. When we weighed anchor again, we pulled up such a quantity of sea worms with it, as are otherwise difficult to be found. The *Chinese* sea is full of the finest and most curious fishes, which may sometimes be procured during the trade wind.

ON entering *China*, I remember the account a Swede gave me, who had sailed to the east, and travelled from *Bocca Tyger* to *Canton*: this journey deserved all possible care and expences, unless our eyes were prejudiced in favour of any other country; for we shall scarcely find so careful an œconomy of soil in any other place as in *China*. The gathering of bones, hair, &c. which we throw away, and the extreme but well-rewarded trouble they take in transplanting, are certain proofs of the industry of the *Chinese*, and of their laudable disposition to cultivate their country. If travellers would permit me, I would give them the following advice: forget if you will your expences, but never forget the least particular of the œconomy of the *Chinese*; for they regulate their art according to nature, and

and modify it according to the situation of the place.

FORESIGHT is necessary against the suspicion of the *Chinese*, and even the least opportunity ought not to be missed. A silent company is here necessary. An old interpreter would be of great use, if your finances allowed you to keep one. But with a people so totally governed by self-interest, you seldom arrive at the truth by direct questions.

WE bring the *Porcellane* clay to *Sweden*; but are we sure that the *Chinese* give us a true specimen of that important manufacture? I either do not yet know this nation well, or I have great reason to doubt it.

A PERSON who is able to bring them to his own terms when they offer their goods to sale, can best get the truth out of them unobserved, during the carrying on of the bargain. Such a merchant might, if he was besides acquainted with natural history, be of double use to his country.

PERHAPS the *Porcellane* is not manufactured at such a distance from *Canton* as we are told it

it is. The old *Porcellane*, the stone *Porcellane*, and the present *Porcellane*, seem to be made in different places, and of different materials.

Do we know what the brown or red ware is made of? Would it be impossible to get a little way into the country by means of money, and to be able to get a sight of such manufactures? Could we not get cotton (which is bought up in great quantities here by the Armenians) to *Sweden* by the way of *Turkey*? But we must dwell no longer upon such suppositions.

WE may here get collections in all the kingdoms of nature. They sell birds, fishes, shells, and insects. They will also supply you with trees; among which the *Bambou* tree, and the *Chind* root, with many others, deserve to be brought to *Sweden*. The country is adorned with the finest trees and plants, and almost all of them are very different from those of *Sweden*. But, to make still more accurate observations, some courage is required, and a careful examination of all their accounts.

THE quarry at the *Lion* tower deserves a journey; though the stones which are dug

there are worked in stone-cutters shops at *Canton*. There you may perhaps find another sort of stone, below, in, or above, the strata of sand stone. Even those who are not used to collect stones, might enrich our *Swedish* cabinets of natural history from hence; a piece of stone of the size of a chocolate-cake is easily wrapped up in a piece of paper, on which the place may be marked where it was found. Species of the earths, sands, and clays, of so distant places, would likewise adorn our collections. You may likewise enquire at *Canton* about *Ores*, viz. gold ore, from *Sumatra*, copper ore from *Japan*, *Porcellane* earth from the same place, *Tintenaque*, *Chinese* gold ore, &c.

MANY other articles there are, worthy our attention: but I need not try your patience any longer, Gentlemen; and what is here omitted may be supplied by the accuracy of the traveller.

I MUST once more mention *Java* and its neighbourhood, which we see again on our return. *St. Helena*, an *English* island, has formerly been a convenient resting place to us; *Ascension* likewise, where birds and fishes are caught with little trouble: the former on the heaps

heaps of stones, and the latter when the water throws them on shore. Stones, earths, sands, and in a word the greatest part of what is to be met with here, are uncommon in other places. I likewise pass over *Fayal*, with the other *Azores*, of whose natural curiosities, as far as I know, no satisfactory account has been as yet given. It is worthy our trouble to enquire whether they there make a sort of indigo from another plant, besides the *Indigofera tinctoria* of the *Indies*. I have seen these islands, but without any hopes of getting on shore. It is no wonder that I passed them with regret. That which gives life to all sciences is, a desire of knowing more.

T H E
 A N S W E R.

Given in the Name of the ROYAL ACADEMY OF SCIENCES, by their President Mr. JOHN FREDERICK KRUGER.

SIR,

I BELIEVE it is an undoubted truth, that the advantage or disadvantage of travel into foreign countries depends principally on the inclination and abilities of the travellers. To travel in order to acquire wisdom, is the most dangerous of all undertakings, especially when the traveller is raw and unprincipled, and not animated by the purest love of his country. The disadvantage would be but little, if the head of such a traveller could only return as empty as it set out: for it would then comprehend only the loss of the money spent. But if his mind is filled with foreign follies,

follies, the loss is double: for the money is spent, and our native virtues are adulterated by new-imported vices. This occasions a moral evil, which grows more incurable from time to time, since there are so few that are conscious of its baneful influence.

A NATION which does no honour to science, arts, and trade, can expect nothing but foreign fopperies from their travellers: for how can they be inquisitive in other countries about those things which are despised in their own? or, why should they with a great deal of trouble acquire such notions abroad, as will not be regarded or adopted at their return? And this is the principal reason of the little benefit which *Sweden* has formerly reaped from its travellers. But, since science has been equally esteemed both by high and low, we can boast of those travellers, whose sole view has been to improve their knowledge by fresh experience. The more foreign nations endeavour to conceal any wise regulations, the more is their laudable desire of knowledge inflamed. And as it is difficult to conceal any thing from a quick-sighted and wise man; so it has likewise but seldom happened, that connoisseurs (the purpose of whose travels has been the im-

provement of sciences) have returned without having obtained their aim. I even venture to say, that as much as the useless travels of our restless youths have formerly proved to our disadvantage in trade, in regard to the balance of money with foreign nations; so much has been our advantage of late, by means of the travels of some *Swedes* into the most distant countries.

THE discoveries which have been made in natural history, and the scarce collections of foreign plants made by *Kalm* in *North-America*, *Hasselquist* in *Palestine* and *Egypt*, and *Loeffling* in *Spain* and in the *Spanish* parts of *South-America*, are of such a nature, that they are not to be found in foreign accounts of travels. It is therefore much to be regretted, that the two last mentioned gentlemen finished their pilgrimage in this world so unexpectedly, on the very travels they had undertaken for the service of science: a misfortune which cannot be remembered without regret, because it has occasioned an almost irreparable loss, not only to *Sweden*, but to the whole learned world.

IF the Royal Academy had not made it a rule, Sir, to reserve the praise of its friends,

to

to a time which it always wishes may be as distant as possible; I should find sufficient occasion here to turn my discourse upon the abilities you have shewn on your travels in foreign countries; but your own writings sufficiently explain my thoughts. Give me leave however to say, that the public thankfully acknowledges the courage you have exerted amidst so many difficulties, for the enlargement of knowledge; and reckons you among the small number of travellers, who have opened a field, (which before had never been attended to) and in a country too whose natural history has lain till this time in the greatest obscurity.

YOUR excellent journal, the curious treatises with which you have several times enriched the memoirs of the Royal Academy, and the speech which you have just now pronounced, undoubtedly shew, that I do not embellish mine with flattery. It is now a long time since you have acquired the friendship of the Royal Academy; but since it is desirous of obtaining your confidence more fully, and of employing that mature judgment (which you have by travel so considerably enriched)

riched), it could find no better means to effect
than by affording you a place amidst its
members before whom I now offer you my
heartly congratulations.

A VOYAGE

A
V O Y A G E
T O
S U R A T T E, C H I N A, &c.
From the 1st of *April*, 1750, to the
26th of *June*, 1752.

By O L O F T O R E E N,
C H A P L A I N to a S h i p in the S W E D I S H E A S T I N D I A
C o m p a n y's S e r v i c e.

I N
A Series of L E T T E R S
T O
D O C T O R L I N N Å U S.

THE author of the following letters, a person of quick parts, took a resolution to leave Gothenburgh in the quality of chaplain to an *East Indiaman*. In order to qualify himself to make proper observations as a naturalist, whilst on this distant voyage, he went to *Upsal*, that he might profit by the instructions of the celebrated *Linnæus*. On his voyage he collected many scarce plants, which he presented to his instructor in natural history; who named the *Torenia Asiatica* after its discoverer. After his return, he published in a series of letters (from November the 20th, 1752, to May the 3d, 1753) this account of his voyage; but died near *Nasinge* in *Sweden*, on the 17th of *August*, 1753.

TOREEN'S VOYAGE

TO

SURATTE, CHINA, &c.

LETTER I.

SIR,

YOU will be so kind as to excuse my not complying sooner with your desire of seeing some account of my *East India* voyage. The causes of my delay have been owing to a necessary attendance on my own affairs and those of my family, and the bad state of my health. If what occurs to my memory can serve to amuse you in some of your leisure hours, I shall have more than sufficient reason to think my pains well bestowed.

THE

THE 1st of *April* we set sail on-board the ship called *The Gothic Lion*, after the west wind had continued to blow for five months together at *Gothenburgh*, and had almost induced us to believe that there is a trade-wind in the *Scaggerac Sea*. The wind made *April* fools of us^a; for we were forced to return before *Skagen*, and to anchor at *Rifwefiol*.

THE 8th of *April* we had better success. A fairer wind than the former helped us out of this corner, and we continued our voyage in company with many other ships. We met with nothing extraordinary, except a *Danish* ship called *The Hereditary Prince*, which was bound for *China*, and had left *Copenhagen* the 4th of *December*, 1749; she had therefore a very perverse wind from the time of her departure.

THE high waves of the *German Ocean*, and the *Flemish Coasts*, hindered us from reaching *Dunkirk* before the 19th of *April*. I did not go on shore, for but few had that liberty al-

^a It hence appears that the same practical wit of duping people on the first of *April* obtains in *Sweden*, as among our wags in *England*.

lowed them. But the situation of the place naturally brought to my mind the reasons why *England* would not permit it to continue fortified.

THE town is situated on an open harbour: the entrance is difficult; and the pilot asked six hundred *French* livres for his trouble. But besides that the privateers in time of war can do a great deal of harm from hence, it is very conveniently situated for the *English* smugglers, who run the *French liqueurs*, &c. over to *England*, where there is a high duty laid upon them. Not to mention that the *Austrian Netherlands* can be provided from this place, as a free port, in great plenty, to the disadvantage of a neighbouring nation.

FROM hence we sailed, the 22d of *April*, with so good a wind that we were able to anchor on the south side of *Madeira*, at *Funchal*, the 4th of *May*. The ship happened to be so stationed that the country exhibited the finest prospect I ever saw.

It rises like an amphitheatre: below is adorned with fine fields, gardens, and vineyards, to which nature has given an advantageous

tageous situation, both in regard to the rising and setting sun: at the top are steep hills covered with trees. Here and there are some country-seats, which make the prospect still more delightful: but below, as in a center, is the city of *Funchal*:

IF you go on shore, you have a battery at the water's edge on the right, and a castle on the left. Whoever lands here must carefully decline meddling with the tobacco-trade, in the same manner as in *Portugal*; a single roll of tobacco is enough to bring both men and ship into danger. The best thing is, that the custom-house officers are satisfied with any excuse almost, if it is but plausible. The town has a rampart, within it a castle, and besides this a commanding fortress on a rising ground: but all these are without a *terre-plein*, have only high banqueting-houses and very short flanks, as is usual when they are to be perpendicular to the curtains.

THE houses are pretty good, and three stories high, but the lowest are generally uninhabited. I saw no windows in private houses, but instead of them, iron grates.

THE many processions hindered me from looking about as much as I could have wished. I once saw the *Franciscan* monastery. It is not a regular building, but convenient, and shews that it has large revenues. The good fathers had retired from the world like the mouse into the cheese. I did not see one that had the least employment. It is easy to imagine that so fine a country in the hands of the *Portuguese* must have nunneries and colleges of jesuits.

My landlord, Mr. *Timothy Dowling*, assured me that he would willingly serve the *Swedish Academy of Sciences* in what he could procure from *Madeira* or *Brazil*; and it might be worth while to put him in mind of his promise, since he himself is curious. He had found some petrefactions, and a plant which he would have to be the *Laurus* which crowned the heads of the ancient *Romans*^b. The particular plants which I saw on my short walks were :

A *Cactus*, on a steep hill. When this begins to ripen, I think it might be useful to ob-

^b This is the *Alexandrian Laurel*.

serve with a good microscope whether the *pollen* goes down the whole *stylus* or not.

Musa Paradisiaca, which our Swedish sailors, together with the *Malacca* people, and the Dutch, call *Pisang*, the English *Plantain-tree*, and the Portuguese *Bananas*, bore larger fruit here than I have seen any where else; but a very lively imagination is required to see the figure of a cross in a plantain-tree.

Passiflora grew without the inclosures.

SOME *Chestnut-trees* were preserved on account of their great age and fine shade.

THE grapes of this island (which is scarce above ten Swedish miles round) yield, as I was told, between 30,000 and 50,000 pipes of wine.

IT would not be accurate to judge of any two nations by two of their cities alone; but since I have been at *Cadiz* and at *Funchal*, the difference to me seemed greater than could have been supposed, considering their religion, climate, neighbourhood, and language. A

^c See note, vol. I. p. 2.

Sennor at *Cadiz* is tawny: if he is not a monk, he wears a coat reaching to the feet, a linen cap, and a hat upon it; every thing is solemn: but in *Funchal* they had fine complexions, full faces, and did not affect so much gravity. Their dress was *French*, except the long black coats and furtouts.

THE *Portuguese* ladies are scarce ever in the streets; but as far as could be discerned when they opened their windows in order to see and to be seen, they displayed a fine fair complexion and lively eyes. I think I saw five at *Cadiz*, and these were thin and tawny. I observed that the Virgin *Mary* had correspondent airs, complexions, and shape in her pictures; and I judged from thence, that this was the taste of the nation with regard to beauty.

AFTER we had provided ourselves with wet and dry provisions, we set sail, the 11th of *May*, and made the best use of the uniform weather and wind that subsist between *Africa* and *America*, which forward the voyage to the *East Indies* with more expedition than that to *Hudson's Bay* and the *North Cape*; because the wind in those latitudes is more changeable.

South of *Brasil* we were forced to turn east. We had here, for some days together, a sea which would have frightened any one who was not used to it. I should not exaggerate more than some poets, if I say, that in one moment we were afraid of pulling down the Magellan clouds from the skies with our top-sails, and in another of crushing Neptune and the Tritons with the keel of our ship. It will easily be conceived by those who have been at sea, or know how the sailors measure the wind, with what force it blew, when I say that we ran eight knots with a reefed fore and main-sail, though the ship was deeply laden, and none of the best sailors.

CAPE *Pigeons* are a species of birds which are frequently seen in great numbers in these latitudes. Perhaps they get their name from flying in a circle, and the resemblance they bear to pigeons in regard to the size and wings. I could not examine them near enough, but took them to be *Procellaria Capensis*. Their colour is like damask, white and black; for which reason the *English* call them *Pintado-birds*, from the *Spanish*. When the wind was high, we sometimes saw the less dark-brown *Storm-finches*, which is called *Malefit* by the *Portuguese*,

tugueze, and Petrel or Foul-weather-bird in English; it seemed larger than that which I saw in 1748 in the German Ocean (*Procellaria æquinoctialis*).

BELOW the *Cape of Good Hope* the waves frequently dashed over our deck, as is common in these parts. Once they threw somewhat shining in the dark upon the deck; I ran to it, and caught up this seeming curiosity; but upon a closer examination, found it was only a little crab.

LETTER II.

BETWEEN *Africa* and *Madagascar* we found an *animalcule* in the water, which, whilst living in that element, resembled a worm; but when it was taken out and laid on a plate with water, all its articulations came asunder, and each moved by itself. We likewise caught a *By-the-wind-sailor* ^d (*Holothuria physalis*). Besides this, we likewise took an unusual sea animal of a slimy substance, which is difficult to describe, of which Mr. *Braad* has probably sent you a drawing.

WE had already seen *Madagascar*, *Maffota*, *Mobilla*, and the high *Comaro*, not without a longing desire of getting on shore; when we arrived in the *North-bay of St. Joanna*, on the 16th of *August*.

THIS country seems to be one of the most agreeable on the whole earth: and not only myself, but likewise far more experienced

^d This is the name which the *Swedes* give to this kind of *Holothuria*. F.

travellers are of this opinion. The island is hilly and uneven; but this inequality only adds to its beauty, since both the little hills and steep mountains are covered with verdure. Cocoa-nuts, plaintain-trees, pine-apples, pomegranates, papayas, and other fruits, are in great plenty here. Oxen with humps on the fore-part of their backs, goats with pendent ears, common and *Guinea* hens, are sold at very reasonable prices.

THE inhabitants are *Mahometans*, and are descended from the *African Arabians*; but they are very civil, and more honest than any one could expect. As some of our people could speak *English*, they received us with their usual compliment: “*Englishmen, come; all of one brother, come.*” They are very different in colour. The chief officer in the village where we landed was almost quite black, but his nephew was only somewhat tawny: and the same difference is to be met with among the rest. Their hair curls (as the negroes) like wool, and will hardly become straight by cutting. They were but poorly dressed: a turban was very rare among them; and a great many could hardly afford to cover what ought to be covered.

WE here caught an animal (*Lemur catta* Linn. or *Macaco* of *Edwards*) whose colour was reddish, but its *back* of a greyish-brown: about the *ears* it looked like a fox: the *tail* was grey, with black rings, about one third part longer than the body, and is set an end by the animal like that of a squirrel; but has shorter hair: the *snout* was pointed. (The reason why I give this description, though so incomplete, is, because I fear that some might mistake it for a species of ape, to which the feet would lead one: for it has five flat round nails, but the thumb on the hind-feet is very large, and the first finger had a tapering nail^e). The *teeth* were, as far as I could see, not like those of monkies; for I observed no canine ones: and when there was more than one serrated primary tooth in the upper-jaw, there were at least five little ones. Thus far I proceeded in my observations when it bit me. I was not present when it died and was thrown over-board. In curiosity and restlessness it was like a monkey; but it was more shy, not so

^e I think it hath not been observed that the second toe of the hind-foot of *Lemur catta* has a bird's claw. This is perhaps a new species, *Linn.*

docile,

docile, nor so unseasonably officious. It lives in *Madagascar* and *Mauritius*. I might have had opportunity on this voyage of examining several more exactly; but they cannot be procured without paying for them.

THE most nauseous and troublesome animals are the lizards, which are, without any exaggeration, innumerable, and much more frequent than in *Madeira*: in one cocoa-tree of twenty yards high you may see at least sixty of them. In some places I could not advance a step without stirring whole troops of them, which sculked under the fallen leaves.

THE boats in this country are commonly single trees made hollow, and round at the bottom; and they have two out-riggers, which, by means of a board pointed at both ends fastened to them, prevent them from oversetting.

THE 20th of *August*, being provided with meat and water, we continued our voyage without hindrance; except that we were under arms on account of some *Portuguese* vessels.

THE 16th of September we anchored in the harbour of Suratte, about a *Swedish* mile from the shore, because the sands prevented our nearer approach. It was some time before the trade in *Swedish* cottons could be settled with the people of the country. But this was more the fault of the Christians than of the *Mahometans*. Perhaps the owners of the *Swedish* iron, which was already laid up in our neighbours storehouses, could not relish that which was just arrived, because it was carried on a *Swedish* keel. The old accusation of our being pirates, was too stale to make any impression on the nabob. The *Arabians* had applied this opprobrious appellation to the *Portuguese*, these made use of it against the *Dutch*, who it is said employed it against the *English*. After several efforts, the gentlemen and *Myne heeren*^f at last respected his Majesty's pass, at least they left us quite at liberty.

THE sea runs commonly very high both in ebbing and flowing at this place, and is full of

^f Mr. Toreen seems to mean the factors of the *English* and *Dutch East India* companies here; *Myne heeren* signifies Gentlemen in *Dutch*. F.

sea-worms, which not only keep above water, but likewise eat the wood of the anchor at the bottom of the sea ; and if their piercers were also strong enough to penetrate the paper, pitch, and hair, which compose the sheathing on the outside of the ships, they would soon sink them.

THE nearest land is every where very flat, and consists of alternate plains and woods. On the fields millet was commonly sown about this time. The cocoa-trees are almost sacred here ; their juice is drawn off by tapping, and therefore they bear no fruit.

Banian-tree (Ficus Indica) is that peculiar tree which shoots new roots from its branches which bend down to the earth. It seems to have obtained this name, because these idolaters look upon it as sacred. Perhaps, without this providential care, this sort of trees might be entirely destroyed. I observed very attentively, but could not find the least remains of fruit, flowers, or roots. It seems to grow but slowly ; and I think the high broad tree which serves as a sea mark on the harbour is very old. It would have been extremely hazardous at the time that we were here to have undertaken

taken botanical excursions ; for the attacks of the *Marattoes* and other nations were to be feared even before the gates of *Suratte*. What I was able to snatch up there in other places, (as the dog does the water of the Nile) is undoubtedly by this time in your hands.

T H E magnificent tombs in the country built with domes (which manner of architecture the *Mahometans* greatly affect) did not seem so extraordinary, when one recollects that pride subsists even beyond this life. Some exceeding deep wells, which were dug at a great expence, and with a great deal of labour, and had very good walls about them, deserved much more to bear the name of those who had thus supplied the inhabitants with so necessary an element. The water was drawn out of them by a rope and wheel, worked by means of two oxen; being then poured into leather bags, it is brought to town on buffaloes and sold there.

T H E soil is none of the best. The earth proper for vegetation composes but a thin stratum: below is very good potters clay, which is of good use to the inhabitants, who, like

like other *Asiatick* nations, make much use of earthen ware.

AFTER rowing or sailing from the anchoring-place, about three *Swedish* miles, you come on the river *Tapti* or *Tapta* to the city of *Suratte*. The thing that first strikes the eye is a considerable building, called the castle. It has formerly had four bastions, one of which is tumbled down; and the bad wall which has been built instead of it seems ready to follow its fate. It has a good number of cannons on several terraces; but their muzzles are dropping, and they are so ill ranged that often an eighteen pounder stands close by a six pounder.

THE castle is the centre of a low wall, which makes almost a semicircle, and has angular bastions, and a dry ditch, which includes the city. These are again surrounded by the suburbs, which have the same kind of fortification, and are said to contain above a hundred thousand inhabitants.

THE search at the gate for the first time seemed somewhat rigorous to us, because the custom-house officer would know how much

money we had in our pockets: for I was told there is a tax *per cent.* on the import of money. We escaped this tax; however, I could not sufficiently wonder at such odd politics.

LETTER

L E T T E R III.

THE streets of *Suratte* are irregular, and many fine buildings have been destroyed by fire, which, according to the *Mahometan* doctrine of predestination, it is in vain to withstand. Street-pavements are unusual here; and though the owners and tenants of houses every day sprinkle the street before their doors, yet the dust is frequently troublesome. But should the streets be paved it would be in vain, for the rain which sometimes continues for half a year together would tear every thing up, and wash the whole work away. The houses are tolerably well built of bricks, mixed with wooden beams, but without braces: in the inside they are plastered with a fine white cement, which renders them as smooth as if they had been rubbed with pumice-stone. I was told that the cement was made of pounded egg-shells, and the dregs of sugar. Captain *Shierman* related, that he and the other captives had been forced to pound lime mixed with sugar dregs for the pirate *Angria*, which was probably for this use. In the lower stories

ries are no windows, and but few in the upper. In my opinion this is done merely through jealousy, and not out of any well-grounded fear of thieves; for he who steals five bottles full of rosewater is punished by the loss of both his hands, which punishment must probably deter from the commission of this crime.

I HAD little opportunity of seeing the dispositions of their houses, further than in the *Swedish* factory. This house was exactly quadrangular, and had some beds with flowers instead of a yard, in which a fine *Althaea frutex* (*Hibiscus Surattensis*) was in blossom towards the end of January. Round about it were stone walks of two steps high, and on the four sides as many halls, open towards the yard, with niches on the other three walls reaching from the roof within three feet of the floor. In the corners are bed chambers, or the kitchen. Those who live in the lowest story, have air-holes in the walls for their refreshment in the great heat. At the top is a terrace paved with stones, from which you have a fine prospect. Cisterns and artificial fountains are considered as the greatest luxury, partly on account of their refreshing coolness, and partly on account of the necessity of their ablutions.

The

The stair-cases are narrow and the steps high; as for the rest, the foundation is extremely expensive. We had in our quarters two wells twenty-four feet deep, neither of which afforded water that was drinkable. Under the *Swédiſh* latti or warehouse was a tank^g, that was arched over.

THEIR architecture is neither borrowed from the *Greeks* nor *Italians*; yet there is taste and an agreeable proportion in their columns. Some ornaments on the capital and pedestal do not seem to be in the right places; but they have such confidence in their architecture, that they would make one believe that an whole building is supported by leaves or feathers. The *Indian* architects have proved by the tomb of baron *Rheëde von Drakenstein*^h, that a building may look majestic without being either of the Corinthian or Tuscan order. Englishmen have such funerals here as a prince would not be ashamed of.

THE inhabitants are for the most part of three castes, of which the *Malabar*ian heathens are the first, which are called *Gentives*, *Gen-*

^g A reservoir of water.

^h This is the author of the celebrated book, *Hortus Indicus Malabaricus*. 12 vol. in folio.

toos, or *Gentiles*. These are the most ancient inhabitants of the country, and divide themselves, as is well known, into certain principal families, each of which has its peculiar trade. The *Bramins* and *Banians* religiously observe the law not to kill any thing which has life and sensation. I have seen them make the most moving petitions, in favour of loathsome vermin. The soldiers are not so tender, even towards their fellow creatures.

THOUGH the *Gentoos* eat nothing but milk, butter, and vegetables, yet they are rather fat. I have seen *Bramins* and *Banians* with very prominent bellies. Their persons are of a middle size, upright, and of an easy carriage; they have regular features, and an agreeable air, but are tawny.

THEIR women are generally very little, thick-set, and brown; I was told they marry early, but soon grow old. Their dress is somewhat singular: besides that their ears are quite full of rings, they have a ring with a ruby or garnet and two pearls in their left nostrils: a great number of rings are worn on the arms, both above and below the elbow; they have great silver setters above the feet; and almost

on every toe a ring of the same metal. Their half-jacket covers no more than the breast; to conceal the lower parts, they tie a piece of stuff (generally red-striped) about their middle, turn the two ends through between their legs, and fasten them before. On the head they have a cloth of the same stuff, which goes over the left and under the right arm, and is fastened to the girdle. All the rest is naked. They go so upright, that even a dancing master could not give them a better air. Perhaps this erect carriage is occasioned by their carrying water every day from the river, on their heads. A *Gentoo* woman can carry three pots one above another, without holding them with her hands, go backwards and forwards with them, turn about, stand and hold conversation, &c. Whether the ladies of quality and the rich are obliged to fetch their own water, I am not certain; however I have seen some coming with their pots, for the value of whose rings many a good farm might have been bought in our country. Their virtue is suspected by many, because all the dancing women of the *Mogul* empire are taken out of this nation.

I COULD not see their pagoda and religious ceremonies, but I observed their morning prayer

in the river. They were obliged to wash themselves before this ceremony, clean their mouths, and with their faces towards the sun say a prayer. They use rosaries for this purpose, as is usual in all countries where it is laid down for a principle of religion, that the repetition of a certain number of prayers will atone for any offence. The *Gentoos* say their prayers on their fingers, beginning at the most extreme joint of the little finger, and counting on downwards; when they have gone over all the fingers in this manner, they lay both their hands flat together, bow before the sun, and then get up and are painted by a *Bramin*.

THE *Bramins* themselves have some cross strokes of ashes over the forehead, with which they sometimes paint their whole body. The *Banians* have generally a red spot just above the nose, about the size of a silver two-pence, from which two yellow strokes run down; and on each flap of the ear is a yellow spot.

WHEN they carry their dead, they run in full career, and cry *Beyram Rānibolu*, which, as I have been told, signifies, *My brethren; call upon Rāma*. The corpses are burnt by the river side without the city, but the widow is not obliged

obliged to follow her husband into the fire. If we consider the great number of corpses that are burnt, it must necessarily follow that many thousand of *Gentoos* live in *Suratte*. They have likewise *Santons*, or living saints, who distinguish themselves from the multitude, and endeavour to make themselves pleasing to *Ram* and his brothers, by their ridiculous behaviour. Those fellows which *Bernier* has described and painted in all sorts of constrained postures, I have not seen; but you frequently meet with some who walk about more than half naked, and twist their long hair about their head in form of a turban, which must be very troublesome in this country. I once saw a novice of this order, begging in a very singular way. He placed himself before a shop, where he did nothing but stamp against the ground, and after he had very patiently lifted up and set down one foot after another, he quietly devoured the victuals he had received. It is peculiar that the hair of these fellows grows pale and turns straw-coloured; but I believe that they make it so by art; for those *Mahometan Santons* who do not cut their hair, preserve their black complexions, and have besides the advantage that they look like devils of the first order, for their hair stands an end like

a juniper bush on their heads. It is said the *Bramins* have many curious secrets; especially it is here looked upon as almost certain, that the renowned *Pedra de Cobra* is a composition known alone to them: and it may be that the *Pedra de Goa* or *Gasper Antonio*, and *Pedra de Porco* or swine, must come from the same hands. If their ceremonies are not sufficient to maintain a whole cast or tribe, they seek their livelihood another way. For this reason *Bramins* sometimes enter into the service of rich *Banians*: yet they keep their privilege; for the master is not allowed to touch the rice which his servant is to eat, because the latter would become impure by it.

LETTER

L E T T E R IV.

THE Parthians or *Persees* (who are descended from the ancient *Perians*) are the second nation which lives here. They have been driven out of *Persia* long since, according to *Hamilton's* new account of *East India*. They adore the fire, the sun, the moon, and the stars. A *Persee* cannot be persuaded to put out a candle any other way than by blowing. I observed once a little boy, who sate a great while mumbling I know not what over a burning candle-snuff, which was purposely thrown on the ground : he snapt his fingers, and continued this till the last spark was extinguished. They ought not to be called *Gafres*, because *Gaur*, *Gause*, *Guebre*, or *Cafre*, signifies an heretic, unbeliever, or heathen. They have the whitest skins of any among the natives ; are lively, indefatigable, and are generally employed in the meanest offices by the *Europeans*, induced perhaps to undertake them through necessity ; for they are more oppressed than the *Gentoos*, get into no places of trust, and have not the resources which avail

the *Banians*, namely, a thorough experience in a thousand sorts of little arts. Their women have been found to be less corrupted than most others in *India*.

IN the state they are in, one would little expect divisions among them in religious matters. Nevertheless there was one of them who had read more than the others, and had found out that they did not celebrate the new year at the due time. He got a number of followers, but met with a great deal of vexation from the opposite party. And this is nothing uncommon; for formerly the disciples of *Thomas Aquinas* and of *Duns Scotus* could hardly every part without cuffing and boxing. There was a time when a *Jew* was preferred to an *Armenian*; and a *Siamese* to a *Jansenist*: some reverend fathers will overlook many failings in a *Chinese*, and yet will excommunicate any one who differs from them in opinion, with regard to the conception of the *Virgin Mary*.

THE third cast of people who frequent *Suratte* are the *Mahometans*, or rather, as the sailors call them, *Moors*, which may be contracted from *Mogors*, or *Persians*. Their colour is a medium between the other two.

Their

Their religion is the reigning one, especially that sect which honors *Omar*. But *Ali* cannot be without a great many followers here; for at a procession which was undertaken the 26th of *November*, in honour of the two last *Persian Imams*, I think I saw at least two thousand men. At this ceremony a great many faquires or begging friars were present, dressed in white jackets, to which were sewed several rags of different colors, and a cap resembling a sugar loaf. The *Dervises* generally officiated in the mosques and on other occasions. I observed a certain *Dervise* who was exceedingly well acquainted with the ceremonial part, and who was ordered to undertake a pilgrimage to the graves of the deceased *Imams*. He sauntered all the way along, and had besides his disciples several others about him, who beat a sort of drum, and sung *Ia allah*, &c. along with it. I saw a *Santon* who seemed to deserve a good thrashing for his sanctity. He did penance by going about the streets stark naked. He was by no means shunned; but on the contrary had always a reverend *Mahometan* with him, who received the alms and kept them for him.

BESIDES the aforementioned clothes of the *Bramins* and *Gentoo* women, they are almost all of them dressed in white cotton about the body. The parts of their dress are a pair of slippers which are pulled off at the door; a pair of trowsers; a short shirt which is open before, and above the breeches; and over this a coat reaching to the feet, which fits close to the body, and has folds below like a petticoat; it has long sleeves, which fold over the hands. The *Mohammedans* and *Heathens* observe this difference, that the former tie the fore part of their coat below the right, and the latter below the left arm. They tie a girdle about their waists of the same stuff of which the coat is made, or sometimes of richer; and in it they have a precious knife, or, according to the difference of customs, a dagger. The *Persees* have a string below the girdle, which seems to be a part of their religion; for at *Dombes* (a village near *Suratte*) I saw a *Persee*, who, before he saluted his guests, measured his forehead with this string, and made a bow to the moon.

THE turban is of all colours; the green here denotes nothing extraordinary in the rank of
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the rank of the wearer. A turban of Suratte is easily distinguished from the *Persian* and *Arabian*, for though it requires above thirty yards of cloth, it fits very neatly on the head, except a great bolster which comes just over the right eye.

THE dress of the women who are seen in the streets differs from the dress of the men in regard to the coats, which are open before, and cannot be thrown back to the other side; and their breeches reach down to the very feet. They only throw a loose cloth over the head and shoulders. Poor people of both sexes wear both shorter and scantier clothes.

BOTH sexes salute in the same manner, namely, they lay the hand on the forehead or on the head. Some say *Salam* or *Sala Maleck* with it. If they intend to express submission, they first lay their hand on the ground or floor, and then on the left breast, and at last on the head. On the aforementioned festival in honor of the *Persian* martyrs, I saw another method of saluting their friends; they first put our heads on their left shoulder, then on the right, and then again on the left;

left; then we placed their hands between ours, and put them at last to our foreheads.

THE *Gentoos* make use of the *Malabaric* language; the *Moors* speak a dialect of the *Arabick*, which the *Persees* must learn; for which reason there are but few who know the language of their ancestors. As for other people, some broken *Portuguese* is sufficient in all the trading towns of the southern *Asia*. They eat sitting on a mat, spread on the floor; and lay the table-cloth on the same place. Rice serves them instead of bread, and is either boiled in pots, or kneaded and baked on plates, like the thin bread usual in *Babus Lan*¹. I am unacquainted with the drink made use of by the rich; but the common people satisfy their thirst with water; if they will have any thing stronger, they procure toddy (or the juice drawn out of the cocoa-tree) at a very considerable price. Besides this, according to the account of *Bonaventura*, the roots of millet will likewise intoxicate. A singular scruple sometimes hinders these people from eating with others, out of the same dish. A *Mahometan* can make a bargain of a hundred

¹ A province in Norway on the Scaggerca. F.
thousand

thousand rupees with a *Banian*; yet he cannot eat with him, nor go home with him. All the vessels which a *Bramin* has in his kitchen are sacred, and must not be touched by any one that does not belong to that cast. An old complaisant *Persee* woman, who gave us some milk as we travelled by, would not let her bottle come within a quarter of a yard of our glass.

THEY have flesh in plenty, but such probably as is not very wholesome, especially to those who come on shore from long sea voyages; for, if they indulge their appetites, they are subject to vomitings and diarrhoeas, and are in danger of losing their lives. It is probable that *Brama*, or whoever at first gave laws to the *Gentoos*, had discovered that these meats were very unwholesome to the *Malabarrians*. *Mahomet* found his account in the frequent ablutions, which in some cases are indispensably necessary, in order to prevent the chopping and parching of the skin, and perhaps worse accidents. If you go in the morning into the suburbs and lanes, you very soon see how busy these people are in washing the children with the left hand.

BESIDES

BESIDES the aforementioned disease, fevers frequently attack *Europeans*. The French at first lost a great many men by this disorder, and were at last (according to their own account) obliged to have recourse to the physicians of this country, who reject the use of bleeding and of tamarinds in agues. Tamarinds are not half so much in use in *East India* as in *Europe*. The *red-dog* is a disease which afflicts almost all foreigners in hot countries, especially if they reside near the shore, at the time when it is hottest. This distemper discovers itself by red spots which look like measles, itch and prickle, and then become little bladders, which, when they vanish, take the skin away along with them.

THE friction used among the ancients seems to have been very rational. A person of some consequence in *Suratte* is always rubbed at night by his servants, as an expedient of great use to promote the circulation of the blood.

THEIR music is but very mean. *Italian* pieces you are sure not to hear of in this country; but instead of it, the noise of brasen-bafons and little drums with one or two bottoms.

toms. Their wind instruments are a sort of straight trumpets, four or five Swedish ells long, which make a bleating sound. Sometimes they make use of a great horn in form of an S, which is however only played upon when the nabob or some other man of quality is coming. The reveille was played upon a flagelet from the castle. Guittars and fiddles were the instruments of beggars, who begged in verse, and accompanied them with vocal music. A war-like music is generally in use among the southern *Asiaticks*, and this they want very much; for softer tunes would make them more effeminate. Perhaps the *Spartans* had more than meer custom in view when they broke a string of the lyre which was above the usual number.

THEIR jugglers are not to be compared with those of *China*, except that they can fascinate in such a manner the *Cobra de Capello* (*Coluber Naja Linn.*) as to make it dance^k. When the *Moors* or other people have a mind to divert themselves according to the custom

^k *Kempferi Amœn. Exotic. Fascic. III. Obs. ix. p. 565—573*, gives the most credible and curious account of these tricks with the *Cobra de Capello*. F.

of the country, they get a band of dancing women (for such is their name though they stand still for the greatest part), who sing amorous songs, with all sorts of wanton gestures. Such a diversion is often very troublesome to the neighbourhood, because the instruments generally used at it will allow of no rest all the night.

I HAD seen no blue eyes either in the southern parts of *Europe*, or in *Asia*, till I found an *Arabian* at Suratte whose irides were not the common colour. I was told, that they were not esteemed in seraglios, perhaps because they do not sparkle so well; but dark eyes seldom look serious.

THE arms of the *Moors* consist of muskets with matches, bows, sabres, and daggers, the latter of which have a singular shape: for the handle consists of two pieces of iron, which are so far distant as easily to afford room for the hand to take hold of two cross iron bars. The breadth of the blade, near the handle, is three fingers, or about two inches three-quarters, and its length one quarter and half a quarter, or thirteen inches and a half. They like glittering arms and silver hilted sabres.

Besides

Besides this, they have a round hollow shield of buffalo skin, a yard in diameter. The pions, or the people which go before men of rank in this country both for parade and security, carry their swords drawn, and their shields on the left arm.

THE advantageous situation of *Suratte* for trade appears from a map. The *Arabian* merchandize can here be very conveniently bartered against the *Indian* and *Chinese* manufactured goods. But it is unlucky that the government is not stable : the court is inactive at *Delhi*, while the governors at *Suratte* fight with each other.

THE continual rains from *May* to *September* frequently change the sands, and the gulph is as full of pirates as the *Baltick Sea* was in the time of the *Wickinger*. These three obstructions, together with some others, have induced some *Europeans* to have entertained sanguine hopes of getting this trade to themselves ; which would not be difficult, if there was toleration in religious matters, if the government was less despotic, and the pirates were opposed with more vigor, who, it is said, have been purposely neglected by the powers

which wanted to be sovereign in the eastern and western oceans. But, notwithstanding this, many thousand rupees pass through the hands of the merchants for *Persian* and *Chinese* silks, and white striped checkered cottons; likewise for camboya, agates, and *Ceylon* stones, which are always soft; also for diamonds from *Vija Poor* and *Golconda*, and for many other goods. The *Moors* get a considerable part of the profit, because they enjoy the greatest protection from the government; but the *Banians* are the most cunning merchants in all the world, which is nothing extraordinary, since they have for a long space of time improved and derived down their skill in mercantile affairs from father to son. If what I have been told is true, they must certainly be enormous usurers: for they are said to take one rupee interest per month for nine rupees. Hence it is certainly not to be wondered at that *Shah Abbas* should expell them out of *Ispahan*, in order to admit a far more honest people, namely, the *Armenians*. It is pretty plain that the merchants have opportunities of gaining considerable fortunes here, when one of them had nineteen ships at sea on his own account: but it was looked upon by the *Mahometans* as a clear proof of
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the invincible power of fate, that he could never get to the twentieth. He is said to have been possessed of a whole *arip*, that is, 1000 millions of rupees; which is an incredible sum, when you observe that the invasion of the *Mogul's* empire by *Nadir Shah* did not cost more, when every thing which can be estimated by money was taken into the account.

Of the weights here usual, a *candee*, or *candy*, is twenty *maunds*, and a *maund* is forty *seer*¹: a *seer* is little different from a *Swedish* grocery pound. Their less weights I could not get an exact knowledge of, but gold and silver they weigh by the seeds of the *Abrus precatorius*^m, because they are light, hard, and durable. Their most usual coin is the *rupee*, which weighs about twenty-one pennyweights; and it is said, its silver is finer than that of the *piafres*, on which account the *Chinese* take them sooner than *piafres*ⁿ. A

¹ One *maund* is thirty-seven pounds and a half, and one *candy* is six hundred wt. two-thirds. See *Rolt's Dictionary*, under the article of weight. F.

^m Formerly a *Glycine*, but since changed by *Linnæus* in Ed. 12th of his *Systema Naturæ*. F.

ⁿ A *rupee* is about 2s 6d sterling. F.

rupee is valued at forty-eight *poise* or *pice*, and a *poise* at forty-eight *almonds*. The coining is performed with an hammer, which is directed by the hand. This is the reason that the *rupees* sometimes crack, which makes them found ill in the hand of a banker, and lowers their value. There is a species of *rupees* which has the honour of being mentioned by our connoisseurs in coins: but what I have read in their books, was different from the account which was given me in the Indies. If it is right, it is as follows: “*Nour Mahal*, “the wife of an officer, was once undesignedly “seen by the Great Mogol *Jehan Ghir*, who, “since he could not come at her by any other “means, made away with her husband, and, “after many solicitations, at last prevailed “upon the deeply-afflicted widow to accept “of his own bed. Her step-children felt “how well this beautiful lady was skilled in “politics. *Jehan Ghir* changed her name, “and instead of *Nour Mehal* (Light of the “Ladies), called her *Nour Jehan* (the Light “of the World, or of *Jehan*). He likewise “once gave her the liberty of having *rupees*, “coined under her name; and added that “compliment to it that she might stamp the “eleven heavenly signs on them.” These coins

coins are already scarce in *Indostan*: and the reason, as I was told, is, because the *Moorish* ladies use them for necklaces; which is very probable, considering the great confidence the *Mahometans* repose in fascination, amulets, the influence of the stars, talismans, &c. The rupees are current along all the coast of *Asia*, but under different values. Thus a *Bombay* or *Pondicherry* rupee loses four *per cent.* in *Suratte*; and on the other hand, a *Suratte* rupee loses at *Mahee*. The orders of the magistrates seem to be insufficient to settle this difference, for the *Banian* will give a greater value than perhaps would be settled by regulation, if from the pureness of the silver he finds he can be a gainer. We new-comers were not the only ones who suffered inconvenience from the change of value, but even those who had already made a stay of some years here were not free from it. But besides this four *per cent.* you likewise lose two, three, up to four *per cent.* according to the sum, if you give money to your servant to barter it, or buy something with it. This he does not take clandestinely, but looks upon it as his perquisite, which he thinks the buyer or seller must pay him without making any difficulties.

THERE are many sorts of animals in this country, but this dry soil cannot support them in great numbers. The nabob had a very large and fierce tiger in a cage. In another place I saw a less one, marked with stripes across; but its snout, gait, and eyes, gave him the appearance of a wolf. If you sleep in a farmer's room at night, it is not uncommon to hear the howling of the jackcall^{*} (*Canis aureus* Linn.) round the house. The nabob had likewise some elephants in his possession, which are only made use of when he and his family have a mind to shew themselves on some festival. During our stay we saw the gratitude of an elephant: a soldier in the Dutch service used to go into the governor's stables, and to feed an old elephant with the rice which he had about him; he once came so drunk to him that he tumbled down under the animal, and fell asleep between its feet; but the elephant guarded him so carefully, that scarce a fly dared to come near him.

HORSES are very rare and valuable animals in *Indostan*. The best horses are brought

* For jackcall see Hasselquist's *Travels*.

over sea from *Arabia*, where the *Arabians* sometimes esteem them above their wives and children I have been told, that sometimes they pay as much for the genealogy of a horse as for the horse itself.

WE did not see many camels. The goats are of that kind which have pendent ears. The oxen have a hump on the back like those at *Madagascar*, *Joanna*, and as far as the Straits of *Malacca*. The sheep have bent snouts and pendent ears, their wool is more coarse and stiff than the goats hair, which plainly convinced me that a warm climate does not always produce fine and soft wool. Higher up in the country *Gazells* are to be met with: you must already have seen, Sir, that their horns have rings all the way, and are screw-shaped, by the offensive and defensive arms which I bought of a *Patan*, and which M. *Lagerstrom* undoubtedly hath sent you before this time.

SOME Germans call the turkeys^a *Calcutta* hens; for this reason I looked about for them here, and only found them in one place, and

^a Turkies are altogether *American*.

to the best of my remembrance I was told that they were foreign in this country.

GREEN parrots with long tails (*Psittacus articularius*) are very numerous here. Their sagacity in knowing where to find a breakfast is remarkable: for the house of the *Shafdaar Khan* was built in such a manner, that through some holes contrived for that purpose the birds could get to the rice which was refused to the poor inhabitants.

THEY put oxen before their waggons and carts, and take as much care of them as a hackney-coachman of his horses. Their excrements are gathered, mixed with straw, and used as fuel; the ashes of it make the paint which the *Bramins* use. They want no whip to drive them, but in the *Portuguese* manner a stick with a spike at its end. Their carts are of a peculiar construction: the axle-tree is made of iron, and scarcely of the thickness of the last joint of the little finger; it is fastened to the axle-tree of the wheels: the wheel moves between an upright standing pole and two lynch-pins, which, together with an arch, carry the *bamboo* net or cover on which one sits; this is either with or without curtains.

curtains. The *bamboo* sticks bend upwards near the thill, and make a seat for the driver, on which he rides as on a saddle. This is the carriage of the common people. The *Armenians* and *Europeans* rode in coaches, but they were of such a construction as I suppose might have been in fashion in the year 1500.

THE greater nobility are carried in a *pale-kee*, which looks very like a hammock fastened to a crooked pole. When the ladies are carried, they are shut up in a box twisted of *bamboo*, which is afterwards covered at the top with double cloths. On each side goes a stout black eunuch, with a drawn sabre in his hand.

THOUGH dogs are held in abomination by the *Mahometans*, yet the streets are full of them. The *Persees* have a certain veneration for them; and I was told, that in a famine which happened some years ago, alms were given to the dogs.

THE houses are not so infested with lizards here as in other parts of *East India*; but even the stone walls in the uppermost stories are not free from a sort of little brownants. The *Gentoos* take

take great care not to kill any one, and feed them with powder sugar, which they throw on the floor.

I WAS told, that the heat was still greater at *Gamron* and *Bassora* than at *Suratte*: and if this is true, then it must be excessive; and I do not wonder that the *Dutch* have given up *Gamron*. Even in *October* the *Swedish* thermometer rose thirty-seven degrees. A *Florentine* thermometer was at half an hour past five o'clock in the morning at thirty-seven degrees, and in the afternoon it rose to seventy-five degrees. Father *Bonaventura* has observed that the cold is greater three days before and three days after the new moon. It is somewhat singular, that notwithstanding this place is but just north of the æquator, the time between the months of *May* and *September* should be called winter, and other months summer, only because it rains during the former.

THE Christians in *Suratte* are *Armenians*, of which the greatest part were natives of *Julfa*, and have their *Archimandrite* here. They have several books in their language, printed at *Amsterdam*. They are known in trade on account

account of their industry and cunning, and live very well on their profits. It is here necessary that a merchant should cut a great figure, some of them dress quite in the *Moorish* fashion, and wear a turban; others a callot and a velvet cap, with four prominent parts; the brim is two inches high, open behind and before. They have commonly their shroud from the sepulchre of CHRIST ready at hand ^{q.}

THE *Portuguese* are the only Roman catholics who live here. It is remarkable, however, that, notwithstanding the severity of the *Portuguese* inquisition against the *Jews*, the *Jew Kohen* has the management of the *Portuguese* affairs at Suratte.

THE *French* seem to endeavour to re-establish their declining trade. Three *French* capuchin friars hired a house, and were forced to get their bread as well as they could. Their superior father *Bonaventura* sometimes gained some small benefactions to the convent by his knowledge of medicine, though he was obliged to give many plasters away gratis.

^{q.} A consecrated shirt perhaps from the sepulchre at Jerusalem.

These preachers of the gospel are obliged, by the commands of their despotic superiors, to continue here during their whole life^{on}

THE Dutch have a director, with a council and officers, as is usual with them in *East India*.

THE chief factory of the English in these parts is *Bombay*; however, they have likewise a factory at *Suratte*, with the necessary officers. All the factories belonging to the English in the *East Indies* have chaplains.

HERE are likewise Jews possessed of considerable wealth. One, by name *Moses Tobias*, was distinguished on account of his liberality towards people of all religions; he is said to have commonly distributed in charity forty rupees per month. A *cakan*, or scribe, told us, that the long-sought-for sceptre of *Juda* could still be found; and that he had certain accounts of a great number of Jews in *Africa*, to the west of *Abyssinia*, who still were subject to their own magistrates.

THERE is an admiral at *Suratte*, but he has the misfortune of having no ships under his command.

command. The *English* and the *Dutch* exercise the privileges of admiralty in the harbour, so that ~~not~~ a single sloop can get up to the town without their permission. Their greatest merchant ships are built after the *European* manner. It is remarkable, that the older a ship is, the easier it procures a cargo, because it is thought to be lucky. The ships which they make use of against their enemies are called *goerabbs* by the *Dutch*, and *grabbs* by the *English*, have two or three masts, and are built like our ships, with the same sort of rigging, only their prows are low and sharp as in gallies, that they may not only place some cannons in them, but likewise, in case of emergency, fix a couple of oars, to push the *grabb* on in a calm. *Gallivates* are less, and are used, like the *grabbs*, in piracies and for trade. They have seldom more than one mast, and incline forwards sixteen or eighteen degrees: they have a sail, which at a certain distance looks triangular, though it has four corners. The boats which are called *burry* have the same sails. The ship sloops, which are worked on with saddles, are like the preceding, somewhat pointed before, and narrow behind. The planks of all these vessels are made so oblique, that they lie one above another:

other ; they are fastened with rails. Instead of tow and tar, they use cotton and a sort of thick oil, which is said to make them so tight that they have less occasion to use the pump than the *Europeans*. In the timber which they use to build ships of, iron does not rust so much as in oak ; for which reason they are forced to clinch the nails well on the inside, and therefore our short thick nails are of no use.

THIS nation has a peculiar agility in swimming ; I saw one swim a good way, and hold above water eight pound weight in his hand. Practice does much towards this feat ; but perhaps there is a slight in it, for they only make use of the right arm and left foot, and then the left arm and right foot alternately. During the time of our stay here we were not attacked by pirates. On the 20th of October a pirate, who was called *Budgero*, anchored in the harbour accompanied by about two hundred great and small vessels, which made a good appearance at a distance ; on their approaching and anchoring in part between us and the shore, we prepared every thing in order to receive them. However, they did not offer us the least insult, but after a day or two went their way

way and left us alone. Yet it must not be supposed that they are always so civil. In September some *Gallivates* sailed out of the port, having an *English* ship for their convoy. It was attacked before our eyes, and in the face of the other *English* ships, by eight or nine piratical *Gallivates* which kept up a continual fire for a couple of hours, without any body being able to give assistance, on account of the tide. The end of this was, that the pirates succeeded in taking two or three of the other *Gallivates*; upon which they left the *English* ship to pursue her voyage without any farther molestation.

I AM unwilling to omit one or two accounts belonging to political intelligence, though I cannot be answerable for their truth. Towards the end of April, 1748, died the great *Mogol Mahomed*, of the venereal disease according to the Jesuit *Tiefenthaler's* account. His only son *Achmed*, by a concubine, succeeded him, and was then on his march returning from *Seranda*, where he had defeated the army of the *Patans*, who had undertaken an irruption into the empire from the mountains of *Kandahar*. Of the state of the *Persian* empire, I had the following account. *Nadir Shab*

Shah put out his eldest son's eyes, from suspicion, and appointed his other son his successor. But after *Nadir Shah* was murdered on a hunting match, all his family were killed by his nephew called *Adel Shah*, only excepting *Sha Rock Shah*¹, who was *Nadir Shah*'s grandson, and the son of the daughter of *Shah Houssain*. This *Adel Shah* is said to have been very mild towards his subjects, especially towards those who lived about *Ispahan*; for he not only freed them from paying any thing to the king for five years, but also gave them money to enable them to cultivate the soil. When he was visited by the law of retaliation, *Sha Rock Shah* took possession of *Kharazan*, and had, as I was told, the greatest part of the riches of *Nadir Shah* in his hands: *Solyman Shah*, who was formerly *Sha Rock*'s servant, took possession of *Ispahan*, and *Cely Mehemet Shah* took *Tauris*; the undertaking of prince *Heraclius* we first learnt at *Canton*, where the Armenians told it with great expressions of joy.

WE weighed anchor the 1st of *March*, 1751, after a stay of five months and a half;

Mr. Toreen seems to be mistaken here, since there is a repetition of the word *Shah* in *Sha Rock Shah*. F. during

during all which time I had no opportunity of being on shore more than twenty-three days. We sailed to *Mangulor* with land and sea winds, successively changing, and anchored there the 12th of the same month, with the same difficulty as at *Suratte*. After this, we did not anchor before we came to *Canton*. It would be but a small expence to make a good and convenient haven, behind a narrow inlet which would contain a whole fleet.

THE town of *Mangulor* is open and large; and contains many gardens. The houses are low, and generally made of a reddish topaceous stone, which, as I was told, is soft under ground and easily worked, but grows hard in the air.

THE tiles are shaped as those at *Suratte* and *Cadiz*. The brickmaker forms a hollow cylinder about twelve inches long, and four in diameter; this is cut into two equal parts lengthways, and burnt in little kilns. They tile here by single rows, and when one row of tiles is laid so that the concave part comes uppermost, the next is inverted, and so covers the ridges. There is a constant saltiness in the

earth, both here and in *Suratte*, which eats away the lime near the ground.

I SAW two waggons, which seemed to be intended to be carried about in a religious procession, besides a representation of a white elephant, which was placed on wheels, as I suppose for the same purpose. The wheels of the waggon were of one piece of wood, three feet in diameter, and of a proportionable thickness; thus they are more than sufficient to crush the poor people who expect to gain eternal happiness under the sacred wheels.

THE inhabitants are heathens: they dress like those at *Suratte*, except that the cottons with red stripes are more in use here, and that they go barefooted, or bind a wooden sole under their feet like the friars of the order of *St. Francis*. When they ride on horseback, they only put their great toes into the stirrups.

BANIAN trees (*Ficus Indica*) are very numerous and large: they are taken great care of. Round about this place are great and open woods; but I was told, that if I entered them

them I should be lost, because they were the habitations of many fierce tigers.

I COULD only be twelve hours on shore. The 17th of March we left this place, and having nothing to do at *Cananor*, we sailed to *Mahie*, where we stopped the 19th of the same month.

THIS town or plantation belongs to the French *E. I.* company. It is near the shore, and the mouth of the river is so covered with a ridge of rocks above the water, that a stranger cannot get up with a boat. Several redoubts with high ramparts serve as a defence, which in this country are esteemed a considerable fortification. At the top of one of the redoubts, blocks of wood were erected, which at a distance looked like men. I forgot to enquire into their use, but they seemed to me very proper to fill the holes when the garrison was forced to be on the ramparts. This would be an invention, which in some cases might be as useful as blocks of wood instead of cannons. I have often heard that wooden heads are placed in the advanced stations; but that they are likewise used as blind works in sieges, I never knew yet.

THE sun was exactly vertical to us ; the thunder was heard to make an exceeding great noise, especially on the *Cardomom* mountain : the heat was so intolerable, that even the natives were forced to keep in during the middle of the day. The poison of snakes and of other venomous animals seems to be more fatal in hot climates than in cold ; if the accounts we have in *Sweden* of the viper's bite, and in *East India* of the scorpion's sting, are true. The *French* therefore quite dissuaded me from going into the woods. Nor could I have made any useful observations there ; for the person that undertakes to amend and explain the *Hortus Malabaricus* ought to be master of the *Portuguese* and *Malabaric* names, which Baron *Rhede* has confounded ; and the time of one's stay here ought to be the whole rainy season ; because at other times the burnt-up *Malabaric* soil is unable to produce either flowers or fruits ; but this season is very dangerous for ships on account of the hurricanes.

IT is impossible to examine a plant in such a scorching heat, without one knows all its characteristics as it were by heart : for while you hold it between the fingers for a moment
or

or two, it withers and becomes unfit for preservation. I learnt this on my former voyage by very irksome experience: and therefore, when I could not get several specimens of the same plant, it seemed best to me to keep single ones for our master. I here saw the thick bamboo in one place. Its height was scarce four fathoms, its stem, which is the thickness of a hand's breadth, is naked, and has only some digitated leaves at the top. Its numerous ears, which came out of their spathas on the middle of the stem, were then in bud. The other species of bamboo, grow to the height of six or seven fathoms, but they are not above an inch thick. They have branches on the stem, and those have again pinnated leaves.

I HAD here an opportunity of admiring an elephant. Its master had let it for a certain sum per day; its employment was to carry timber for building, out of the river, which business it dispatched very handily under the command of a boy, and afterwards laid each piece one upon another in such good order, that no man could have done it better.

IF all the *Malabaric* oxen are like those which we got, I do not wonder, that those heathens will not eat their flesh. The mere description of them would make the most hungry lose their appetites. If we must derive the badness of their flesh from the *oestrus*^s, then either the cause or the effect is greater here than in *Sweden*. Perhaps this dainty meat was the occasion, or at least contributed to the following disease: viz. that many of our men were afterward exceedingly tormented by intolerable bloody ulcers.

THE ugliest animals we saw were the *Gentoo* women, who were quite naked except their thighs. Their naked and jetty bodies were not in the least alluring.

IN *Mabie* I obtained that curious insect, which has a long sinew between the thorax and body, and is in the little collection which I have sent you.

^s The *oestrus bovis* deposits its eggs in the backs of cows, which turn to maggots as large as the end of one's finger, called in some counties of *England*, wornils. When cattle are pestered with these, they are always out of condition. See *Derham's Physico Thcol.*

THOUGH I am not disposed to judge of the European nations, merely by their behaviour towards each other in the *East Indies*; yet I cannot omit taking notice, that the French have every where been very civil to us. They always called us *leurs grands alliés*, that is, their great allies; and their civility extended so far as to give us leave to bury one of our dead in their church at *Mahie*.

OUR superiors had made no regulations on shore; for which reason, every one who went on shore was forced to procure as he could every thing for himself; which made it more advantageous to stay on board.

BESIDES the gold coin, called pagoda, which is valued at four rupees, their silver coins are rupees of which each contains five *fanno*. *Tar* is a copper coin of different values.

THE boats, which are made use of here and at *Mangulor*, have flat bottoms, like common boats, and are pointed at both ends. For fear of oversetting, one ought to know how to keep an exact equilibrium. I was told that the *Malabaric* rowers at *Mahie* were obliged

to give head for head, if an *European* was drowned in their boats.

AFTER we had provided ourselves with the aforementioned animals, which were only *like* oxen, and with other things, we set sail the 21st of April. Nothing particular happened, except our losing the main yard, and another yard. This damage was easily repaired; but we lost four ship boys on this occasion. Afterwards our voyage to *Queda*, in the straits of *Malacca*, was very fortunate; and we cast anchor there the 13th of May.

THE country is very low to a great distance from the sea shore, and every where covered with thick forests. Among the trees was the tamārind tree; the papay tree; the *Abrus precatorius* (the seeds of which the inhabitants of the *Malacca* coast put into rings for want of stones, because it is not usual among the eastern nations to wear mere gold rings); a tree, which I could not get to, but observed that it sent branches towards the earth from the top, different from its common branches. The *English* call it mangroves in the *West Indies*.

AN unfinished castle was situated on the mouth of a smooth river. The engineer seemed to be no disciple of *Vauban*. The faces were parallel to the curtains, and the walls so thin that half a dozen six pounders would have made a breach. In the inside were some houses, the roofs of which served for batteries. The cannons were most of them from an *English* ship which was lost just before the river, but so leisurely that there was even time to get those heavy goods out. Though this castle has such a miserable appearance in the eyes of *Europeans*; yet it is sufficient to keep the nations hereabouts in awe, merely because it looks *European*. I saw here some prisoners, whose necks and hands were fastened to a pole with willow-twigs. They had coined money, and seemed not to hope for pardon: but did by no means shew any fear; a foolish insensibility must be the effect of the doctrine of unavoidable destiny.

THE other houses are generally built on poles, four feet above ground, on account of the high tide. The walls and floors are frequently made of bamboo sticks split in pieces.

MAHMUD

MAHMUD *Houssain Basha*, who was master of the place, was a vassal to the king of Siam. He was exceedingly interested for the promotion of trade in his country. He was (as all the other Malayans) a *Mohammedan*; but tolerated heathens and Christians. He would not permit the widow of a *Frenchman* to go away; but made up matters so well, that she married a *Chinese Christian*, in order to have the *Europeans* who come there well received, for he wanted to ingratiate himself with them. We could not take in the quantity of tin that we intended, as he insisted on keeping some for the ships that were coming after us.

OXEN, buffaloes, and chicken, are very reasonable. The woods are the habitations of tigers, which are said not to attack men: but as they carry off the dogs from the houses, one dares not venture out far. Monkeys are very numerous; some are large, with very long tails, grey hairs, white beards, and black skin; some less ones have short tails bending upwards. A parrot (*Psittacus galgulus*) was no bigger than a goldfinch. Its colour was dark green on the back, and light green under

nder the belly: the upper side of the tail and the throat were red; the bill was black. Some had a blue spot on the head. When they sleep, they always hang in the cage so as to point with their head downwards. We observed that their nests were remarkable for their exceeding fine texture; but we did not see the birds. If they had a different construction, the monkeys would be very mischievous to them; but now, before they can get to the opening, the lowest part as the weakest breaks in pieces, and the visitor falls to the ground without any danger to the young birds.

THERE are several sorts of crabs in the sea, besides various other fishes. I should be sorry if one species which I sent you by Mr. Lagerström should be injured; its eyes were on long pedunculi, and it had peculiar feet (*Cancer granarius*). While it was alive, its eyes sparkled in the dark, like cat's eyes. In and by the side of the river are whole cart-loads of oysters, and likewise crocodiles by hundreds. When the water during the tide fills all the ponds and ditches, with which nature has divided this low country, the crocodiles go up a good way into

into the woods ; therefore, when a great motion is heard in these pools of water, the best way is to make off immediately.

TIN is not found in this *Bashaw's* country, that I know of : but he has the toll and custom of what is brought there. I am told, that in the places where it comes from, they do not fetch it out of the mountains, but dig it out of the ground, together with the sand. It is reckoned better than *English* tin, at least a *Chinese* likes it better.

THE coins are *rupees*. A *rupee* contains three *cupang*, and a *cupang* four *condorin*. They are all silver.

THE 27th of May we set sail : before *Salingor* we staid in vain from the 30th of May to the 2d of June : but afterwards we sailed among the many fine islands in the *Straits of Sonda*. On one of these islands is a species of stones very like the sand-stone from *Oland*, but it burst into little cubic pieces, scarce above one foot and a half long, and as much broad.

IN the beginning of *July* we first saw *China*. We passed *Macao*, were searched by the custom-house officers, who are in the castle near the narrow mouth called *Bocca Tigris*, and anchored near *Wampoo* the 7th of *July*.

LETTER

LETTER V.

THE 17th of March I sent the continuation of my accounts by a friend. I will now relate what I have seen in *China*.

A PERSON who for the first time visits this country, thinks he has a new world before him; for almost every thing looks different from what he has seen in other places, unless where climate renders some similarity of customs necessary.

THE rocks and the shore, even a good way into the sea, are covered with fishermen and their tackle; which sight immediately leads one to conclude, that the country must be very populous. The naked and uninhabited islands hereabouts seem at first to occasion other thoughts; but, on advancing a little further, the plains and vallies speak the number and the industry of the inhabitants.

THE lowest fields are sowed with rice, because it requires a great deal of water, which it

it gets by the tide without any trouble to the husbandman. These fields are crossed by such great canals, that during the flood one may go in boats on them. Rice is sowed and reaped twice a year. During its growth, it is pulled out and planted into serpentine lines, to admit the water more freely to the roots. Those who have not the advantage of the tide, are forced to carry or lead the water, or bring it up by machines, of which Mr. William Chambers made a drawing on a former voyage, and has probably communicated it to the superintendant Baron Horlemann.

THE high places are likewise employed to great advantage: for there are mountains whose declivity amounts even to forty degrees; but they are divided into several terraces, on which are planted *Convolvulus Batatas*^t, *Dioscorea*^u, *Gossypium*^w, sugar-canæ, and many other plants, according to the time of the year, or quality of the foil. When it rains, the rain water is preserved, and conveyed from one story to another. If it rains too much, a ditch is opened, through which the water may run away freely. The use of dung may be judg-

^t Spanish potatoes.

^u Yams.

^w Cotton.

ed of by the careful manner of gathering of it at *Canton*, and by the stinking sampanes, or boats, which daily pass by our ships. But on the fields which were near the ships, we seldom saw any other manure than the roots of rice, which, together with the clay sticking to them, are thrown on the higher soil, which is mixed with spar.

THOSE places which cannot be tilled, are planted with trees, if the high situation and dry soil will allow of it. But a great part of such places are destined for burying-grounds ; which practice would induce one at first to suppose that the *Chinese* acted against their own principles, in leaving so much ground for burying-places, and by that means making them unfit for use ; since the graves must not be disturbed. But for this very reason most people are buried on steep mountains, or other places which cannot be used for other purposes. The respect which children and posterity shew to their parents and ancestors, even after death, is to be considered as a consequence of the implicit obedience to which they are obliged in their life time ; and which is the foundation of their exceeding great submission towards the magistrates, without which it would

would be impossible to rule such a number of unmannerly, stubborn subjects. Over their graves are generally little open stone-buildings, which are almost semicircular, and have a niche for a perfuming vessel. I only found one single grave more magnificent than the rest, on the northern side of the town; it was covered by two round vaults, and shut up by a wall.

ON some high hills there are towers. They have all of them eight sides, are nine stories high, are almost every where of equal breadth within, have every where windows, and terminating in a point. I was told, that in time of war they were used as watch towers: they are therefore so dispersed, that the given signals can easily be seen from one tower to another. In the villages were less square towers, three stories high; but the *Chinese* said, that they were *pagodas*.

ONE of the first things on arriving here is to procure a *bancshall*; this is, a great house constructed of *bamboo* and mats on a place appointed for that purpose, in which the stores of the ship are laid up, and whatever is not absolutely necessary on-board, or whatever

would be in the way during the cleansing, lading, and clearing of the ship. The *Dutch* say, that they will spend no money in building a *bancshal*; but others say, that the *Chinese* will not give them leave. Those who have been confined to a ship so long as we had been, would easily be attracted by the adjacent isles to go on shore. The *French* island, where the *French* have their *bancshals*, is almost the only one where we enjoy the liberty of burying our dead. It is dangerous for a single person to venture too far, because he is in danger of being stripped to the very shirt. Though the curiosity of the *Europeans* may not be perhaps void of blame; yet the natives look as if they were glad to find a pretence to use violence against a stranger, especially when they are sure of over-powering him.

ON the passage from the place where the ships ride at anchor to *Canton*, which is one *Swedish* mile and a half, you are obliged to have your baggage visited three or four times. The custom-house officer, who lies in his boat continually, quite close to the ship, gives an inventory of every thing you take with you; and all that you carry besides is to be confiscated according to the laws at the three custom-houses,

houses, where you are obliged to stop; except you go in a sloop with a flag. The river is at first on both sides bordered with rice-fields; and this is the fatal scene on which many lascivious *Europeans* have lost their health.

THE further you advance up the river, the more the number of both great and small vessels increased, part of which lie still, and part go up and down the river. Nearer to the town they have scarce room upon the river; but are forced to bear hard one against another behind and before; and to form, as it were, streets, length-ways and cross-ways. Those who in this manner spend their time on the water, are not all of them sailors or fishermen: the ferrymen, who come and set off at certain times, are in great numbers; but the rowers, or oar-men, are still more numerous. The others are tradesmen, such as carry on some sort of business; they keep wives and children, hogs, and chicken, together with all their utensils, in these boats; for which reason they need not come on shore: and there are particular people appointed by the government to overlook them. I can say no more of the city of *Canton* itself, than that its drawing in Lord *Anson's* Voyage round the

world is inaccurate, and taken from an old drawing which I had already seen in *Sweden* before Lord *Anson* left *England*; and the original itself is very faulty. It is surrounded by a smooth, round, high rampart, which has at the top loop-holes, or *crenaux*, very close together. In the river are three little islands, with castles in the same manner; with this addition, that in the inside a cavalier two stories high is raised, which commands the works within and without, and likewise serves as a retirade. The other redoubts on the neighbouring hills on the country side are of such a construction, as shews that the plan is designed for security, but not to shew their genius for war. A work like this might be defended for a long while in this country by good officers and valiant soldiers: but when a *Chinese* knows there is a place of retreat, he would hardly dare to perform heroic achievements on the out-works.

THE suburbs, in which the *Europeans* have their factories, are divided by many canals, and crowded with buildings as full as possible; for several of the houses are even a great way over the water, built on piles. The lodgings are spacious, and the yards narrow and long,
and

and therefore they have been obliged to make shift as they can. Since they like to lead their foughs underground, the foundations of their houses must cost a great deal ; but the super-structures are not very durable. Here and there you meet with open yards, in the midst of which the floors of lodging-rooms are laid, and covered with nothing else but a tile-roof. The stairs are under the same inconvenience with those at *Suratte*, viz. they are narrow, and the steps are high and likewise narrow. When the rooms cannot get light enough from the doors and open walls, they have windows of mother-of-pearl : for which reason the cathedral church at *Goa*, on account of such windows, need not be thought one of the wonders of the world. The walls are covered with fine white or painted paper, and ornamented with some *Chinese* or *European* drawings. The *Chinese* in their own houses fix up generally some tables of proverbs. Almost close to each room is a little garden, in which are some flower-beds, and scaffolds for flower-pots, and greater vessels for shells, gold-fishes, &c.

THEIR pillars or columns serve only to bear the rafters. Mr. *Chambers*, I suppose, has al-

ready given us the proportion of the parts. To judge by the appearance of a triumphal arch, the width of the middlemost portico seemed to be two thirds of the whole height: the side porticos were in the same proportion to the middlemost, with regard to height and breadth. The populace hindered me from taking a more exact measure.

You find no trees trained up by art, nor walks, nor flower-pieces of several figures, in a *Chinese* garden; but every thing is in an agreeable natural confusion. Instead of grottoes they throw a heap of a porous sort of stones together, which look like rocks and mountains. This taste of the romantic in gardens extends even to the small flower-beds, and flower-pots in houses.

ONE of the principal *pagodas* is in a fine wood in the suburbs; on the outside it is like the others, but it is higher and more spacious. I was told, that it formerly belonged to the jesuits. The structure and stories are entirely according to a correct *Chinese* taste. In the lowest division, or in the hall, were four gigantic statues, one of a white, one of a brown, one of a black, and one of a red colour,

colour, in the attitude of flourishing about them with their swords: this has no *Chinese* appearance; for, even supposing they knew the complexion of the *Americans* (of which, however, I greatly doubt), they would most probably be of opinion that the honour of attending upon the gods belonged to themselves alone, exclusive of all others. These statues have likewise wider eyes than are to be met with among the *Chinese*. Perhaps they were intended to shew the universality of the church of *Rome*, about which they give themselves more trouble than about all its other qualities. In the back-parts is a court surrounded with low buildings; before it stands an high, open, large house, which is broader than long, as is usual in *pagodas*. Steps surround the whole building, as is usual in the South of *Europe*. Nobody is allowed to pass through the door, for reasons unknown: therefore I decline advancing any uncertain surmises concerning the idols, which could hardly be discerned in so dark a room. On advancing somewhat further, you again come to a yard, which is divided by a canal, and has likewise a *pagoda* of two stories high on the other side. In the lower story a squat, fat, half-naked idol, is seated upon an altar or sofa; it seems to be

breaking out into an horse laugh ; and is sitting on one leg, and holding up the other knee : in short, it is in a very indecent posture. Before it stands an iron perfuming vase, on which matches made of wood-shavings are burning. In the upper story is a female figure, sitting with her legs across, and smiling very decently with downcast eyes. Both statues are of a gigantic size, and gilt all over. Out of town, in the outward apartments of a *pagoda* situated on a hill, are two white equestrian statues. In the most outward room is a little statue representing a woman with a child in her arms ; in the inner room is a larger idol on a chair, which, after the *Chinese* fashion, has a long beard ; and before it are four other statues. In each house, and aboard all ships and sampans, is a little chapel on the larboard side, in which they burn incense, or put orange-trées, &c. Sometimes the whole chapel consists of painted, sometimes of torn, paper, and a vessel with ashes and matches.

THE sailors, and even some books of voyages (as may be seen from *de Uris's* notes), call the *pagodas*, *Yoss-houses* : for, on enquiring of a *Chinese* for the name of the idol, he answers, *Grande Yoss*, instead of *Gran Dios*. I have not seen

seen the deformed idols of which *Pinto* speaks. The *bonzes*, who minister in the *pagodas*, wear long grey cloaths, reaching down to the feet, with wide sleeves; their heads and beards are shaved; their caps are black and round. On the other side the river is a great *pagoda*, where near 100 *bonzes* are kept. They have such a great field, that they are not only able to sow the necessary rice and fruits for themselves, but likewise to keep cattle; which, it is said, they only feed and bury. They have all the necessary tradesmen among themselves, wherefore they do not seem to be troublesome or chargeable to others. Processions with idols, masks, plays, and jugglers tricks, are frequent enough. As for the rest, the *Chinese* trouble themselves very little about their gods and *pagodas*.

THE people differ very much in size, but are seldom tall. The men have a yellowish skin; the ladies are fair, but the common women tawny. The bone above the eyes projects very far, and forms a triangle with the chin. Most of them never quite open their eyes: and I am told, that the custom of bearing the children at their backs, with their heads hanging down, occasions as it were a swelling

swelling of the eye-lids; for the orbits are the same with them as with other people. Their noses are somewhat flat: their lips middling; and their looks, when they hope to gain any thing, as sweet as possibly can be.

THE children are at first shaved, that their hair may grow the thicker; afterwards one or three locks are left. The men, as is well known, are obliged to shave their heads, excepting a tuft of hair on the crown, which they plait into three traces. Their high value for their locks of hair seems to abate in some measure; for at *Queda* I saw two *Chinese*, who, living there, and having laid aside all thoughts of seeing *China* again, had shaved their heads: whereas their neighbour, who was likewise a *Chinese*, had all his hair tied in the old fashion. Their beards do not grow well; but perhaps they chuse to have a thin beard. If a *Chinese* is asked what sum would induce him to part with his tuft of hair? he again asks, what you would take for your head? And no wonder that they are so very careful of an ornament which they have perhaps nourished for twenty, thirty, or more years together. The women tie their hair above the top of the head; and to make the

tuft

tuft of a considerable thickness, they fasten some false hair to it, and stick as many and as costly pins or bodkins in it as their circumstances will allow of. They take a great deal of pains to have smooth and glossy hair; but this is perhaps the reason why their hair wears off and becomes thin, and straggling when they grow old. Both sexes let their nails grow as long as possible, if they do not interfere with their business.

You see many blind men * in the streets; and they are the only beggars which are to be observed. The alms which the *Chinese* give them, consist of a spoonful of rice. The most common disease here is that which naturally proceeds from promiscuous lust. A grave *Chinese* asserted that they cure this disease in a hundred days, *per τεκνοφαγίαν alternis diebus, alternis jejunio*. I cannot be answerable for the truth of this account; but so much I know, that it is possible to procure a sufficient quantity of this food. A *Chinese* would like better to take money for his children, than to

* Perhaps the blindness of the *Chinese* is for the greatest part the effect of their voluptuous irregularities; there may be also other causes. Compare with this *Tissot de febr. bilios.* p. 187, 189.

be obliged to throw them into the water for nothing. I have no reason to doubt of the fact I hint at ; since I have seen several children floating on the water : but I cannot pretend to say whether they are destroyed with or without the permission of the magistrate.

THEIR cloaths are wide and long, generally consisting of gawze or other thin stuffs. Their boots are embroidered, and made of a species of silk, have thick soles and no heels. Their head is covered with a hat plaited of canes and lined with tiffany ; the hat is cone-shaped or like a cover of a dish. On the top of it is a tuft of red silk, which covers the hat on all sides ; and on the tuft is a button, by which is distinguished the quality of the wearer, as father *Du Haldé* mentions. In winter they wear round caps of black velvet or fattin, with a shallow brim, on which is a tuft of red silk threads : they likewise wear warmer cloaths. The common people wear coarser stuffs, stockings of nankin, shoes without buckles of the same stuff, and go generally bareheaded. The poorest of all wear only breeches. The women go bare-headed ; their cloaths fit somewhat closer to the body, but stays are unknown among them. An *Englishman* had his wife

wife with him at *Canton* this year : but the *Chinese* could find no proportion between her spacious hoop-petticoat and her waist. Their shoes are pointed ; and have high heels, on which they go crippling as upon stilts ; because the unnatural position of the foot takes off all the strength and use of the toes. The poor only wear a short petticoat over their breeches.

THE whole world knows how difficult a matter it is to learn the *Chinese* language ; but you can have no true idea of it, till you hear it spoken yourself. Their various accents occasion the great difficulty. They pronounce one word as if they were quarrelling, and prolong the next as if their tongue was fixed to their gums. Their strong aspirations, even before the initial consonants, cannot be pronounced by every tongue. The *European* languages are not very difficult to the *Chinese*, if only the D and R could be rejected. For they say instead of *doctor* and *padri*, *locta* and *pali*. They can in some measure avail themselves of the D, but as to the R it is too difficult for them. They generally converse with the *Swedes* in broken *English* ; and sometimes in broken *Portuguese*, *French*, and *Dutch* : and some

some of them speak a few words of *Swedish*. A *Chinese* merchant being asked whether he had any stockings? Answered, *no habb*. A person pointed to a pair of stockings and said what is that? *Ob*, said he, *telumbo, telumbo*. When he is to say great or small, he says *grande* or *galande*, and *pequenini*; and so in other instances.

OF their genius and character, others have given accounts. I can but wonder that the missionaries, when they speak of their reigning vices, such as avarice, voraciousness, great and petty thefts, should mention nothing of their beastly lust. It is incredible to suppose them not to have known any thing about it. Though the *Chinese* are too cautious to boast of their irregularities, like some *Europeans*; yet, if you have resided some time at *Canton*, you will understand the *Latin* bard, who imagined that he tasted the waters of *Aganippe*, while he was drinking something which should not be named. Some perhaps may think that such sins are looked upon by the missionaries as peccadillos or little offences, which are of small account; but that would be judging too hardly of the reverend fathers. Without doubt, they did not chuse to discredit the nation,

tion, and mention such disadvantageous circumstances. But be this as it will, yet we cannot attribute this vice to the climate, as we might have been rashly led to do: for the whole argument falls to nothing, when it is seen that the *Persees*, which are patterns of chastity at *Suratte*, are in the same climate with the *Moors*, and have a warmer air than the *Italians*.

THEY are courageous only when they are set on stealing; for then they venture their backs, and even their lives. They are, however, revengeful and malicious, like all narrow minded people. You look in vain among the greatest part of them for disinterested gratitude, pity, placability, and a generous manner of thinking. Had *Rochefoucault* been born and bred among the *Chinese*, he would probably have denied the existence of virtue: yet with all these faults they are very civil, and are obliged to be so, because private ceremonies are the object and business of one of the most considerable colleges of the empire. The following is the manner of saluting among them. They clench their left fist, put the right hand on it, drop it down, bow, and lift it up again. Those who have accustomed themselves to
the

the more free manners of the *Europeans*, only clench their fists, and say *kin, kin*. They use much ceremony at coming in ; and before they sit down, will be entreated to do it several times. If you visit them, they entertain you with tea, comfits, and even with *European* and Cape wine, adapting every thing to the expectations they have of the traffic you are to carry on with them. You are at liberty to walk about their rooms, but must not approach their females : for the *Chinese*, like all nations among whom polygamy prevails, are jealous. All that I have said relates only to merchants and tradesmen. How it is with the noblemen, I know not : for what the common people say of them is not to be relied on, and travellers are apt to add somewhat of their own invention.

L E T T E R VI.

AS I have acquired some knowledge of botany by your kind assistance, and have heard and read of the merits of Baron *Rheede* in this branch of learning, I should have been inexcuseably negligent if I had passed over his epitaph in silence. As it was inconvenient for me to keep pions, I experienced on this, as on many other occasions, the difficulty of waiting till I could get company: but even these would not always stop, when I met with any thing which according to my judgement appeared remarkable. When I came the second time to Baron *Rheede's* grave, I found the shutters fastened. Therefore I could not copy the whole epitaph ^y, but only the principal things, which I should have communicated long ago, had I thought they were not known.

I HOPE I shall be able to say openly in *Sweden* what they make no great secret of in that country, namely that he had been poisoned: nor is it unlikely; for so great power in the hands of an honest man must be very dreadful

^y The translator does not think the epitaph interesting to an English reader.

to some people. If you were to hear some anecdotes told in *East India* of the *Dutch* manner of governing there, you would by no means be astonished to find that the interest of the company is but seldom trusted to any but those who have given undeniable proofs of the good attachment to their own. One is apt to expect that the magistrates will take cognizance of these things: but they bring this excellent maxim with them out of their own country, *leven en leven laten*²; which keeps them from making any strict enquiries.

WITH your leave, I now intend to proceed to describe our voyage, and add the rest of my observations on the behaviour of the *Chinese*.

THEY are either incapable of, or not used to, an habit of intense investigation. Many *Europeans* are likewise obliged to confess with father *Loubere*, that one is incapable of thinking much in hot climates. On the other hand, their application to trade is so much the greater; they pursue gain, without being tired; and as their expectations are frequently boundless, so bankruptcies are frequent among them. All men here traffick; and

² To live, and to let others live.

when

when a journeyman comes from his work, he goes about selling trifles, or stolen goods. They have in common with many other nations, the art of cheating in accounts, in measure, weight, and quality of goods ; and likewise know how to raise the price of their goods at certain junctures. At the arrival of the ships from *Emden*, the exchange never fails to alter.

THEY are always ready to sell or to exchange; but they seldom pay away any silver, except for provocatives, of which there is a great sale. It is very peculiar, and one would hardly believe, that they should set so great a value on antique paintings, and *Porcellane*. I once asked a merchant the price of a common tea-pot, which would hardly have cost three dollars of copper money in *Sweden*, but he demanded ten pieces of eight, and shewed me a stamp at the bottom of it, according to which, he said, it was made in the times of some emperor, who lived four thousand years ago : as if such poor frail vessels had at that time been made use of to assist chronology. The occasion of this high price is, probably, because the government esteems antiquities.

HERE are many artists who are diligent, and reasonable as to their prices, especially if you do not suffer yourselves to be cheated, as frequently happens to new comers.. Their open shops have this advantage, that no trade remains a mystery, or is looked upon as difficult by the people passing by: this, is certainly a great advantage to the inhabitants of the south; and might probably take effect in the north, if that custom was established, that no one must come into a shop who does not intend to make some purchase. I am almost led to believe that this stubbornness and suspicion comes from the usages of the artists ^a.

THE *Cantoneſe* take great pains to make their goods strike the eye, and sell well: but they do not take the same care to make them good and strong; nor do they offer them as the best and finest; for when they have a mind to praise their goods, they say that they come from *Nanking*, viz. *Nanking* ſilk, *Nanking* ink, *Nanking* fans, and even *Nanking* hams.

^a In Sweden and in many northern countries the artists and tradesmen have often certain silly customs and ceremonies, through which the apprentices must pass, when they are to be declared journeymen. F.

THEIR painters would acquit themselves very well, if they knew how to shade. You meet with very fine drawings painted on paper and glass; and likewise the very worst. Japanned wood and enameled copper is seldom to be got elsewhere at the price which it bears here. I have not heard of any carvers in wood or stone; but images and busts of clay are cheap.

THE joiners copy almost every thing that is shewn them. They have but few tools; and what should they do with a joiner's-bench, when their foot serves the same purpose? The chief strength of their joints is from the glue. Nor do the smiths undertake any great pieces of work: for when they intend to make rings or buckles, they do not beat them round, but cast the metal.

BOTH weavers and such persons as prepare silk and cotton are in great numbers. Here are likewise goldsmiths, pewterers, *Porcellane* painters, and tinkers, together with many others. Those persons who cut peoples nails and corns make use of an instrument, which is like that of a turner.

THEIR barbers have an exceeding light hand at shaving; but a person who is not used to their customs, will be astonished when they afterwards pull him by the nose, and begin to thump his back with their clenched fists.

THEIR physicians seem to be very attentive, because they spend an hour in feeling the pulse; but they must likewise make use of quacks tricks, when they pretend to tell by it the number of stools which the patient has had.

THE dropping and weak eyes of the *Chinese* are occasioned by the rice, which is their most usual food, as the *Europeans* say. Next to rice, their most usual diet is bacon and salt fish; both are cut into little bits, and eaten together with the rice: they convey the viands to their mouths with a couple of sticks. People of higher quality feast upon birds-nests^b, sinews of deer, and the like corroborative dainties. Between meals they make use of tea, sweet-meats, betle, and tobacco, which is almost as small as snuff, and is smoaked in brass tobacco pipes by persons of both sexes. The *Chinese*,

^b See note, p. 258, vol. I.

as well as all other eastern nations, love opium, though it is strongly prohibited.

THEY love to play with dice, at a sort of draughts^c, and with wooden cards, &c.; yet the liberty of playing is under some restrictions among them. Their jugglers are exceedingly dexterous; one of them produced a piece of wood, and after some *hocus pocus* brought a living snake and a tortoise before us. They act plays in the streets, between two of the upper stories, or in other places where there is room for the spectators. In the representation of their plays, they run into many gross absurdities; such as representing two armies by eight or ten persons, who, instead of climbing up rocks, get upon chairs, and so on. However, the companies, which consist merely of little boys, possess a wondrous fluency of language; for they often act whole days together without stopping, making grimaces without end, now singing, now speaking, and all together keeping exactly in time. When they fight and wrestle, they must exactly know how to hit the

^c This is perhaps the *Chinese chess* or *siang-ki*, of which, see *Hyde Syntagma Dissert.* vol. II. p. 143. seqq. et tab. ad p. 144. F.

blow, and to throw themselves down with as exact cadence as in a dancing school. They can represent some passions as well as if they were real. One boy was once representing a very suspicious man, who was however to be very submissive to his wife; and another a wife who was somewhat of a coquette, yet knew how to make use of her power, and was very artful. At first they came to blows; but when madam began to sob, cry and sigh so that her whole body shook, the husband could hardly make her pardon him, though he fell down on his knees several times; and the articles of peace seemed to be very disadvantageous to him. The musical instruments usual on this occasion are first a couple of pieces of wood half a foot long, tied together at one end, and put across the thumb; which when shaken, make a clattering noise like castanets. Besides these they have little drums, great and small kettle drums, *gungungs* or round brass bassons like frying pans, flutes, guittars, metal hautboys, strait horns, and an instrument which I sent over formerly, and which consists of a hemisphere to which thirteen or fourteen pipes are applied, catching the air blown into the cavity by valves. If the pastoral flute of *Pan* was not made in this manner, I do not know how

how he could express thirty-two parts. How bad soever their musical tunes may be, yet they put a higher value on them than on those of Corelli: and they deserve some commendation for their skill in keeping time, for when five or six play together you scarce distinguish more than one.

LETTER

LETTER VII.

THOUGH I have taken care not to mention what I have already found well described in other authors, yet I see from the *Stockholm gazette*, that I have either relied too much on my memory, or on the heads in the *English collections*.

THE *Chinese ell*, or cubit as it is called, contains about fourteen inches three-fifths. I doubt whether they have any solid measure; since they weigh every thing, even wood and water. A *pekul* is about 142 pounds and a half, *Swedish* weight: 100 *katty* make one *pekul*: with this they weigh heavy goods. Gold, silver, and the like, are weighed by the *tel*, of which sixteen make a *katty*. A *tel* contains ten *mess*; ten *kanderins* make one *mess*, and a *kanderin* weighs ten *kas*. Father *Du Halde* mentions yet eight gradual less weights; so that a *fun*, which is the least of all, seems only to be of use to those who will try by cutting and weighing whether matter is infinitely divisible. They have, as is well known,

a brass coin of the size of a Swedish piece of two groats, which has a square hole in the middle. In value it is proportionable to the *kas* of silver; however, at present, they only give eight such brass *kas* for a *kanderin*; in the same manner as gold for some reasons is always valued fourteen times and a half more than silver on this voyage.

THEIR *Simpun*, or table of accounts, is a square frame, which is longitudinally divided by a small piece of wood, not exactly in the middle. In it are 11, 13, 21, or more wires, on which roll little balls, namely, two on one, and five on the other side: the latter signifies 1, 10, 100, &c. and the other two opposite to these five shew the units, tens, &c. They go on very readily with adding and subtracting; but as for the rest, it will not do so well. I now am sorry that I cannot draw; but if I remember right there is a drawing of the *Simpun* in *Loubere's Description of Siam*, and besides that, I sent you such a *Simpun* the last time. They write with a pencil, which they hold perpendicularly, between the thumb and the two last fingers, and only lean their hand on the table, or on the paper. One would be led to think that they must write very slowly;

ly; however, their pencil runs as quickly as the pen of one of the readiest European clerks. They have likewise a current sort of writing, which they only make use of when they write fast.

To keep 900,000 *Cantoneſe* in order, no measures can be so effectual as those taken by the *Chinese*. Justice is done very speedily, especially when the fact is quite recent; but injustice as frequently takes place. It sometimes happens that several objections delay their giving satisfaction to the *Europeans*. The *Europeans* do not easily give up any of their privileges; but when they cannot succeed, the fault is in the *Chinese* officers, who do not take a right cognizance of the affair. Of this you find examples in Lord *Anfon's Voyage*. But if one threatens to apply for justice in higher courts, they are afraid that their superiors will punish them with heavy fines. The sale of the lowest places of trust, even that of a *mandarin*, is so common, that every one speaks of it, and they venture to mention it in the most public manner. A surveyor, who lay along-side our ship, took a considerable sum of money from the master of the boat, with whom he lodged, for the money which

the fellow could make from our crew: and the surveyor said, that he was forced to pay money to the custom-house officer: and so it seems to go round. It often happens here just as I was told it does in the *Portuguese* regulation of the custom-houses, namely, that the revenue from it looks well on paper, but actually is worth little or nothing. The police, however, is excellent: for it keeps every thing quiet at night both in the town and on the water, where an officer goes his round regularly. The gates in the streets, which are shut up at night, are always open near the factories, for the convenience of the *Europeans*: and in those places where in day time you must be on your guard for fear of pick-pockets, you may pass without danger in the night time.

IF you go further up into the town, they call you names, and pelt you with stones, which fly about your ears as thick as hail. If you intend to go out of town, you must have company, walk fast, and carry a good stick.

BOTH petty larceny and theft are punished by a certain number of lashes with a *bamboo* stick. The prisoners are so fettered about the head

head and on one hand, that they cannot lift it to their head. In *August*, in the year 1748, they dispatched some rebels at *Canton* by tying a rope twice round them, and fastening a horse to each end, and so cutting the body quite through. And as both high and low officers are the sovereign masters of their vas-
sals, criminals are obliged, even for trivial faults, to suffer with the greatest submission; and on their knees to hear themselves reprimanded, and to suffer themselves to be spit on.

As for wild beasts, tigers are said to frequent the mountains over which the northern roads pass: for fear of them it is, that in winter nights you see hundreds of lanthorns carried before the travellers. Their dogs can do no more than bark, little dogs especially. *Spanish* ones are the delight of the *Chinese* ladies; and their husbands pay dearly for them: and I think there is some husband-craft in it; for the affections must be fixed on some object.

HERE are buffaloes, oxen, and sheep whose tails are a hand's breadth long, and very broad. Swine are numerous, and their flesh is daily eaten. Here are few horses, nor do

do they want any, because people of quality are carried in chairs: and those commodities which cannot be carried in boats, are borne on mens shoulders: and on this occasion the feeble *Chinese* shews the advantage of a knack or sleight: they have an easy smooth step; and always lay the poles obliquely on their shoulders, by which means the collar-bone is left unhurt. They can very easily change shoulders, and three of them know how to share an equal part of a weight too heavy for two, and too light for four persons.

CATS are very necessary, on account of the number of mice. The *Chinese* judge of the goodness of a cat by the colour of her eyes, and their changes; for they say a cat changes them twice a day.

QUAILS, geese, and chicken, are plentiful. I likewise saw some *Siamese* fowls, which have a double back-toe. Ducks are bred by hundreds in one boat, and at certain signals either go out or come in. *Cockado* is a species of white parrots, with a yellow crest (*Psittacus cristatus*). They often expose rare birds and animals to sale in the factories: but

I am

I am not fond of looking at what I cannot buy.

THOUGH the *Chinese* dress ever so light, yet they are troubled with insects. The gnats, or *musquitos*, are so troublesome to the *Europeans* at night, that they must be kept off by curtains : for the place which they sting becomes painful, and swells. A species of *blattas*, called *cockroaches* in *English* (*Blatta orientalis*) are brought to *Europe* in great numbers.

As you are better acquainted than I am with the vegetables hereabouts, I shall only remark that I saw no cocoa-trees about *Canton* : perhaps they will not grow so near the tropic ; for if they could be planted here, the *Chinese* would certainly not forget to do it. We took two tea shrubs with us on our return : both of them died, notwithstanding all our care. The one was *Ankay*, and the other *Soatchun* : the former had oblong, and the latter lanceolated leaves.

THE smaller vessels of the *Chinese* are called *sampanes*. They have a flat bottom, without a keel, are broad, and not very deep in proportion to the length. They have several divisions,

divisions, and are so convenient that you are secure from rain and sun shine under the reed-mats, which are spread like an awning over the boat, and are supported with *bamboo* sticks. Such boats as these would be very useful in many places of our *Malar Lake*. They are rowed in a peculiar way, by one or more persons: the oars are neater than could be expected from people who have no theory in their mechanicks: in the middle it is composed of two pieces, but somewhat obliquely; and turns on a swivel, so that the oar turns both on the swivel and in the water; and the rower need only direct it. The part of the oar which goes in the water is very broad, such as is necessary to flat vessels, which have no keel to cut the water, but must only float on it. On the larger *sampanes*, besides this, is a stiff oar fixed to the bending of the *sampane*, with which they may be easily turned, even when they are deep laden. Their anchors (as is well known) are made of wood, sometimes plated with iron on the ends; and have frequently only one arm. Instead of the stern, they fasten a piece of wood cross-ways to the arm, which answers the same purpose, as the angle grows sharper by the conjunction. The sails consist of mats, which are expanded by

poles, on the ends of which are ropes which come together in a knot ; so that all the parts of the sail may be pulled at the same time.

THEIR merchant ships, which are destined for long voyages, are deep, pretty short, and will carry about 200 *Swedish* tons. We call them *yunks*⁴. They are likewise without keels; and have generally three masts, of which the greatest is six fathoms long from the deck; without the top-masts. The standing ropes are made of twisted canes ; the sails are up. The space under deck is divided into several partitions; and each partition is so close, that if even a leak should spring, the ship would not be in danger. Instead of tow, they make use of a cement, which to me seemed to be mixed with ground *bamboo*. As the *Chinese* greatly admire the figures of dragons, and prefer the most ugly ones, their pendants have the same form. If you go on board them, or take leave of them, they play on the *gungung*; but they know nothing of striking their colours, or of what is to be done on that occasion. The sailors climb and tie what is needful with canes instead of hempen ropes.

⁴ See Lord *Anson's* Voyage round the World, Book III.
Chap. 10. Table xxxiv.

WHEN the whole naval force of the *Chinese* Emperor is estimated at 9999 sail by his subjects, a great part must be at *Canton*: but at that place are only great boats, which would sink with ten twelve pounders: Nor are any larger ships of war required, while the *Chinese* government has no intentions of making conquests by sea.

FIVE or six of the above-mentioned boats lie about the *European* ships, to prevent acts of violence and smuggling. Their arms are shields of the useful *bamboo*, little sabres, halbersts, bows, pikes of a tremendous form, for their point is almost a yard long, and exactly like a *Westrogothic* knife, and little slings which stand on a kind of bow.

IT is however very amusing (at least for a person that finds pleasure in observing the dispositions of men, and their universal vanity) to see some place-men row by each other: every one who goes up or down the river has his flag and his distinction, by which the others immediately know his rank: and if he who lies in the river, or passes by, is of a lower quality, he must beat his *gungung* first, to

which the other answers with the same instrument ; after which they wish each other an happy voyage.

THE *Chineſe* can certainly make gun-powder : neither do they seem to be mistaken when they dispute the invention of printing and of making gun-powder with *Holland*, *Italy*, and *Germany*. But their powder will hardly serve for any thing but fireworks ; for though it gives a report, and soon takes fire, yet it leaves a good deal of the charcoal on the paper, and seems to have but little strength. It is very peculiar that sky-rockets, squibs, &c. and even air-guns, may be purchased at very reasonable prices at *Canton* ; while the people themselves are so afraid of fire-arms, that they would even run from a black *bamboo* stick.

IF any body had told me before-hand, that water would freeze naturally at twenty-three degrees and an half of latitude, I could not have believed it. But now I had the testimony of my own eyes, and the *Swedish* thermometer. Having staid eighteen months in this hot climate, the cold was somewhat troublesome in the open harbour, where we were exposed

exposed to the north east wind. We got clear of this and other inconveniences when we sailed through the passage at *Bocca Tigris*, the 4th of January 1752. We were provided with a *Chinese* pass-port and pilot, and accompanied by many white porpoises; and, on the 6th, we quite left the *Chinese* shore. On the 19th of this month we were so happy as to reach the place which the *English* call *New-bay*, which is situated on the south-west of *Java*: there we were to take in a store of the good water of that place. Half a quarter of a *Swedish* mile from the shore is a little island, called *Cantaye* in the *French* charts, which I proposed to myself to visit in our return: but, unluckily, the only time that I was allowed to go on shore, the water was so high that I was forced to wade up to my middle; and for all my trouble got nothing but a great piece of a *millepora*. I was therefore obliged to content myself with sitting and observing the *Javanese*, who are *Mahometans*; they speak the *Malaic* language, are of a tawny complexion, and let their hair grow about as low as their shoulders, and tie it with bast of trees. They chew *betle* in plenty, and are ready to run a mile for a little piece of opium. Their boats have large sails, and on the lar-

board a bamboo stem, which is fastened to two outriggers, and keeps the boat from oversetting, as it otherwife would do on the account of its lightness. The Javanese brought cocoanuts, plaintains, citrons, lemties or lemontyes (as the Dutch and our sailors call them), on board. The latter of these fruits is found to be very plentiful in all southern *East India*, and is like a citron; I never saw its flower, but both Mr. Osbeck and myself have always found the fruit to be ten *locular*^e. Besides this, they had a sort of coarse brown sugar made of palm-trees, which the crew was forbid to purchase, because it occasions strong dysenteries; they likewise brought fowls, fishes, tortoises, fertularia, and some daggers of good workmanship, the blades of which were undulated, and, as I was told, poisoned.

THE 21st of January we left this place, and experienced the weather at the Cape in March, which as usual was very disagreeable, and shifting from storms to calms. We here saw one of those tortoises called *Hawksbills* by the

* The same is observable in lemons: and this number of *loculi* seems to be the most natural in proportion to the *petals* and *stamina*, though they are also found eight and twelve *locular*. D. S. See vol. i. p. 506.

English; its head is flat, and the upper jaw like the bill of an hawk. Its shields lie above one another almost like scales; on the fore paws are three nails, and on the hind feet are two. The shell is thicker and more variegated than that of any others, for which reason it serves for all sorts of work. Further on we saw *whales*, and a *zoophyte*, which the Swedes call *by-de-wind-seglare* (*Holothuria physalis*); the *English* call it *man of war*; the *Dutch* *be-santyes*; and *Dampier*, if I am not mistaken, *cut-lers* ^f. The body is half round, stands directly upwards, has many long and many short *tentacula*, is slimy, transparent; somewhat bluish; shines in dark nights; is poisonous, as I myself have experienced; and so light that it will scarce sink in *Spanish* brandy. Beyond the Cape they are small, in the ocean they are larger, and very numerous especially in *March*. The old sailors who have often been to the *Indies* affirm that they have seen what *Thevenot* calls *Carnasse*. I cannot determine whether these or the men of war are the true *Baharras*, which, according to your desire, Mr. *Lagerstrom* enjoined me to look for.

^f *Linnaeus* places this animal among the *Mollusca* class of his worms; and therefore I cannot account for the author's mistake in calling it a *zoophyte*. F.

ON our approach to the tropick, we again saw flying fishes. I must remark that all the flying fishes which I saw eastward of the Cape had short *pectoral-fins*; and their *ventral-fins* were expanded while they flew, because they could not otherwise have preserved an *equilibrium*. There is yet another sort of flying fish, which has *antennæ* ♀, and a vessel containing an inky matter; but I cannot tell whether it is the *Sepia loligo*.

THIS time we did not touch at St. Helena, but bore for the Island of *Ascension*, where we anchored the 6th of April. This country has no other fresh water than what the rain sometimes affords; for which reason it is dry and barren, and only seems to be destined by Providence to be the habitation of tortoises, and to serve as a place of some refreshment for seamen. Goats, pelicans, and many sea birds breed here, notwithstanding the intolerable heat of the day, and the coldness of the night. The few low shores where we can land are covered with a loose pearl sand, in which the tortoises bury their eggs. I did not see how

¶ Not *antennæ*; but, as *Linnæus* calls them, *tentacula*. F.
much

much the tide falls, nor could any estimation be made, on account of the strong breakers; these are likewise so violent against the wind, that in 1749 a sloop with four men sunk very near the shore.

I FOUND nothing particular in the *Sargasso*, besides that peculiar animal, the drawing of which resembles a spider: perhaps this was only the skin which some animal had cast off.

THE 22d of *May* we spoke with a *Frenchman*, who had received accounts from *St. Helena* of such events as had happened during our absence. It was peculiar, that an officer from the *French* ship asked us whether the *Swedes* believed in the *Apostles Creed*? When a *Frenchman* has such mean thoughts of a *Lutheran*, the *Spaniards* and *Portuguese* may well think us *Turks* and *Heathens*.

THE 30th of *May* we saw the western islands, or *Azores*, on which every one of us expected to breathe some fresh air; but the resolution was changed, and we sailed for *England*. In the mean time the scurvy had attacked some of our men. It was very happy that they were

were all *Swedes*. The 14th of June we saw *England*; and after we had bought some refreshments and greens, we left *Dover* the 19th of June. The 26th of June the *Gothenburgh* rocks were the most agreeable sight we had met with during a voyage of twenty-seven months.

OLOF TOREEN.

Stromstad,
the 3d of May, 1753.

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A S H O R T

A C C O U N T

OF THE

CHINESE HUSBANDRY,

By CHARLES GUSTAVUS ECKEBERG,
CAPTAIN of a Ship in the SWEDISH EAST INDIA
Company's Service.

A S H O R T
A C C O U N T
O F T H E
CHINESE HUSBANDRY.

FEW countries can boast the possession of such a variety of different natural advantages, as not to stand sometimes in need of the assistance of others.

THIS imperfection seems to be the only tie by which civil societies are kept together : but in *China* nature seems to have followed a different mode, for of this empire we may justly say, that it can exist by itself.

ITS situation is so happy, that its northern parts are no more incommoded by the cold, than the southern ones are by the heat. Both are temperate for the inhabitants ; the weather in the country, in the intermediate space, is mild, uniform, and accordingly pleasant to live in, convenient for health, and apt to produce all kinds of plants.

THE trade-winds, which are peculiar to the southern and warmer regions, are no small advantage ; for the northern one clears the air, by carrying away all the unwholesome vapour raised by the heat ; the southern one, on the other hand, cools the scorching heat of the warm season. The greatest part of the *Chinese* frontiers are watered by extensive seas, which make good bays and harbours at moderate distances. While nature seems to have here set bounds to navigation, it opens new channels for it by means of navigable rivers, which extend to the innermost parts of the empire. The tide, which goes up a great way into the country, five *Swedish* miles above *Canton*, renders navigation more convenient ; and gives the best opportunity to the several towns of communicating their advantages to each other,
by

by an universal liberty of trading with one another.

THE soil is so fruitful, that though the hills and deep morasses may look ever so unpromising, yet they repay abundantly the work of the labourer: for the species of corn, of roots, and fruits, which in an infinite variety succeed each other, perfectly well reward their planters with continual harvests.

THE great extensive forests afford several fine and precious woods, useful juices, bitumens, bast, and leaves, besides the several sorts of timber and wood for other purposes. They are likewise the habitations of many wild creatures, which afford food and cloaths for the inhabitants. Metals, stones, earths of many sorts, salt, gold-sand, pearls, corals though not of the best sort, and innumerable kinds of fishes, which are very plentiful near the shores of this country, shew that nature has likewise not been sparing in regard to them. The fowls, which are found every where in great flocks, delight the eyes, ears, and taste. In a word, the empire of nature is found in the greatest perfection in *China*; the finest views, situations, and conveniences of all sorts, which could

could not be brought to higher perfection by the utmost stretch of human invention. They have all the necessaries of life, without wanting any thing from other countries: from all which we however must except those things which may be reckoned among unnecessary luxuries.

As the welfare of a country depends greatly on good order and industrious inhabitants, so this empire likewise vies with many others in this particular. The industry of the *Chinese*, and their skill in all sorts of trades, has not only been observed in all the descriptions of this empire, but we likewise know it from the several goods which our ships fetch from thence. The raw materials for these trades are produced plentifully in their country.

I INTEND here shortly to relate, as a proof of the exceeding great industry of the *Chinese*, what I have observed during a stay of fifteen months, at three different times, concerning their constant and particular œconomy.

A G R I C U L T U R E.

IN the southern parts of *China*, bordering upon the sea, rice, a species of corn which grows best in low and wet ground, is the principal food, and in almost all the eastern countries. There are species of rice, which will succeed in a higher, dry ground, as we see here and there in *Java*, and on similar high places. This sort of rice is made use of by the provinces which are next to *Canton*, and have a dry and hilly ground; but in *Quantung*, or in the southern low provinces, it would be a loss to sow it; because its grains are small, and it takes half as much time again in ripening as the other species does: and, on the other hand, the other species has larger grains, grows better and quicker, and can, without any damage, stand continually under water. Of this sort there is a more coarse variety, which looks reddish, and is eaten by the common people, and likewise used to distill the brandy from, which they call *samsu*.

I HAVE been told that the further you go to the north, the more you find the culture of

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rice

rice decreases ; and that rye, barley, wheat, beans, pease, &c. are cultivated instead of it ; for which reason, the inhabitants of the northern parts, where rice will not grow at all, are said to be well acquainted with the management of the last mentioned different species of corn.

THE southern provinces likewise produce some wheat, beans, small pease, and lentils, which the inhabitants either make use of themselves, or sell to foreigners. But rice is sown more plentifully ; and as it is used instead of bread about *Canton*, I shall speak more particularly of it.

IT has already been frequently demonstrated, that *China* is exceedingly populous. Most parts of the country are so crowded with habitations, that you are amazed to see the land able to produce sufficient corn for so many millions of inhabitants ; and especially as they are not supplied with it from other places, except by a few junks from *Cochin China*, or *Malay*, and sometimes (but rarely) by a few Dutch ships. But when one comes to reflect upon their almost incredible industry in cultivating and using every thing which can be made

made use of, and on their sparing and temperate way of life, it is a convincing proof that a country can never be too full of such inhabitants, so as to want the necessaries of life. Rather, it is the number of industrious men, that contributes to the riches of the country, and to the comfortable subsistence of its inhabitants; for every industrious labourer, especially a husbandman, always produces more from the grateful soil than he wants for himself.

THE pitch to which agriculture, and especially the culture of rice, has been carried in *China*, is the principal foundation of the happiness of this country. Husbandry is much respected here, and has the greatest encouragements. The emperor himself, to shew the value he sets upon it, and to exhibit an example to his subjects which deserves to be followed, goes annually, on a certain solemn day, into the field, attended by the noblemen of the court, takes up the plough, prepares and sows a piece of ground, and afterwards reaps the corn with his own hands. But I must confine myself only to the environs of *Canton*.

E A R T H S.

THE soil is as different at *Canton* as in other places, according to the situation. All low grounds are covered with clay and black mould; but the higher the ground rises, the more a yellow and reddish ochrous earth, glimmer, and sand, prevail: when such a soil has been left uncultivated and untouched for a while, it acquires, by the vicissitudes of rain and sun-shine, as it were a petrified surface. Notwithstanding this, pines, and other bituminous trees, grow very well on it; and some not very tender plants, which in our country grow on old walls, and on high rocks, striking their roots into the cracks: this shews, that the earth on the hills, which is exposed to the winds and heat, is disposed to produce plants, though the rain washes away its manure.

THE river *Ta*, or *Taho*, which runs into the sea below *Canton*, the water of which is hereabouts a mixture of fresh and salt by the tide, divides the country for the distance of some miles round about the town, into many greater and less islands, whose shores are broad,

broad, flat, and so low, that for some hours, when the flood is at highest, they look rather like great seas than like corn fields. This continual humidity must naturally make the clayey ground swampy and morass, and accordingly the husbandmen must be up to their knees in it when they work, before they can get a solid ground.

It should seem that a soil which is every twelfth hour under water, must be entirely deprived by it of all fatness and power of producing corn, and become unfit for cultivation : and that even when the water should bring something on it, it would again be washed away when the water runs off ; and that therefore manuring would be of no use. And indeed the wet rice-fields get no other manuring than the stumps of the rice, which are dug in and left to moulder. Notwithstanding this, these fields annually produce a very plentiful crop. As often as the water overflows the fields, it leaves behind it a slime which makes the soil fruitful ; for the tide, which comes up from the sea, is more saline and dirty than the ebb, which is clearer when it runs off ; besides this, the ebbing retires at first but slowly, and is already run off from the rice-fields before

it quickens its pace; consequently the saline slime, which has settled itself and becomes manure to the fields, cannot be washed off again.

RICE-FIELDS.

THE rice-grounds are so soft in some places, that the flood carries away the soil from the shores: to prevent this, they are planted with cypresses, whose roots being twined among one another give a consistence to the earth. And as each great rice-field is separated from the river by broad ditches, these long rows of cypresses make a very fine shew, especially when the field is under water.

THEY have a different sort of rice-fields in higher places, such as cannot be watered by the flood. About each of these fields they make, for the sake of watering, a dyke two or three feet deep, within which they either collect or let the water run off in the rainy season, as they think proper, but in the dry season they convey it to these spots. The soil of these fields is a mixture of a strong clay and mould: and as the annual produce thereof may be double that of the others, they

they are supplied with several sorts of manure, and are better taken care of.

BESIDES this, the *Chinese* make rice-fields from swamps and brooks ; but since these cannot be kept uniformly moist without great expence and trouble, they generally miscarry in dry years: Some persons of credit among the *Chinese* have told me that the river in the province of *Tockian*, which discharges itself at *Schangthey*, forms great flat shores, and that the inhabitants (displeased that such a considerable piece of ground should be useless) built rafts, spread mats over them, and carried soil and laid upon them, and then planted rice, to their great advantage. When the winds shifted, they suffered sometimes from storms : but this contrivance was reckoned very advantageous, because they had always a uniform degree of moisture from below, both in the dry and wet season ; and in the latter season they did not suffer by the rain, because it ran off soon. This is an invention and a proof of their industry, which deserves admiration.

THE preparation of all the afore-mentioned rice-fields is effected either with the plough, or with a beck-hoe to break up the ground.

Both methods have the same effect, since the whole business required is to remove the old rice stumps, and turn them under ground; for, as the ground is always so soft that the labourers must wade up to the knees in it, the work is very easy. Their plough is very simple, and is drawn by an ox; but with the beck-hoe they can likewise penetrate as deep into the soil as they think proper, without much trouble. By the next tide the ground is made as even as if it had been rolled; and as the continual humidity of the soil hinders the ground from binding together, they want no other tools. All other sorts of arable fields are prepared in the same manner, since they choose that time for cultivation when the ground is most softened by the wet, and accordingly can be most easily managed.

THEY manure, plough, and prepare a little part of a field, about 60 feet square, either more or less, which must be as the other ground, wet and swampy, but at such a distance from the river as not to be exposed to inundations when the water is high in the river. They sow it very thick with rice, which is first soaked in water, in which lime and dung had been previously put. When

the

the rice begins to come up, they keep the field about a hand's breadth deep under water; and after thirty days the rice plants are ready to be transplanted into larger fields.

THEY are not very curious in transplanting, to place the plants in strait lines; but very careful that every rice plant has the necessary room, which is generally about eight or nine inches from one another. The transplanting itself is transacted (as all their other business is) with great ease, and in such a manner, that they crop off about two inches from the top of the plants, and plant each by itself: but when they are too small, they plant several together so deep into the soft soil, that the roots immerse full two inches. When the rice is transplanted in this manner, they do not meddle with it any more, except that now and then while it is yet tender, they examine whether the worms and little crabs do it any damage: in which case, they supply the place of the destroyed plants with fresh ones, and afterwards spread some lime, which annoys these animals.

MONSOONS and WEATHER.

THE southern parts of *China*, within the tropick of *Cancer*, are so much influenced in their weather by the neighbouring monsoons, as to have the year divided into two seasons, the wet and the dry. When the sun in *September* goes to the southward of the equinoctial line, the air cools by degrees, and *October* and part of *November* are generally wet, with fogs and drizzling rain. As soon as the wind turns N. E. the sky clears up, and becomes free from vapours till this wind again is quite settled. In the following months the weather is more constant, till the sun again returns from his winter course, and passes the equator in *March*, going to the north.

THE heated air, which has by little and little drawn up a quantity of moisture, returns it again in heavy showers, which alway grow stronger in *May* and *June*, and are so continual that sometimes you can count twelve or fourteen rainy days one after another. These very heavy rains are generally attended with violent thunder and lightning, and hurricanes from south to west. Though the sun begins in

in June to go to the southward again, yet he leaves behind him in these places a greater heat than what he caused when he was perpendicular to them. The weather however begins to be more constant, and the number of fair days rather encreasing, notwithstanding the heat declines more sensibly than before by the inconstant weather, attended by clouds and intermittent winds. *August* is more temperate, but has changeable weather, sometimes calm, sometimes foggy, till towards the beginning of *September*, which continues till the other wind settles. According to this view, their rainy months are *April*, *May*, and *June*: for the rain then falls more plentifully, and in such quantities that the water in great rivulets rolls down the steep places, and opens new roads and ways for itself in the rocks. On account of the dryness which may be expected in the following months, the inhabitants conduct this water into their rice-fields. We must here remark, that the shifting of the winds about the time when days and nights are equal, seldom happens without a sort of violent storm, which generally blows two days before or after the change of the moon. The lower air then grows exceedingly thick and full of fog, which on account of the violence of

of the wind cannot become rain, but is hurried about with great violence. The storm increases as the wind tacks to the westward; and when it is become quite westerly, neither trees nor houses are always secure: it changes still from one point of the compass to the other, till after twenty-four hours it begins to abate. Such tempests seldom pass over without doing some damage among the fields, boats, or houses; for which reason the Chinese call it *tay fong*, or the great wind.

THE Chinese know how to avail themselves of this periodical weather, to the great advantage of their agriculture. They work the soil when it is wetted by the autumnal weather, and is yet soft for planting, or receiving the winter-seeds; this happens about *December*: and the air being then cooler, the water cannot dry away so soon, but that it must forward both the growth and the crop, so that the latter may be perfected in a hundred and twenty days, that is, in *April*. The ground which is then again soaked by the rainy season is manured a little, ploughed, and made ready for the second reception of the seeds, or planting: the usual time for the second preparation of the fields in the same year, is either towards

the end of *May* or beginning of *June*. One should imagine that the vicissitudes of rain and warmth would now more forward the growth of the rice, than at the time of the first crop: however, they are obliged to wait longer this time, and to count a hundred and thirty days from the planting to the reaping of the rice; for which reason the harvest falls out in *September*.

THE low grounds are planted with rice-plants, towards the end of *April* or beginning of *May*. This crop requires as many days to ripen as that on the other fields; and the crop generally becomes ripe in *September*. After this, the ground is not used till *April*, during which time the stumps and roots of the rice-plants are so mouldered, that they quite become earth at the time of ploughing.

As soon as the rice begins to grow white, it is cut with sickles, (the blades of which are dentated like faws), bound up in sheaves, and carried to high dry places, where it is dried and put under cover till it is to be threshed. The threshed rice is yet in its husk, and is called paddy; it is either used for seed, or as fodder for the cattle; but before the people use

use it, they pound it in stone mortars with wooden pestles, and cleanse it from the loose chaff by winnowing.

SOME husbandmen, who have larger fields than they choose to cultivate, let a part of them to poor people at a certain rent. These tenants are not men of substance enough to be able to till the fields with ploughs and oxen: for which reason they make use of thebeck-hoes, buy of others the necessary rice-plants for transplanting, thresh the reaped rice under the open sky on naked rocks and hills, cleanse it, and pay the rent to their landlords with it.

D U N G.

IN order to have a sufficient quantity of dung, where agriculture is so extensive, many poor people get their livelihood by gathering all things fit for manure; the excrements of men and beasts, in the streets and about the houses, and likewise along the shores of the river, which they collect in little sampans. They sell what they have got to others, who again sell it to the husbandmen who are in want of it: and for the same reason they collect

leat urine in proper vessels which they keep in their own houses. If the crop has been good a pekul of the first sort of manure costs two mes; and the same quantity of the latter, only half that price. Besides this, every husbandman takes care to make use of the excrement which his beasts drop on the pastures: children and such people as cannot do other business, gather it. They likewise pick up all bones, burn them, and spread their ashes, together with the ashes of burnt plants and boughs, over the fields, to promote fertility.

SUCH fields as are moist, but higher than those whereof we have till now been speaking, and consist of deeper mould, are manured, ploughed, and laid very smooth. In such a field they sow wheat very thick together, having before soaked it for some days in the filthy water of a dunghill; afterwards they transplant the plants. Sometimes this soaked wheat is grain by grain planted over the whole field, so that each grain may stand four inches from the other. The soil is thrown up in ridges towards the grain. In a great drought a little water is brought over the fields, by which means the deep furrows occasioned by casting the soil up towards the wheat, receive the

water, and give moisture to the plants, without drowning them. The true time for transplanting is towards the end of *December*, and though the air is then very cool, and it sometimes freezes in the nights, yet the seeds thrive, and the plants stock out in a fortnight; each of which brings forth in *March* seven or nine stalks, with ears and straw, rather shorter than ours; and in *May* there is a plentiful crop. I have been told that wheat produces a hundred and twenty fold; which increase plentifully rewards the husbandman's labour and trouble.

As rice is what the *Chinese* chiefly subsist on, and what they use instead of bread (as has been before mentioned), they employ but small spots of ground for the culture of wheat. They only use it in their sugar cakes, a great quantity of which are requisite for the pagodas on their holidays; and some they make for themselves. Foreigners eat the chief part of this corn; and because that which is raised in this province is insufficient, large quantities are brought from the northern parts.

I SAW some barley on a little field in *June*; it grew very well, and shot out exceeding fine ears:

ears: but because it was sown too late, the increasing heat made it thrive too fast, so that it grew pale before it could set the grains, and only contained shriveled husks in those fine ears. If it had been sown like the wheat in the cooler season, it would undoubtedly have afforded a plentiful crop. From thence I concluded that as these species of corn succeed exceedingly well, when sown and transplanted in a well-prepared moist field; so the cool weather must be more useful to the growth than the hot.

THE manner of threshing rice and wheat is the same, and is performed as in our country with flails. The wheat after it is threshed is passed through a kind of screen for cleansing it, which carries off all the dust, before it is ground. If the mills at *Canton* were made as convenient as those machines, the people might save a deal of trouble; but the method of grinding with hand-mills is exceedingly troublesome. It is peculiar, that the *Chinese* have many pretty inventions to make little works more easy; but in greater works, such as sawing, grinding, and the like (which require greater powers), they do every thing by the hand; though they have sufficient oppor-

tunities of making machines, both on rivers and hills.

IN the afore-mentioned manner they till all flat and low places, and find little trouble with the soft ground, which they always keep pretty level. The general produce is a hundred from one; but when irregular weather happens, and it is either too dry or too wet, a sterility ensues, in the same manner as in other countries: but in this country it is attended with worse consequences. A little increase of the value of rice frequently occasions a murmuring among the lazy and poor, which at last, if the number of malecontents increases, turns into a rebellion against the *Tartarian* government; as happened in 1751, when the famine was accompanied by an epidemic disease, which carried off a great number of people.

ARABLE FIELDS ON RISING GROUNDS.

THE natural situation of hills and of declivities would make them incapable of producing any thing: for either the continual rain

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in the wet season would drown or wash away all the seeds; or the plants, when deprived of earth by the washing of the water, would be too much exposed to the following heat and drought. To prevent these inconveniences, the *Chinese* have endeavoured to reduce the hills into plains, or at least to make them similar to plains, by terraces, whose height and breadth are adapted to the declivity. These terraces they employ for several sorts of plants^h; and to each they give such a situation as best corresponds with its nature. Those which can bear the greatest dryness are disposed at the top; the more tender ones at the bottom. When the rain has softened the soil in the upper terraces, the water is conveyed by canals into the lower ones; which therefore, besides the rain which falls upon them, receive likewise the superfluous water of the upper ones.

THE terraces, which are sometimes four or five feet above one another, acquire such hard solid banks by rain and sunshine, that they would stand for many years. However, they have planted them with several trees, whose

^h In this manner did the *Jews* in the *Holy Land* cultivate their hills. See *Maundrel's Travels*.

roots twisting together keep up the borders; and the trees themselves shelter the plants from winds and sunshine, and so give a very fine appearance to these decorated terraces.

WHEN the soil of the terraces is dug up by a little plough or spade, and made smooth with a little rake, they at the same time put so much dung as the plants require: yet in this case they likewise are very sparing. The dung is generally soaked in water in round cisterns sunk in the ground; and the seed is moistened with this filthy water. Sometimes when they plant or sow they lay a handful of ashes on each grain, because in their opinion the dung which lies between the plants does no good.

THE beds which are made on the terraces, or in other places, scarce lie still one month; but soon after the ripening of one plant are prepared to produce another; and are annually employed three times. The husbandmen regulate the business according to the nature of the plants; and each plant, which either loves wet, cold, or dryness, obtains the most convenient season to grow in; and all the roots come in autumn.

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THE species of seeds which were generally sowed on the aforementioned terraces are the following :

A COARSE species of a plant with thin roots, whose leaves, flowers, and seed capsules, were like those of radishes. These were sown in the beginning of *December*; when they had levelled a field, they dug furrows of a foot broad, and of half that depth, making long narrow beds of half a foot broad at the top. By means of these furrows the superfluous water runs off, when it has supplied moisture enough. The seeds were put an hand's breadth deep, and seven or eight inches distant from each other; allowance being made for spreading in their growth. As this is done in the dry season, they water the plants at first. In *February* they were all in blossom; but in *April* the seed capsules turned yellow, and then the plants were plucked, dried, and the numerous seeds beaten out. From the seed they press an oil, which they turn to many purposes in œconomy; but especially they burn it in lamps, and dress several dishes with it while it is fresh. The oil is so fat that it cannot be used in painting, because it will not

dry. The soot, which comes from the lamps in which this oil is burnt, is used in making the well known *Indian* ink.

COMMONLY the seeds of cotton (which they call *minfoo*) succeed to those oily seeds. The soil for it is prepared as before, and the seed is likewise put into the same sorts of narrow beds, a foot asunder; it must be observed, that according as the plants either thrive or spread more or less, the beds likewise are made either narrower or wider; and also either further from or nearer to each other. They are sown in *April*, over each seed they throw a handful or two of ashes of the oil plant or of other plants: and this is all the manure the field has at this time. They are watered in dry days till the fourth leaf appears. Warmth and rain change the flowers, which appear in *July*, into pods in *August*, which open in dry weather, and shew the cotton; they are then broken off, the seed separated from the cotton, and preserved for the next year. Too much wet is hurtful to the cotton plants, both while they grow and while they ripen; and the cotton capsules hang mouldering on the stalks during a continual rain: and for this reason they seldom have so plentiful a crop of this

this as of the former. This seed is a delicate repast for mice; they not only seek for it when the pod is expanded, but likewise feed on it when in its capsules.

POTATOES (which they call *fowce*) make the third and last crop which they plant on the terraces. The cotton crop being over, they prepare the ground as before, and place the slices of potatoes about one foot and a half asunder. As this plant is not so tender as the former, grows slowly, and bears the cold, so they leave it to increase for the remaining months of the year. These potatoes are in some respects different from ours. The roots have red peels, are longer, yellow, sweet, and agreeable to the palate; but the leaves, &c. are like those of the *European* potatoes.

THEY do not always sow oil seeds, cotton seeds, and plant potatoes, exactly in succession one after another; but sometimes supply the place of cotton with lentils, beans, locktaw, and calvanses: but they commonly begin the annual cultivation of their terraces with the oil seeds, and finish with potatoes. They always prepare the ground as has been before mentioned; nor do they sow a single seed which

has not for a day or two been soaked in the water of a dunghill, or in lime water.

YAMS, which they call *ootaw*, are planted like potatoes; but the ground suitable to them must be different: for these roots are set in swampy wet places which are unfit for other use, and sometimes on a rice-field which has already been cropped, and which is not worth sowing again with rice the same year. The longer the roots stand in the ground, the larger they grow; they are generally taken up in November.

THE roots of the sugar-cane cut into pieces, (each of which had a shoot or two) were planted more than half a foot deep into the ground; and two feet space was left between every two rows. They planted them both on the highest terraces, and in the lowest places. In *March* and *April* these roots were planted in the low places, and in the rainy season on the hills, which occasioned two different crops. These canes were by no means tender; for they thrived in shade and sunshine, wet and dry, heat and cold. When the canes began to grow yellow, they were cut; for when they stood longer, they grew mouldy at the root. They grow

grow from eight to twelve feet high. Some sampane cargoes of canes are brought together to a convenient place on the river side; there they build a hut of bamboo and mats, at one end of which they make a furnace with two great iron-boilers; and at the other an even floor of a considerable size laid with planks, over which two oxen draw an angulated roller of hard wood. The canes, which are disposed in layers under the roller, are crushed; and the juice, which by means of a canal is conducted to the end of the floor, is there collected in a great vessel. The remaining juice in the canes is entirely boiled out in one of the boilers, is mixed with the expressed juice, both are strained through a cloth, and boiled into a brown sugar in the other boiler: the leaves and stalks serve as fuel. When no canes remain in the place where they are, they remove the house again, and proceed further with all their implements. These sugar-bakers travelled about in the country, and boiled the sugar out of the country people's canes, leaving it to be refined by other sugar-bakers, and made into fine and coarse powder-sugar.

KITCHEN GARDENS.

My account of kitchen gardens will not be so compleat as I could wish, because I have had no opportunity of seeing any besides some very indifferent ones. What I can assert relating to them is, that they generally choose low clayey spots to make them in, and that they manure them well. The known plants were *fallads*, *long and short cucumbers*, *leeks*, *white onions*, *spinage*, *celery*, *carrots*, *orach*, a species of watery turneps, *long radishes*, *gourds*, and *water-melons*: these they cultivate in the gardens, having procured the seeds from the *Portuguese*. But besides these we meet with several fruits, whose names and shape are quite unknown to us. Purslane grew wild; they did not use it themselves, and therefore made no account of it. They kept a coarse sort of water-spinage in ponds about half a fathom deep, in which it grew so plentifully, that it quite covered the surface of the water; this is one of their most usual pot-herbs.

THEY plant pieces of ginger in a clayey soil about a hand's breadth deep; this they do in

in *February* or *March*; for when it is done later, the heat forces the stalk and leaves too much, and makes the roots more spungy and small: in other respects it bears both cold and heat.

THEY call tobacco *yeen*. The cultivation of it is the more advantageous in *China*, as it is there more esteemed than in any other country; they therefore neither spare pains, nor think any soil too good. In *March* the plants are set a foot and a half asunder: in *August* the tobacco is ripe, and then they pluck it, make it sweat, and manage it as is usual with us. This tobacco does not seem to be the best; for though it looks like ours, yet both its smell and its taste are disagreeable: the *Chinese* prefer it to that of *Manillas* and *Aynam*, which in goodness equals the *Brazilian* tobacco. The dried brown leaves are laid one upon another in a press, and afterwards are cut into small stripes, with a broad iron plane; and in this shape they smoak the tobacco here: when it is smoaked, it leaves behind a viscid stinking oil; it burns better when it is cut into greater pieces. The sale of this commodity is so great, that a large quantity

quantity of it is sent to the neighbouring parts.

THEY had set a plant unknown to me, called *Fockyong*, not unlike mint, but with paler leaves; it was planted on broad beds in rows, and it was a foot high in *March*. The culture seemed very tedious; for on account of the heat it had been sown in the cold season, and was at that time quite surrounded with mats. They valued this plant very highly, and sold a *pekul* of it for 50 *tel*. They pretended that it was of exceeding great service in consumptions.

THE greater and less *Palma Christi* (the less in particular, *Ricinus*) were planted every where, without any order, in the gardens at *Aynam*. The kernels being pressed, afford a white clear oil in plenty, which they deprived of its fatness by minium, quick lime, and vitriolic earth, and boiled it into varnish, which when laid on, dries soon and gives a fine gloss.

INSTEAD of cabbage, they used a plant with great coarse leaves, like those of burdock, all issuing out of a little root. The

yellow flowers, the stalk with the pods, and the seeds themselves, were like cale. They daily use this plant, and therefore it went off so fast, that they immediately sowed the void beds with it again. It grew very fast in all seasons. They half boiled it, dried it, and took it with them upon sea voyages. Besides this, the *Tartars* of Pekin had a species of white *cale*, with long narrow heads, which was not yet very much in use, and therefore was scarce.

THE CULTURE OF TREES.

THOUGH there are many good fruit-trees here, I could not observe that the *Chinese* did much regard their culture. They had planted several trees, and among those likewise fruit-trees, about their gardens and terraces; and likewise had made great orchards, which they looked upon as very magnificent; for which reason, they were generally planted before the *pagodas* and places of diversion. But few of the fruit-trees, or other trees, are known to us.

SWEET *orange-trees* (which have been brought to *Europe* by the *Portuguese*) were found bearing good large fruit: and it was said, that they came to still greater perfection in *Fockien* and about *Amoy*. Here are several sorts; some of the size of a walnut, others of the size of an apple, others were angular and reddish, &c. In a few places only, I found those trees placed in some order, in rows, and managed as they ought to be. But, if they were guarded from strong winds, they succeeded without any further care, and bore fruit plentifully. *Fockien* and *Quantung* are obliged to send annually a considerable quantity of fruit to the court at *Pekin*.

LEICKI is a species of trees which they seemed to reckon equal to the *sweet orange trees*; there are several sorts of it, such as great, small, and wild ones. The fruit was of the size of nutmegs, surrounded with a coarse, knobby, reddish shell, and growing in bunches like grapes. The trees grow as high as pear-trees, and are furnished with narrow, cuspidated, prickly leaves: they preserve the berries dried, and eat them as raisins. It seems hardly credible, that the country about
Canton

Canton (in which place only this fruit grows) annually makes a hundred thousand tel of dried *leickis*.

TEA (which they call *cha*, and which hereabouts grows only upon an island directly opposite Canton) is esteemed for strengthening weak lungs: the island is called *Honam*, and the tea therefore has the name of *Honam* tea. The bushes, which were two or three feet high, stood in rows on dry sandy hills. The light-green soft leaves were plucked in March, and roasted in iron kettles, and rolled up as other teas areⁱ. The harsh dark-green leaves were left hanging. It seemed as if they had taken too little pains with these shrubs, for near one half of them were dried up.

THE *areca* tree cannot grow far off Canton, as I should imagine by the fresh nuts which were exposed for sale. At Aynam were several plantations of this tree, standing in ground that was moist and fat. The trees themselves are not unlike cocoa-trees, and have strait stems. When the fruit was ripe, the shells assumed a burnt yellow colour, and then the nuts, which are like nutmegs, are taken out, dried, and sent to the north.

ⁱ See note, vol. I. p. 250.

THE betle bushes were likewise not tender, for they grew spontaneously without being planted, wherever they found a convenient place: its leaves, being covered with chalk and rubbed with a piece of areca nut, compose the known *pinang*, which this and many other eastern nations chew with great relish.

THE mange tree grows high, with expanded branches, like the ash: the leaves are like those of our (the white beam) *crataegus aria*, and the fruit is reckoned the most wholesome of all the fruits in the Indies.

CITRUS *decumanus* (the shaddock, *pompeius meift. itin.*) is a sort of great sweet citrons; the tree is like the citron-tree, but the leaves are broader. There were also little four citrons, *longan*, and other sorts of fruits; and likewise *otomkhoo*, from which, as *Le Comte* relates, they get the resin for their varnish. There are olives, pear and apple-trees, and likewise grapes, all which it would be tedious to mention and describe. It cannot be said that any of them enjoy the preference in regard to culture; for they are all of them left

to

to grow of themselves, as if they were wild: in some sorts of trees, they make use of grafting, at which they are very expert.

GARDENS for DIVERSION.

As great a difference as there is between the taste of the *Chinese*, and that of other nations in their customs, dress, and other things, it is full as great with regard to flower gardens and those intended for diversion. They take very little care about flower-pieces, hedges, covered walks, and symmetry; they are better pleased with a naked place, laid with stones of different colours and sizes in the figure of dragons or flowers, than if they were adorned with pretty designs, and the spaces filled up with plants or grass. Their walks must likewise not be open; but generally they are inclosed with walls, on the sides of which vines and other climbing plants are planted; which being strained from wall to wall on poles, by this means form a covered walk. The benches made in those walks are not lined with walls on the sides, and, by the peculiar construction of the stones, they are provided with several holes in which they place pots with different flowers. The walks have many bendings;

sometimes they pass over a little smooth place covered with stones, and lead to an open summer-house, on which there are flower pots; sometimes they form arched walks, which are doubly twisted with thin bamboo, but in an irregular way; and between it a sort of bushy ever-green is planted, which twines in among them, and makes them look like a green wall. Besides this there are many various scenes: hills covered with bushes, below which run some rivulets, surrounded with close standing shady trees; buildings which are three or four stories high, and generally open on the sides; towers, rough grottoes, bridges, ponds, places sown with beans; thick and wild bushes or little thickets, and other varieties which afford a fine landscape. Sometimes they have low stone seats under the shade of some great trees, from whence they can survey a great part of the country.

THOUGH their gardens are very large, yet they appear still greater by their winding walks which turn backwards and forwards. From as much as can be judged of their taste, it appears that no part must be similar to another. In some gardens they dig ditches, round which a walk leads to all the above-mentioned

mentioned places ; near them they have many summer-houses, which are all of them of a different construction, and are commonly near a pond on one side, that they may catch the fishes contained in it through the great windows. In the summer-houses they have gold and silver fishes in little ponds ; and besides them, birds and other animals, flowers, figures of dragons, with many other objects more pleasing.

B E A S T S A N D B I R D S .

THE people about *Canton* and on the sea coasts have seldom any stock of great cattle, because they do not reckon them so necessary as in the northern and adjoining provinces ; for they can till their ground with very little trouble, and without cattle ; and they travel and transport every thing by water, being much assisted by the tide. Beef is not a very agreeable dish among them, and the plenty of fish supplies its place. But few people have horses, except the *Mandarins* and soldiers. They use only oxen and buffaloes in tilling the ground, especially in places at a great distance from the shore ; they keep cows only to

preserve the breed, because they seldom make use of the milk. Some years ago they made little account of great cattle; but since the *Europeans* have been more numerous here, and use every year a good quantity, not only in *China* but likewise on their return; they have been induced to keep more great cattle, on account of the flesh and the milk.

SHEEP are not so numerous about *Canton* as in the neighbouring provinces. Their skins and wool are used as cloaths in the cold months; they are however dear enough, since every body cannot keep cattle, especially sheep.

ASSES are not so common about *Canton* as they are higher up the country, where they are used for working and travelling. The *Tartars* have such a great liking to asses flesh, that they have introduced the custom of killing them, and eating them as they do horses: I have likewise seen them sell this sort of meat here.

ALTHOUGH they greatly neglect the last mentioned animals; yet they esteem the less animals much more, which they can keep with less trouble, and more advantage. Long experience

perience has taught them to manage them to so much advantage, that little families have a sufficient, and even superfluous, maintenance from this business.

THEY keep plenty of hogs, whose flesh they eat daily in great quantity and with great relish, and the species in this country is very prolific; for the sows farrow before they are one year old, though they do not produce so many young ones at the first time, as the third or fourth, when the sow brings forth generally seventeen or eighteen pigs at once. The distillers of samsu, ricestampers, and those who have mills, always keep many swine: though not so many as the people on the shore, and the fishermen, who feed them with fish without any expence to themselves: but this food gives them a fishy taste. Besides this, every little family in the sampans keeps hogs for their own use, and for sale. It can hardly be imagined how a sufficient number can be bred, when you observe what quantities of pork they carry about the streets, and daily consume (since their principal dish is prepared of bacon); and likewise that they sacrifice large whole roasted swine in the pagodas, and use them on holidays; besides consuming many on

their sea voyages, and likewise by selling them to the *Europeans*. The pigs of the first and second breed are always small, like the sows which pig early; and for this reason the female pigs which are destined to be killed, are castrated.

THEY keep many chicken, but more for foreigners than for themselves, and are well skilled in making capons. They leave the chicken to be hatched by the hens, and do not make use of ovens. The warm weather and the many eggs which the hens lay, greatly contribute to their constant success.

THOUGH there are pheasants about *Canton*, yet they are not so numerous as higher up the country, where they are very fine, and of several colours. They are brought to *Canton* as rarities, and are sold at a great price.

TURKEYS are not bred in *China*; and though some of them are annually brought from the *Malabar* and *Coromandel* coast ^k (which is the native country of those birds), yet they have not taken pains to introduce them.

^k Mr. *Toreen*, in his fourth letter, has shewn that these birds are not natives of those places. F.

ALL sorts of pigeons succeed and multiply greatly here.

THE geese thrive well : they are less than ours, and like our wild geese ; so on the contrary their wild geese are like our tame ones.

THEY are perfect masters in the management of ducks. The breeding of these birds is a thing of the next consequence to the breeding of swine, which the *Chinese* take so much pains about : and as ducks are a daily dish at the tables of people of quality, the great consumption thereof requires a great breed. The continual warmth of the weather, and the conveniences of the river, greatly promote their growth : for they can be fed at a trifling expence, with little fry, and crabs which remain on the rice-fields after the water is run off. Many people at *Canton* earn their subsistence merely by bringing up ducks ; some buy up the eggs and trade with them, others hatch them in ovens, and others attend on the young ones. They lay an iron plate on a brick hearth ; on this they place a box full of sand

half a foot high, in which the eggs are put in rows: the box they cover with a sieve, over which they hang a mat. To heat them, they make use of the coals of a certain sort of wood, which burn slowly and uniformly: at first they give them but little warmth, and increase it gradually; and it becomes a strong heat by the time the eggs are hatched. Sometimes, when they increase the heat too much, the young ducks are hatched too soon; and in that case they generally die in three or four days. The hatched young ones are sold to those who breed them up, and these try in the following manner whether they are hatched too soon or not: they take hold of the little ducks by the bill, and let their bodies hang down; if they sprawl and extend their feet and wings, they are hatched in due time; but if they have had too much heat, they hang without any struggling. The latter often live till they are put to the water (which is generally eight days after they are hatched), which turns them giddy; they get cramps¹, throw themselves on their backs, and die with convulsions. The owners then take them out

¹ Ducks hatched in *England* after *Midsummer* usually get cramps, sprawl about in an odd manner, and throwing themselves on their backs die of convulsions.

of the water and dry them ; because they will sometimes recover : but they frequently die of such convulsions if they get wet again. When the tide goes off, some little crawfishes and crabs are gathered, boiled, and cut to pieces, and given to the young ducks by themselves at first, but afterwards mixed with some boiled rice, and minced with herbs. When they are older they are shifted into a larger sampane, which has a broad bottom of bamboo, with a gallery round, above the river, and a bridge declining towards the water. The young ducks get an old step-mother, who leads them when they are let down to graze by means of the bridge. The old duck is so used to the signal from the sampane in which they are assembled at night, that she hastens, half swimming, half flying, to her lodgings. The *Chinese*, as occasion serves, removes his sampane to another place, where he finds more food for his ducks, and lets them out daily on the shores among the rice-fields. One cannot see without astonishment many such sampans surrounded with greater and smaller ducks : and it is very peculiar that when many sampans feed their ducks in the same place, and call them home at night, each knows how to find the right sampane. The *Chinese* are always

ways employed in bringing up ducks, except in the three cold months ; and though this business requires a deal of attendance, you seldom see them employ any particular care, for as soon as the young ducks are a fortnight old, they are able to get their own subsistence.

THE silk worms, which, considering their use, ought to have a place among the smaller animals, should, together with their management, be described : but as we find accounts of them in other *Swedish* writings, I pass them over, and shall only mention that the *Chinese* eat the *aurelias* with great appetite, after their silk has been wound off; and that they either boil them fresh, or dry them; the catty costs eight or nine kandarins.

UP towards *Chingchiu* is said to be a species of very large silkworms, from which so coarse a silk is gathered, that at first it looks like hemp; the inhabitants however make a sort of stuff of it, which when new looks like unbleached linen, but by use and frequent washing acquires a gloss and better look. It seems that this silk will not take a dye, for they

they always wear it undyed, but it is said to be strong beyond credibility, and is called *Chingchiu* from the place it comes from.

T H E F I S H E R Y.

THE *Tabea* is a very long river, and wide at its mouth, and abounds more with fish than any in this country; remarkable as the shores of *China* are for this commodity. It may perhaps be thought that the tide is a hindrance to any fishery, especially in places which are inconvenient to be drawn with nets: however, they catch a multitude with those implements. The most common manner of catching fishes is, they drive in on the sands at a distance from the shore, long poles or rather posts a fathom asunder; between these they place black coloured nets of strong yarn, into which the fish enter and are caught. This manner of catching fishes corresponds to ours of catching them with junkets placed in the river.

THEY have likewise a number of baskets which are formed of bamboo and willow sticks, a fathom and a half long, and like our baskets. They make use of these when
the

the water rises more than ordinary ; they place them along the shore, but leave openings on both ends of the row of bamboo baskets, where they lie quite still with their sampanes or boats, so that the fishes which swim along the shore may not be stopped from entering them ; but in the inside they meet with a row of bamboo baskets, which are placed cross-ways towards the shore, and stop them from going back. As soon as the water again begins to run off, they fill up this space with the like baskets, the space of ground grows dry when the water has left it, and then they go down and gather up the fish. They likewise make use of a swimming net fastened between two boats, with which they go up and down and catch the shoals of fish coming in their way during the tide.

THEY likewise use great nets fastened between two bamboo poles, with which they fish both on their sea voyages and in the river.

THEY use worms and crabs as baits on their hooks, with which they catch eels and small fish. They likewise make use of long, low sampanes with white coloured boards on the sides ; in these sampanes they keep a little fire

at

at night, which makes the fish, which pursue the fire, leap into the sampane. This kind of fishery is generally undertaken on account of a species of fish called mullets, which leap in the dark towards the light of a fire.

BETWEEN the rocks and the shore the fishery is very great with nets and hooks: they catch a great quantity of fish, and sell them salted or dried in the neighbouring towns and villages.

AMONG the many sorts of fish there are some like those known among us; namely carps, perches, and sea perches; but I cannot with certainty say that they are the same: those that are well known to me are eels, crabs, shrimps, oysters, muscles, and lobsters: a very large sort of the latter is caught in plenty on the rocks of *Macao*. They do not only burn lime from the oyster shells, but likewise make use of the largest in their buildings instead of bricks.

1. *On the Nature of the Human Species* (1859)

2. *On the Descent of Man* (1871)

3. *The Descent of Man* (1871)

4. *On the Descent of Man* (1871)

5. *On the Descent of Man* (1871)

6. *On the Descent of Man* (1871)

7. *On the Descent of Man* (1871)

8. *On the Descent of Man* (1871)

9. *On the Descent of Man* (1871)

10. *On the Descent of Man* (1871)

11. *On the Descent of Man* (1871)

12. *On the Descent of Man* (1871)

13. *On the Descent of Man* (1871)

14. *On the Descent of Man* (1871)

15. *On the Descent of Man* (1871)

16. *On the Descent of Man* (1871)

17. *On the Descent of Man* (1871)

18. *On the Descent of Man* (1871)

19. *On the Descent of Man* (1871)

20. *On the Descent of Man* (1871)

FAUNULA SINENSIS:

O R,

An ESSAY towards a CATALOGUE

OF THE

ANIMALS OF CHINA.

卷之三
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FAUNULA SINENSIS.

MAMMALIA. *Quadrupedes.*

I. PRIMATES.

Homo I. **S**APIENS monstrosus, macrocephalus, capite conico, *Chinenis*: thus does Dr. *Linnæus* rank men amongst the animals, and calls the *Chinese* with their large conic heads, *monstrous* men.

Simia I. Ape. Great, black ones; their features are like the human. In the province of *Haynan*. *Du Halde* I. 118.

2. Gray, very ugly and very common apes. *Du Halde* I. 118. *Brisson*, p. 145? spec. 18. with

VOL. II. Y yellow

yellow hair, resemble dogs, and have a shrill cry. In the province of *Quangsi*. *Du Halde* I. 121.

Vespertilio 1. Bat. As big as hens, which the Chinese eat, found in *Shensi*. *Du Halde* I. 108.

II. B R U T A.

Elephas 1. *maximus*. Elephant. In *Quangsi* and *Yunnan*. *Du Halde* II. 224.

Manis 1. *pentadactyla*. In Formosa.

III. F E R A.

Canis 1. *familiaris*. Common dog. Dog's flesh is eaten in *China*. *Du Halde* I. 314.

2. *Lupus*. Wolf.

Felis 1. *Tigris*. Tiger. Very large and very common, called *Lou-chu* by the Chinese. *Du Halde* II. 336, and *Muller's Collections for the Russian History*, vol. III. p. 587.

2. *Pardus*. Leopard, called *Poupi* by the Chinese. *Muller's Collections*, vol. III. p. 587.

3. *Catus*.

3. *Catus.* Cat, eaten in *China*. *Du Halde* I. 314.
 β. *angorensis*. *Du Halde* I. 65. In the province of *Petcheli*.
 4. Animals in *Shensi* resembling tigers, *Du Halde* I. 108. perhaps it is a *Tiger-cat* which is found in the *Tartarian* deserts, is very fierce; about two feet long without a tail; this I saw at *Petersburgh* in her Majesty's elephant house.

Viverra 1. *Zibetha.* Civet-cat.

Mustela 1. *Martes.* Martin.

2. *Zibellina.* Sable, in the mountainous part of the *Chinese Tartary*, to the north of the river *Amur*.

Ursus 1. *Arctos.* Bear.

2. *Meles.* Badger.

IV. G L I R E S.

Hystria 1. *cristata.* Porcupine.

Lepus 1. *timidus.* Hare.

2. *Cuniculus.* Rabbet.

Mus 1. *terrestris.* Mouse.

2. *Rattus.* Rat.

Sciurus 1. *vulgaris.* Squirrel.

V. P E C O R A.

- Moschus 1. *moschiferus.*
 Cervus 1. *Alces.* Elk.
 2. *Elaphus.* Stag.
 3. *Dama.* Fallow-deer.
 4. *Capreolus.* Roe-buck.
 5. Stag no taller nor larger
 than a common dog; in *Tannan.*
 Du Halde I. 122.
 Capra 1. *tatarica.* Saïga. Yellow goats.
 Du Halde.
 Ovis 1. *Aries laticaudata.* Sheep.
 Bos 1. *Bubalis.* Buffalo.
 2. *Indicus.*

VI. B E L L U M.

- Equus 1. *Caballus.* Horse. Horse-flesh is
 eaten in *China.* *Osbeck.*
 Sus 1. *Scrofa Chinensis.* Chinese hogs are a
 variety.
 Rhinoceros 1. *unicornis.* *Du Halde* I. 120. in
 the province of *Quangsi.*

A V E S. Birds.

I. A c c i p i t r e s.

- Falco. Falcons, excellent, but the species not mentioned.
- Lanius 1. *Schach.*
2. *jocosus.* Sinensibus *Kow-kai-kon.*
3. *fauftus.* Amœn. Acad. 4. p. 241. among the *Chinenſia* Lagerstroemiana.

II. P i c æ.

- Psittacus* 1. *Alexandri.*
2. *criſtatus.* Cacatua.
3. green and red. Edw. 231.
4. *Galgulus.* Parroquet. *Calao* Sincè. Amœn. Acad. 4. p. 236.
- Buceros 1. *bicornis.*
- Oriolus 1. *Chinenſis.* Linn. syst. p. 160.
- Cuculus 1. *Sinensis.* Linn. syst. p. 171.

III. A n s e r e s.

- Anas 1. *Cygnoides orientalis.* Muscovy-goose. Swan-goose.

X 3.

2. *Anfer.*

2. *Anser.* Goose.
 3. *Boschas.* Duck.
 4. *galericulata.* Linn. syst. nat. 206.
Pelecanus 1. *Carbo.* Corvorant.
 2. *Piscator.* Booby.
Sterna 1. *Stolidia.* Sea-swallow.

IV. G R A L L A E.

- Scolopax** 1. *Rusticola.* Woodcock.
Fulica 1. *Porphyrio.*

V. G A L L I N A E.

- Pavo** 1. *cristatus.* Peacock. *Du Halde* I. 113, is found in *Quan-tong*.
 2. *bicalcaratus.*
Phasianus 1. *Colchicus.* Pheasant.
 2. *Argus.* East-India pheasant.
 3. *pictus.* Gold pheasant, by the Chinese called *Kinki*, or golden hens. *Du Halde* I. 15.
 4. *nycthemerus.* Silver-pheasant.
Tetrao 1. *Perdix.* Partridge.
 2. *Chinenis.* The bill is pale-blue. The head deep-brown edged with black, above the eye is a white line. The neck is dusky and most elegantly marked with numerous minute circular spots of white and

and pale-brown. On the belly are larger ones of white only. The beginning of the back has others of pale-yellow. The rest of the back, wings, and tail, are pale-brown, spotted here and there with minute dusky specks. Its legs are blue.

3. *Coturnix*. This and the foregoing species are made use of, by the Chinese of quality, instead of muffs.

VI. P A S S E R E S.

Columba 1. *Sinica*.

Sturnus 1. *viridis*. The green Stare. On the forehead and chin is a tuft of black and white feathers. Above the first is a spot of white: beyond the eye another. The whole upperpart of the body is green. On the scapulars are two white spots. The wings and tail are green, the outward webs of the first are white; the shafts of the wings and tail are also white. The underside of the back, breast, and belly, pale-blue, the legs cinereous blue.

X 4

2. *olivaceus*.

2. *olivaceus.* The brown Stare. The bill is whitish red. The eye lodged in a long stripe of pale cœrulean. The whole body, the wings, and tail, light olive brown; on the belly faint, and tinged with yellow. The legs are pale red, the tail is long.
- Turdus 1. *canorus.* By the Chinese called *Whom-mai.*
2. *Sinensis.* Linn. syst. nat. p. 295.
3. Chinese black bird. Edw. 19.
- Loxia 1. *Cardinalis.* Cardinal bird. Amœn. Acad. 4. p. 242.
2. *Dominicana.* Amœn. Acad. 4. p. 242.
3. *Maia.*
4. *flavicans.* Amœn. Acad. 4. p. 244.
5. *oryzivora.* Cock-paddy, or Rice-bird. A sort of cross-bill, has a green and long forehead, and the crown is of pink colour. The hind part of the head, cheeks, the hind part of the neck, wings, breast, and belly, are white. The chin, throat, and fore part of the neck, black, with long

long pendent feathers over the breast, the tail is black, the legs green. This bird haunts the rice grounds, and lives on it.

6. *Malacca.*
7. *Sanguini rostris.* Amœn. Acad. 4.
P. 243.
8. *cyanæa.* Amœn. Acad. 4. p. 244.
9. *fusca.* ibid.

Tanagra 1. *militaris.* Amœn. Acad. 4. p. 241.

Fringilla 1. *Melba,*

2. *Sinica,*

3. Chinese sparrows. Edw. 43.

4. white breasted Chinese sparrows.
Edw. 355.

An Fringilla? a small bird; the head, back, coverts of the wings are purple; the prime quill feathers and tail of a fine blue, the secondary quill feathers are green; the whole underside yellow, on the ears is a white spot.

Another like the former, only the back and tail are purple.

Another with a green head, purple breast, and the tail of the same colour.

A fourth

A fourth with a light green breast. The head and less coverts are brown.

A fifth has the head, back, and coverts of the wings of a fine deep brown. The tail is of the same colour; the underside of the body and the under coverts of the wings are of a fine crimson.

Each of these five birds had the white spot on the ears; but the head of the fourth was so placed in the drawing, that one could not see this spot.

- Hirundo 1. *rustica*. Chimney swallow.
 2. *esculenta*. The nests of these birds are eaten as a dainty by the Chinese, and for that reason are very dear. They are made of the sea-worms of the Mollusca class. For a further account, see Kämpfer's *Amœn. Exotic.* p. 833, and *Du Halde II.* p. 201 of the octavo edition.

A M P H I B I A. *Amphibious Animals.*

I. R E P T I L I A.

- Rana 1. *Chinensis*, palmis tetradactylis fissis, plantis hexadactylis, digito indice reliquis longiore. *Obeck.*
2. *Bufo*. Toad. *Bradley's Works of Nat.* p. 165, says toads are eaten in *China*, and are found in the middle of stones and in oaktrees.
- Lacerta 1. *Chinensis*, cinerea, cauda ancipiiti, corpore paulo longiore, pedibus pentadactylis omnibus unguiculatis. *Obeck.*

II. N A N T E S.

- Lophius 1. *bifilio*. *Amoen. Acad.* 4. p. 246.
- Balistes 1. *Monoceros.*
2. *Vetula*. *Amoen. Acad.* 4. p. 247.
3. *scriptus*. *Obeck.*
4. *nigro punctatus*. *Obeck,*
5. *Sinensis*. *Obeck.*
- Tetradon 1. *bispinus*. *Amoen. acad.* 4. p. 247.
ocellatus, called *de Opblaser* by
the Dutch. A decoction of this
fish

fish is made use of by the *Chinese* and *Japanese* as a poison, and a branch of the *Illicium anisatum* or *Badian-tree* boiled, with this decoction, makes it still more poisonous. vid. *Kämpf.* *Amœn.* *Exot.* p. 880, 881.

P I S C E S. *Fish.*

I. A P O D E S.

Trichiurus 1. *Lepturus.* Linn. syst. p. 429,

II. T H O R A C I C I.

Gobius 1. *niger.*

2. *Eleotris.*

3. *anguillaris.* Linn. syst. p. 450.

4. *pectinirostris.*

Chætodon 1. *pinnatus.* Amœn. Acad. 4. p. 249.

2. *argenteus.* ibid.

Sparus 1. *nobilis.* Mandarin fish. *Osbeck.*

2. *Chinenis.* Lesser Mandarin fish.
By the *Chinese* called Kya-yo.
Osbeck.

Labrus 1. *opercularis.* Amœn. Acad. 4. p. 248.

2. *Chinenis.* Linn. syst. p. 479.

Scomber 1. *Trachurus.* Horse Mackarel or
Scad. Amœn. Acad. 4. p. 249.

III. A P O D E S.

III. A B D O M I N A L E S.

- Clupea* 1. *Thriffa*.
 2. *Myctus*.
 3. *Sinenfis*. Linn. syst. p. 525.
 4. *lanatus*. Amoen. Acad. vii. 502.
Cyprinus 1. *auratus*. Gold fish.
 2. *Cantonensis*. *Osbeck*. very probably a variety of the *Cyprinus Griflagine* of *Linnæus*, as Mr. *Osbeck* himself seems to intimate.

I N S E C T A. Insects.

I. C O L E O P T E R A.

- Scarabæus* 1. *Molossus*. Linn. syst. p. 543.
 This species is made use of in
 the Chinese apothecaries shops.

2. *laticollis*. Linn. syst. nat. p. 549.

- Cassida* 1. *cinerea*.
 2. *nigra*, *oblonga*, *fasciis duabus*
 transversis testaceis, *punctis*
 quatuor ad basin. *Osbeck*.

Coccinella 1. *septem punctata*.

2. *quadri pustulata*.

Bruchus 1. *pectinicornis*. Linn. syst. p. 605.

Lampyris

- Lampyris 1. *Chinenfis.* Linn. syst. p. 645.
 & Oſbeck.
- Buprestis 1. *gigantea.*
- Meloe 1. *Cichorii.* Mus. Lud. Ulr. 103.
 & Amoen. Acad. 6. p. 137.

II. H E M I P T E R A.

- Blatta 1. *Orientalis.* Cock roaches.
- Mantis 1. *pectinicornis.* Linn. syst. nat. p. 690.
- Fulgora 1. *Candelaria.* Chinese lanthorn-fly.
- Thrips 1. *paradoxa.* Linn. syst. p. 743,
 & Amoen. Acad. 6. p. 401. n. 48.

III. L E P I D O P T E R A.

- Papilio 1. *Paris.*
 2. *Helenus.*
 3. *Troilus.*
 4. *Deiphobus.*
 5. *Pammon.*
 6. *Memnon.* Linn.
 7. *Agenor.* Linn.
 8. *Agamemnon.*
 9. *Philoctetes.*
 10. *Demoleus.*
 11. *Mneme.* Amoen. Acad. 6. p. 403.
 n. 54.
 12. *Thallo.*

12. *Thallo.*
13. *Brassicæ.* Linn.
14. *Napi.* This species is twice as big as the European variety.
15. *Pyrene.* Linn.
16. *Eupippe.*
17. *Glaucippe.* Linn.
18. *Hecabe.* Mus. Lud. Ulr. 249.
19. *Trite.*
20. *Pyrantha.* Linn.
21. *Midamus.*
22. *Plexippus.*
23. *Chrysippus.*
24. *Mineus.* Linn.
25. *Almena.*
26. *Aonis.*
27. *Oenone.* Mus. L. U. 274, 275.
28. *Lemonias.* Mus. L. U. 277.
29. *Orithya.*
30. *C. aureum.*
31. *Leucothoe.*
32. *similis.*
33. *affimilis.* Mus. L. U. p. 300.
34. *dissimilis.*
35. *Niphe.* Linn. *P. Hyperbius* Amœn. Acad. 6. p. 408. n. 75.
36. *Augias.* Amœn. Acad. p. 410. n. 80.

37. *Lintir-*

37. *Lintingensis*, subitus pallide luteus nebulosus, supra nigricans, luteo imprægnatus. *Oſbeck.*

38. *argyrius.*

39. *Pyrene.*

Sphinx 1. *Atropos.*

2. *Auxo.* Linn.

3. *Procellus.*

Phalæna 1. *Atlas.*

2. *Mori.* The *larva* of this Moth is the silkworm.

3. *lectrix.* Linn.

4. *feticornis*, spirilinguis alis planis, superioribus cærulescentibus, margine exteriore duabus maculis luteis. *Oſbeck.*

5. *nigrella.*

6. *altica.*

7. *bicincta.*

8. *macrops.*

IV. NEUROPTERA.

Libellula. 1. *Chinenſis.* *Oſbeck.*

2. *fusca*, capitis lateribus viridibus. *Oſbeck.*

V. HYMENOPTERA.

V. H Y M E N O P T E R A.

- Apis 1. *lævis, flavo, fulvoque varia, ab-*
domine lineis, transversis undati-
s nigris. *Oßbeck.* The Chinese
 call them *Quong-fong.*

VI. D I P T E R A.

- Culex 1. *pipiens.* Mosquitoe.

VII. A P T E R A.

- Termes 1. *fatale.* Linn.

- Pediculus 1. *humanus.* Louse.

- Aranea 1. *ocellata.* Linn.

- Cancer 1. *Grapsus.* Amœn. Acad. 4. p. 252.
 t. 3. fig. 10.

2. *Chinen sis.* *Oßbeck.*

3. *Oryzæ.* *Oßbeck.*

- Scolopendra 1. *morsitans.*

- Julus 1. *ovalis.* Amœn. Acad. 4. p. 253.

2. *crassus.* ibid.

3. *fuscus.* ibid.

V E R M E S. Worms.

I. M O L L U S C A.

- Nereis 1. *cærulca.* Amœn. Acad. 4. p. 254.

- Holothuria 1. *Priapus.* Amœn. Acad. 4. p. 255.

- Medusa 1. *Porpita*. Amœn. Acad. 4. p. 255.
 t. 3. f. 7, 8, 9.
 Asterias 1. *pedinata*. Amœn. Acad. 4. p. 256.
 2. *Luna*. ibid.

II. TESTACEA.

- Chiton 1. *punctatus*. Amœn. Acad. 4. p. 256.
 Lepas 1. *Mitella*. Linn. *Balanus Chinensis*
striatus. Petiver. Gaz. t. 1. f. 10.
 Voluta 1. *monilis*. Linn.
 Ostrea 1. *Chinenesis*. Oſbeck. The Chinese
 call it *Hao*.

III. LITHOPHYTA.

- Madrepora 1. *polygama*. Amœn. Acad. 4. p. 258.
Corallium 1. *Chinense*. Amœn. Acad. 4. p.
 258. tab. 3. f. 11. seems to be
 the *Madrepora polymorpha* of
Linnæus.

IV. ZOOPHYTA.

- Sertularia 1. *confervæ formis*. Oſbeck.
 Vorticella 1. *conglomerata*. Linn. *Hydra con-*
glomerata. Amœn. Acad. 4. p.
 257. t. 3. fig. 1.
 Pennatula 1. *phosphorea*. Amœn. Acad. 4. p.
 256.
 2. *mirabilis*. Amœn. Acad. 4. p. 256.
 3. *Sagitta*. ibid.

FLORA

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FLORA SINENSIS:

O R,

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O F

CHINESE PLANTS,

Z 2

1812 MARCH 12 - P. 30. 34.

FLORA SINENSIS.

M O N A N D R I A.

M O N O G Y N I A.

CANNA 1. *Indica*. Indian cane.

Maranta 1. *Galanga*.

Curcuma 1. *Chinensis*. *Osbbeck*.

D I A N D R I A.

M O N O G Y N I A.

Nyctanthes 1. *biflora*.

2. *Orientalis*. *Osbbeck*.

Justicia 1. *Chinensis*. Linn. syst. nat. tom.

2. p. 60.

2. *purpurca*.

Gratiola 1. *Virginianoides*. *Osbbeck*. Probably a variety of the *Gratiola virginiana*. Linn.

Utricularia 1. *bifida*. see tab. iii. fig. 2.

Verbena 1. *nodiflora.* SINCHUANG
Monarda 1. *Chinensis.* *Ostbeck.*

T R I G Y N I A.

Piper 1. *Betle.*

T R I A N D R I A.

M O N O G Y N I A.

- Valeriana 1. *Chinensis.*
Tamarindus 1. *Indica.* the Chinese call it
Tcham-pahoo.
Ixia 1. *Chinensis.* Linn. spec. pl. p. 52.
Commelina 1. *communis.*
2. *Chinensis.* *Ostbeck.* Perhaps it
is the same with the *Commelina nudiflora.* Linn.
Cyperus 1. *haspan.*
2. *Iria.*
3. *odoratus.*
4. *glomeratus.*
Scirpus 1. *Chinensis.* *Ostbeck.*
Nardus 1. *ciliaris.*
2. *articulata.* *Ostbeck.*

D I G Y N I A.

- Saccharum 1. *officinarum,* by the Chinese called
Ki-a.

2. *pluvia-*

2. pluviatile. *Oiskeck.* Qu. Is not this a variety of the former?

Panicum 1. *alopecurodeum.*

2. *glaucum.*

3. *Crus galli.*

4. *brevifolium.*

5. *arborescens.*

6. *patens.*

7. *dissectum.* *Oiskeck.* Perhaps the *P. dimidiatum.* Linn.

Alopecurus 1. *Hordeiformis.*

Agrostis 1. *Indica.*

Aira 1. *feminibus hirsutis, aristis termina-
libus, flore longioribus.* *Oiskeck.*

Poa 1. *angustifolia,*

2. *Malabarica.*

3. *Chinenis.*

4. *tenella.*

Briza 1. *elegans, spicis oblongis, valvulis
carinatis.* *Oiskeck.*

Cynosurus 1. *Ægyptius.*

Arundo 1. *Bambos,* the Bamboo-reed.

T R I G Y N I A.

Eriocaulon 1. *sexangulare.*

Mollugo 1. *pentaphylla.*

T E T R A N D R I A.

M O N O G Y N I A.

- Hedyotis 1. *herbacea.*
 Spermacoce 1. *verticillata.*
 Ixora 1. *coccinea*, by the Chinese called
 Kæn-long-faw.
 Plantago 1. *Asiatica*. Linn. spec. pl. p. 163.
 Oldenlandia 1. *umbellata.*
 Ammania 1. *baccifera.*
 Trapa 1. *natans*, by the Chinese called
 Ling-konn or Leng-ka.

P E N T A N D R I A.

M O N O G Y N I A.

- Convolvulus 1. *hederaceus.*
 2. *Batatas*, called *Fauciy* by the
 Chinese.
 3. *biflorus*. Linn. sp. pl. p. 1668.
 4. *reptans.*
 5. *hirtus.*
 6. *Pes Capræ.*
 Ipomœa 1. *Quamoclit.*
 Nauclea 1. *orientalis.*
 Morinda 1. *umbellata*, or *Pa-cock-faw* of
 the Chinese.
 2. *citrifolia.*

Mussænda

Mussænda 1. *frondosa*.

Mirabilis 1. *odorata*, *Oſbeck*. Perhaps *M. dichotoma*, Linn.

Datura 1. *ferox*. Linn. spec. pl. p. 255.

Nicotiana 1. *fruticosa*. Linn. sp. pl. p. 258.

Solanum 1. *diphyllum*.

2. *Æthiopicum*. Linn. sp. pl. p. 265.

3. *Indicum*.

Capsicum 1. *frutescens*.

Lycium 1. *barbarum*.

Rhamnus 1. *lineatus*. see tab. vii.

2. *aenoplia*.

3. *Thea*, *Oſbeck*. The leaves of this shrub are made use of by the poorer *Chinese*, instead of tea.

Mangifera 1. *indica*. The *Chinese* call the fruit *Quai-mao*.

Achyranthes 1. *aspera*.

2. *lappacea*.

3. *Chinensis*, *Oſbeck*.

Celosia 1. *argentea*.

2. *cristata*.

Gardenia *florida*, or the Cape Jasmine.

Calyx monophyllous, quinquangular, divided in five sections, *Corolla* monopetalous, has a long cylindrical tube, the sections of the

the flower leaves divided into five ovated segments. *Antheræ* seated within the tube; the *Pistil* is below the flower, the flower stem filiform, divided, and clavated; *Stigma* is bilobous, ovated, obtuse and great.

Seed Vessel egg-shaped, ribbed from the descending wings of the flower-cup, and within divided into two cells by a thin membranaceous partition.

Seeds numerous, compressed, and surrounded with a mucilaginous substance.

Arbuscula Sinensis, myrti majoris folio, vasculo seminali hexagono, ad singulos angulos alis foliaceis munito, quæ porrectæ vasculi coronam efformant. Umki Sinensisibus dicta. Plukn. Amalth. p. 29.

Umky alias Umuy; cuius fructum ad colorem escarlatinum tingendum inservit; florem fert rosaceum, album, hexapetalum. Plukn. Amalth. p. 212. tab. 448. fig. 4. Frutex cynosbati fructu alato, tinctorio, barbulis

barbulis longioribus coronato. Petiv. Mus. p. 498. Ray. Hist. III. p. 233. Jasminum foliis lanceolatis oppositis integerrimis, calycibus acutioribus. Mill. Dict. n. 7. Mill. fig. 180. Jasminum? ramo unifloro pleno, petalis coriaceis. Ehret. tab. 15. E. N. C. 1761. p. 333.

Gardenia Jasminoides. Ellis Phil. Transf. 1760. p. 929. tab. 23. *Gardenia Jasminoides*. Solander Phil. Transf. 1762. p. 654. tab. 20. The variety of this plant with double flowers was brought from the Cape of *Good Hope* in the year 1744, by Captain *Hutchenson*, and presented by him to *Richard Warner*, Esq. of *Woodford Row, Essex*. Mr. *Ellis* procured for Mr. *James Gordon* some shoots, which turned very beneficial to Mr. *Gordon*, for he by his ingenuity brought three shoots to grow, and afterwards multiplied them so much that they are now at present in all the gardens of *England*. The plant with single flowers was found by Mr. *Cunningham* in

China, and in the *East Indies*. Some gentlemen have lately seen this shrub on the coast of *Coromandel*. The *Chinese* call it *Umki*, and dye with the seeds scarlet, it may perhaps, if properly enquired into, turn out a great improvement in the art of dying, and therefore deserve the attention of the commercial part of the public, and become an article of importance in commerce, if planted in the *English* colonies in *North America*.

Nerium 1. *Oleander.*

D I G Y N I A.

Periploca 1. *Græca.*

Chenopodium 1. *scoparia.*

Gomphrena 1. *globosa.*

Hydrocotyle 1. *Chinensis.* Linn. spec. pl. p. 339.

Athamanta 1. *Chinensis.* Linn. sp. pl. p. 353.

Sium 1. *sifurum.* Linn. sp. pl. p. 361.
2. *Ninsi.* ibid.

T R I G Y N I A.

Rhus 1. *Javanicum,* by the *Chinese* called *Taifsha.*

2. *Chinense.*

2. Chinense. *Osbbeck.* by the Chinese called *Mon-khi.*

Sambucus 1. *nigra.*

Baetelia 1. *rubra.* The Chinese call it *Tang-soy.*

2. *alba.* Linn. sp. pl. 390.

T E T R A G Y N I A.

Evolvulus 1. *alfinoides.*

P E N T A G Y N I A.

Aralia 1. *Chinenfis.*

H E X A N D R I A.

M O N O G Y N I A.

Narcissus 1. *Tazetta.*

Dracæna 1. *ferrea;* in the Chinese language *Tat-sio.* Irontree.

Convallaria 1. *Chinenfis,* foliis linearibus, corollis sexpartitis. *Osbbeck.*

Hemerocallis 1. *fulva.* Linn. sp. pl. 462.

Loranthus 1. *scurrula.* Linn. sp. pl. 472.

D I G Y N I A.

Oryza 1. *sativa.* Rice. The Chinese call it *Vo-a* whilst it is growing, and *Vo-Kock*

Kock before it is ground. The raw groats they call *Mai*, but when boiled they give it the name of *Fann*.

O C T A N D R I A.

M O N O G Y N I A.

Osbeckia 1. *Chinensis*; by the Chinese called *Komm-hoeong-lo-aw*. See tab. ii.
fig. 1, 2, 3.

Daphne 1. *Indica*.

Bæckea 1. *frutescens*; called *Tiong-maw* by the Chinese. See tab. i.

T R I G Y N I A.

Polygonum 1. *barbatum*. *Ka-yong-moea* in the Chinese language.

2. *orientale*. In the Chinese language *Yong-moca*.

3. *Chinense*.

E N N E A N D R I A.

M O N O G Y N I A.

Laurus 1. *Camphora*. The Chinese call the tree *Tiong-sio*, but the Camphire extracted from it they call *Tiong-No-o*.

Cassytha 1. *filiformis*.

T R I G Y N I A.

- Rheum 1. *undulatum*. Linn. spec. pl. p. 531.
 2. *palmatum*. ibid.
 3. *compactum*. ibid.

D E C A N D R I A.

M O N O G Y N I A.

- Cassia 1. *Sophera*.
 2. *procumbens*.
 Jussiaea 1. *repens*.

D I G Y N I A.

- Dianthus 1. *Chinensis*.

P E N T A - G Y N I A.

- Averrhoa 1. *Bilimbi*, by the Chinese called
Sam-nim.

D O D E C A N D R I A.

M O N O G Y N I A.

- Lythrum 1. *fruticosum*. Linn. sp. pl. p. 641.

T R I G Y N I A.

- Euphorbia 1. *neriifolia*.

O C T A-

O C T A G Y N I A.

- Illicium 1. *anisatum*. Linn. spec. plant. pag. 664. The fruit of this tree is probably the *Badian* or *Star-Anis*; and a branch of this tree, boiled with the *Tetrodon ocellatus*, makes the broth of it still more poisonous.
- Psidium 1. Guayava, *Obeck*. Probably *P. pyrifera*. Linn.

I C O S A N D R I A.

P O L Y G Y N I A.

Rosa 1. *Indica*.

Rubus 1. *parvifolius*.

P O L Y A N D R I A.

M O N O G Y N I A.

Nymphaea 1. *Nelumbo*.

Lagerstroëmia 1. *Indica*. *Isjin-kin* of the Chinese.

Thea 1. *bohea*, with six petals. *The leaves stand alternately on the stalk, are elliptical, smooth, somewhat obtuse, and serrated*

or sawed in such a manner as to make the outstanding corners obtuse. The footstalks are short, round below, and gibbose. It has no stipulæ. Linn. syst. nat. tom. ii. p. 365.

2. *viridis*, with nine petals, *Linn.* The variety of tea which is called *green tea* with nine petals, is enumerated by Dr. *Linnæus* only upon the authority of Dr. *Hill's Exotics*, tab. 22. but it is quite incredible that *green tea* should be a shrub so different from the *bahca tea*, that it should differ in the petals: of which the latter species, according to *Kämpfer*, *Amœn.* p. 611, has six, which he himself saw in *Japan*: and what is more remarkable, *Kämpfer* says the green colour of tea depends only upon the manner and care taken of it in drying. For some roast the leaves in a large iron pan two or three times only, which sudden roasting makes them brown, and tinges the infusion with the same colour; but on the other hand others preserve that vivid green in the

leaves (and consequently in the infusion) by a flower roasting; and repeat the operation five, six, and even seven times. Between each roasting the tea-leaves are rolled in one direction on a table covered with a bamboo or rush-mat: but never is this operation performed backwards and forwards. The pan must be so hot, that by putting a fresh leaf in it, it may make a hissing noise from the expelled juice. The leaves are continually stirred by mens hands, till their heat grows intolerable; and then they are taken out with a wooden rake, and rolled as above on mats. The *Chineſe*, to take off the narcotic power of the tea-leaves of the first collection, soak them for half a minute in boiling water. In curing the best sorts of tea, the pan is washed, and cleaned with boiling water after each roasting. This is however true, that there are many varieties of tea, differing one from another in the shape and quality of the leaves: thus the *Tea-Ankai* has oblong leaves, the

Tea-

Tea-Soatchoun has lanceolated leaves and the tea *Linkifom* has hoary or rough leaves.

Captain *Eckeberg* brought a little tea-shrub, the third of October 1763, to *Sweden*; which is the first that ever came to *Europe*, for all sorts of trees die on the voyage: but the way to obtain them is to put the fresh seeds into pots in *China*, a little before the ship sails. And as a tea tree, according to *Kæmpher's* account, attains its full growth of about six feet high in seven years, it is probable that Dr. *Linnaeus's* tree is now in full vigour. He intends to multiply this sort of tree, and to expose it then to the open air; as the tea-shrub grows as high as the latitude of *Pekin* in the open air, where the winters are far more severe than in *England* and in the south of *Sweden*. It is therefore highly probable that this attempt will succeed: and so it would in *England*, but not in the *American* colonies, for want of such a quantity of

hands as the cultivation and preparation of tea require.

Clematis 1. *Chiicensis*. *Osbeck*; it is perhaps a variety of the *Clematis Vitalba*, Linn.

D I D Y N A M I A.

G Y M N O S P E R M I A.

Hyssopus 1. *Lophanthus*. Linn. spec. plant. pag. 796.

Leonurus 1. *Sibiricus*. Linn. spec. plantar. pag. 818.

Ocimum 1. *gratissimum*.

Scutellaria 1. *Indica*.

A N G I O S P E R M I A.

Gerardia 1. *glutinosa*. See tab. ix.

Torenia 1. *Asiatica*.

2. *β. glabra*. Osbeck.

Capraria 1. *crustacea*. Linn. syst. nat. tom. ii. p. 419. & Mantissa, p. 87.

Buchnera 1. *Asiatica*. Linn. spec. plant. 879.

Ruellia 1. *crispa*.

2. *ringens*.

3. *antipoda*.

Barleria

Barleria 1. *criſtata*, in the Chinese language
Ab-keyfaw. See tab. viii.

Volckameria 1. *inermis*.

Clerodendrum 1. *fortunatum*, by the Chinese called *Ka-tag-nong*. See tab. xi.

Vitex 1. *Negundo*.

Columnea 1. Chinensis. *Oſbeck*. By the Chinese it is called *Pange-ká*,

T E T R A D Y N A M I A.

S I L I Q U O S A.

Brasica 1. *Chinenſis*, or the *Kai-lann* of the Chinese.

2. *violacea*. Linn. spec. plant. 932.

Sinapis 1. *junccea*. Linn. spec. pl. 934.

2. *Orientalis*.

3. *Chinenſis*. Linn. ſyst. nat. tom. ii.
pag. 445, & Mantiss. plantar.
pag. 95.

Raphanus 1. *sativus*. Linn. spec. pl. 935.

MONADELPHIA.

POLYANDRIA.

Sida 1. *spinosa*.

Urena 1. *lobata*.

2. *procumbens*.

3. *Chinenis*, caule erecto, floribus masculis. Osbeck.

Gossypium 1. *herbaceum*, or the Chinese *Minfu*.

Hibiscus 1. *mutabilis*.

2. *ficulneus*.

Camellia 1. *Japonica*, by the Chinese called *Fo-kai*.

DIADELPHIA.

OCTANDRIA.

Polygala 1. *Chinenis*. Linn. spec. pl. 989.

2. *ciliata*.

DECANDRIA.

Abrus 1. *precatorius*.

Crotalaria 1. *Chinenis*. Linn. spec. pl. 1003.

2. *juncea*.

2. *juncea*.

3. *sessiliflora*. Linn. sp. pl. 1004.

Phaseolus 1. *radiatus*. Linn. sp. pl. 1018.

Dolichos 1. *Sinensis*, by the Chinese called
Ta-o.

Hedysarum 1. *maculatum*,

2. *styracifolium*.

3. *Gangeticum*.

4. *triquetrum*, by the Chinese call-
ed *Ka-song-soe*.

5. *pulchellum*.

6. *biarticulatum*,

7. *heterocarpon*.

8. *triflorum*.

9. *lagopodioides*.

Indigofera 1. *tinctoria*. The Chinese call it
Tong-ann or *Vaw*.

Astragalus 1. *Chinenis*. Linn. spec. plant.
1066.

2. *Sinicu*. Linn. syst. nat. tom. ii.
pag. 499. & Mantiss. p. 103.

P O L Y A D E L P H I A.

I C O S A N D R I A.

Citrus 1. *Medica.*

2. *Aurantium.*

3. *decumanus.*

P O L Y A N D R I A.

Hypericum 1. *monogynum.* Linn. spec. pl.
1107.

2. *Chinense.* Obeck.

S Y N G E N E S I A.

P O L Y G A M I A Æ Q U A L I S.

Cacalia 1. *sonchifolia.* Linn. spec. pl. 1169.
2. *incana.*

Ethulia 1. *tomentosa.* Linn. syst. nat. tom. ii.
536. & Mantiss. pl. pag. 110.

P O L Y G A M I A S U P E R F L U A.

Artemisia 1. *vulgaris,* by the Chinese called
Gnai.

2. *Chinenfis.* Linn. sp. pl. 1190.

3. *minima.* ibid.

Carpesium 1. *abrotanoides.* See tab. x.

Baccharis

- Baccharis 1. *Indica*, or the *Kate-gnai* of the Chinese.
- Conyzza 1. *Chinenesis.*
2. *hirsuta*. The Chinese call this plant *Vreelatsoy*, or *Kang-gan-faw*.
- Senecio 1. *divaricatus.*
- Aster 1. *Indicus.*
2. *Chinenensis*. Chinese Aster. Linn. spec. pl. 1232.
- Solidago 1. *Chinenensis*, caule procumbente, ramis alternis, foliis radicalibus linearibus. *Ostbeck.*
- Chrysanthemum 1. *Indicum*, by the Chinese called *Kock-faw*.
- Sigesbeckia 1. *Orientalis*. The Chinese name is *Khimag*.
- Verbesina 1. *Chinenensis*, by the Chinese called *Kaling-faw*.
2. *prostrata*.
3. *calendulacea*.

M O N O G A M I A.

- Lobelia 1. *zeylanica.*
- Impatiens 1. *Chinenensis.*
2. *balsamina.*

G Y N A N D R I A.

D I A N D R I A.

Epidendrum 1. *ensifolium.*

D E C A N D R I A.

Helicteres 1. *angustifolia*, by the Chinese called *Kay-maw*. See tab. v.

M O N O E C I A.

T R I A N D R I A.

Phyllanthus 1. *Niruri.*

T E T R A N D R I A.

Urtica 1. *nivia.*

Morus 1. *alba.*

P E N T A N D R I A.

Xanthium 1. *Oriентale*. Linn. sp. pl. 1400.

Amaranthus 1. *tristis*, called *In-soy* by the Chinese.

2. *cruentus*. Linn. sp. pl. 1406.

P O L Y A N -

P O L Y A N D R I A.

- Sagittaria 1. *trifolia*. Linn. sp. pl. 1410.
 2. *sagittifolia*, called *Succoyee-faw*.

M O N A D E L P H I A.

- Thuya 1. *orientalis*.

- Croton 1. *sebiferum*, by the Chinese called
O-ka-o.

S Y N G E N E S I A.

- Trichosanthes 1. *Anguina*. Linn. sp. pl. 1432.

- Cucurbita 1. *lagenaria*, by the Chinese
 called *Po-o*. Parents hang
 the fruit of this plant to
 their children's necks, to
 prevent their being drown-
 ed.

2. *Chinenis*, Osbeck.

- Cucumis 1. *acutangulus*. Linn. spec. pl.
 1436.

- Bryonia 1. *cordifolia*.

G Y N A N D R I A.

- Andrachne 1. *fruticosa*.

DIOECIA.

D I O E C I A.

P E N T A N D R I A.

Zanthoxylum 1. *trifoliatum*, called *Lack-faw* by the *Chinese*.

H E X A N D R I A.

Smilax 1. *sassafrilla*.

2. *China*, is by the *Chinese* called *Long-fan-tao*.

Dioscorea 1. *alata*. Yams. Their *Chinese* name is *Idaï-fio*; but Captain *Eckeberg* says, the *Chinese* call them *Oo-taw*.

P O L Y G A M I A.

M O N O E C I A.

Musa 1. *paradisiaca*. Plantain-tree. Is called *Tsey* by the *Chinese*.

— β. *Cliffortiana*. Linn.
sp. pl. 1477.

Andropogon 1. *Schænanthus*.

2. *Ischænum*.

3. *fasciculatum*.

Holcus

- Holcus 1. *latifolius.*
 Apluda 1. *mutica.*
 Ischænum 1. *aristatum.*
 Mimosa 1. Chinensis, inermis, stipulis foliolo longe majoribus, semi-cordatis. Obeck.
 Panax 1. quinquefolium. Ginseng. By the Chinese called *Jansom*, or *Jansam*.

T R I O E C I A.

- Ficus 1. *Indica.* Banian-tree.
 2. *pumila.* Linn. spec. pl. 1515.

C R Y P T O G A M I A.

F I L I C E S.

- Onoclea 1. *sensibilis.*
 Ophioglossum 1. *scandens*, by the Chinese called *Kayin-sé*.
 Acrostichum 1. *punctatum.* Linn. spec. pl. 1524.
 2. *dichotomum.* ibid.

- Pteris 1. *vittata*. See tab. iv.
 2. *semipinnata*, by the Chinese
 called *Kalao*. See tab. iii.
 fig. 1.
- Blechnum 1. *Orientalis*.
- Polypodium 1. *varium*.
 2. *cristatum*.
 3. *Barometz*.
- Adiantum 1. *flabellulatum*, by the Chi-
 nese called *Siagmaoquang*.
 2. *chusanum*. Linn. sp. pl. 1558.
- Trichomanes 1. *Chinense*. See tab. vi.

M U S C I.

- Lycopodium 1. *nudum*.
 2. *cernuum*.
 3. *varium*. *Obeck*.

A L G E.

- Jungermannia 1. *Chinenfis*. *Obeck*. See Dill.
 Musc. t. lxix. fig. 4.
- Lichen 1. *cristatus*.
 2. *Chinenfis*. *Obeck*.
 3. *Euphorbiæ*, *foliaceus*, *pul-
 verulentus*. *Obeck*.

Fucus

Fucus 1. *Tendo.* Linn. sp. pl. 1631.

Byssus 1. *Flos Aquæ.*

F U N G I.

Agaricus 1. Chinensis. *Ofbeck.* Confer *Fungus* Kæmph. Amœn. 832.

Boletus 1. *Favus.* Linn. sp. pl. 1645.

I N D E X.

七言律詩

送人歸故鄉
王昌齡

長安城外野草黃，
一聲鶯鶯春色濃。

遠上寒山石道斜，
白雲生處有人家。

停車坐愛楓林晚，
霜葉紅於二月花。

返景入深林，
復照青苔上。

送元二使安西
王維

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<i>— Schoenanthus,</i>	ibid.
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2. for Holland, read Halland.
12. 3. for Casa guillas, read Casaquillas.
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107. 23. and ult. for ocores, read oeres.
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179. 22. for and kept near the ship (or Bancshal), read and kept either near the ship or near the Bancshal.
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195. 19. for three mace peckuls, read three mace, the peckul.
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187. penult. for put our heads on their left shoulder, read put their heads on the left shoulder of their friends.
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for ours, read those of their friends.
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192. penult. for half a quarter, read half a quarter of a yard.
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204. 10. for all the factories belonging to the English in the East Indies have chaplains, read but a clergyman they think quite unnecessary.
205. 25. for worked on with saddles, read worked with paddles.
206. 1. for rails, read nails.
246. 18, 19. for sinews of deer, read itag's pizzles.
258. 21. for are, read are wound.

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