























~~Walter Sauer~~

H. Friedman



Bruce, James  
Travels to discover the source of the Nile

SELECT SPECIMENS  
OF  
NATURAL HISTORY,

COLLECTED IN  
Travels to discover the Source of the Nile,

IN  
EGYPT, ARABIA, ABYSSINIA, AND NUBIA.



VOL. V.

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“ AND HE SPAKE OF TREES, FROM THE CEDAR-TREE THAT IS IN LEBANON, EVEN UNTO  
“ THE HYSSOP THAT SPRINGETH OUT OF THE WALL: HE SPAKE ALSO OF BEASTS, AND OF  
“ FOWL, AND OF CREEPING THINGS, AND OF FISHES.”

I KINGS, chap. iv. ver. 33.

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C O N T E N T S

OF THE

F I F T H V O L U M E.

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## I N T R O D U C T I O N .

**A**S it has been my endeavour, throughout this history, to leave nothing unexplained that may assist the reader in understanding the different subjects that have been treated in the course of it, I think myself obliged to say a few words concerning the manner of arranging this Appendix. With regard to the Natural History, it must occur to every one, that, however numerous and respectable they may be who have dedicated themselves entirely to this study, they bear but a very small proportion to those who, for amusement or instruction, seek the miscellaneous and general occurrences of life that ordinarily compose a series of travels.

By presenting the two subjects promiscuously, I was apprehensive of incommoding and disgusting both species of readers. Every body that has read Tournefort, and some other authors of merit of that kind, must be sensible how unpleasant it is to have a very rapid, well-told, interesting narrative, concerning the arts, government, or ruins of Corinth, Athens, or Ephesus, interrupted by the appearance of a nettle or daffodil, from some particularity which they may possess, curious and important in the eye of a botanist, but invisible and indifferent to an ordinary beholder.

To prevent this, I have placed what belongs to Natural History in one volume or appendix, and in so doing I hope to meet the approbation of my scientific botanical readers, by laying the different subjects all together before them, without subjecting them to the trouble of turning over different books to get at any one of them. The figures, landscapes, and a few other plates of this kind, are illustrations of what immediately passes in the page; these descriptions seldom occupy more than a few lines, and therefore such plates cannot be more ornamentally or usefully placed than opposite to the page which treats of them.

SOME further consideration was necessary in placing the maps, and the Appendix appeared to me to be by far the most proper part for them. The maps, whether such as are general of the country, or those adapted to serve particular itineraries, should always be laid open before the reader, till he has made himself perfectly master of the bearings and distances of the principal rivers, mountains, or provinces where the scene of action is then laid. Maps that fold lie generally but one way, and are mostly of strong paper, so that when they are doubled by an inattentive hand, contrary to the original fold they got at binding, they break, and come asunder in quarters and square pieces, the map is destroyed, and the book ever after incomplete; whereas, even if this misfortune happens to a map placed in the Appendix, it may either be taken out and joined anew, or replaced at very little expence by a fresh map from the bookfeller.

I SHALL detain the reader but a few minutes with what I have further to say concerning the particular subjects of

## INTRODUCTION.

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Natural History of which I have treated. The choice I know, though it may meet with the warmest concurrence from one set of readers, will not perhaps be equally agreeable to the taste of others. This I am heartily sorry for. My endeavour and wish is to please them all, if it were possible, as it is not.

THE first subject I treat of is trees, shrubs, or plants; and in the selecting of them I have preferred those which, having once been considered as subjects of consequence by the ancients, and treated largely of by them, are now come, from want of the advantage of drawing, lapse of time, change of climate, alteration of manners, or accident befallen the inhabitants of a country, to be of doubtful existence and uncertain description; the ascertaining of many of these is necessary to the understanding the classics.

IT is well known to every one the least versant in this part of Natural History, what a prodigious revolution has happened in the use of drugs, dyes, and gums, since the time of Galen, by the introduction of those Herculean medicines drawn from minerals. The discovery of the new world, besides, has given us vegetable medicines nearly as active and decisive as those of minerals themselves. Many found in the new world grow equally in the old, from which much confusion has arisen in the history of each, that will become inextricable in a few generations, unless attended to by regular botanists, assisted by attentive and patient draughtsmen ignorant of system, or at least not slaves to it, who set down upon paper what with their eyes they see does exist, without amusing themselves with imagining, according to rules they have themselves made, what it regular-

ly should be. One drawing of this kind, painfully and attentively made, has more merit, and promotes true knowledge more certainly, than a hundred horti ficci which constantly produce imaginary monsters, and throw a doubt upon the whole. The modern and more accurate system of botany has fixed its distinctions of genus and species upon a variety of such fine parts naturally so fragil, that drying, spreading, and pressing with the most careful hands, must break away and destroy some of those parts. These deficient in one plant, existing in another in all other respects exactly similar, are often, I fear, construed into varieties, or different species, and well if the misfortune goes no farther. They are precisely of the same bad consequence as an inaccurate drawing, where these parts are left out through inattention, or design.

AFTER having bestowed my first consideration upon these that make a principal figure in ancient history, which are either not at all or imperfectly known now, my next attention has been to those which have their uses in manufactures, medicine, or are used as food in the countries I am describing.

THE next I have treated are the plants, or the varieties of plants, unknown, whether in genus or species. In these I have dealt sparingly in proportion to the knowledge I yet have acquired in this subject, which is every day increasing, and appears perfectly attainable.

THE history of the birds and beasts is the subject which occupies the next place in this Appendix; and the

## INTRODUCTION.

the rule I follow here, is to give the preference to such of each kind as are mentioned in scripture, and concerning which doubts have arisen. A positive precept that says, Thou shalt not eat such beast, or such bird, is absolutely useless, as long as it is unknown what that bird and what that animal is.

MANY learned men have employed themselves with success upon these topics, yet much remains still to do; for it has generally happened, that those perfectly acquainted with the language in which the scriptures were written, have never travelled nor seen the animals of Judea, Palestine, or Arabia; and again, such as have travelled in these countries, and seen the animals in question, have been either not at all, or but superficially acquainted with the original language of scripture. It has been my earnest desire to employ the advantage I possess in both these requisites, to throw as much light as possible upon the doubts that have arisen. I hope I have done this freely, fairly, and candidly; if I have at all succeeded, I have obtained my reward.

As for the fishes and other marine productions of the Red Sea, my industry has been too great for my circumstances. I have by me above 300 articles from the Arabian gulf alone, all of equal merit with those specimens which I have here laid before the public. Though I have selected a very few articles only, and these perhaps not the most curious, yet as they are connected with the trade of the Red Sea as it was carried on in ancient times, and may again be resumed, and as of this I have treated professedly, I have preferred these, as having a classical foundation, to many others more

curious and less known. Engraving in England has advanced rapidly towards perfection, and the prices, as we may suppose, have kept proportion with the improvement. My small fortune, already impaired with the expence of the journey, will not, without doing injustice to my family, bear the additional one, of publishing these numerous articles, which, however desirable it might be, would amount to a sum which in me it would not be thought prudent to venture.

IF Egypt had been a new, late, and extraordinary creation, the gift of the Nile in these latter times, as some modern philosophers have pretended, the least thing we could have expected would have been to find some new and extraordinary plants accompany it, very different in figure and parts from those of ancient times, made by the *old unphilosophical* way, the *fiat* of the Creator of the universe. But just the contrary has happened. Egypt hath no trees, shrubs, or plants peculiar to it. All are brought thither from Syria, Arabia, Africa, and India; and these are so far from being the gift of the Nile, as scarcely to accustom themselves to suffer the quantity of water that for five months covers the land of Egypt by the inundation of that river.

EVEN many of those that the necessaries of particular times have brought thither to supply wants with which they could not dispense, and those which curious hands have brought from foreign countries are not planted at random; for they would not grow in Egypt, but in chosen places formerly artificially raised above level, for gardens, and pleasure-ground, where they are at this day watered by machinery; or upon banks above the calishes, which  
 though



though near the water, are yet above the level of its annual inundation. Such is the garden of Mattareah, sometimes filled with exotic plants from all the countries around, from the veneration or superstition, pilgrims and dervishes, the only travellers of the east, have for that spot, the supposed abode of the Virgin Mary when she fled into Egypt, sometimes, as at present, so neglected as to have scarce one foreign or curious plant in it.

THE first kind of these adventitious productions, and the oldest inhabitant of Egypt brought there for use, is the fycamore, called Giomez\* by the Arabs, which from its size, the facility with which it is sawn into the thinnest planks, and the largeness of these planks corresponding to the immense size of the tree, was most usefully adapted to the great demand they then had for mummy-chests, or coffins, which are made of this tree only: in order to add to its value, we may mention another supposed quality, its *incorruptibility*, very capable of giving it a preference, as coinciding with the ideas which led the Egyptians to those fantastic attempts of making the *body eternal*.

THIS last property, I suppose, is purely imaginary, for though it be true, tradition says, that all the mummy-chests, which have been found from former ages, were made of fycamore, though the same is the persuasion of latter times, and the fact is so far proven by all the mummy-chests now found being of that wood, yet I will not take upon me to vouch, that incorruptibility is a quality of this particular

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tree.

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\* Signifying a fig-tree, from the multitude of figs which grow round the trunk,

tree. I believe that seasoned elm, oak, or ash, perhaps even fir, laid in the dry sands of Egypt perfectly screened from moisture, and defended from the outward air, as all mummy-chests are, would likewise appear incorruptible; and my reason is, that having got made, while at Cairo, a case for a telescope of sycamore plank, I buried it in my garden after I came home from my travels; so as to leave it covered by half a foot of earth; in less than four years it was entirely putrid and rotten. And another telescope case of the cedar of Lebanon appeared much less decayed, though even in this last there were evident signs of corruption. But even suppose it true, that these planks have been found incorruptible, a doubt may still arise, whether they do not owe this quality to a kind of varnish of resinous materials with which I have seen almost all the mummy-chests covered, and to which materials the preservation of the mummy itself is in part certainly owing. The sycamore is a native of that low warm stripe of country between the Red Sea and mountains of Abyssinia; we saw a number of very fine ones before we came to Taranta; they are also in Syria about Sidon, but inferior in size to the former; they do not seem to thrive in Arabia, for want of moisture.

ALL the other vegetable productions of Egypt have been in a fluctuating state from one year to another. We find them in Prosper Alpinus, and by his authority we seek for them in that country. In Egypt we find them no more; through neglect, they are rotten and gone, but we meet them flourishing in Nubia, Abyssinia, and Arabia Felix, and these are the countries whence the curious first brought them, and from which, by some accident similar to the first, they may again appear in Egypt.

PROSPER ALPINUS'S work then, so far from being a collection of plants and trees of Egypt, may be said to be a treatise of plants that are not in Egypt, but by accident; they are gleanings of natural history from Syria, Arabia, Nubia, Abyssinia, Persia, Malabar, and Indostan, of which, as far as I could discern or discover, seven species only remained when I was in Egypt, mostly trees of such a growth as to be out of the power of every thing but the ax.

THE plant that I shall now speak of, the Papyrus, is a strong proof of this, and is a remarkable instance of the violent changes these subjects have undergone in a few ages. It was at the first the repository of learning and of record; it was the vehicle of knowledge from one nation to another; its uses were so extended, that it came to be even the food of man, and yet we are now disputing what this plant was, and what was its figure, and whether or not it is to be found in Egypt.

A GENTLEMAN\* at the head of the literary world, who from his early years has dedicated himself to the study of the theory of this science, and at a riper age has travelled through the world in the more agreeable pursuit of the practical part of it, hath assured me, that, unless from bad drawings, he never had an idea of what this plant was till I first gave him a very fine specimen. The Count de Caylus says, that having heard there was a specimen of this plant in Paris, he used his utmost endeavours to find it, but when brought to him, it appeared to be a cyperus of  
a very

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\* Sir Joseph Banks.

a very common, well-known kind. With my own hands, not without some labour and risk, I collected specimens from Syria, from the river Jordan, from two different places in Upper and Lower Egypt, from the lakes Tzana and Gooderoo in Abyssinia; and it was with the utmost pleasure I found they were in every particular intrinsically the same, without any variation or difference, from what this plant has been described by the ancients; only I thought that those of Egypt, the middle of the two extremes, were stronger, fairer, and fully a foot taller than those in Syria and Abyssinia.

OF





*Papyrus*

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## OF PLANTS, SHRUBS, AND TREES.

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### P A P Y R U S.

**T**HE papyrus is a cyperus, called by the Greeks *Biblus*. There is no doubt but it was early known in Egypt, since we learn from Horus Apollo, the Egyptians, wishing to describe the antiquity of their origin, figured a faggot, or bundle of papyrus, as an emblem of the food they first subsisted on, when the use of wheat was not yet known in that country. But I should rather apprehend that another plant, hereafter described, and not the papyrus, was what was substituted for wheat, for though the Egyptians sucked the honey or sweetness from the root of the papyrus, it does not appear that any part of this cyperus could be used for food, nor is it so at this day, though the *Enfete*, the plant to which I allude, might, without difficulty, have been used for bread in early ages before the discovery of wheat; in several provinces it holds its place at this day.

THE papyrus seems to me to have early come down from Ethiopia, and to have been used in Upper Egypt immediately after the difuse of hieroglyphics, and the first paper made  
I . . . . . from

from this plant was in Seide. By Seide was anciently meant Upper Egypt, and it is so called to this day; and the Saitic, probably the oldest language known in Egypt after the Ethiopic, still subsists, being written in the first character that succeeded the hieroglyphics in the valley or cultivated part of Egypt.

EARLY, however, as the papyrus was known, it does not appear to me to have ever been a plant that could have existed in, or, as authors have said, been proper to the river Nile; its head is too heavy, and in a plain country the wind must have had too violent a hold of it. The stalk is small and feeble, and withal too tall, the root too short and slender to stay it against the violent pressure of the wind and current, therefore I do constantly believe it never could be a plant growing in the river Nile itself, or in any very deep or rapid river.

PLINY\*, who seems to have considered and known it perfectly in all its parts, does not pretend that it ever grew in the body of the Nile itself, but in the calishes or places where the Nile had overflowed and was stagnant, and where the water was not above two cubits high. This observation, I believe, holds good universally, at least it did so wherever I have seen this plant, either in the overflowed ground in the Seide, or Upper Egypt, or in Abyssinia, where it never grew in the bed of a river, but generally in some small stream that issued out of, or into some large stagnant lake or abandoned water-course. It did not even  
trust

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\* Plin. Nat. Hist. lib. xiii. cap. 11.



trust itself to the weight of the wave of the deepest part of that lake when agitated by the wind, but it grew generally about the borders of it, as far as the depth of the water was within a yard.

PLINY says it grew likewise in Syria, and there I saw it first, before I went into Egypt; it was in the river Jordan, between the situation of the ancient city Paneas, which still bears its name, and the lake of Tiberias, which is probably the lake Pliny alludes to, where he says it grew, and with it the *calamus odoratus*, one of the adventitious plants brought thither formerly by curious men (as I conjecture) which now exists no more, either in Syria or Egypt. It was on the left hand of the bridge called the Bridge of the Sons of Jacob. The river where it grew was two feet nine inches deep, and it was then increased with rain. It grew likewise, as Guilandinus \* tells us, at the confluence of the Tigris and the Euphrates. I apprehend that it was not thus propagated into Asia and Greece till the use of it, as manufactured into paper, was first known.

WHEN that was still admits of some difficulty. Pliny says that Varro writes it came not into general use till after the conquest of Egypt by Alexander; yet it is plain from Anacreon †, Alcæus, Æschylus, and the comic poets, that it was known in their time. Plato and Aristotle speak of it also, so do Herodotus and Theophrastus ‡. We also know it was of old in use among the Ionians, who probably brought it

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\* Melch. Guilandin. Philosoph. and Medic. Lausanne, Ann. 1576 8vo.

† Anac. Ode. iv.

‡ Theoph. Hist. plant. lib. iv. cap. 9.

## A P P E N D I X.

in very early days directly from Egypt. Numa, too, who lived 300 years before Alexander, is said to have left a number of books wrote on the papyrus, which a long time after his death were found at Rome.

ALL this might very well be; the writers of those early ages were but few, and those that then were, had all of them, more or less, connection by their learning with Egypt; it was to them only Egypt was known, and if they learned to write there, it was not improbable, that from thence too they adopted the materials most commodious for writing upon.

WITH Aristotle began the first arrangement of a library. Alexander's conquest, and the building of Alexandria, laid open Egypt, its trade and learning, to the world. Papyrus then, or the paper made from it, was the only materials made use of for writing upon. A violent desire of amassing books, and a library, immediately followed, which we may safely attribute to the example set by Aristotle.

THE Ptolemies, and the kings of Pergamus, contended who should make the largest collection. The Ptolemies, masters of Egypt and of the papyrus, availed themselves of this monopoly to hinder the multiplication of books in Greece. The other princes probably smuggled this plant, and propagated it wherever it would grow out of Egypt. And Eumenes king of Pergamus set about bringing to perfection the manufacture of parchment, which, long before, the Ionians had used from the scarcity of paper; for whatever resemblance there might be in names, or whatever may be inferred from them, writing upon skins or parchment was  
much

much more ancient than any city or state in Greece, and in use probably before Greece was inhabited. The Jews we know made use of it in the earliest ages. At this very time which we are now speaking of, we learn from Josephus \*, that the elders, by order of the high priest, carried a copy of the law to Ptolemy Philadelphus in letters of gold upon skins, the pieces of which were so artfully put together that the joinings did not appear.

THE ancients divided this plant into three parts, the head and the small part of the stalk were cut off, then the woody part, or bottom, and the root connected with it, and there remained the middle. All these had separate uses. Pliny \* says the upper part, which supported the large top itself, with the flowers upon it, was of no sort of use but to adorn the temples, and crown the statues of the gods; but it would seem that it was in use likewise for crowning men of merit. Plutarch † says, that Agesilaus preferred being crowned with that to any other, on account of its simplicity, and that parting from the king he had sought to be crowned with this as a favour, which was granted him. Athenæus ‡, on the contrary, laughed at those that mixt roses in the crown of papyrus, and he says it is as ridiculous as mixing roses with a crown of garlic. The reason, however, he gives does not hold, for papyrus itself smells no more of mud, as he supposes, than a rose-bush; nay, the flower of the papyrus has something agreeable in its smell, though not so much so as roses. If he had said that the head of the papyrus

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resembled

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\* Joseph. lib. xii. p. 405.

† Plin. Nat. Hist. lib. 13. cap. 11.

‡ Plutarch in Agesilao.

§ Athen. lib. 15.

resembled withered grafs or hay, and made a bad contrast with the richness and beauty of the rose, he had said well. But notwithstanding what Pliny has written, the head of the papyrus was employed, not only to make crowns for statues of the gods, but also to make cables for ships. We are told that Antigonus made use of nothing else for ropes and cables to his fleets, before the use of spartum, or bent-grafs, was known, which, though very little better, still serves that purpose in small ships on the coast of Provence to this day. The top of the papyrus was likewise used for sewing and caulking the vessels, by forcing it into the seams, and afterwards covering it with pitch.

PLINY \* tells us, that the whole plant together was used for making boats, a piece of the acacia-tree being put in the bottom to serve as the keel, to which plants were joined, being first sewed together, then gathered up at stem and stern, and the ends of the plant tied fast there, "Conferitur bibula Memphitis cymba papyro;" and this is the only boat they still have in Abyssinia, which they call Tancoa, and from the use of these it is that Isaiah describes the nations, probably the Egyptians, upon whom the vengeance of God was speedily to fall. I imagine also that the junks of the Red Sea, said to be of leather, were first built with papyrus and covered with skins. In these the Homerites trafficked with their friends the Sabeans across the mouth of the Red Sea, but they can never persuade me, however generally and confidently it has been asserted, that vessels of this kind could have lived an hour upon the Indian ocean.

THE

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\* Plin. Nat. Hist. lib. xiii. cap. 11.

THE bottom, root, or woody part of this plant, was likewise of several uses before it turned absolutely hard; it was chewed in the manner of liquorice, having a considerable quantity of sweet juice in it. This we learn from Dioscorides; it was, I suppose, chewed, and the sweetness sucked out in the same manner as is done with sugar-cane. This is still practised in Abyssinia, where they likewise chew the root of the Indian corn, and of every kind of cyperus; and Herodotus tells us, that about a cubit of the lower part of the stalk was cut off and roasted over the fire, and eaten.

FROM the scarcity of wood, which was very great in Egypt for the reasons I have already mentioned, this lower part was likewise used in making cups, moulds, and other necessary utensils; we need not doubt too, one use of the woody part of this plant was to serve for what we call boards or covers for binding the leaves, which were made of the bark; we know that this was anciently one use of it, both from Alcæus and Anacreon.

IN a large and very perfect manuscript in my possession, which was dug up at Thebes, the boards are of papyrus root, covered first with the coarser pieces of the paper, and then with leather, in the same manner as it would be done now. It is a book one would call a small folio, rather than by any other name, and I apprehend that the shape of the book where papyrus is employed was always of the same form with those of the moderns. The letters are strong, deep, black, and apparently written with a reed, as is practised by the Egyptians and Abyssinians still. It is written on both sides, so never could be rolled up as parchment was, nor would the brittleness of the materials when dry, sup-  
port

port any such frequent unrolling. This probably arises from their having first written upon papyrus, after the use of stone was laid aside, and only adopted skins upon their embracing the Jewish religion. The Ethiopians, indeed, write upon parchment, yet use the same form of books as we do. The outer boards are made of wood and covered with leather. It was the law only they say they were in use to preserve in one long roll of parchment, upon the fore-side of which it was written; it being indecent and improper to write any part of it on the back, or a less honourable place of the skin: And such was the roll we have just mentioned as presented to Ptolemy, where such pains were taken in joining the several skins together, for this very reason.

THE manner paper was made has been controverted; but whoever will read Pliny\* attentively, cannot, as I imagine, be long in doubt. The thick part of the stalk being cut in half, the pellicle between the pith and the bark, or perhaps the two pellicles, were stript off, and divided by an iron instrument, which probably was sharp-pointed, but did not cut at the edges. This was squared at the sides so as to be like a ribband, then laid upon a smooth table or dresser, after being cut into the length that it was required the leaf should be. These stripes, or ribbands of papyrus, were lapped over each other by a very thin border, and then pieces of the same kind were laid transversely, the length of these answering to the breadth of the first. The book  
which

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\* Plin. Nat. Hist. lib. xii. cap. 12.

which I have is eleven inches and a half long, and seven inches broad, and there is not one leaf in it that has a ribband of papyrus of two inches and a half broad, from which I imagine the size of this plant, formerly being fifteen feet long, was pretty near the truth. No such plant, however, appears now; I do not remember to have ever seen one more than ten feet high. This is probably owing to their being allowed to grow wild, and too thick together, without being weeded; we know from Herodotus \*, that the Egyptians cut theirs down yearly as they did their harvest.

THESE ribbands, or stripes of papyrus, have twelve different names in Pliny †, which is to be copious with a vengeance. They are, philura, ramentum, scheda, cutis, plagula, corium, tænia, subtegmen, statumen, pagina, tabula, and papyrus. After these, by whatever name you call them, were arranged at right angles to each other, a weight was placed upon them while moist, which compressed them, and so they were suffered to dry in the sun.

IT was supposed that the water of the Nile ‡ had a gummy quality necessary to glue these stripes together. This we may be assured is without foundation, no such quality being found in the water of the Nile. On the contrary, I found it of all others the most improper, till it had settled, and was absolutely divested of all the earth gathered in its turbid state. I made several pieces of this paper, both in  
Abyssinia

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\* Herodot. lib. xi. † Plin. Nat. Hist. lib. xiii. cap. 12. ‡ Plin. lib. xiii. cap. 12.

Abyssinia and Egypt, and it appears to me, that the sugar or sweetness with which the whole juice of this plant is impregnated, is the matter that causes the adhesion of these stripes together, and that the use of the water is no more than to dissolve this, and put it perfectly and equally in fusion.

THERE seemed to be an advantage in putting the inside of the pellicle in the situation that it was before divided, that is, the interior parts face to face, one long-ways, and one cross-ways, after which a thin board of the cover of a book was laid first over it, and a heap of stones piled upon it. I do not think it succeeded with boiled water, and it was always coarse and gritty with the water of the Nile. Some pieces were excellent, made with water that had settled, that is, in the state in which we drink it; but even the best of it was always thick and heavy, drying very soon, then turning firm and rigid, and never white; nor did I ever find one piece that would bear the strokes of a mallet\*, but in its greenest state the blow shivered and divided the fibres length-ways; nor did I see the marks of any stroke of a hammer or mallet in the book in my custody, which is certainly on Saitic or Hieratic paper. I apprehend by a passage in Pliny †, that the mallet was used only when  
artificial

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\* Sir Joseph Banks shewed me a slip of paper which he got from an Italian gentleman, made, if I remember, of a cyperus found in the river or lake of Thralymene. I do not recollect the process, but the paper itself was infinitely superior to any I had seen attempted, and seemed to possess a great portion of flexibility, and was more likely to answer the purposes of paper than even the old Egyptian, if it had been dressed up and finished.

† Plin. Nat. Hist. lib. xiii. cap. 13.



artificial glue or gum was made use of, which must have been as often as they let these stripes of the ribband or pellicle dry before arranging them.

PLINY\* says, the books of Numa were 830 years old when they were found, and he wonders, from the brittleness of the inside of the paper, it could have lasted so long. The manuscript in my possession, which was dug up at Thebes, I conjecture is near three times the age that Pliny mentions; and, though it is certainly fragil, has substance and preservation of letter enough, with good care, to last as much longer, and be legible.

If the Saitic paper was, as we imagine, the first invented, it should follow, contrary to what Isidore advances, that it was not first invented in Memphis, but in Upper Egypt in Seide, whose language and writing obtained in the earliest age, though Lucan seems to think with Isidore,

*Nondum flumineas Memphis contexere biblos  
Noverat.*—————

LUCAN, lib. iii.

AFTER the hieroglyphics were lost, perhaps some time before, we know nothing the Egyptians adopted so generally as paper, and there were probably † religious reasons that impeded in those early days the people from falling upon

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the

\* Plin. lib. xiii. cap. 13.

† Scruples about cleanness.

the most natural, the skins of beasts. However this be, it is certain under the Egyptians, naturally averse to novelty and improvement, paper arrived to no great perfection till taken in hands by the Romans. The Charta Claudia was thirteen inches wide, the Hieratica, or Saitica, eleven, and such is the length of the leaf of my book in the Saitic dialect, that is, the old Coptic, or Egyptian of Upper Egypt. I have no idea what the Emporetic paper was, which obtained that degree of coarseness and toughness, as to serve for shopkeepers uses to tie up goods, unless it was like our brown paper employed to the same purposes.

IF the date of the invention of this useful art of making paper is doubtful, the time when it was lost, or superseded by one more convenient, is as uncertain. Eustathius says it was difused in his time in the 1170. Mabillon endeavours to prove it existed in the 9th, and even that there existed some Popish bulls wrote upon it as late as the 11th century. He gives, as instances, a part of St Mark's Gospel preserved at Venice as being upon papyrus, and the fragment of Josephus at Milan to be cotton paper, while Maffei proves this to be just the reverse, that of St Mark being cotton, and the other indisputably he thinks to be Egyptian papyrus, so that Mabillon's authority as to the bulls of the pope may be fairly questioned.

THE several times I have been at these places mentioned, I have never succeeded in seeing any of these pieces; that of St Mark at Venice I was assured had been recognized to be cotton paper; it was rendered not legible by the warm saliva of zealots kissing it from devotion, which I can easily comprehend must contain a very corrosive quality, and the  
 Venetians.

Venetians now refuse to shew it more. I have seen two detached leaves of papyrus, but do not believe there is another book existing at the present time but that in my possession, which is very perfect. I gave Dr Woide leave to translate it at Lord North's desire ; it is a gnostic book, full of their dreams.

THE general figure of this plant Pliny has rightly said to resemble a Thyrsus ; the head is composed of a number of small grassy filaments, each about a foot long. About the middle, each of these filaments parts into four, and in the point, or partition, are four branches of flowers ; the head of this is not unlike an ear of wheat in form, but which in fact is but a chaffy, filky, soft husk. These heads, or flowers, grow upon the stalk alternately, and are not opposite to, or on the same line with each other at the bottom.

PLINY\* says it has no seed ; but this we may be assured is an absurdity. The form of the flower sufficiently indicates that it was made to resolve itself into the covering of one, which is certainly very small, and by its exalted situation, and thickness of the head of the flower, seems to have needed the extraordinary covering it has had to protect it from the violent hold the wind must have had upon it. For the same reason, the bottom of the filaments composing the head are sheathed in four concave leaves, which keep them close together, and prevent injury from the wind getting in between them.

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\* Plin. lib. 13. ut. sup.

THE stalk is of a vivid green, thickest at the bottom, and tapering up to the top\* ; it is of a triangular form. In the Jordan, the single side, or apex of the triangle, stood opposed to the stream as the cut-water of a boat or ship, or the sharp angle of a buttress of a bridge, by which the pressure of the stream upon the stalk would be greatly diminished. I do not precisely remember how it stood in the lakes in Ethiopia and Egypt, and only have this remark in the notes I made at the Jordan.

THIS construction of the stalk of the papyrus seems to reproach Aristotle with want of observation. He says that no plant had either triangular or quadrangular stalks. Here we see an instance of the contrary in the papyrus, whose stalk is certainly and universally triangular; and we learn from Dioscorides that many more have quadrangular stalks, or stems of four angles.

It has but one root, which is large and strong †, Pliny says, as thick as a man's arm: So it was, probably, when the plant was fifteen feet high, but it is now diminished in proportion, the whole length of the stalk, comprehending the head, being a little above ten, but the root is still hard and solid near the heart, and works with the turning loom tolerably well, as it did formerly when they made cups of it. In the middle of this long root arises the stalk at right angles, so when inverted it has the figure of a T, and on each side of the large root there are smaller elastic ones, which are of a direction perpendicular to it, and which, like the strings of  
a tent,

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\* Plin. lib. xiii. cap. 11. † Ibid. id.

a tent, steady it and fix it to the earth at the bottom. About two feet, or little more, of the lower part of the stalk is clothed with long, hollow, sword-shaped leaves, which cover each other like scales, and fortify the foot of the plant. They are of a dusky brown, or yellow colour. I suppose the stalk was cut off below, at about where these leaves end.

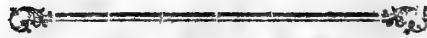
THE drawing represents the papyrus as growing. The head is not upright, but is inclined, as from its size it always must be in hot countries, in which alone it grows. In all such climates, there is some particular wind that reigns longer than others, and this being always the most violent, as well as the most constant, gives to heavy-headed trees, or plants, an inclination contrary to that from which it blows.

THIS plant is called el Berdi in Egypt, which signifies nothing in Arabic, and I suppose is old Egyptian. I have been told by a learned gentleman\*, that in Syria it is known by the name of Babeer, which approaches more to the sound of papyrus, and paper; this I never heard myself, but leave it entirely upon his authority.

BALESSAN,

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\* Mr Adamson, interpreter to the French factory of Seide, a man of great merit and knowledge in natural history, brother to the naturalist of that name, who has wrote the voyage to Senegal, and particularly an account of the shells of those seas, full of barbarous words, and liberal ideas.



BALESSAN, BALM, OR BALSAM.

**T**HE great value set upon this drug in the east re-  
 mounts to very early ages ; it is coeval with the India  
 trade for pepper, and the beginning of it consequently  
 lost in the darkness of the first ages. We know from  
 scripture, the oldest history extant, as well as most infallible,  
 that the Ishmaelites, or Arabian carriers and merchants, traf-  
 ficking with the India commodities into Egypt, brought with  
 them balm as part of the cargo with pepper ; but the price  
 that they paid for Joseph was silver, and not a barter with  
 any of their articles of merchandise.

STRABO alone, of all the ancients, hath given us the true  
 account of the place of its origin, "Near to this, that historian  
 " says, is the most happy land of the Sabeans, and they are  
 " a very great people. Among these, frankincense, myrrh,  
 " and cinnamon grow, and in the coast that is about Saba  
 " the balsam also." Among the myrrh-trees behind Azab



*Balefsan*







*Balejsan*



all along the coast to the Straits of Babelmandeb is its native country. It grows to a tree above fourteen feet high, spontaneously and without culture, like the myrrh, the coffee, and frankincense tree; they are all equally the wood of the country, and are occasionally cut down and used for fuel. We need not doubt but that it was early transplanted into Arabia, that is, into the south part of Arabia Felix, immediately fronting Azab, the place of its nativity. The high country of Arabia was too cold to receive it, being all mountainous; water freezes there.

THERE is an anecdote relating to Sir William Middleton, who was surpris'd and taken prisoner by the Turks in the first attempt to open the trade of the Red Sea, that when about to set \* out for Sanaa, corruptly called Zenan, the residence of the Imam, or prince of Arabia Felix, he was by the people desired † to take his fur cloak along with him to keep him from the cold; he thought they were ridiculing him upon what he had to suffer from the approaching heat, which he was convinced in the middle of Arabia must be excessive.

THE first plantation that succeeded seems to have been at Petra, the ancient metropolis of Arabia, now called Beder, or Beder Hunein, whence I got one of the specimens from which the present drawing is made.

JOSEPHUS \*, in the history of the antiquities of his country, says, that a tree of this balsam was brought to Jerufalem by the

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\* Dec. 22d, 1610.

† Purchas, chap. xi. §. 3.

‡ Joseph, Antiquit. lib. 7.

the queen of Saba, and given, among other presents, to Solomon, who, as we know from scripture, was very studious of all sort of plants, and skilful in the description and distinction of them. Here it seems to have been cultivated and to have thriven, so that the place of its origin came to be forgotten.

NOTWITHSTANDING this positive authority of Josephus, and the great probability that attends it, we are not to put it in competition with what we have been told from scripture, as we have just now seen, that the place where it grew, and was sold to merchants, was Gilead in Judea, more than 1730 years before Christ, or 1000 before the queen of Saba; so that reading the verse, nothing can be more plain than that it had been transplanted into Judea, flourished, and had become an article of commerce in Gilead long before the period Josephus mentions: "And they sat down to eat bread, and they lifted up their eyes and looked, and behold, a company of Ishmaelites came from Gilead with their camels, bearing spicery, and balm, and myrrh, going to carry it down to Egypt\*." Now, the spicery, or pepper, was certainly purchased by the Ishmaelites at the mouth of the Red Sea, where was the market for Indian goods, and at the same place they must have bought the myrrh, for that neither grew nor grows any where else than in Saba or Azabo east to Cape Gardafan, where were the ports for India, and whence it was dispersed all over the world.

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\* Gen. chap. xxxvii. ver. 25.

THE Ishmaelites, or Arabian carriers, loaded their camels at the mouth of the Red Sea with pepper and myrrh. For reasons not now known to us, they went and completed their cargo with balsam at Gilead, so that, contrary to the authority of Josephus, nothing is more certain, than 1730 years before Christ, and 1000 years before the queen of Saba came to Jerusalem, the balsam-tree had been transplanted from Abyssinia into Judea, and become an article of commerce there, and the place from which it originally was brought, through length of time, combined with other reasons, came to be forgotten.

THEOPHRASTUS, Dioscorides, Pliny, Solinus, and Serapion, all say that this balsam came only from Judea. The words of Pliny are, "But to all other odours whatever, the balsam  
" is preferred, produced in no other part but the land of  
" Judea, and even there in two gardens only; both of  
" them belonging to the king, one no more than twenty  
" acres, the other still smaller\*."

At this time I suppose it got its name of Balsamum Judaicum, or, Balm of Gilead, and thence became an article in merchandise and fiscal revenue, which probably occasioned the discouragement of bringing it any more from Arabia, whence it very probably was prohibited as contraband. We shall suppose thirty acres planted with this tree would have produced more than all the trees in Arabia do at this day. Nor does the plantation of Beder Hunein

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amount

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\* Plin. Nat. Hist. lib. xii. cap. 25.

amount to much more than that quantity, for we are still to observe, that even when it had been as it were naturalized in Judea, and acquired a name in the country, still it bore evident marks of its being a stranger there; and its being confined to two royal gardens alone, shews it was maintained there by force and culture, and was by no means a native of the country. And this is confirmed by Strabo, who speaks of it being in the king's palace or garden at Jericho. This place being one of the warmest in Judea, shews likewise their apprehensions about it, so that in Judea, we may imagine it was pretty much in the state of our myrtles in England, which, though cultivated in green-houses in all the rest of the island, yet grow beautifully and luxuriantly in Devonshire and Cornwall, the western parts of it.

DIODORUS SICULUS says, it grew in a valley in Arabia Felix; he should have said on a number of gentle, sloping hills in Arabia Deserta, which have a very small degree of elevation above the plain, but by no means resemble a valley. This place was the scene of three bloody battles between Mahomet and his kinsmen the Beni Koreish, who refused to be converts to his religion, or acknowledge his divine legation. These are at large described by several of the historians of that nation, with circumstances and anecdotes, as well interesting and entertaining, as elegantly told. They shew plainly that Mahomet's tribe, the Beni Koreish, did not receive their fanatical manners and disposition from Mahomet and his religion, but were just as obstinate, ignorant, and sanguinary when they were Pagans, as they were afterwards when converted and became Mahometans. The last of these battles, which was decisive in Mahomet's favour, gave him the sovereignty of Mecca, and was attended with the extirpation of some of the principal families in this tribe.

At this time the balsam is supposed, by being sold in Judea, and not accessible by reason of the commotions in Arabia, to have become almost forgotten in that last part, where the trade from Abyssinia, its native country, was likewise interrupted by this innovation of religion, and by Mahomet's profanation of the Caaba, or temple of the sun, the ancient resort of the Sabean merchants carrying on the trade of India. This interval the impostor thought proper for a pretended miracle; he said, that, from the blood of the Beni Koreish slain, there had sprung up this grove of trees, from the juice of which all the true believers on his side received a cure for their wounds, however fatal they appeared, nay, some of them were revived from even death itself. Since that time it has maintained its reputation equal to that which it had in antiquity.

PROSPER ALPINUS says, that one Meffoner a eunuch, governor of Cairo in the year 1519, caused bring from Arabia forty plants, which he placed in the garden of Mattareah, where he superintended them. Every day he went to that garden to pay his devotions to the Virgin Mary. It was many times renewed, and has as often perished since. Belonius says, that in his time there were ten plants at Mattareah, and he is of opinion, that in all ages they grew well in Arabia, which is not true, for those at Beder are constantly supplied with new plants so soon as the old ones decay. There was none existing at Mattareah the two several times I visited Cairo, but there were some of the Christians still living there that remembered one plant in that garden.

THERE were three productions from this tree very much esteemed among the ancients. The first was called Opobalsamum, or, Juice of the Balsam, which was the finest kind, composed of that greenish liquor found in the kernel of the fruit: The next was Carpo-balsamum, made by the expression of the fruit when in maturity. The third was Xylo-balsamum, the worst of all, it was an expression or decoction of the small new twigs of a reddish colour. These twigs are still gathered in little faggots and sent to Venice, where I am told they are an ingredient in the Theriac, or of some sort of compound drug made in the laboratories there: But the principal quantity of balsam in all times was produced by incision, as it is at this day. Concerning this, too, many fables have been invented and propagated.

TACITUS says, that this tree was so averse to iron that it trembled upon a knife being laid near it, and some pretend the incision should be made by ivory, glass, or stone. There is no doubt but the more attention there is given to it, and the cleaner the wound is made, the better this balsam will be. It is now, as it probably ever has been, cut by an ax, when the juice is in its strongest circulation in July, August, and beginning of September. It is then received into a small earthen bottle, and every day's produce gathered and poured into a larger, which is kept closely corked. The Arabs Harb, a noble family of Beni Koreish, are the proprietors of it, and of Beder, where it grows. It is a station of the Emir Hadje, or pilgrims going to Mecca, half way between that city and Medina.

SOME books speak of a white sort brought by the caravans from Mecca, and called Balsam of Mecca, and others  
a balsam



a balsam called that of Judea, but all these are counterfeits or adulterations. The balsam of Judea, which I have already mentioned, was long ago lost, when the troubles of that country withdrew the royal attention from it; but, as late as Galen's time, it not only existed, but was growing in many places of Palestine besides Jericho, and there is no doubt but it is now totally lost there.

WHEN Sultan Selim made the conquest of Egypt and Arabia in the 1516, three pound was then the tribute ordered to be sent to Constantinople yearly, and this proportion is kept up to this day. One pound is due to the governor of Cairo, one pound to the Emir Hadje who conducts the pilgrims to Mecca, half a pound to the basha of Damascus, and several smaller quantities to other officers, after which, the remainder is sold or farmed out to some merchants, who, to increase the quantity, adulterate it with oil of olives and wax, and several other mixtures, consulting only the agreement of colour, without considering the aptitude in mixing; formerly we were told it was done with art, but nothing is easier detected than this fraud now.

It does not appear to me, that the ancients had ever seen this plant, they describe it so variously; some will have it a tree, some a shrub, and some a plant only; and Prosper Alpinus, a modern, corroborates the errors of the ancients, by saying it is a kind of vine, (*viticosus*). The figure he has given of it is a very bad one, and leaves us entirely in doubt in what class to place it. The defect of the plant in Judea and in Egypt, and the contradiction in the description of the ancients as to its figure and resemblance, occasioned  
a doubt

a doubt that the whole plants in these two countries, and Arabia also, had been lost in the desolation occasioned by the Mahometan conquest; and a warm dispute arose between the Venetians and Romans, whether the drug used by the former in the Theriac was really and truly the old genuine opobalsamum? The matter was referred to the pope, who directed proper inquiry to be made in Egypt, which turned out entirely in favour of the Venetians, and the opobalsamum continuing as formerly.

A VERY learned and tedious treatise was published by Vesslingius, in the year 1643, at Padua, where this affair was discussed at full length. As both parties of the disputants seem to argue concerning what it is from the misunderstood reports of what it was, I shall content myself briefly with stating what the qualities of the opobalsamum are, without taking pains to refute the opinions of those that have reported what the opobalsamum is not.

THE opobalsamum, or juice flowing from the balsam-tree, at first when it is received into the bottle or vase from the wound from whence it issues, is of a light, yellow colour, apparently turbid, in which there is a white cast, which I apprehend are the globules of air that pervade the whole of it in its first state of fermentation; it then appears very light upon shaking. As it settles and cools, it turns clear, and loses that milkiness which it first had when flowing from the tree into the bottle. It then has the colour of honey, and appears more fixed and heavy than at first. After being kept for years, it grows a much deeper yellow, and of the colour of gold. I have some of it, which, as I have already mentioned in my travels, I got from the

Cadi of Medina in the 1768; it is now still deeper in colour, full as much so as the yellowest honey. It is perfectly fluid, and has lost very little either of its taste, smell, or weight. The smell at first is violent and strongly pungent, giving a sensation to the brain like to that of volatile salts when rashly drawn up by an incautious person. This lasts in proportion to its freshness, for being neglected, and the bottle uncorked, it quickly loses this quality, as it probably will at last by age, whatever care is taken of it.

In its pure and fresh state it dissolves easily in water. If dropt on a woollen cloth, it will wash out easily, and leaves no stain. It is of an acrid, rough, pungent taste, is used by the Arabs in all complaints of the stomach and bowels, is reckoned a powerful antiseptic, and of use in preventing any infection of the plague. These qualities it now enjoys, in all probability, in common with the various balsams we have received from the new world, such as the balsam of Tolu, of Peru, and the rest; but it is always used, and in particular esteemed by the ladies, as a cosmetic: As such it has kept up its reputation in the east to this very day. The manner of applying it is this; you first go into the tepid bath till the pores are sufficiently opened, you then anoint yourself with a small quantity, and, as much as the vessels will absorb; never-fading youth and beauty are said to be the consequences of this. The purchase is easy enough. I do not hear that it ever has been thought restorative after the loss of either.

THE figure I have here given of the balsam may be depended upon, as being carefully drawn, after an exact examination

amination, from two very fine trees brought from Beder Hunein; the first by the Cadi of Medina at Yambo; the second at Jidda, by order of Youfef Kabil, vizir or minister to the sherriffe of Mecca. The first was so deliberately executed, that the second seemed of no service but to confirm me in the exactitude of the first. The tree was 5 feet 2 inches high from where the red root begins, or which was buried in the earth, to where it divides itself first into branches. The trunk at thickest was about 5 inches diameter, the wood light and open, and incapable of polishing, covered with a smooth bark of bluish-white, like to a standard cherry-tree in good health, which has not above half that diameter; indeed a part of the bark is a reddish brown; it flattens at top like trees that are exposed to snow-blasts or sea-air, which gives it a stunted appearance. It is remarkable for a penury of leaves. The flowers are like that of the acacia-tree, white and round, only that three hang upon three filaments, or stalks, where the acacia has but one. Two of these flowers fall off and leave a single fruit; the branches that bear this are the shoots of the present year; they are of a reddish colour, and tougher than the old wood: it is these that are cut off and put into little faggots, and sent to Venice for the Theriac, when bruised or drawn by fire, and formerly these made the Xylo-balsamum.

CONCERNING the vipers which, Pliny says, were frequent among the balsam trees I made very particular inquiry; several were brought me alive, both to Yambo and Jidda. Of these I shall speak in another place, when I give the figure, and an account of that animal so found.



## SASSA, MYRRH, AND OPOCALPASUM.

**A**T the time when I was on the borders of the Tal-Tal, or Troglodyte country, I sought to procure myself branches and bark of the myrrh-tree, enough preserved to be able to describe it and make a design ; but the length and ruggedness of the way, the heat of the weather, and the carelessness and want of resources of naked savages always disappointed me. In those goat-skin bags into which I had often ordered them to put small branches, I always found the leaves mostly in powder; some few that were entire seemed to resemble much the acacia vera, but were wider towards the extremity, and more pointed immediately at the end. In what order the leaves grew I never could determine. The bark was absolutely like that of the acacia vera ; and among the leaves I often met with a small, straight, weak thorn, about two inches long.

THESE were all the circumstances I could combine relative to the myrrh-tree, too vague and uncertain to risk a drawing upon, when there still remained so many desiderata concerning it ; and as the king was obstinate not to let me

go thither after what had happened to the surgeon's mate and boat's crew of the Elgin Indiaman \*, I was obliged to abandon the drawing of the myrrh-tree to some more fortunate traveller, after having in vain attempted to procure it at Azab, as I have already mentioned.

At the same time that I was taking these pains about the myrrh, I had desired the savages to bring me all the gums they could find, with the branches and bark of the trees that produced them. They brought me at different times some very fine pieces of incense, and at another time a very small quantity of a bright colourless gum, sweeter on burning than incense, but no branches of either tree, though I found this latter afterwards in another part of Abyssinia. But at all times they procured me quantities of gum of an even and close grain, and of a dark brown colour, which was produced by a tree called Saffa, and twice I received branches of this tree in tolerable order, and of these I made a drawing.

SOME weeks after, while walking at Emfras, a Mahometan village, whose inhabitants are myrrh merchants, I saw a large tree with the whole upper part of the trunk, and the large branches, so covered with bosses and knobs of gum, as to appear monstrously deformed, and inquiring farther about this tree, I found that it had been brought, many years before, from the myrrh country, by merchants, and planted there for the sake of its gum, with which these Mahometans stiffened the blue Surat cloths they got damaged from Mocha, to trade in with the Galla and Abyssinians. Neither  
the

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\* They were murdered at Azab, see vol. I. p. 319.



*Sassa*

London, Published Dec. 1<sup>st</sup> 1789, by G. Robinson & Co.

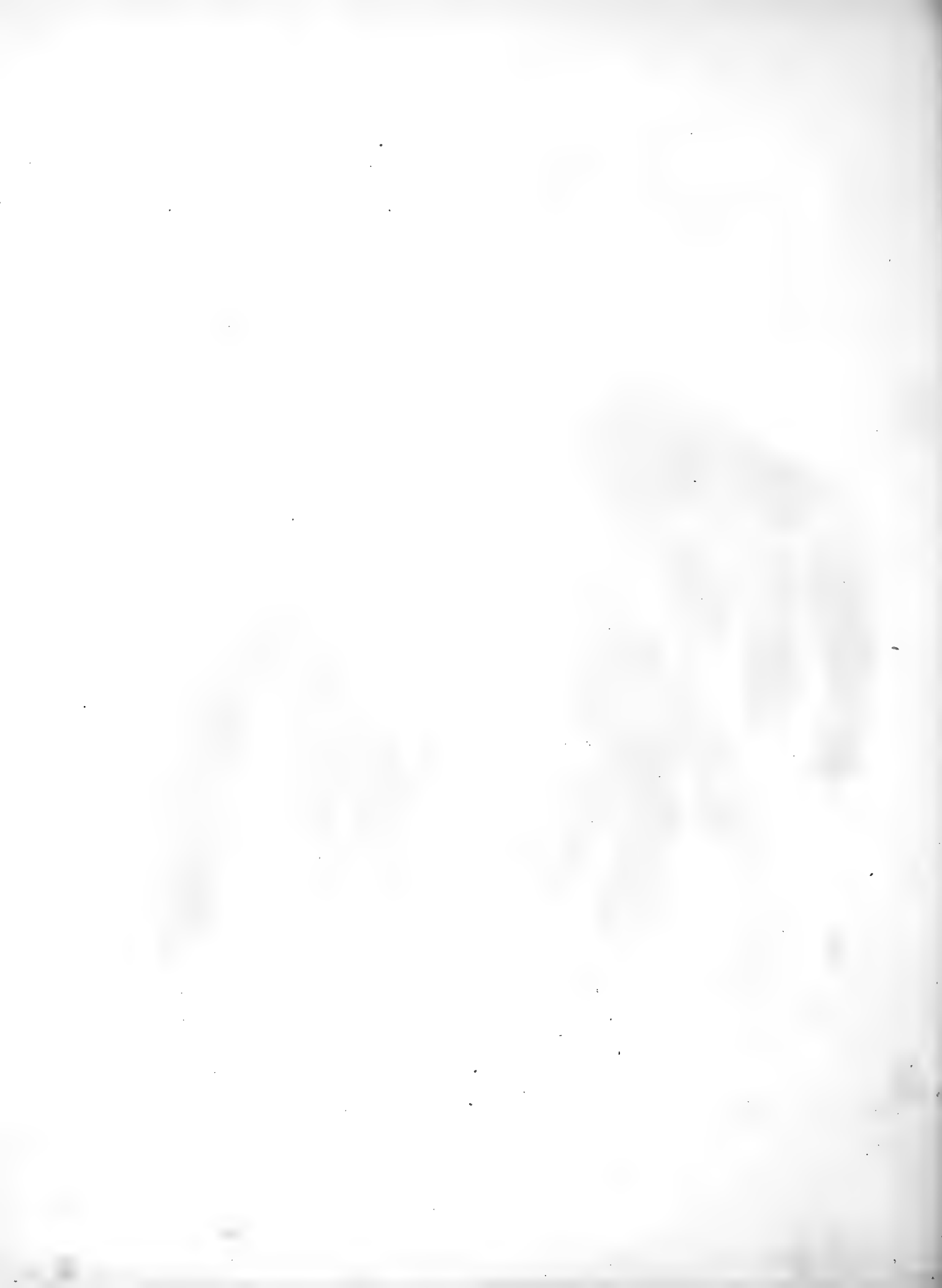






*Sassa*

*London Published Dec: 1789. by G. Robinson & Co.*



the origin of the tree which they called Sassa, nor the gum, could allow me to doubt a moment that it was the same as what had been brought to me from the myrrh country, but I had the additional satisfaction to find the tree all covered over with beautiful crimson flowers of a very extraordinary and strange construction. I began then a drawing anew, with all that satisfaction known only to those who have been conversant in such discoveries.

I TOOK pieces of the gum with me; it is very light. Galen complains that, in his time, the myrrh was often mixed with a drug which he calls Opocalpasum, by a Greek name, but what the drug was is totally unknown to us at this day, as nothing similar to the Greek name is found in the language of the country. But as the only view of the savage, in mixing another gum with his myrrh, must have been to increase the quantity, and as the great plenty in which this gum is produced, and its colour, make it very proper for this use, and above all, as there is no reason to think there is another gum-bearing tree of equal qualities in the country where the myrrh grows, it seems to me next to a proof, that this must have been the opocalpasum of Galen.

I MUST however confess, that Galen says the opocalpasum was so far from being an innocent drug, that it was a mortal poison, and had produced very fatal effects. But as those Troglodytes, though now more ignorant than formerly, are still well acquainted with the properties of their herbs and trees, it is not possible that the savage, desiring to increase his sales, would mix them

with a poison that must needs diminish them. And we may therefore without scruple suppose that Galen was mistaken in the quality ascribed to this drug, and that he might have imagined, from tenderness to the profession, that people died of the opocalpasum who perhaps really died of the physician: First, Because we know of no gum or resin that is a mortal poison: Secondly, Because, from the construction of its parts, gum could not have the activity which violent poison has; and considering the small quantities in which myrrh is taken, and the opocalpasum could have been but in an inconsiderable proportion to the myrrh, to have killed, it must have been a very active poison indeed: Thirdly, these accidents from a known cause must have brought myrrh into disuse, as certainly as the Spaniards mixing arsenic with bark would banish that drug when we saw people die of it. Now this never was the case, it maintained its character among the Greeks and the Arabs, and so down to our days; and a modern physician, Van Helmont, thinks it might make man immortal if it could be rendered perfectly soluble in the human body. Galen then was mistaken as to the poisonous quality of the opocalpasum. The Greek physician knew little of the Natural History of Arabia, less still of that of Abyssinia, and we who have followed them know nothing of either.

THIS gum being put into water, swells and turns white, and loses all its glue; it very much resembles gum adragant in quality, and may be eaten safely. This specimen came from the Troglodyte country in the year 1771. The Sassa, the tree which produces the opocalpasum, does not grow in Arabia. Arabian myrrh is easily known from Abyssinian

finian by the following method: Take a handful of the smallest pieces found at the bottom of the basket where the myrrh was packed, and throw them into a plate, and just cover them with water a little warm, the myrrh will remain for some time without visible alteration, for it dissolves slowly, but the gum will swell to five times its original size, and appear so many white spots amidst the myrrh.

EMFRAS, as I have said, is a large village something more than twenty miles south from Gondar, situated upon the face of a hill of considerable height above the lake Tzana, of which, and all its islands, it has a very distinct and pleasant view; it is divided from the lake by a large plain, near which is the island of Mitraha, one of the burying-places of the kings. The inhabitants of the lower town, close on the banks of the small river Arno, are all Mahometans, many of them men of substance, part of them the king's tent-makers, who follow the camp, and pitch his tents in the field; the others are merchants to the myrrh and frankincense country, that is, from the east parallel of the kingdom of Dancali to the point Cape Gardefan, or Promontorium Aromatum; they also bring salt from the plains, on the west of the kingdom of Dancali, where fossile salt is dug; it is on the S. E. border of the kingdom of Tigré. These Mahometans trade also to the Galla, to the westward of the Nile; their principal commodity is myrrh and damaged cargoes of blue Surat cloth, which they unfold and clean, then stiffen them with gum, and fold them in form of a book as when they were new.

THIS gum, which is called Saffa, they at first brought from the myrrh country behind Azab, till ingenious and sagacious

fagacious people had carried plants of the tree to their different villages, where they have it growing in great perfection, and more than supply the uses of the merchants.

THIS tree grows to a great height, not inferior to that of an English elm; that from which this draught was made was about two feet diameter; the gum grows on all sides of the trunk, in quantity enough almost to cover it, in form of large globes, and so it does on all the principal branches. These lumps are sometimes so large as to weigh two pound, though naturally very light.

THE bark of the tree is thin and of a bluish colour, not unlike that of a cherry-tree when young, or rather whiter. The wood is white and hard, only the young branches which carry the flower are red. The leaves are joined to the sides of the small branches by a small pedicle of considerable strength, the leaves are two and two, or opposite to each other, and have no single leaf at the point; they are strongly varnished both on one side and the other, the back rather lighter than the fore side of the leaf. The branches that carry the leaves have about an inch of the stalk bare, where it is fixed to the larger branch. There are generally fourteen leaves, each of about three quarters of an inch long. At the top of the branch are knots out of which come three small stalks, bare for about an inch and a half, then having a number of small tubes, which, when they open at the top, put forth a long pistil from the bottom of the tube. The top of the tube, divided into five segments, or petals, arrives about one third up the pistil, and makes the figure of a calix or perianthium to it. From this tube proceeds a great number of very small capillaments of a  
pink

pink colour, at the end of each of which hangs a purple stigma. At the top of this pistil is a large bunch of still finer fibres, or capillaments, with stigmata likewise, and at the end the pistil is rounded as if forming a fruit; without a very distinct drawing, it would be difficult to make a description that should be intelligible.

Nothing can be more beautiful, or more compounded, than the formation of this flower, though it has no odour; the head is composed of about thirty of these small branches now described, which make a very beautiful mass, and is of a pink colour of different shades. At sun-set, the leaves on each side of the branch shut face to face like the sensitive tribe. I never saw any seed or fruit that it bore, nor any thing like the rudiments of seed, unless it be that very small rotundity that appears at the end of the pistil, which seem to bear no proportion to so large a tree.

ERGETT

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ERGETT Y'DIMMO.

THE two beautiful shrubs which I have here given to the reader are called by the name of Ergett, which we may suppose, in Abyssinian botany, to be the generic name of the mimosa, as both of these have the same name, and both of the same family, of which there are many varieties in Abyssinia.

THIS first is called the Bloody Ergett, as we may suppose from the pink filaments of which this beautiful and uncommon flower is in part composed, and which we may therefore call *Mimosa Sanguinea*. The upper part of the flower is composed of curled, yellow filaments, and the bottom a pink of the same structure. I never saw it in any other state. Before the blossoms spread it appears in the form here exhibited. The pink, or lower part, in its unripe state, is composed of green tubercles, larger and more detached than where the yellow flower is produced, whose tubercles are smaller and closer set together. I need not say the  
leaves





*Ergell Dimmo*





*Ergettel Krone*



leaves are of the double pinnated kind, as that and every thing else material can be learned from the figure, full as perfectly as if the flower was before them; none of the parts, however trifling and small, being neglected in the representation, and none of them supposed or placed there out of order, for ornament, or any other cause whatever: a rule which I would have the reader be persuaded is invariably observed in every article represented in this collection, whether tree or plant, beast, bird, or fish.



## ERGETT EL KRONE.

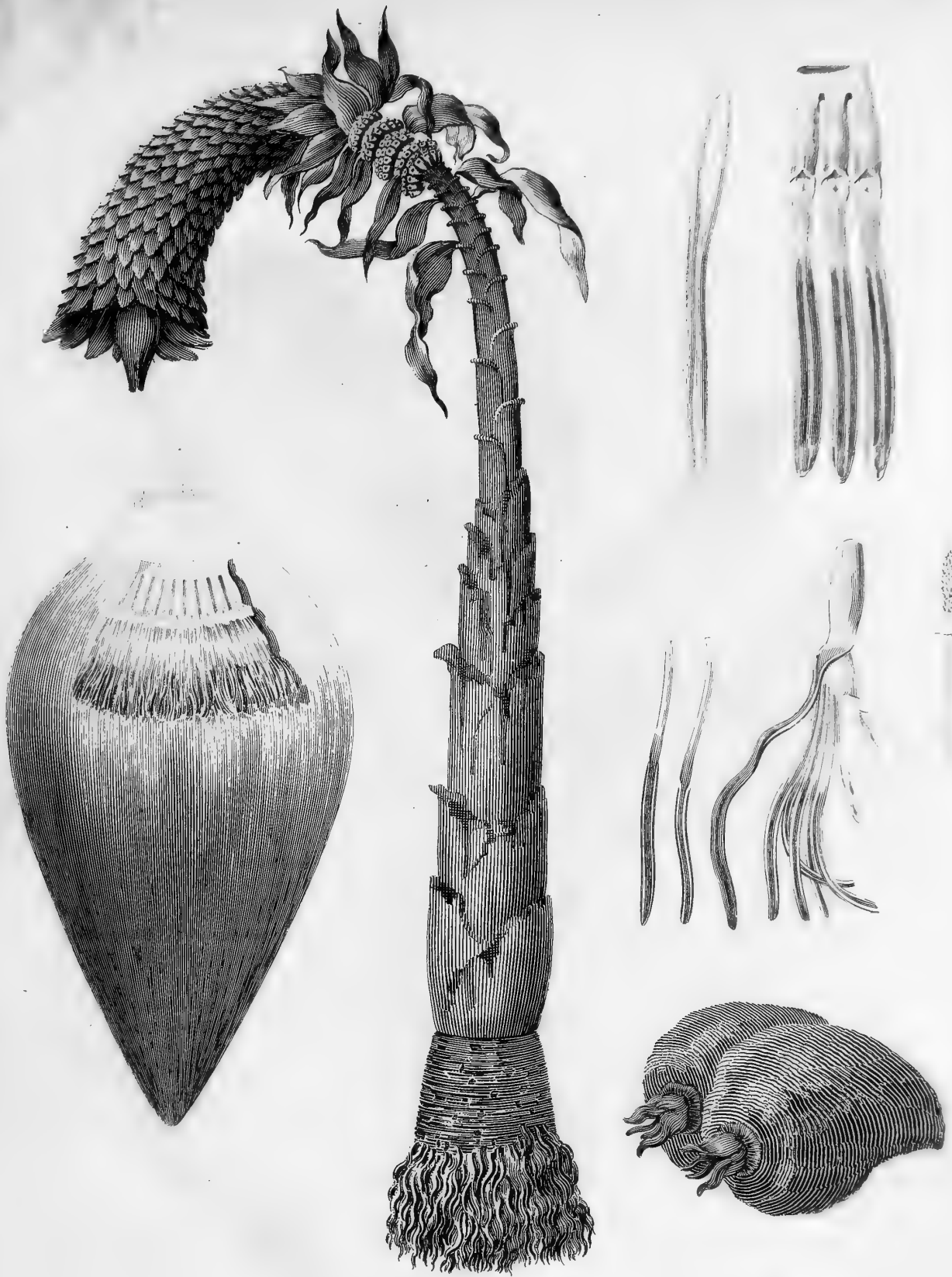
THE next of this species of Ergett or Mimosa, is called in Abyffinia Ergett el Krone, or the Horned Ergett; I apprehend the figure of the pods have given it that appellation. Its flower in size and form very much resembles the acacia vera, only that it is attached to the branch by a long and strong woody stalk, which grows out at the bottom of the branch bearing the leaves, and is sheltered as in a case by the lower part of it. The branches of it are all covered with very short, strong, sharp-pointed thorns,

whose point is inclined backward towards the root. Its pods are covered with a prickly kind of hair, which, when touched, stick in your fingers and give very uneasy sensations. The pods are divided into thirteen divisions, in each of which are three round seeds, hard and shining, of a dusky brownish colour. The flower has scarcely any smell, nor do I know that it is of any utility whatever. Both these beautiful shrubs were found upon the banks of the river Arno, between Emfras and the lake Tzana. The soil is black mould, with a great mixture or composition of rotten putrified leaves, thinly covering the rock in the temperate part of Abyssinia. What I have to observe of both these shrubs is, that they shut their leaves upon the violent rains of winter, and are never fully expanded till the sun and fair season again return.

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#### E N S E T E.

**T**HE Enfete is an herbacious plant. It is said to be a native of Narea, and to grow in the great swamps and marshes in that country, formed by many rivers rising there, which



*Ensete*







*Ensete*



which have little level to run to either ocean. It is said that the Galla, when transplanted into Abyssinia, brought for their particular use the coffee-tree, and the Ensete, the use of neither of which were before known. However, the general opinion is, that both are naturally produced in every part of Abyssinia, provided there is heat and moisture. It grows and comes to great perfection at Gondar, but it most abounds in that part of Maitsha and Goutto west of the Nile, where there are large plantations of it, and is there almost, exclusive of any thing else, the food of the Galla inhabiting that province; Maitsha is nearly upon a dead level, and the rains have not slope to get off easily, but stagnate and prevent the sowing of grain. Vegetable food would therefore be very scarce in Maitsha, were it not for this plant.

SOME who have seen my drawing of this plant, and at the same time found the banana in many parts of the east, have thought the Ensete to be a species of the Musa. This however, I imagine, is without any sort of reason. It is true, the leaf of the banana resembles that of the Ensete, it bears figs, and has an excrescence from its trunk, which is terminated by a conical figure, chiefly differing from the Ensete in size and quantity of parts, but the figs of the banana are in shape of a cucumber, and this is the part which is eaten. This fig is sweet though mealy, and of a taste highly agreeable. It is supposed to have no seeds, though in fact there are four small black seeds in every fig belonging to it. But the figs of the Ensete are not eatable; they are of a tender, soft substance; watery, tasteless, and in colour and consistence similar to a rotten apricot; they are of a conical form, crooked a little at the lower end, about an inch and a half in length, and an inch in breadth where  
G 2 thickest.

thickest. In the inside of these is a large stone half an inch long, of the shape of a bean or cushoo-nut, of a dark brown colour, and this contains a small seed, which is seldom hardened into fruit, but consists only of skin.

THE long stalk that bears the figs of the Enfete springs from the center of the plant, or rather is the body or solid part of the plant itself. Upon this, where it begins to bend, are a parcel of loose leaves, then grows the fig upon the body of the plant without any stalk, after which the top of the stalk is thick-set with small leaves, in the midst of which it terminates the flower in form of the artichoke; whereas in the banana, the flower, in form of the artichoke, grows at the end of that shoot, or stalk, which proceeds from the middle of the plant, the upper part of which bears the row of figs.

THE leaves of the Enfete are a web of longitudinal fibres closely set together; the leaves grow from the bottom, and are without stalks; whereas the banana is in shape like a tree, and has been mistaken for such. One half of it is divided into a stem, the other is a head formed of leaves, and, in place of the stem that grows out of the Enfete, a number of leaves rolled together round like a truncheon, shoots out of the heart of the banana, and renews the upper as the under leaves fall off; but all the leaves of the banana have a long stalk; this fixes them to the trunk, which they do not embrace by a broad base, or involucre, as the Enfete does.

BUT the greatest differences are still remaining. The banana, has, by some, been mistaken for a tree of the pal-

palmaceous tribe, for no other reason but a kind of similarity in producing the fruit on an excrescence or stalk growing from the heart of the stem; but still the mufa is neither woody nor perennial; it bears fruit but once, and in all these respects it differs from trees of the palmaceous kind, and indeed from all sort of trees whatever. The Enfete, on the contrary, has no naked stem, no part of it is woody; the body of it, for several feet high, is esculent; but no part of the banana can be eaten. As soon as the stalk of the Enfete appears perfect and full of leaves, the body of the plant turns hard and fibrous, and is no longer eatable; before, it is the best of all vegetables; when boiled, it has the taste of the best new wheat-bread not perfectly baked.

THE drawing which I have given the reader was of an Enfete ten years old. It was then very beautiful, and had no marks of decay. As for the pistil, stamina, and ovarium, they are drawn with such attention, and so clearly expressed by the pencil, that it would be lost time to say more about them. I have given one figure of the plant clothed with leaves, and another of the stem stripped of them, that the curious may have an opportunity of further investigating the difference between this and the mufa.

WHEN you make use of the Enfete for eating, you cut it immediately above the small detached roots, and perhaps a foot or two higher, as the plant is of age. You strip the green from the upper part till it becomes white; when soft, like a turnip well boiled, if eat with milk or butter it is the best of all food, wholesome, nourishing, and easily digested.

WE see in some of the Egyptian antique statues the figure of Isis sitting between some branches of the banana tree, as it is supposed, and some handfuls of ears of wheat; you see likewise the hippopotamus ravaging a quantity of banana tree. Yet the banana is merely adventitious in Egypt, it is a native of Syria; it does not even exist in the low hot country of Arabia Felix, but chooses some elevation in the mountains where the air is temperate, and is not found in Syria farther to the southward than lat 34°.

AFTER all, I do not doubt that it might have grown in Mattareah, or in the gardens of Egypt or Rosetto; but it is not a plant of the country, and could never have entered into the list of their hieroglyphics; for this reason, it could not figure any thing permanent or regular in the history of Egypt or its climate. I therefore imagine that this hieroglyphic was wholly Ethiopian, and that the supposed banana, which, as an adventitious plant, signified nothing in Egypt, was only a representation of the Enfete, and that the record in the hieroglyphic of Isis and the Enfete-tree was something that happened between harvest, which was about August, and the time the Enfete-tree became to be in use, which is in October.

THE hippopotamus is generally thought to represent a Nile that has been so abundant as to be destructive. When therefore we see upon the obelisks the hippopotamus destroying the banana, we may suppose it meant that the extraordinary inundation had gone so far as not only to destroy the wheat, but also to retard or hurt the growth of the Enfete, which was to supply its place. I do likewise conjecture,

ture, that the bundle of branches of a plant which Horus Apollo says the ancient Egyptians produced as the food on which they lived before the discovery of wheat, was not the papyrus, as he imagines, but this plant, the Enfete, which retired to its native Ethiopia upon a substitute being found better adapted to the climate of Egypt.

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## KOL - QUALL.

**I**N that memorable day when leaving the Samhar, or low flat parched country which forms the sea-coast of Abyssinia, and turning westward, we came to the foot of that stupendous mountain Taranta, which we were to pass in order to enter into the high land of Abyssinia, we saw the whole side of that prodigious mountain covered from top to bottom with this beautiful tree. We were entering a country where we daily expected wonders, and therefore, perhaps, were not so much surpris'd as might have been supposed at so extraordinary a sight. The fruit was ripe, and being carried on the top of the branches, the trees that stood thick together

together appeared to be covered with a cloth or veil of the most vivid crimson colour.

THE first thing that presented itself was the first shoot of this extraordinary tree. It was a single stalk, about six inches measured across, in eight divisions, regularly and beautifully scolloped and rounded at the top, joining in the centre at three feet and a half high. Upon the outside of these scollops were a sort of eyes or small knots, out of every one of which came five thorns, four on the sides and one in the centre, scarce half an inch long, fragil, and of no resistance, but exceedingly sharp and pointed. Its next process is to put out a branch from the first or second scollop near the top, others succeed from all directions; and this stalk, which is soft and succulent, of the consistence of the aloe, turns by degrees hard and ligneous, and, after a few years, by multiplying its branches, assumes the form as in the second plate. It is then a tree, the lower part of which is wood, the upper part, which is succulent, has no leaves; these are supplied by the fluted, scolloped, ferrated, thorny sides of its branches. Upon the upper extremity of these branches grow its flowers, which are of a golden colour, rosaceous, and formed of five round or almost oval petals; this is succeeded by a triangular fruit, first of a light green with a slight cast of red, then turning to a deep crimson, with streaks of white both at top and bottom. In the inside it is divided into three cells, with a seed in each of them; the cells are of a greenish white, the seed round, and with no degree of humidity or moisture about it, yet the green leaves contain a quantity of bluish watery milk, almost incredible.

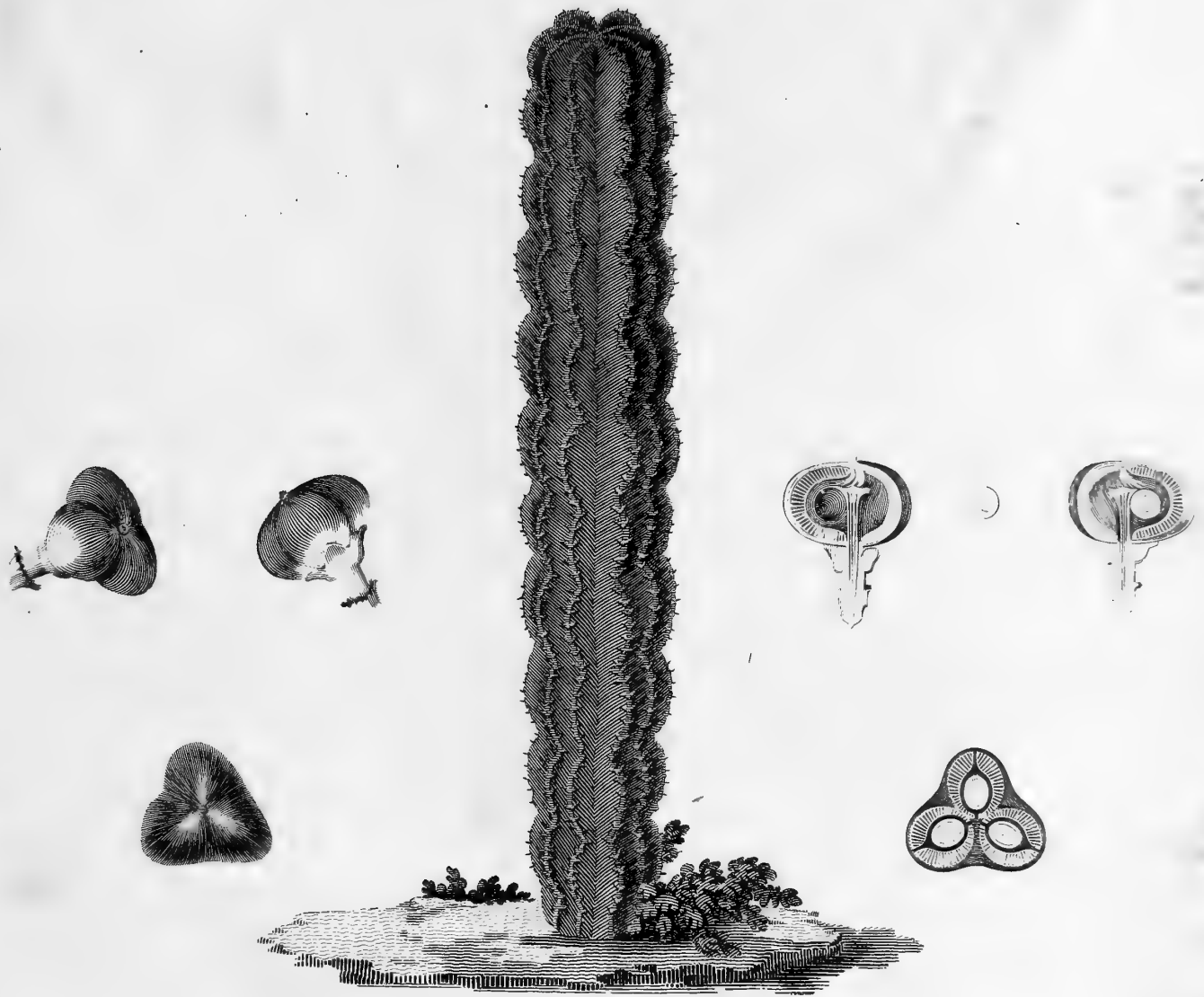
UPON





*Hol-quall.*





*Kolquall*

*London Published Jan. 1<sup>st</sup> 1770. by G. Robinson & Co.*



UPON cutting two of the finest branches of a tree in its full vigour, a quantity of this issued out, which I cannot compute to be less than four English gallons, and this was so exceedingly caustic, that, though I washed the sabre that cut it immediately, the stain has not yet left it.

WHEN the tree grows old, the branches wither, and, in place of milk, the inside appears to be full of powder, which is so pungent, that the small dust which I drew upon striking a withered branch seemed to threaten to make me sneeze to death, and the touching of the milk with my fingers excoriated them as if scalded with boiling water; yet I everywhere observed the wood-pecker piercing the rotten branches with its beak, and eating the insects, without any impression upon its olfactory nerves.

THE only use the Abyssinians make of this is for tanning hides, at least for taking off the first hair. As we went west, the tree turned poor, the branches were few, seldom above two or three ribs, or divisions, and these not deeply indented, whereas those of Taranta had frequently eight. We afterwards saw some of them at the source of the Nile, in the cliff where the village of Geesh is situated, but, though upon very good ground, they did not seem to thrive; on the contrary, where they grew on Taranta it was sandy, stony, poor earth, scarce deep enough to cover the rock, but I suspect they received some benefit from their vicinity to the sea.

SOME botanists who have seen the drawing have supposed this to be the *euphorbia officinarum* of Linnæus; but, without pretending to great skill in this matter, I should fear there

would be some objection to this supposition: First, on account of the flower, which is certainly rosaceous, composed of several petals, and is not campaniform: Secondly, That it produces no sort of gum, either spontaneously or upon incision, at no period of its growth; therefore I imagine that the gum which comes from Africa in small pieces, first white on its arrival, then turning yellow by age, is not the produce of this tree, which, it may be depended upon, produces no gum whatever.

JUBA the younger is said, by Pliny, to have given this name to the plant, calling it after his own physician, brother to Mufa physician to Augustus. We need not trouble ourselves with what Juba says of it, he is a worse naturalist and worse historian than the Nubian geographer.

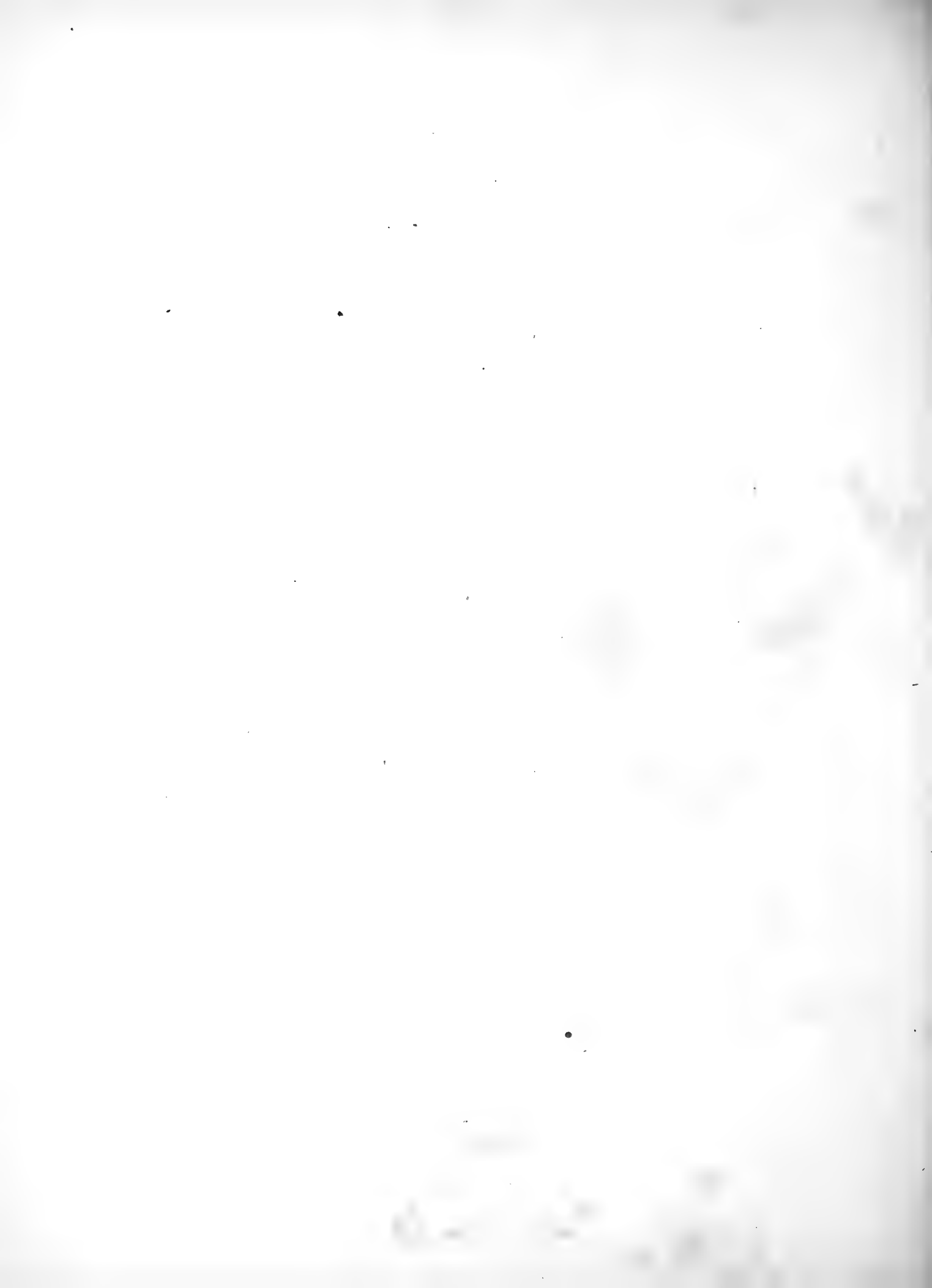
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R A C K.

**T**HIS is a large tree, and seems peculiar to warm climates. It abounds in Arabia Felix, in Abyssinia, that is, in the low part of it, and in Nubia. The first place I saw it in was  
 I in



*Pach*





in Raback, a port in the Red Sea, where I discovered this singularity, that it grew in the sea within low-water mark. When we arrived at Mafuah, in making a plan of the harbour, I saw a number of these in two islands both uninhabited, and without water, the one called Shekh Seide, the other Toulahout. These two islands are constantly overflowed by salt water, and though they are strangers to fresh, they yet produce large Rack-trees, which appear in a flourishing state, as if planted in a situation designed for them by nature.

THE Arabians, it is said, make boats of this tree. Its wood is so hardened by the sea, and also so bitter in taste, that no worm whatever will touch it. Of this tree the Arabians also make tooth-picks, these they sell in small bundles at Mecca, and are reputed to be favourable to the teeth, gums, and breath.

THE reader will have observed frequent mention of some trees found in the desert which our camels would not eat. These are the Rack-tree, and the doom, or palma thebaica cuciofera\*. These grow where they find salt springs in the sand; the desert being so impregnated with fossile salt in every part of it, that great blocks and strata of it are seen everywhere appearing above ground, especially about lat. 18°.

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\* Theophrast. hist. plants, lib. iii. cap. 8. lib. iv. cap. 2. Plin. Nat. Hist. lib. xiii. cap. 9. J. Bauh. lib. iii. cap. 86.

THE Rack something resembles the ash on its first appearance, though in the formation of its parts it is widely different. Its bark is white and polished, smooth, and without furrows. Its trunk is generally 7 or 8 feet before it cleaves into branches. I have seen it above 24 feet in height, and 2 feet diameter.

ITS leaves are, two and two, set on different sides, that is, each two perpendicular to each other alternately. The small branches that bear flowers part from the inside of the leaf, and have the same position with the leaves; that is, suppose the lowest pair of leaves and branches are on the east or west side of the tree, the pair above them will be on the north and south, and the next to these will be on the west as before. The leaves are long and very sharp-pointed; in the inside a deep green, and in the out a dirty white of a green cast; they have no visible ribs either in the inside or out. The cup is a perianthium of four petals, which closely confine the flower, and is only a little flat at the top. The flower is composed of four petals deeply cut, in the interstices of which is a small green fruit divided by a fissure in the middle; its colour is deep orange, with lights of gold colour, or yellow, throughout it. It has no smell, tastes very bitterly, and is never seen to be frequented by the bees. It is probable that a tree of this kind, tho' perhaps of another name, and in greater perfection, and therefore more fit for use, may be found in some of our West-India islands between lat. 15° and 18°, especially where there are salt springs and marshes.





*Geshe et Aube*

London. Published December 1. 1789. by G. Robinson & Co

*Heath. Sc.*



## GIR GIR, OR GESHE EL AUBE.

**T**HIS species of grass is one of the acquisitions which my travels have procured to botany. It was not before known; and the seed has not, as far as I know, produced any plant but in the garden of the king of France. It grows plentifully near Ras el Feel, not far from the banks of the large river Guangue, of which I have spoken in my return from Abyssinia into Egypt. It begins to shoot in the end of April, when it first feels the humidity of the air. It advances then speedily to its full height, which is about 3 feet 4 inches. It is ripe in the beginning of May, and decays, if not destroyed by fire, very soon afterwards,

THE leaf is long, pointed, narrow, and of a feeble texture. The stock from which it shoots produces leaves in great abundance, which soon turn yellow and fall to the ground. The goats, the only cattle these miserable people have, are very fond of it, and for it abandon all other food while it is within their reach. On the leaves of some plants I have seen a very small glutinous juice, like to what we see  
upon

upon the leaves of the lime or the plane, but in much less quantity; this is of the taste of sugar.

FROM the root of the branch arises a number of stalks, sometimes two, but never, as far as I have seen, more than three. The flower and seed are defended by a wonderful perfection and quantity of small parts. The head when in its maturity is of a purplish brown. The plate represents it in its natural size, with its constituent parts dissected and separated with very great attention. As they are many, each have a number affixed to them.

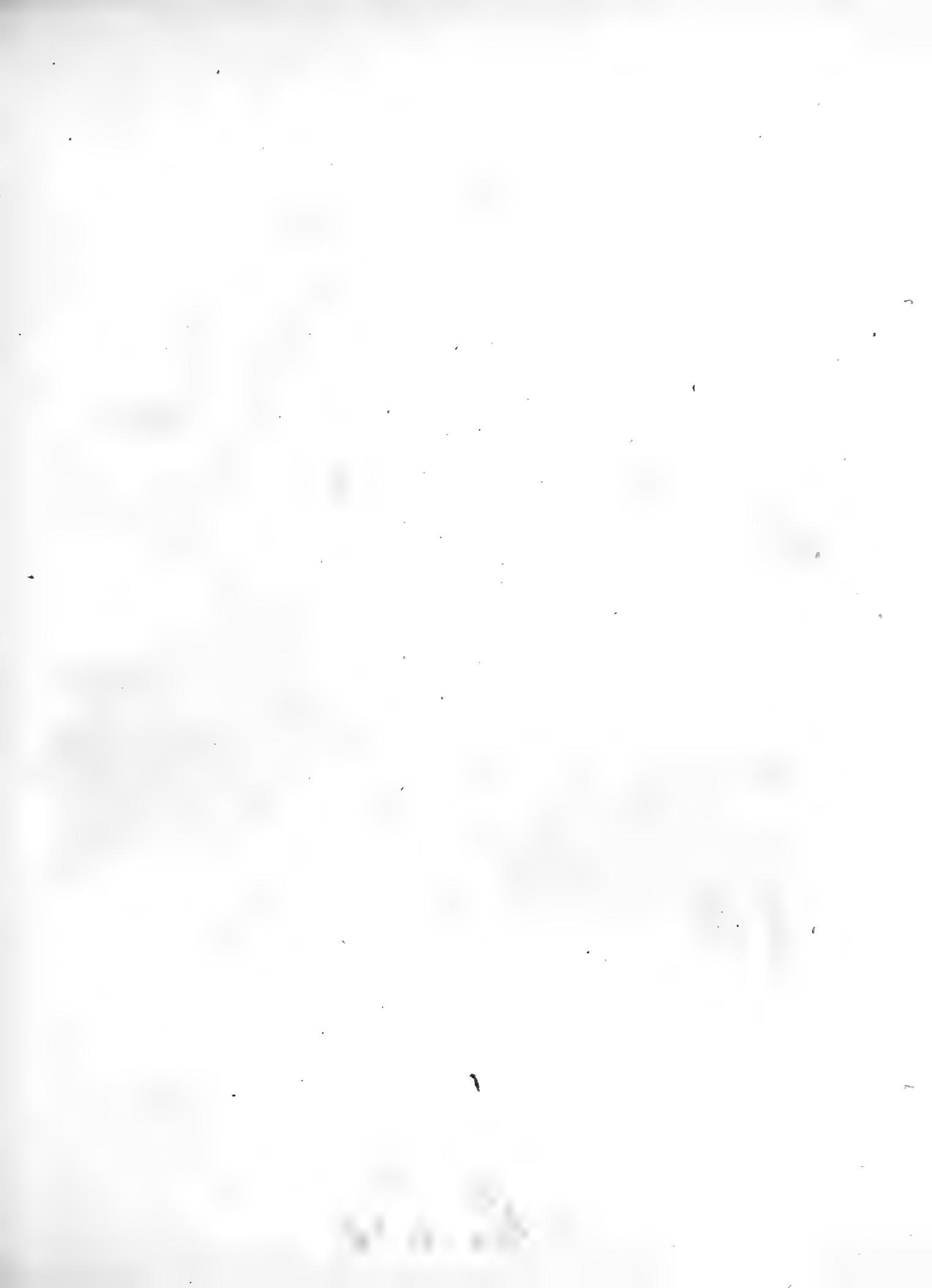
#### MALE-FLOWER DESCRIBED.

THE 1st is the flower in its perfect state separated from its stalk. The 2d is the upper case. The 3d is the case, or sheath, opposite to the foregoing. The 4th are inner cases which inclose the three stamina, with the beard and the arista. The 5th is its stile. The 6th its stamina, with the two cases that inclose them. The 7th is the sheath, with its ear and its beard.

#### FEMALE-FLOWER DESCRIBED.

THE 8th is the rudiment of the fruit, with two stigmata. The 9th, the perfect flower.

KANTUFFA;





*Kantuffa*



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K A N T U F F A.

**T**HIS thorn, like many men we meet daily in society, has got itself into a degree of reputation and respect from the noxious qualities and power of doing ill which it possesses, and the constant exertion of these powers. The Abyssinians, who wear coarse cotton cloths, the coarsest of which are as thick as our blankets, the finest equal to our muslin, are in the same degree annoyed with it. The soldier screens himself by a goat's, leopard, or lion's skin, thrown over his shoulder, of which it has no hold: As his head is bare, he always cuts his hair short before he goes to battle, lest his enemy should take advantage of it; but the women, wearing their hair long, and the great men, whether in the army or travelling in peace, being always cloathed, it never fails to incommode them, whatever species of raiment they wear. If their cloak is fine muslin, the least motion against it puts it all in rags; but if it is a thick, soft cloth, as those are with which men of rank generally travel, it buries its thorns, great and small, so deep in it that  
the

the wearer must either dismount and appear naked, which to principal people is a great disgrace, or else much time will be spent before he can disengage himself from its thorns. In the time when one is thus employed, it rarely fails to lay hold of you by the hair, and that again brings on another operation, full as laborious, but much more painful than the other.

IN the course of my history, when speaking of the king, Tecla Haimanout II. first entering Gondar after his exile into Tigré, I gave an instance that shewed how dangerous it was for the natives to leave this thorn standing; and of such consequence is the clearing of the ground thought to be, that every year when the king marches, among the necessary proclamations this is thought to be a very principal one, "Cut down the Kantuffa in the four quarters of the world, for I do not know where I am going." This proclamation, from the abrupt stile of it, seems at first absurd to stranger ears, but when understood is full of good sense and information. It means, Do not sit gossiping with your hands before you, talking, The king is going to Damot, he certainly will go to Gojam, he will be obliged to go to Tigré. That is not your business, remove nuisances out of his way, that he may go as expeditiously as possible, or send to every place where he may have occasion.

THE branches of the Kantuffa stand two and two upon the stalk; the leaves are disposed two and two likewise, without any single one at the point, whereas the branches bearing the leaves part from the stalk: at the immediate joining of them are two thick thorns placed perpendicular and parallel alternately,

alternately ; but there are also single ones distributed in all the interstices throughout the branch.

THE male plant, which I suppose this to be, has a one-leaved perianthium, divided into five segments, and this falls off with the flower. The flower is composed of five petals, in the middle of which rise ten stamina or filaments, the outer row shorter than those of the middle, with long stigmata, having yellow farina upon them. The flowers grow in a branch, generally between three and four inches long, in a conical disposition, that is, broader at the base than the point. The inside of the leaves are a vivid green, in the outside much lighter. It grows in form of a bush, with a multitude of small branches rising immediately from the ground, and is generally seven or eight feet high. I saw it when in flower only, never when bearing fruit. It has a very strong smell, resembling that of the small scented flower called mignonet, sown in vases and boxes in windows, or rooms, where flowers are kept.

THE wild animals, both birds and beasts, especially the Guinea-fowl, know how well it is qualified to protect them. In this shelter, the hunter in vain could endeavour to molest them, were it not for a hard-haired dog, or terrier of the smallest size, who being defended from the thorns by the roughness of his coat, goes into the cover and brings them and the partridges alive one by one to his master.



## GAGUEDI.

THE Gaguedi is a native of Lamalmon ; whether it was not in a thriving state, or whether it was the nature of the tree, I know not, but it was thick and stunted, and had but few branches; it was not above nine feet high, though it was three feet in diameter. The leaves and flower, however, seemed to be in great vigor, and I have here designed them all of their natural size as they stood.

THE leaves are long, and broader as they approach the end. The point is obtuse ; they are of a dead green not unlike the willow, and placed alternately one above the other on the stalk. The calix is composed of many broad scales lying one above the other, which operates by the pressure upon one another, and keeps the calix shut before the flower arrives at perfection. The flower is monopetalous, or made of one leaf ; it is divided at the top into four segments, where these end it is covered with a tuft of down, resembling hair, and this is the case at the top also. When the flower is young and unripe, they are laid regularly so as to inclose one another in a circle. As they grow



*Gaguedi*

London. Published Dec. 5<sup>th</sup> 1789. by G. Robinson & Co.





*Gayaceli.*

*Louren Publish'd Dec: 1789 by G. Robinson & Co*





grow old and expand, they seem to lose their regular form, and become more confused, till at last, when arrived at its full perfection, they range themselves parallel to the lips of the calix, and perpendicular to the stamina, in the same order as a rose. The common receptacle of the flower is oblong, and very capacious, of a yellow colour, and covered with small leaves like hair. The style is plain, simple, and upright, and covered at the bottom with a tuft of down, and is below the common receptacle of the flower.

As this flower is of a complicated nature, I have given two figures of it, the one where the flower is seen in face, the other in the outside. The stamina are three short filaments inserted in the segment of the flower near the summit.

I HAVE observed, in the middle of a very hot day, that the flowers unbend themselves more, the calix seems to expand, and the whole flower to turn itself towards the sun in the same manner as does the sun-flower. When the branch is cut, the flower dries as it were instantaneously, so that it seems to contain very little humidity.

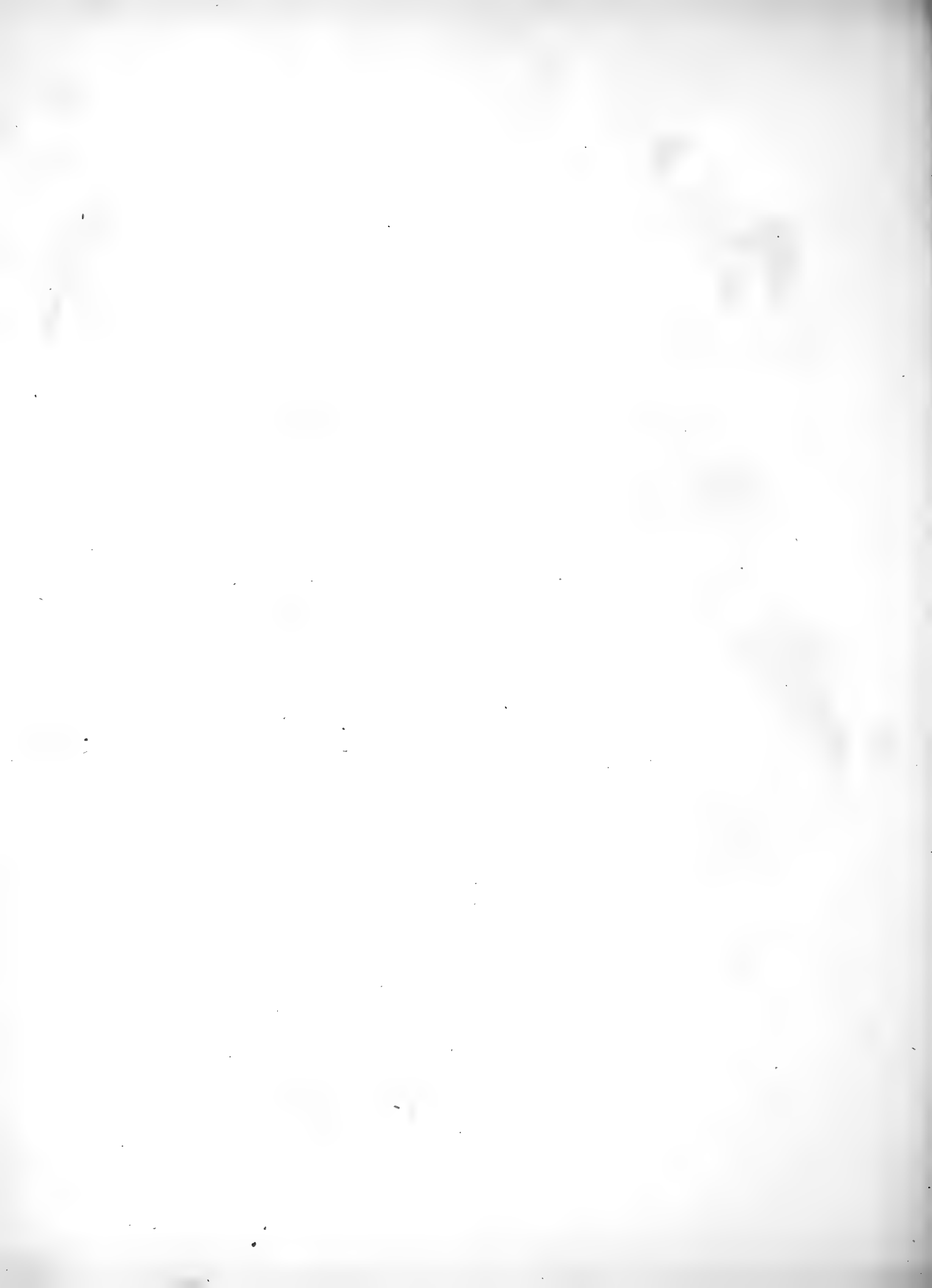
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W A N Z E Y.

THIS tree is very common throughout all Abyffinia. I do not know the reason, but all the towns are full of them; every house in Gondar has two or three planted round it, so that, when viewed first from the heights, it appears like a wood, especially all the season of the rains; but very exactly on the first of September, for three years together, in a night's time, it was covered with a multitude of white flowers. Gondar, and all the towns about, then appeared as covered with white linen, or with new-fallen snow. This tree blossoms the first day the rains cease. It grows to a considerable magnitude, is from 18 to 20 feet high. The trunk is generally about 3 feet and a half from the ground; it then divides into four or five thick branches, which have at least 60° inclination to the horizon, and not more. These large branches are generally bare, for half way up the bark is rough and furrowed. They then put out a number of smaller branches, are circular and fattish  
at



Manzey



at the top, of a figure like some of our early pear-trees. The cup is a single-leaved perianthium, red, marked very regularly before it flowers, but when the flower is out, the edges of the cup are marked with irregular notches, or segments, in the edge, which by no means correspond in numbers or distances to those that appeared before the perfection of the flower.

THE flower itself consists of one leaf of the funnel-fashioned kind, spreads, and, when in its full perfection, folds back at the lips, though it has in some flowers marks or depressions which might appear like segments, yet they are not such, but merely accidental, and the edge of most of the flowers perfectly even, without any mark of separation.

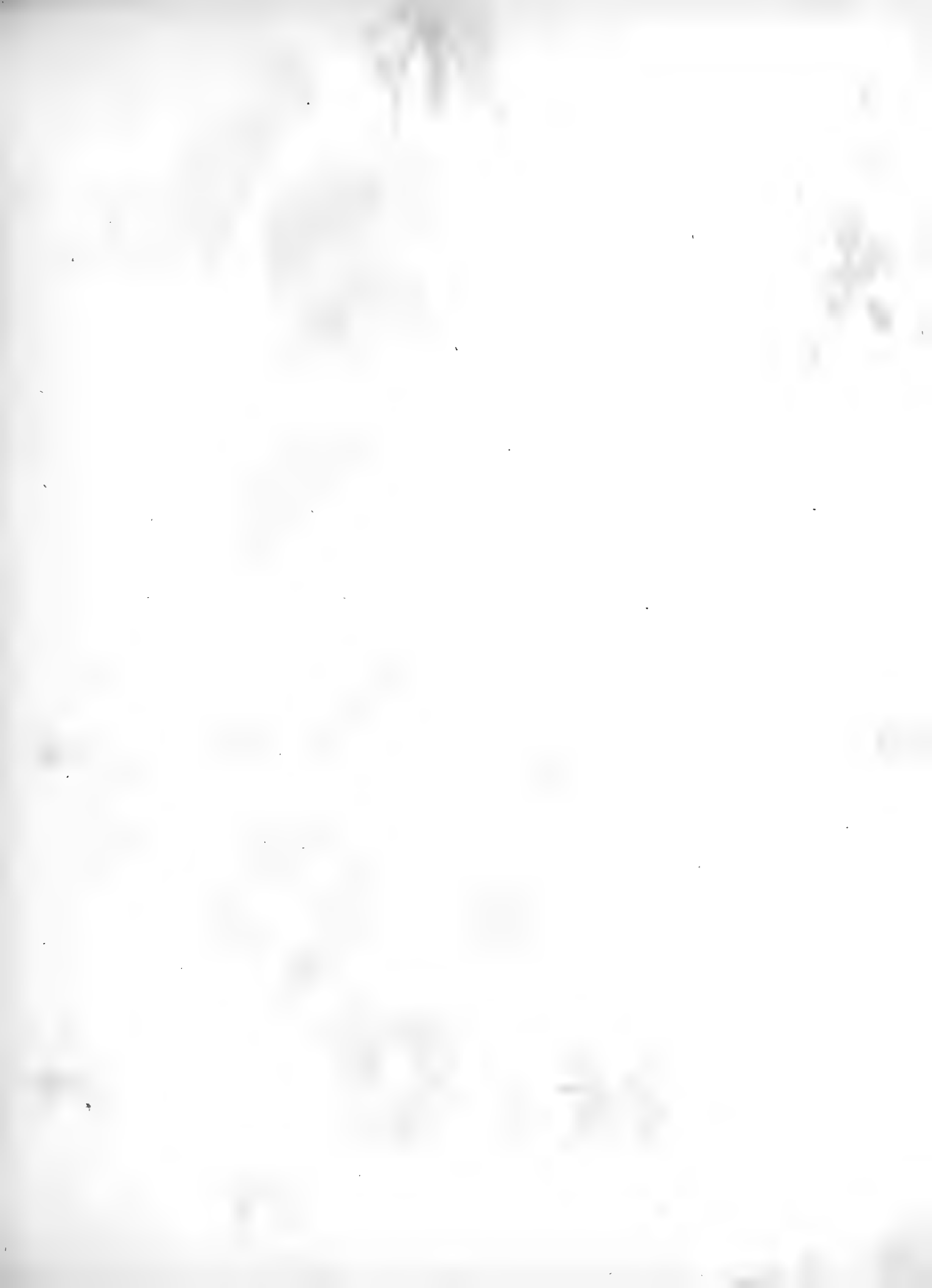
THE pistil consists of a very feeble thread; in the top it is bisected, or divided, into two; its apex is covered with a small portion of yellow dust. There are two, and sometimes three, of these divisions. The fruit is fully formed in the cup while the flower remains closed, and like a kind of tuft, which falls off, and the pistil still remains on the point of the fruit; is at first soft, then hardens like a nut, and is covered with a thin, green husk. It then dries, hardens into a shell, and withers. The leaf is of a dark green, without varnish, with an obtuse point; the ribs few but strong, marked both within and without. The outside is a greenish yellow, without varnish also.

I do not know that any part of this tree is of the smallest use in civil life, though its figure and parts seem to be

too considerable not to contain useful qualities if fairly investigated by men endued with science. I have several times mentioned in the history of the Galla, that this and the coffee-tree have divine honours paid them by each and all of the seven nations. Under this tree their king is chosen; under this tree he holds his first council, in which he marks his enemies, and the time and manner in which his own foldiers are to make their irruption into their country. His sceptre is a bludgeon made of this tree, which, like a mace, is carried before him wherever he goes; it is produced in the general meetings of the nation, and is called Buco.

THE wood is close and heavy, the bark thick; there is then a small quantity of white wood, the rest is dark brown and reddish, not unlike the laburnam, and the buco is stript to this last appearance, and always kept plentifully anointed with butter.

FAREK,





*Furck.*



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**FAREK, OR BAUHINIA ACUMINATA.**

**T**HIS beautiful shrub was found on the banks of a brook, which, falling from the west side of the mountain of Geesh down the south face of the precipice where the village is situated, is the first water that runs southward into the lake Gooderoo, in the plain of Affoa. It is the water we employed for common uses, not daring to touch that of the Nile, unless for drinking and dressing our food; it grew about 20 yards from this water, on the side of the cliff, not 400 yards from the fountain of the Nile itself. The name it bears here is Farek, which is, I suppose, given it from the division of the leaf.

This shrub is composed of several feeble branches: to what height it grows I do not know, having never seen it before, nor were there many others where I found it. The longest branch of this was not four feet high. It grew on good black mold, but of no great depth, having at the bot-

tom a gritty or sandy stone, and seemed in full perfection. The branch is of its natural size; on one of the smaller or collateral branches is the flower full blown, with two others that are buds. The parts are separated and designed with care.

THE first figure is the flower in its entire state, seen in front, the stamina of course fore-shortened. The second is an angular three-quarter view of the calix. The third is a back view of the calix. The fourth is the calix inclosing the stamina and pistil, round which last they form a fruit or grain. The fifth is the flower stript of its calix, where is seen the germ, the stamina, and the pistil. The sixth is the stamina magnified to twice their size. The seventh is the lower leaf. The eighth, the upper leaf of the flower. The ninth, the germ, or rudiment of the fruit, with the pistil joined to it, at the bottom of which there is a small cavity. The tenth is the seed or fruit entire. The eleventh represents the inside of the seed cut in half.

THE leaves of this shrub are of a vivid green, and are joined to the branch by a long pedicle, in the inside of which are the rudiments of another, which I suppose begin to sprout when the large one is injured or falls off.

THOUGH very little acquainted with the scientific part of botany myself, its classes, genera, and species, and still less jealous of my reputation in it, I cannot conceive why my single attention, in charging myself with a number of seeds in distant countries, and giving part to the garden at Paris, should lead to a conclusion that I was so absolutely unin-

fructed in the science for which at least I had shewn this attachment, that I could not distinguish the plant before us from the acacia vera. Is the knowledge of botany so notoriously imperfect in England, or is the pre-eminence so established in France, as to authorise such a presumption of ignorance against a person, who, from his exertions and enterprise, should hold some rank in the republic of letters among travellers and discoverers ?

A COMPLIMENT was paid me by the Count de Buffon, or by superior orders, in return for the articles I had presented to the king's cabinet and garden at Paris, that the plants growing from the seeds which I had brought from Abyssinia should regularly, as they grew to perfection, be painted, and sent over to me at London. The compliment was a handsome one, and, I was very sensible of it, it would have contributed more to the furnishing the king's garden with plants than many lectures on botany, ex cathedra, will ever do.

BUT it was not necessary to shew his knowledge for the sake of contrasting it with my ignorance, that Mr Jussieu says this bauhinia is by Mr Bruce taken for an acacia vera. Now the acacia vera is a large, wide-spreading, thorny, hard, red-wooded, rough-barked, gum-bearing tree. Its flower, though sometimes white, is generally yellow ; it is round or globular, composed of many filaments or stamina ; it is the Spina Egyptiaca, its leaves, in shape and disposition, resembling a mimosa ; in Arabic it is called Saiel, Sunt, Gerar ; and if M. de Jussieu had been at all acquainted with the history of the east, he must have known it was the tree of every desert, and consequently that I must be better acquainted

with it than almost any traveller or botanist now alive. Upon what reasonable ground then could he suppose, upon my bringing to him a rare and elegant species of bauhinia, which probably he had not before seen, that I could not distinguish it from an acacia, of which I certainly brought him none?

A LARGE species of Mullein likewise, or, as he pleases to term it, Bouillon Blanc, he has named *Verbascum Abyssinicum*; and this the unfortunate Mr Bruce, it seems, has called an aromatic herb growing upon the high mountains. I do really believe, that M. de Jussieu is more conversant with the Bouillon Blancs than I am; my Bouillons are of another colour; it must be the love of French cookery, not English taste, that would send a man to range the high mountains for aromatic herbs to put in his Bouillon, if the *Verbascum* had been really one of these.

ALTHOUGH I have sometimes made botany my amusement, I do confess it never was my study, and I believe from this the science has reaped so much the more benefit. I have represented to the eye, with the utmost attention, by the best drawings in natural history ever yet published, and to the understanding in plain English, what I have seen as it appeared to me on the spot, without tacking to it imaginary parts of my own, from preconceived systems of what it should have been, and thereby creating varieties that never existed.

WHEN I arrived at the Lazaretto at Marfeilles, the Faren-teit, as it is called in Nubia, or the Guinea-worm, the name it bears in Europe, having been broken by mismanagement in  
my

my voyage from Alexandria, had retired into my leg and fettered there. The foot, leg, and thigh, swelled to a monstrous size, appearance of mortification followed, and the surgeon, with a tenderness and humanity that did honour to his skill, declared, though reluctantly, that if I had been a man of weak nerves, or soft disposition, he would have prepared me for what was to happen by the interposition of a friend or a priest; but as from my past sufferings he presumed my spirit was of a more resolute and firmer kind, he thought saving time was of the utmost consequence, and therefore advised me to resolve upon submitting to an immediate amputation above the knee. To limp through the remains of life, after having escaped so many dangers with bones unbroken, was hard, so much so, that the loss of life itself seemed the most eligible of the two, for the bad habit of body in which I found myself in an inveterate disease, for which I knew no remedy, and joined to this the prejudice that an Englishman generally has against foreign operators in surgery, all persuaded me, that, after undergoing amputation, I had but very little chance of recovery, besides long and great suffering, want of sleep, want of food, and the weakness that attends lying long in sick-bed, had gradually subdued the natural desire and anxiety after life; every day death seemed to be a lesser evil than pain. Patience, however, strong fomentations, and inward applications of the bark, at length cured me.

It was immediately after receiving my melancholy sentence, that, thinking of my remaining duties, I remembered I had carried abroad with me an order from the king to procure seeds for his garden. Before I had lost the power of direction, I ordered Michael, my Greek servant, to take

the half of all the different parcels and packages that were lying by me, made up for separate uses, and pack them so as they might be sent to Sir William Duncan the king's physician, then in Italy, to be conveyed by him to Lord Rochfort, secretary of state. I by the same conveyance accompanied these with a short letter, wrote with great difficulty, --that it appearing, beyond leaving room for hope, that my return was to be prevented by an unexpected disease, I begged his Majesty to receive these as the last tender of my duty to him.

MICHAEL, who never cared much for botany, at no period was less disposed to give himself trouble about it than now; his master, friend, and patron was gone, as he thought; he was left in a strange country; he knew not a word of the language, nor was he acquainted with one person in Marseilles, for we had not yet stirred out of the lazaretto. What became of the seeds for a time I believe neither he nor I knew; but, when he saw my recovery advancing, fear of reproof led him to conceal his former negligence. He could neither read nor write, so that the only thing he could do was to put the first seed that came to hand in the first envelope, either in parchment or paper, that had writing upon the back of it, and, thus selected, the seeds came into the hands of M. de Jussieu at Paris. By this operation of Michael, the *verbascum* became an aromatic herb growing on the highest mountains, and the *baubinia acuminata* became an *acacia vera*.

THE present of the drawings of the Abyssinian plants was really, as it was first designed, a compliment, but it turned out just the contrary, for, in place of expecting the publication that

that I was to make, in which they would naturally be a part, the gates of the garden were thrown open, and every dabbler in botany that could afford pen, ink, and paper, was put in possession of those plants and flowers, at a time when I had not said one word upon the subject of my travels.

WHETHER this was owing to M. de Jussieu, M. de Thouin, or M. Daubenton, to all, or to any one of them, I do not know, but I beg they will for a moment consider the great impropriety of the measure. I suppose it would be thought natural, that a person delineating plants in a foreign country with such care, risk, and expence as I have done, should wish to bring home the very seeds of those plants he had delineated in preference to all others: supposing these had been the only seeds he could have brought home, and generosity and liberality of mind had led him to communicate part of them to M. de Jussieu, we shall further say, this last-mentioned gentleman had planted them, and when the time came, engraved, and published them, what would he think of this manner of repaying the traveller's attention to him? The bookseller, that naturally expected to be the first that published these plants, would say to the traveller whose book he was to buy, This collection of natural history is not new, it has been printed in Sweden, Denmark, and France, and part of it is to be seen in every monthly magazine! Does M. de Jussieu think, that, after having been once so treated, any traveller would ever give one seed to the king's garden? he certainly would rather put them in the fire; he must do so if he was a reasonable man, for otherwise, by giving them away he is certainly ruining his own work, and defeating the purposes for which he had travelled.

WHEN

WHEN I first came home, it was with great pleasure I gratified the curiosity of the whole world, by shewing them each what they fancied the most curious. I thought this was an office of humanity to young people, and to those of slender fortunes, or those who, from other causes, had no opportunity of travelling. I made it a particular duty to attend and explain to men of knowledge and learning that were foreigners, everything that was worth the time they bestowed upon considering the different articles that were new to them, and this I did at great length to the Count de Buffon, and Mons. Gueneau de Montbeliard, and to the very amiable and accomplished Madame d'Aubenton. I cannot say by whose industry, but it was in consequence of this friendly communication, a list or inventory (for they could give no more) of all my birds and beasts were published before I was well got to England.

FROM what I have seen of the performances of the artists employed by the cabinet, I do not think that they have anticipated in any shape the merit of my drawings, especially in birds and in plants; to say nothing milder of them, they are in both articles infamous; the birds are so dissimilar from the truth, that the names of them are very necessarily wrote under, or over them, for fear of the old mistake of taking them for something else. I condescend upon the Erkoom as a proof of this. I gave a very fine specimen of this bird in great preservation to the King's collection; and though I shewed them the original, they had not genius enough to make a representation that could with any degree of certainty be promised upon for a guess. When I was at Paris, they had a woman, who, in place of any merit, at least that I could judge of, was protected, as they said, by  
the







*Tuara*

*London Published Dec: 1<sup>st</sup>. 1789 by G. Robinson & Co.*

the queen, and who made, what she called, Drawings ; those of plants were so little characteristic, that it was, strictly speaking, impossible, without a very great consideration, to know one plant from another ; while there was, at same time, a man of the greatest merit, M. de Seve, absolutely without employment; tho', in my opinion, he was the best painter of every part of natural history either in France or England.

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#### K U A R A.

**T**HIS beautiful tree, now presented to the reader, is the production of the south and S. W. parts of Abyssinia. It is very frequent, and, with the ebony, almost the only wood of the province of Kuara, of which it bears the name; indeed in all Fazuclo, Nuba, and Guba, and the countries where there is gold. It is here designed in its natural size both leaves, flowers, and fruit, the whole so plainly, that it is needless to descant upon its particular parts, well known to naturalists. It is what they call a Corallodendron, probably  
from

from the colour of its flowers or of its fruit, both equal in colour to coral.

Its fruit is a red bean, with a black spot in the middle of it, which is inclosed in a round capsula, or covering, of a woody nature, very tough and hard. This bean seems to have been in the earliest ages used for a weight of gold among the Shangalla, where that metal is found all over Africa; and by repeated experiments, I have found that, from the time of its being gathered, it varies very little in weight, and may perhaps have been the very best choice that therefore could have been made between the collectors and the buyers of gold.

I HAVE said, this tree is called Kuara, which signifies the Sun. The bean is called Carat, from which is derived the manner of esteeming gold as so many carats fine. From the gold country in Africa it passed to India, and there came to be the weight of precious stones, especially diamonds; so that to this day in India we hear it commonly spoken of gold or diamonds, that they are of so many carats fine, or weight. I have seen these beans likewise from the West-Indian islands. They are just the same size, but, as far as I know, are not yet applied to any use there.

WALKUFFA.





*Walkersia*



## W A L K U F F A.

**T**HIS tree grows in the Kolla, or hottest part of Abyssinia. It does not flower immediately after the rains, as most trees in Abyssinia do, that is, between the beginning of September and the Epiphany, when the latter rains in November do still fall in violent periodical showers, but it is after the Epiphany, towards the middle of January, that it first appears covered with blossoms. However beautiful, it has no smell, and is accounted destructive to the bees, for which reason it is rooted out and destroyed in those countries that pay their revenue in honey. It resembles the Kentish cherry-tree in appearance, especially if that tree has but a moderate, not overspreading top. The wood immediately below its bark is white, but under that a brownish yellow, something like cedar; the old trees that I have seen turn darker, and are not unlike to the wood of the laburnum, or pease-cod tree. The natives say it does not swim in water. This however I can contradict upon experiment. The wood, indeed, is heavy, but still it swims.

ALTHOUGH the painting of this tree, which I here exhibit, is neither more nor less accurate in the delineation of its parts than every other design of natural history given in this work to the public, yet the inimitable beauty of the subject itself has induced me to bestow much more pains upon it than any other I have published, and, according to my judgment, it is the best executed in this collection. All its parts are so distinctly figured, the flower exposed in such variety of directions, that it supercedes the necessity of describing it to the skilful botanist, who will find here every thing he possibly could in the flower itself. This is a great advantage, for if the parts had been ever so studiously and carefully reserved in a *hortus siccus* as they are spread upon the paper, it would have been impossible not to have lost some of its finer members, they are so fragil, as I have often experienced in different attempts to dry and preserve it.

THE flower consists of five petals, part of each overlapping or supporting the other, so that it maintains its regular figure of a cup till the leaves fall off, and does not spread and disjoin first, as do the generality of these rosaceous flowers before they fall to the ground. Its colour is a pure white, in the midst of which is a kind of sheath, or involucre, of a beautiful pink colour, which surrounds the pistil, covering and concealing about one-third of it. Upon the top of this is a kind of impalement, consisting of five white upright threads, and between each of these are disposed three very feeble stamina of unequal lengths, which make them stand in a triangular oblong form, covered with yellow farina.







*Wooginoos*  
or  
*Brucea Antidysenterica.*

THE pistil is a yellow tube, divided at the top into five segments, and fixed at the bottom in what appears to be the rudiment of a fruit; but I never saw this in any state of perfection, and the Abyssinians say it never produces anything but a small, round, black seed, concerning which I can say no further. The perianthium consists of five sharp-pointed segments, which inclose the flower when not arrived to maturity, in a conical pod of a light-green colour, which colour it likewise keeps in its more advanced state when spread. I do not know any other name it has but that of Walkuffa, nor do I know the signification of that name in any language.

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WOOGINOOS, OR BRUCEA ANTIDYSENTERICA.

THIS shrub, the branch of which is before us, is a production of the greatest part of Abyssinia, especially the sides of the valleys in the low country, or Kolla. It is indeed on the north side of Debra Tzai, where you first descend into the Kolla. This drawing was made at Hor-Ca-

camoot, in Ras el Feel, where the Wooginoos grows abundantly, and where dyfenteries reign continually, Heaven having put the antidote in the same place where grows the poifon.

SOME weeks before I left Gondar I had been very much tormented with this difeafe, and I had tried both ways of treating it, the one by hot medicines and astringents, the other by the contrary method of diluting. Small dozes of ipecacuanha under the bark had for feveral times procured me temporary relief, but relapses always followed. My ftrength began to fail, and, after a fevere return of this difeafe, I had, at my ominous manfion, Hor-Cacamoot, the valley of the fhadow of death, a very unpromifing prospect, for I was now going to pafs through the kingdom of Senaar in the time of year when that difeafe moft rages.

SHEBA, chief of the Shangalla, called Ganjar, on the frontiers of Kuara, had at this time a kind of embaffy or meffage to Ras el Feel. He wanted to burn fome villages in Atbara belonging to the Arabs Jeheina, and wifhed Yafine might not protect them: they often came and fat with me, and one of them hearing of my complaint, and the apprehenfions I annexed to it, feemed to make very light of both, and the reafon was, he found at the very door this fhrub, the ftiong and ligneous root of which, nearly as thick as a parfnip, was covered with a clean, clear, wrinkled bark, of a light-brown colour, and which peeled eafily off the root. The bark was without fibres to the very end, where it fplit like a fork into two thin divifions. After having cleared the infide of it of a whitifh membrane, he laid it to dry in the fun, and then would have bruifed it between two  
ftones,

stones, had we not shewn him the easier and more expeditious way of powdering it in a mortar.

THE first doze I took was about a heaped tea-spoonful in a cup of camel's milk; I took two of these in a day, and then in the morning a tea-cup of the infusion in camel's milk warm. It was attended the first day with a violent drought, but I was prohibited from drinking either water or bouza. I made privately a drink of my own; I took a little boiled water which had stood to cool, and in it a small quantity of spirits. I after used some ripe tamarinds in water, which I thought did me harm. I cannot say I found any alteration for the first day, unless a kind of hope that I was growing better, but the second day I found myself sensibly recovered. I left off laudanum and ipecacuanha, and resolved to trust only to my medicine. In looking at my journal, I think it was the 6th or 7th day that I pronounced myself well; and, though I had returns afterwards, I never was reduced to the necessity of taking one drop of laudanum, although before I had been very free with it. I did not perceive it occasioned any extraordinary evacuation, nor any remarkable symptom but that continued thirst, which abated after it had been taken some time.

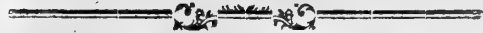
IN the course of my journey through Sennaar, I saw that all the inhabitants were well acquainted with the virtues of this plant. I had prepared a quantity pounded into powder, and used it successfully everywhere. I thought that the mixing of a third of bark with it produced the effect more speedily, and, as we had now little opportunity of getting milk, we made an infusion in water. I tried a spiritous  
tincture,

tincture, which I do believe would succeed well. I made some for myself and servants, a spoonful of which we used to take when we found symptoms of our disease returning, or when it was raging in the place in which we chanced to reside. It is a plain, simple bitter, without any aromatic or resinous taste. It leaves in your throat and pallet something of roughness resembling ipecacuanha.

THIS shrub was not before known to botanists. I brought the seeds to Europe, and it has grown in every garden, but has produced only flowers, and never came to fruit. Sir Joseph Banks, president to the Royal Society, employed Mr Miller to make a large drawing from this shrub as it had grown at Kew. The drawing was as elegant as could be wished, and did the original great justice. To this piece of politeness Sir Joseph added another, of calling it after its discoverer's name, *Brucea Antidysenterica*: the present figure is from a drawing of my own on the spot at Ras el Feel.

THE leaf is oblong and pointed, smooth, and without collateral ribs that are visible. The right side of the leaf is a deep green, the reverse very little lighter. The leaves are placed two and two upon the branch, with a single one at the end. The flowers come chiefly from the point of the stalk from each side of a long branch. The cup is a perianthium divided into four segments. The flower has four petals, with a strong rib down the center of each. In place of a pistil there is a small cup, round which, between the segments of the perianthium and the petals of the flower, four feeble stamens arise, with a large stigma of a crim-

son colour, of the shape of a coffee-bean, and divided in the middle.



#### CUSSO, BANKESIA ABYSSINICA.

**T**HE Cusso is one of the most beautiful trees, as also one of the most useful. It is an inhabitant of the high country of Abyssinia, and indigenous there; I never saw it in the Kolla, nor in Arabia, nor in any other part of Asia or Africa. It is an instance of the wisdom of providence, that this tree does not extend beyond the limits of the disease of which it was intended to be the medicine or cure.

THE Abyssinians of both sexes, and at all ages, are troubled with a terrible disease, which custom however has enabled them to bear with a kind of indifference. Every individual, once a month, evacuates a large quantity of worms; these are not the tape worm, or those that trouble children, but they are the sort of worm called *Ascarides*, and the method of promoting these evacuations, is by infusing a handful of dry Cusso

Cusso flowers in about two English quarts of bouza, or the beer they make from teff; after it has been steeped all night, the next morning it is fit for use. During the time the patient is taking the Cusso, he makes a point of being invisible to all his friends, and continues at home from morning till night. Such too was the custom of the Egyptians upon taking a particular medicine. It is alledged that the want of this drug is the reason why the Abyssinians do not travel, or if they do, most of them are short-lived.

THE seed of this is very small, more so than the semen fantonicum, which seems to come from a species of wormwood. Like it the Cusso sheds its seed very easily; from this circumstance, and its smallness, no great quantity of the seed is gathered, and therefore the flower is often substituted. It is bitter, but not nearly so much as the semen fantonicum.

THE Cusso grows seldom above twenty feet high, very rarely straight, generally crooked or inclined. It is planted always near churches, among the cedars which surround them, for the use of the town or village. Its leaf is about  $2\frac{1}{4}$  inches long, divided into two by a strong rib. The two divisions, however, are not equal, the upper being longer and broader than the lower; it is a deep unvarnished green, exceedingly pleasant to the eye, the fore part covered with soft hair or down. It is very much indented, more so than a nettle-leaf, which in some measure it resembles, only is narrower and longer.

THESE leaves grow two and two upon a branch; between each two are the rudiments of two pair of young ones, prepared





Cusco  
or  
*Banksia* *Abyssinica*?





*Flower of the Banksia*  
*Abissinica* !



pared to supply the others when they fall off, but they are terminated at last with a single leaf at the point. The end of this stalk is broad and strong, like that of a palm-branch. It is not solid like the gerid of the date-tree, but opens in the part that is without leaves about an inch and a half from the bottom, and out of this aperture proceeds the flower. There is a round stalk bare for about an inch and a quarter, from which proceed crooked branches, to the end of which are attached single flowers; the stalk that carries these proceeds out of every crook or geniculation; the whole cluster of flowers has very much the shape of a cluster of grapes, and the stalks upon which it is supported very much the stalk of the grape; a very few small leaves are scattered through the cluster of flowers.

THE flower itself is of a greenish colour, tinged with purple; when fully blown, it is altogether of a deep red or purple; the flower is white, and consists of five petals, in the midst is a short pistil with a round head, surrounded by eight stamina of the same form, loaded with yellow farina. The cup consists of five petals, which much resemble another flower; they are rounded at the top, and nearly of an equal breadth every way.

THE bark of the tree is smooth, of a yellowish white, interspersed with brown streaks which pass through the whole body of the tree. It is not firm or hard, but rather stringy and reedy. On the upper part, before the first branch of leaves set out, are rings round the trunk, of small filaments, of the consistence of horse hair; these are generally fourteen or sixteen in number, and are a very remarkable characteristic belonging to this tree.

As the figure of this plant is true and exact beyond all manner of exception, I cannot but think it may be found in latitudes 11 or 12° north in the West Indies or America; and having been found a gentle, safe, and efficacious medicine in Abyssinia, it is not doubted but the superior skill of our physicians would turn it to the advantage of mankind in general, when used here in Europe. In consequence of the established prerogatives of discoverers, I have named this beautiful and useful tree after Sir Joseph Banks, President of the royal Society.



## T E F F.

**T**HIS grain is commonly sown all over Abyssinia, where it seems to thrive equally on all sorts of ground; from it is made the bread which is commonly used throughout Abyssinia. The Abyssinians, indeed, have plenty of wheat, and some of it of an excellent quality: They likewise make

as



*Telf.*





as fine wheat-bread as any in the world, both for colour and for taste; but the use of wheat-bread is chiefly confined to people of the first rank. On the other hand, Teff is used by all sorts of people from the king downwards, and there are kinds of it which are esteemed fully as much as wheat. The best of these is as white as flour, exceedingly light, and easily digested. There are others of a browner colour, and some nearly black; this last is the food of soldiers and servants. The cause of this variation of colour is manifold; the Teff that grows on light ground having a moderate degree of moisture, but never dry; the lighter the earth is in which it grows, the better and whiter the Teff will be; the husk too is thinner. That Teff, too, that ripens before the heavy rains, is usually whiter and finer, and a great deal depends upon sifting the husk from it after it is reduced to flour, by bruising or breaking it in a stone-mill. This is repeated several times with great care, in the finest kind of bread, which is found in the houses of all people of rank or substance. The manner of making it is by taking a broad earthen jar, and having made a lump of it with water, they put it into an earthen jar at some distance from the fire, where it remains till it begins to ferment, or turn sour; they then bake it into cakes of a circular form, and about two feet in diameter: It is of a spongy, soft quality, and not a disagreeable sourish taste. Two of these cakes a-day, and a coarse cotton cloth once a-year, are the wages of a common servant.

At their banquets of raw meat, the flesh being cut in small bits, is wrapt up in pieces of this bread, with a proportion of fossile salt and Cayenne pepper. Before the company sits down to eat, a number of these cakes of different qualities.

qualities are placed one upon the other, in the same manner as our plates, and the principal people, sitting first down, eat the white Teff; the second, or coarser sort, serves the second-rate people that succeed them, and the third is for the servants. Every man, when he is done, dries or wipes his fingers upon the bread which he is to leave for his successor, for they have no towels, and this is one of the most beastly customs of the whole.

THE Teff bread, when well toasted, is put into a large jar, after being broken into small pieces, and warm water poured upon it. It is then set by the fire, and frequently stirred for several days, the mouth of the jar being close covered. After being allowed to fettle three or four days, it acquires a fourish taste, and is what they call Bouza, or the common beer of the country. The bouza in Atbara is made in the same manner, only, instead of Teff, cakes of barley-meal are employed; both are very bad liquors, but the worst is that made of barley.

THE plant is herbaceous; from a number of weak leaves proceeds a stalk of about twenty-eight inches in length, not perfectly straight, smooth, but jointed or knotted at particular distances. This stalk is not much thicker than that of a carnation or jellyflower. About eight inches from the top, a head is formed of a number of small branches, upon which it carries the fruit and flowers; the latter of which is small, of a crimson colour, and scarcely perceptible by the naked eye, but from the opposition of that colour. The pistil is divided into two, seemingly attached to the germ of the fruit, and has at each end small capillaments forming a brush. The stamina are three in number, two on the

lower side of the pistil, and one on the upper. These are, each of them, crowned with two oval stigmata, at first green, but after, crimson. The fruit is formed in a capsula, consisting of two conical, hollow leaves, which, when closed, seems to compose a small conical pod, pointed at the top. The fruit, or seed, is oblong, and is not so large as the head of the smallest pin, yet it is very prolific, and produces these seeds in such quantity as to yield a very abundant crop in the quantity of meal.

WHETHER this grain was ever known to the Greeks and Romans, is what we are nowhere told. Indeed, the various grains made use of in antiquity, are so lamely and poorly described, that, unless it is a few of the most common, we cannot even guess at the rest. Pliny mentions several of them, but takes no notice of any of their qualities, but medicinal ones; some he specifies as growing in Gaul, others in the Campania of Rome, but takes no notice of those of Ethiopia or Egypt. Among these there is one which he calls Tiphe, but says not whence it came; the name would induce us to believe that this was Tef, but we can only venture this as a conjecture not supported. But it is very improbable, connected as Egypt and Ethiopia were from the first ages, both by trade and religion, that a grain of such consequence to one nation should be utterly unknown to the other. It is not produced in the low or hot country, the Kolla, that is, in the borders of it; for no grain can grow, as I have already said, in the Kolla or Mazaga itself; but in place of Tef, in these borders, there grows a black grain called Tocuffo. The stalk of this is scarce a foot long; it has four divisions where the grain is produced, and seems to be a species of the meiem  
msalib,

msalib, or gramen crucis, the grass of the cross. Of this a very black bread is made, ate only by the poorest sort; but though it makes worse bread, I think it makes better bouza.

SOME have thought, from the frequent use of Teff, hath come that disease of worms which I have mentioned in the article Cuffo. But I am inclined to think this is not the case, because the Gibbertis, or Mahometans, born in Abyffinia, all use Teff in the same proportion as the Christians, yet none of these are troubled with worms. And from this I should be led to think that this disease arises rather from eating raw meat, which the Mahometans do not, and therefore are not affected with this disorder as the Christians are.

OF

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## OF QUADRUPEDS.

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**I** BELIEVE there is in the world no country which produces a greater number, or variety of quadrupeds, whether tame or wild, than Abyffinia. As the high country is now perfectly cleared of wood, by the waste made in that article from the continual march of armies, the mountains are covered to the very top, with perpetual verdure, and most luxuriant herbage.

THE long rains in summer are not suddenly absorbed by the rays of the sun: a thick veil defends the ground when it is in the zenith, or near it, affording heat to promote vegetation without withering it by destroying the moisture, and by this means a never-failing store of provender is constantly provided for all sorts of cattle. Of the tame or cow-kind, great abundance present themselves everywhere, differing in size, some having horns of various dimensions;

some without horns at all, differing also in the colour and length of their hair, by having bosses upon their backs, according as their pasture or climate varies. There are kinds also destined to various uses; some for carriage, like mules or asses, some to be rode upon like horses; and these are not the largest of that kind, but generally below the middle size. As for that species bearing the monstrous horns, of which I have often spoke in my narrative, their size is not to be estimated by that of their horns; the animal itself is not near so big as a common English cow; the growth of the horn is a disease which proves fatal to them, because encouraged for a peculiar purpose. Whether it would be otherwise curable, has not yet, I believe, been ever ascertained by experiment. But the reader may with confidence assure himself, that there are no such animals as carnivorous bulls in Africa, and that this story has been invented for no other purpose but a desire to exhibit an animal worthy of wearing these prodigious horns. I have always wished that this article, and some others of early date, were blotted out of our philosophical transactions; they are absurdities to be forgiven to infant physic and to early travels, but they are unworthy of standing among the cautious, well-supported narratives of our present philosophers. Though we may say of the buffalo that it is of this kind, yet we cannot call it a tame animal here; so far from that, it is the most ferocious in the country where he resides; this, however, is not in the high temperate part of Abyssinia, but in the sultry Kolla, or valleys below, where, without hiding himself, as wild beasts generally do, as if conscious of superiority of strength, he lyes at his ease among large spreading shady trees near the clearest and deepest rivers, or the largest stagnant pools of the purest water. Notwithstanding

ing this, he is in his person as dirty and slovenly as he is fierce, brutal, and indocile ; he seems to maintain among his own kind the same character for manners that the wolf does among the carnivorous tribe.

BUT what is very particular is, this is the only animal kept for giving milk in Egypt. And though apparently these are of the same species, and came originally from Ethiopia, their manners are so entirely changed by their migration, difference of climate or of food, that, without the exertion of any art to tame them, they are milked, conducted to and fro, and governed by children of ten years old, without apprehension, or any unlucky accident having ever happened.

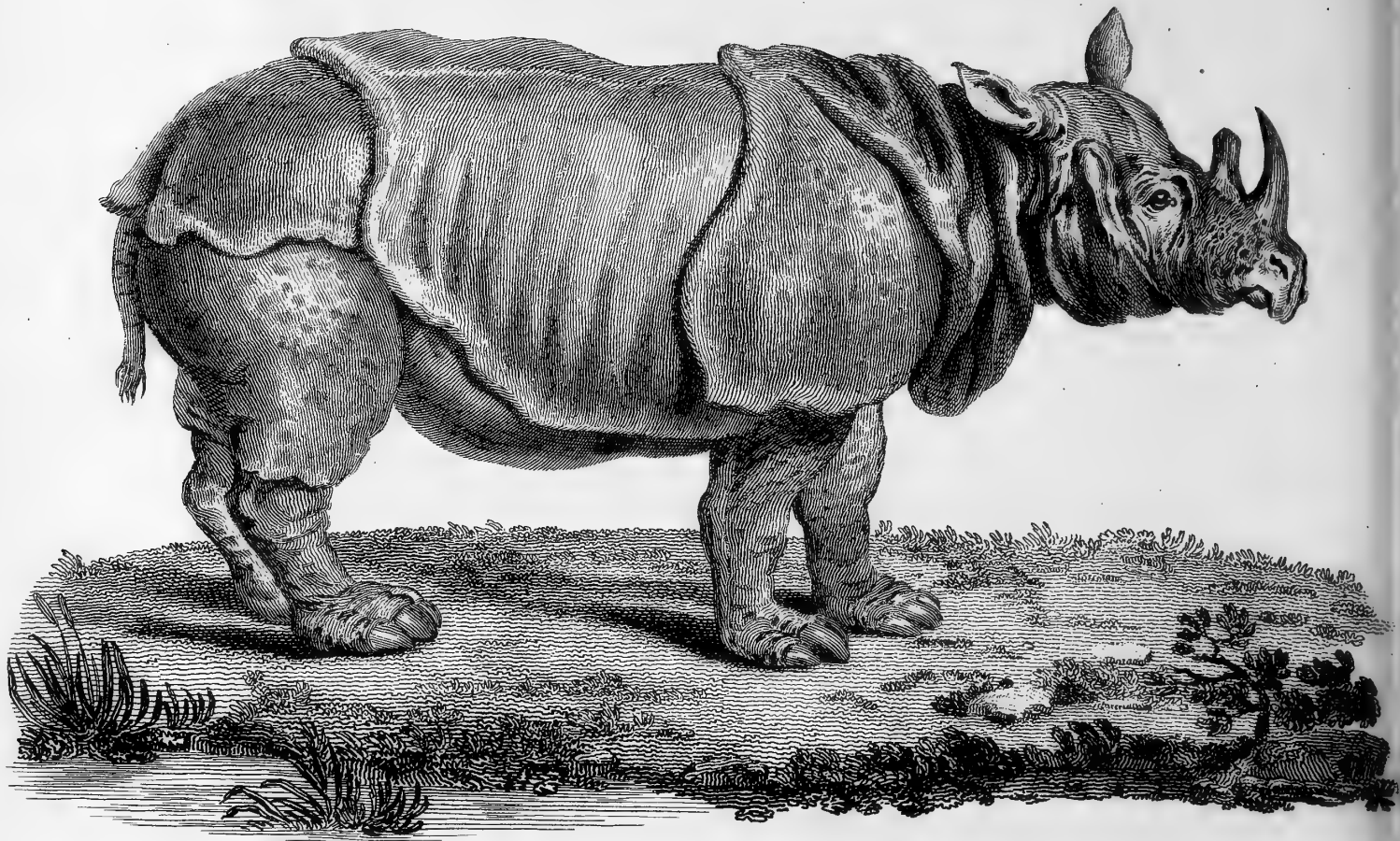
AMONG the wild animals are prodigious numbers of the gazel, or antelope kind ; the bohur, fassa, fecho, and madoqua, and various others ; these are seldom found in the cultivated country, or where cattle pasture, as they chiefly feed on trees ; for the most part, they are found in broken ground near the banks of rivers, where, during the heat of the day, they conceal themselves, and sleep under cover of the bushes ; they are still more numerous in those provinces whose inhabitants have been extirpated, and the houses ruined or burnt in time of war, and where wild oats, grown up so as to cover the whole country, afford them a quiet residence, without being disturbed by man. Of this I have mentioned a very remarkable instance in the first attempt I made to discover the source of the Nile, (vol. III. p. 439.) The hyæna is still more numerous : enough has been said about him ; I apprehend that there are two species. There are few varieties of the dog or fox kind. Of these

the most numerous is the Deep, or, as he is called, the Jackal; this is precisely the same in all respects as the Deep of Barbary and Syria, who are heard hunting in great numbers, and howling in the evening and morning. The true Deep, as far as appears to me, is not yet known, at least I never yet saw in any author a figure that resembled him. The wild boar, smaller and smoother in the hair than that of Barbary or Europe, but differing in nothing else, is met frequently in swamps or banks of rivers covered with wood. As he is accounted unclean in Abyssinia, both by Christians and Mahometans, consequently not persecuted by the hunter, both he and the fox should have multiplied; but it is probable they, and many other beasts, when young, are destroyed by the voracious hyæna.

THE elephant, rhinoceros, giraffa, or camelopardalis, are inhabitants of the low hot country; nor is the lion, or leopard, faadh, which is the panther, seen in the high and cultivated country. There are no tigers in Abyssinia, nor, as far as I know, in Africa; it is an Asiatic animal; for what reason some travellers, or naturalists, have called him the tiger-wolf, or mistaken him altogether for the tiger, is what I cannot discover. Innumerable flocks of apes, and baboons of different kinds, destroy the fields of millet every where; these, and an immense number of common rats, make great destruction in the country and harvest. I never saw a rabbit in Abyssinia, but there is plenty of hares; this, too, is an animal which they reckon unclean; and not being hunted for food, it should seem they ought to have increased to greater numbers. It is probable, however, that the great quantity of eagles, vultures, and beasts of prey, has







*Rhinoceros of Africa.*

*London Published Dec<sup>r</sup> 1<sup>st</sup> 1789 by G. Robinson & Co*

*Heath Sc.*

kept them within reasonable bounds. The hippopotamus and crocodile abound in all the rivers, not only of Abyssinia, but as low down as Nubia and Egypt: there is no good figure nor description extant, as far as I know, of either of these animals; some unforeseen accident always thwarted and prevented my supplying this deficiency. There are many of the ass kind in the low country towards the frontiers of Atbara, but no Zebras; these are the inhabitants of Fazuelo and Narea.

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### RHINOCEROS.

**N**ATURALISTS seem now in general to be agreed that there are two species of this quadruped, the first having two horns upon his nose, the second one. It is also a generally received opinion, that these different species are confined to distant places of the old continent; that with one horn is thought to be exclusively an inhabitant of Asia, that with two horns to be only found in Africa.

WHETHER this division is right in all its parts, I shall not advance. That there is a rhinoceros in Asia with one horn is what we positively know, but that there is none of the other species in that part of the continent does not appear to me as yet so certain. Again, there is no sort of doubt, that though the rhinoceros with two horns is an inhabitant of Africa, yet is it as certain that the species with one horn is often found in that country likewise, especially in the eastern part, where is the myrrh and cinnamon country, towards Cape Gardafan, which runs into the Indian ocean beyond the Straits of Babelmandeb. And if I was to credit the accounts which the natives of the respective countries have given me, I should be induced to believe that the rhinoceros of the kingdom of Adel had but one horn. They say this is the case where little rain falls, as in Adel, which, though within the tropics, is not liable to that several months deluge, as is the inland part of the country more to the westward. They say further, that all that woody part inhabited by Shangalla, corresponding to Tigré and Siré, is the haunt of the rhinoceros with two horns. Whether this is really the case I do not pretend to aver, I give the reader the story with the authority; I think it is probable; but as in all cases where very few observations can be repeated, as in this, I leave him entirely to the light of his own understanding.

THE animal represented in this drawing is a native of Tcherkin, near Ras el Feel, of the hunting of which I have already spoken in my return through the desert to Egypt, and this is the first drawing of the rhinoceros with a double horn that has ever yet been presented to the public. The first figure of the Asiatic rhinoceros, the species having but one

one horn, was painted by Albert Durer, from the life, from one of those sent from India by the Portuguese in the beginning of the sixteenth century. It was wonderfully ill-executed in all its parts, and was the origin of all the monstrous forms under which that animal has been painted, ever since, in all parts of the world. Several modern philosophers have made amends for this in our days; Mr Parsons, Mr Edwards, and the Count de Buffon, have given good figures of it from life; they have indeed some faults, owing chiefly to preconceived prejudices and inattention. These, however, were rhinoceroses with one horn, all Asiatics. This, as I have before said, is the first that has been published with two horns, it is designed from the life, and is an African; but as the principal difference is in the horn, and as the manners of this beast are, I believe, very faithfully described and common to both species, I shall only note what I think is deficient in his history, or what I can supply from having had an opportunity of seeing him alive and at freedom in his native woods.

It is very remarkable, that two such animals as the elephant and rhinoceros should have wholly escaped the description of the sacred writers. Moses, and the children of Israel, were long in the neighbourhood of the countries that produced them, both while in Egypt and in Arabia. The classing of the animals into clean and unclean, seems to have led the legislator into a kind of necessity of describing, in one of the classes, an animal, which made the food of the principal Pagan nations in the neighbourhood. Considering the long and intimate connection Solomon had with the south-coast of the Red Sea, it is next to impossible that he was not acquainted with them, as both David his  
4. fathers

father, and he, made plentiful use of ivory, as they frequently mention in their writings, which, along with gold, came from the same part. Solomon, besides, wrote expressly upon Zoology, and, we can scarce suppose, was ignorant of two of the principal articles of that part of the creation, inhabitants of the great Continent of Asia east from him, and that of Africa on the south, with both which territories he was in constant correspondence.

THERE are two animals, named frequently in scripture, without naturalists being agreed what they are. The one is the behemoth, the other the reem, both mentioned as the types of strength, courage, and independence on man, and as such exempted from the ordinary lot of beasts, to be subdued by him, or reduced under his dominion. Tho' this is not to be taken in a literal sense, for there is no animal without the fear or beyond the reach of the power of man, we are to understand this as applicable to animals possessed of strength and size so superlative as that in these qualities other beasts bear no proportion to them.

THE behemoth, then, I take to be the elephant; his history is well known, and my only business is with the reem, which I suppose to be the rhinoceros. The derivation of this word, both in the Hebrew and the Ethiopic, seems to be from erectness, or standing straight. This is certainly no particular quality in the animal itself, who is not more, or even so much erect as many other quadrupeds, for, in its knees it is rather crooked; but it is from the circumstance and manner in which his horn is placed. The horns of all other animals are inclined to some degree of parallelism, with his nose, or *as frontis*. The horn of the rhinoceros

ceros alone is erect and perpendicular to this bone, on which it stands at right angles, thereby possessing a greater purchase, or power, as a lever, than any horn could possibly have in any other position.

THIS situation of the horn is very happily alluded to in the sacred writings: "My horn shalt thou *exalt* like the "horn of an unicorn\*:" and the horn here alluded to is not wholly figurative, as I have already taken notice of in the course of my history †, but was really an ornament, worn by great men in the days of victory, preferment, or rejoicing, when they were anointed with new, sweet, or fresh oil, a circumstance which David joins with that of erecting the horn.

SOME authors, for what reason I know not, have made the reem, or unicorn, to be of the deer or antelope kind, that is, of a genus whose very character is fear and weakness, very opposite to the qualities by which the reem is described in scripture; besides, it is plain the reem is not of the class of clean quadrupeds; and a late modern traveler, very whimsically, takes him for the leviathan, which certainly was a fish. It is impossible to determine which is the silliest opinion of the two. Balaam, a priest of Midian, and so in the neighbourhood of the haunts of the rhinoceros, and intimately connected with Ethiopia, for they themselves were shepherds of that country, in a transport, from contemplating the strength of Israel whom he was brought to curse, says, they had as it were the strength  
of

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\* Psalm xcii. ver. 10.

† Vol. iii. p. 220.

of the reem ¶. Job\* makes frequent allusion to his great strength, and ferocity, and indocility. He asks, Will the reem be willing to serve thee, or abide by thy crib? that is, Will he willingly come into thy stable, and eat at thy manger? And again, Canst thou bind the reem with a band in the furrow, and will he harrow the vallies after thee †? In other words, Canst thou make him go in the plow or harrows?

ISAIAH ‡, who of all the prophets seem to have known Egypt and Ethiopia the best, when prophecying about the destruction of Idumea, says, that the reem shall come down with the fat cattle; a proof that he knew his habitation was in the neighbourhood. In the same manner as when foretelling the desolation of Egypt, he mentions as one manner of effecting it, the bringing down the fly § from Ethiopia to meet the cattle in the desert, and among the bushes, and destroy them there, where that insect did not ordinarily come but on command ||, and where the cattle fled every year to save themselves from that insect.

THE Rhinoceros, in Geez, is called Arwé Harish, and in the Amharic, Auraris, both which names signify the large wild beast with the horn. This would seem as if applied to the species that had but one horn. On the other hand, in the country of the Shangalla, and in Nubia adjoining, he is called Girnamgirn, or horn upon horn, and this would seem to denote that he had two. The Ethiopic text renders the

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¶ Numb. chap. xxiii. ver. 22.

\* Job, chap. xxxix. ver. 9. † Job, chap. xxxix. ver. 10. ‡ Isaiah, chap. xxxiv. ver. 7. § Isaiah, chap. vii. ver. 18. and 19. || Exod. chap. viii. ver. 22.



the word Reem, Arwé Harish, and this the Septuagint translates Monoceros, or Unicorn.

IF the Abyssinian rhinoceros had invariably two horns, it seems to me improbable the Septuagint would call him Monoceros, especially as they must have seen an animal of this kind exposed at Alexandria in their time, then first mentioned in history, at an exhibition given by Ptolemy Philadelphus at his accession to the crown, before the death of his father, of which we have already made mention.

THE principal reason of translating the word Reem, Unicorn, and not Rhinoceros, is from a prejudice that he must have had but one horn. But this is by no means so well-founded, as to be admitted as the only argument for establishing the existence of an animal which never has appeared, after the search of so many ages. Scripture speaks of the horns of the unicorn \*, so that, even from this circumstance, the reem may be the rhinoceros, as the Asiatic, and part of the African rhinoceros, may be the unicorn. It is something remarkable, that, notwithstanding Alexander's expedition into India, this quadruped was not known to Aristotle †. Strabo and Athenæus both speak of him from report, as having been seen in Egypt. Pausanias calls him an Ethiopic bull; the same manner the Romans called the elephants *Lucas bovis*, Lucanian oxen, as being first seen in that part of Magna Grecia. Pompey exhibited him first

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\* Deut. chap. xxxiii. 17. Psalm xxii. 21.

† This shews that the Mosaic pavement of Præneste is not a record of Alexander's expedition into India, as Doctor Shaw has pretended, sect. vii. p. 423.

in Italy, and he was often produced in games as low a Heliogabalus.

As all these were from Asia, it seems most probable they had but one horn, and they are represented as such in the medals of Domitian. Yet Martial \* speaks of one with two horns; and the reality of the rhinoceros so armed being till now uncertain, commentators have taken pains to persuade us that this was an error of the poet; but there can be now no doubt that the poet was right, and the commentators wrong, a case that often happens.

I do not know from what authority the author of the Encyclopedia † refers to the medals of Domitian, where the rhinoceros, he says, has a double horn; in all those that have been published, one horn only is figured. The use made of these horns is in the turning-loom; they are made into cups, and sold to ignorant people as containing antidotes against poisons; for this quality they generally make part of the presents of the Mogul and kings of Persia at Constantinople. Some modern naturalists have scarce yet given over this prejudice; which might have had a possibility of truth while the Galenical school flourished, and vegetable poisons were chiefly used; but it is absurd to suppose, that what might discover solanum, or deadly night-shade, upon contact, would have the like effect upon the application of arsenic; and from experience I can pronounce, that a cup of this is alike useless in the discovery of either. The handles  
of

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\* Martial de Spectac.

† See Supplement to Chambers's Dict.

of daggers are always, in Abyffinia, made of this horn, and these being the only works to which they are applied, is one of the reasons why I have said we should not rashly pronounce that the Asiatic rhinoceros has but one horn, merely because the foremost, or round horn, is the only one of the many that have been sent from India. In Abyffinia we seldom see the hunters at the pains to cut off or bring to market the second horn of the rhinoceros they have slain, because, being flat, in place of round, it has not diameter or substance enough to serve for the uses just spoken of; so that the round horn is the only one that appears either at Gondar or Cairo; and if we were to judge from this circumstance, the African rhinoceros is unicorn for the same reason as we do the Asiatic. The horns of this animal are hard and solid, of a reddish brown on the outside, a yellow inclining to gold within, and the heart a spot of black, which occupies the space of near two inches where the diameter of the horn is five. The surface takes a perfect polish, but when dried is very liable to splinter and crack. It likewise warps with heat, and scratches easily. And this was the reason that, though exceeding beautiful when new, it never would endure any time when made into the form of a snuff-box, but warped and split with the heat of the pocket, though this I believe was chiefly owing to the lamina, or flat pieces into which it was cut, being always left too thin. The foremost of these horns crook inward at the point, but by no means with so sudden a curve as is represented by the Count de Buffon. How sensible the animal is in this part, may be known from the accident I was eye-witness to in hunting him at Tcherkin, where a musquet-ball breaking off a point of that horn, gave him such a shock, as to deprive him for an instant of all appear-

ance of life. Behind the foremost, or crooked horn, is the flat straight one, and again immediately behind that I have seen distinctly the rudiments of a third, and the horn full an inch long. If we may judge by its base, it would seem this third horn was intended to be as long as the other two.

THE hunters of these large beasts are called Agageer, from Agaro, to kill, by cutting the hams or tendon of Achilles with a sword. I have already described the manner of this hunting. These Agageers, the only people that have an opportunity of observing, if they would only tell what they do observe truly, say, they frequently see rhinoceroses with three horns grown; that this last is round, but does not crook at the point, and is not quite so long as are the other two, nor tapered so much as the foremost or crooked one; but this I leave entirely upon their veracity. I never did see the animal myself, nor three grown-horns adhering to each other, as I have seen two. So if this is truth, here is a third species of this quadruped. They say the third horn is only upon the male, and does not grow till he is advanced in years; the double horn which I have is fixed to a strong muscle or cartilage; when dry, exceedingly tough. It comes down the *os frontis*, and along the bone of the nose; but not having observed accurately enough at the time the carcase was lying before me, I do not remember how this muscle terminated or was made fast, either at the occiput or on the nose. It has been imagined by several that the horn of the rhinoceros and the teeth of the elephant were arms which nature gave them against each other: that want of food, and vexation from being deprived of their natural habits, may make any two  
beasts.

beasts of nearly equal strength fight or destroy each other, cannot be doubted; and accordingly we see that the Romans made these two animals fight at shows and public games: but this is not nature, but the artifice of man; there must be some better reason for this extraordinary construction of these two animals, as well as the different one of that of so many others. They have been placed in extensive woods and deserts, and there they hide themselves in the most inaccessible places; food in great plenty is round about them; they are not carnivorous, they are not rivals in love; what motive can they have for this constant premeditated desire of fighting?

I HAVE said the rhinoceros does not eat hay or grafs, but lives entirely upon trees; he does not spare the most thorny ones, but rather seems to be fond of them; and it is not a small branch that can escape his hunger, for he has the strongest jaws of any creature I know, and best adapted to grinding or bruising any thing that makes resistance. He has twenty-eight teeth in all, six of which are grinders, and I have seen short indigested pieces of wood full three inches diameter voided in his excrements, and the same of the elephant.

BUT besides these trees, capable of most resistance, there are in these vast forests within the rains, trees of a softer consistence, and of a very succulent quality, which seem to be destined for his principal food. For the purpose of gaining the highest branches of these, his upper lip is capable of being lengthened out so as to increase his power of laying hold with this in the same manner as the elephant does with his trunk. With this lip, and the assistance of his

tongue, he pulls down the upper branches which have most leaves, and these he devours first; having stript the tree of its branches, he does not therefore abandon it, but placing his snout as low in the trunk as he finds his horn will enter, he rips up the body of the tree, and reduces it to thin pieces, like so many laths; and when he has thus prepared it, he embraces as much of it as he can in his monstrous jaws, and twists it round with as much ease as an ox would do a root of celery, or any such pot-herb or garden-stuff.

SUCH, too, is the practice of the elephant; we saw, at every step in these immense forests, trees in different progresses of this operation, some divested of their leaves and branches, and cut over as far down the trunk as was soft, and pliable, and was capable of being snapped off by one bite, without splitting or laceration; others, where the trunk was cut into laths or ribbands, some of which were ate in part, others prepared, but which had been left from satiety or apprehension of danger, a feast without labour for the next that should find it. In some places we saw the trees all consumed, but a stump that remained about a foot from the ground, and these were of the most succulent kind, and there we distinctly perceived the beginning of the first laceration from the bottom; and what, beside the testimony of the hunters, confirmed this fact beyond doubt was, that in several places large pieces of the teeth of elephants, and horns of the rhinoceros were brought to us, partly found lying on the ground at the foot of these trees, and part sticking in them.

NEITHER the elephant nor rhinoceros eat grass; if their food depended upon that, many times in the year they must be reduced

reduced to a state of starving, for the grass is naturally parched up in some seasons, and at others burnt purposely by the Shangalla. It is true, that in Europe their chief food is hay; trees cannot be every day spoiled for them in the quantity they would need. But this is not their natural food, more than the sugar and the aquavitæ that are given them here.

THE roughness of the tongue of the rhinoceros is another matter in dispute: it is said to be so rough, that the animal with that can lick off the flesh of a man's bones. Others say, the tongue is so soft that it resembles that of a calf. Both of these are in some measure true, but aggravated by the reporters. The tongue of the young Rhinoceros is soft, for the skin is much tougher and thicker too, than that of a calf, and has apparently some furrows or wrinkles in it, but it has no pustules nor rudiments of any that are discernible, nor indeed has any use for them. On the other hand, the tongue and inside of the upper lip of the old Rhinoceros are very rough, and this appears to me to arise from the constant use he makes of these parts in seizing the branches of trees which have rough barks, particularly the acacia. It is, when pursued, and in fear, that we see he possesses an astonishing degree of swiftness, considering his size, the apparent unwieldyness of his body, his great weight before, and the shortness of his legs. He is long, and has a kind of trot, which, after a few minutes, increases in a great proportion, and takes in a great distance; but this is to be understood with a degree of moderation. It is not true, that in a plain he beats the horse in swiftness. I have passed him with ease, and seen many worse mounted do the same, and though it is certainly true, that a horse

can very seldom come up with him, this is owing to his cunning, but not his swiftness. He makes constantly from wood to wood, and forces himself into the thickest part of them. The trees that are fresh, or dry, are broke down, like as with a cannon shot, and fall behind him and on his side in all directions. Others that are more pliable, greener, or fuller of sap, are bent back by his weight and velocity of his motion. And after he has passed, restoring themselves like a green branch to their natural position, they sweep the uncautious pursuer and his horse from the ground, and dash them in pieces against the surrounding trees.

THE eyes of the Rhinoceros are very small, and he seldom turns his head, and therefore sees nothing but what is before him. To this he owes his death, and never escapes, if there is so much plain as to enable the horse to get before him. His pride and fury, then, makes him lay aside all thoughts of escaping but by victory over his enemy. He stands for a moment at bay, then, at a start, runs straight forward at the horse, like the wild boar, whom in his manner of action he very much resembles. The horse easily avoids him, by turning short to aside, and this is the fatal instant: The naked man, with the sword, drops from behind the principal horseman, and unseen by the Rhinoceros, who is seeking his enemy the horse, he gives him a stroke across the tendon of the heel, which renders him incapable of further flight or resistance.

IN speaking of the great quantity of food necessary to support this enormous mass, we must likewise consider the vast quantity of water which he needs. No country but that  
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that of the Shangalla, which he possesses, deluged with six months rains, and full of large and deep basons, made in the living rock, and shaded by dark woods from evaporation ; or watered by large and deep rivers, which never fall low or to a state of dryness, can supply the vast draughts of this monstrous creature; but it is not for drinking alone that he frequents wet and marshy places; large, fierce, and strong as he is, he must submit to prepare to defend himself against the weakest of all adversaries. The great consumption he constantly makes of food and water necessarily confine him to certain limited spaces ; for it is not every place that can maintain him, he cannot emigrate, or seek his defence among the sands of Atbara.

THE fly, that unremitting persecutor of every animal that lives in the black earth, does not spare the rhinoceros, nor is afraid of his fierceness. He attacks him in the same manner as he does the camel, and would as easily subdue him, but for a stratagem which he practises for his preservation. The time of the fly being the rainy season, the whole black earth, as I have already observed, turns into mire. In the night when the fly is at rest, he chooses a convenient place, and there rolling himself in the mud, he clothes himself with a kind of case, which defends him against his adversary the following day. The wrinkles and plaits of his skin serve to keep this muddy plaster firm upon him, all but about his hips, shoulders, and legs, where it cracks and falls off by motion, and leaves him exposed in those places to the attacks of the fly. The itching and pain which follow occasion him to rub himself in those parts against the roughest trees, and this is at least one cause of the pustules

or tubercules which we see upon these places, both on the elephant and rhinoceros. The Count de Buffon, who believes these pustules to be natural parts of the creature, says, in proof of this, that they have been found in the foetus of a rhinoceros. I do not pretend to disbelieve this; it may be, that these punctures happening to the old female at the time she was with young, the impression of her sufferings might have appeared upon the young one. However this is, I cannot conceal that I have heard, not from hunters only, but men worthy of credit, that this is the origin of these protuberances; and many rhinoceroses, slain in Abyssinia, are known to have been found at the season of the fly, with their shoulders and buttocks bloody and excoriated. It is likewise by no means true, that the skin of the rhinoceros is hard or impenetrable like a board. I should rather suspect this to be disease, or from a different habit acquired by keeping; for in his wild state he is slain by javelins thrown from indifferent hands, which I have seen buried three feet in his body. A musket shot will go through him if it meets not with the intervention of a bone; and the Shangalla kill him by the worst and most inartificial arrows that ever were used by any people practising that weapon, and cut him to pieces afterwards with the very worst of knives.

I HAVE said that, in the evening, he goes to welter in the mire. He enjoys the rubbing himself there so much, and groans and grunts so loud, that he is heard at a considerable distance. The pleasure that he receives from this enjoyment, and the darkness of the night, deprive him of his usual vigilance and attention. The hunters, guided by his noise, steal secretly upon him, and, while lying on the ground,

ground, wound him with their javelins mostly in the belly where the wound is mortal.

A SURGEON of the Shaftesbury Indiaman was the first who observed and mentioned a fact which has been rashly enough declared a fable \*. He observed on a rhinoceros newly taken, after having weltered and coated itself in mud, as above mentioned, several insects, such as millepides, or scolopendra, concealed under the ply of the skin. With all submission to my friend's censure, I do not think he is in this so right or candid as he usually is; not having been out of his own country, at least in any country where he could have seen a rhinoceros newly taken from weltering in the mud, he could not possibly be a judge of this fact as the officer of the Shaftesbury was, who saw the animal in that state. Every one, I believe, have seen horses and cows drinking in foul water seized by leeches, which have bled them excessively, and swelled under the animal's tongue to a monstrous size. And I cannot say, with all submission to better judgment, that it is more contrary to the nature of things, that a leech should seize an animal, whose custom is to welter in water, than a fly bite and deposit his eggs in a camel in the sun-shine on land. But further I must bear this testimony, that, while at Ras el Feel, two of these animals were slain by the Ganjar hunters in the neighbourhood. I was not at the hunting, but, though ill of the flux, I went there on horseback before they had scraped off their muddy covering. Under the plies of one I saw two or three very large worms, not carnivorous ones, but the common

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\* Vid. Buffon Hist. rhinoceros, p. 225. Edwards, p. 25. and 26.

large worm of the garden. I saw likewise several animals like earwigs, which I took for young scolopendræ, and two small, white, land-snail shells. I sought no further, but was told a number of different insects were found, and some of them that sucked the blood, which I take to be a kind of leech. There is then no sort of reason to accuse this gentleman of telling a falsehood, only because he was a better observer, and had better opportunities than others have had, and it is indeed neither just nor decent; on the contrary, it is a coarse manner of criticising, to tax a man with falsehood when he speaks as an eye-witness, and has said nothing physically impossible.

THE rhinoceros shewn at the fair of St Germain, that which the Count de Buffon and Mr Edwards saw, kept clean in a stable for several years, I shall believe had neither worms nor scolopendræ upon it, neither does this officer of the Shaftesbury report it had; but he says, that one covered with mud, in which it had been weltering, had upon it animals that are commonly found in that mud; and this neither Mr Parsons nor Mr Edwards, nor the Count de Buffon, ever had an opportunity of verifying.

CHARDIN \* says, that the Abyffinians tame and train the rhinoceros to labour. This is an absolute fable; besides, that we have reason to believe the animal is not capable of instruction, neither history nor tradition ever gave the smallest reason to make us believe this, nor is there any motive for attempting the experiment, more than for believing

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\* Chardin, tom. iii. p. 45.

ving it ever was accomplished. Tractable as the elephant is, the Abyssinians never either tamed or instructed him; they never made use of beasts in war, nor would their country permit this training; so much the contrary, as we have already seen, that Ptolemy Philadelphus, and his successor Ptolemy Evergetes, did every thing in their power to persuade them to take the elephant alive, that they might tame them; but, as he was a principal part of their food, they never could succeed; and the latter prince, for this very purpose, made an expedition into Abyssinia, and was obliged to extirpate these hunters, and settle in their place a colony of his own at Arkeeko near Mafuah, which he called Ptolemais Theron for that very reason; after which, he himself tells us in the long Greek inscription he left in the kingdom of Adél, that he had succeeded so far, by means of his colony of Greeks, as to train the Ethiopic elephant so as to make him superior to those in India; but this he could never do by employing Abyssinians.

It is a general observation made in every part where this animal resides, that he is indocile, and wants talents; his fierceness may be conquered, and we see, with a moderate degree of attention, he is brought to be quiet enough; but it is one thing to tame or conquer his fierceness, and another to make him capable of instruction; and it seems apparently allowed to be his case, that he has not capacity. A steady, uniform fierceness in the brute creation, is to be subdued by care and by hunger, this is not the case with him, his violent transports of fury upon being hungry, or not being served in the instant with food, seems to bar this manner of taming him. His behaviour is not that of any other animal; his revenge and fury are directed as much against himself as against an enemy; he knocks his head  
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against the wall, or the manger, with a seeming intention to destroy himself, nay, he does destroy himself often. That sent from India to Emanuel king of Portugal, in the year 1513, and by him presented to the pope, was the cause the ship\* that carried him was sunk and lost, and the one that was shewn in France purposely drowned itself going to Italy.

THE rhinoceros and the elephant are the principal food of the Shangalla. The manner of preparing the flesh I have already described, and shall not repeat. He is ate too with great greediness by all the inhabitants of the low country, and Atbara. The most delicate part about him is supposed to be the soles of his feet, which are soft like those of a camel, and of a gristly substance; the rest of the flesh seems to resemble that of the hog, but is much coarser. It smells of musk, and is otherwise very tasteless; I should think it would be more so to the negroes and hunters, who eat it without salt. The only hair about it is at the tip of its tail; they are there few and scattered, but thick as the lowest wire of a harpsichord; ten of these, fastened side by side, at the distance of half an inch from each other, in the figure of a man's hand, make a whip which will bring the blood every stroke.

THIS rhinoceros was thirteen feet from the nose to its anus; and very little less than seven feet when he stood, measuring from the sole of his fore-foot to the top of the shoulder. The first horn was fourteen inches. The second

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\* Tran. Philosoph. No. 470.

Something less than thirteen inches. The flat part of the horn, where it was bare at its base, and divested of hair, was four inches, and the top two inches and a half broad. In the middle it was an inch and quarter thick; it was shaped like a knife; the back two inches, and, when turned, measured one fourth of an inch at the edge.

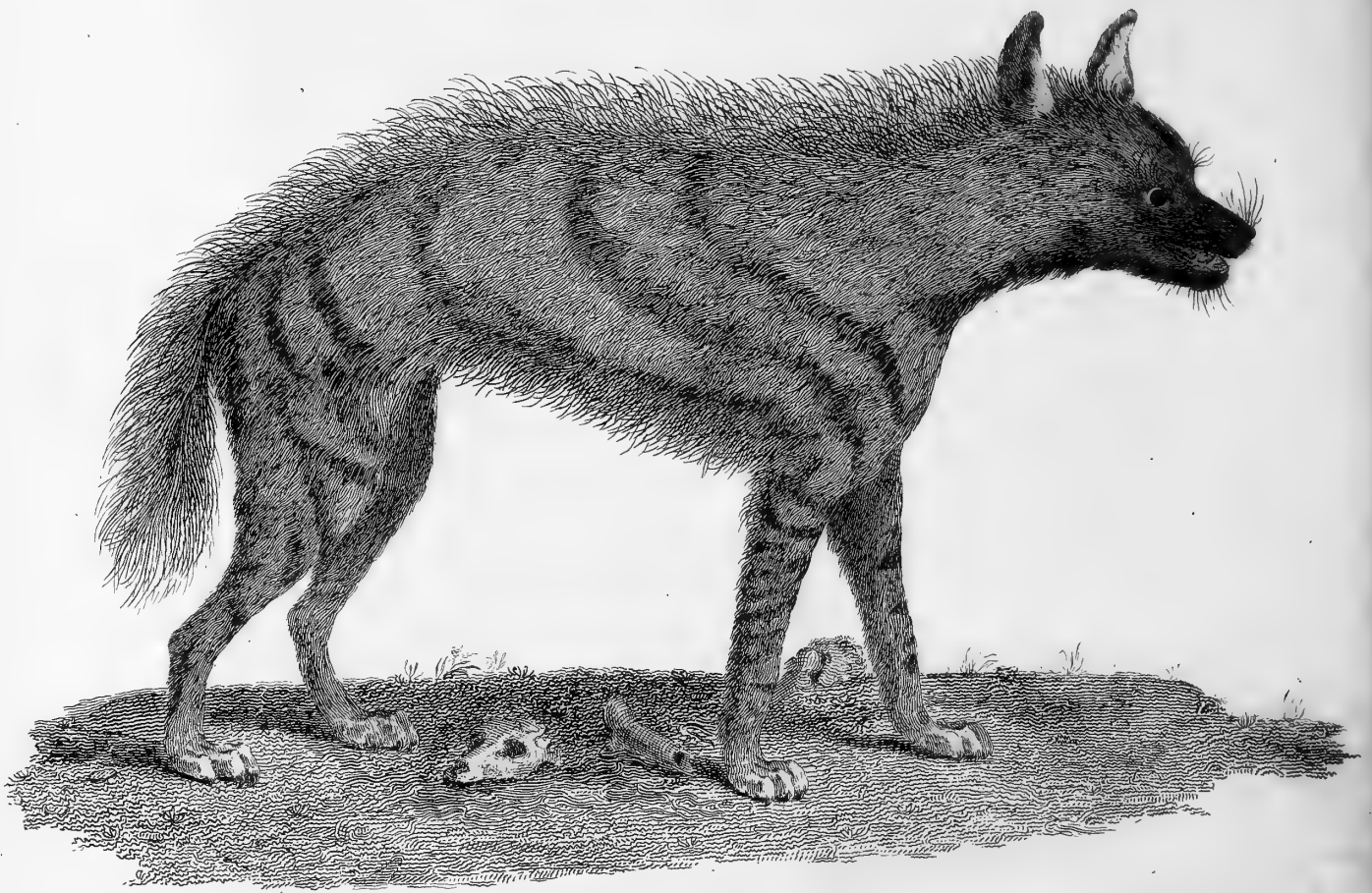
It seems now to be a point agreed upon by travellers and naturalists, that the famous animal, having one horn only upon his forehead, is the fanciful creation of poets and painters; to them I should willingly leave it, but a Swedish naturalist, Dr Sparman, who has lately published two volumes in quarto, in which he has distinguished himself by his low illiberal abuse of learned foreigners, as much as by the fulsome flattery he has bestowed on his own countrymen, has shewed an inclination to revive this antiquated fable. I do not, for my own part, believe the authority will be thought sufficient, or have many followers. The publisher, by way of apology, as I suppose, for his rusticity and ill-manners, says, that he was employed in labour to earn a sufficient sum upon which to travel. What labour he applied to is not said; it was not a lucrative occupation surely, or the Doctor was not an able labourer, as the sum produced was but 38 dollars, and I really think his knowledge acquired seem to be pretty much in proportion to his funds.

KOLBE mentions what would seem a variety of the rhinoceros at the Cape. He says it has one horn upon its nose, and another upon his forehead. This the Count de Buffon thinks is untrue, and, from other circumstances of the narrative, supposes that Kolbe never saw this rhinoceros, and  
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has described it only from hearsay. Though this, too, is Doctor Sparman's opinion, yet, unwilling to let slip an opportunity of contradicting the Count de Buffon, he taxes it as an improper criticism upon this rhinoceros of Kolbe: he says the description is a just one, and that a man of the Count's learning should have known that the forehead and nose of all animals were *near* each other. Although he has given a strange drawing of the skeleton of the head of a rhinoceros, where the nose and the forehead are very distinctly different, yet, in another drawing, he has figured his rhinoceros bicornis, with a head seemingly all nose, and much liker an ass than any thing we have seen pretended to be a rhinoceros ever since the time of Albert Durer. He pretends that, in his travels at the Cape, he saw an animal of this form, which had two horns upon his forehead, or his nose, whichever he pleases to call them. If such an animal does really exist, it is undoubtedly a new species; it has not the armour or plaited skin, seen in every rhinoceros till this time. He tells us a heap of wonderful stories about it, and claims the honour of being the first discoverer of it; and really, I believe, he is so far in the right, that if he can prove what he says to be true, there is no man that will pretend to dispute this point with him. Besides its having a skin without plaits, it has two horns on the forehead, so loose that they clash against one another, and make a noise when the animal is running: then he has one of these only that are moveable, which he turns to one side or the other when he chooses to dig roots; an imagination scarcely possible, I think, to any one who has ever seen a rhinoceros. With these loose and clashing horns he diverts himself by throwing a man and horse into the air; and, though but five feet high, at other times he throws a load-







*Hyena*

*London. Publish'd. Jan<sup>r</sup>. 19<sup>th</sup>. 1790 by G. Robinson & Co*

ed, covered waggon, drawn by two oxen, over hedges into the fields.

THIS rhinoceros very luckily is not carnivorous, for he is among the swiftest of animals, and smells and scents people at a great distance; and yet, with all these advantages, though his constant occupation, according to Dr Sparman, seems to be hunting waggons and men also, he never was so successful as to kill but one man, as far as was ever known.



## HYÆNA.

THERE are few animals, whose history has passed under the consideration of naturalists, that have given occasion to so much confusion and equivocation as the Hyæna has done. It began very early among the ancients, and the moderns have fully contributed their share. It is not my intention to take up the reader's time with discussing the errors of others, whether ancient or modern. With-

out displaying a great deal of learning to tell him what it is not, I shall content myself with informing him what it is, by a good figure and distinct relation of what in his history hath been unknown, or omitted, and put it in the reader's power to reject any of the pretended Hyænas that authors or travellers should endeavour to impose upon him. At the same time, I shall submit to his decision, whether the animal I mention is a new one, or only a variety of the old, as it must on all hands be allowed that he is as yet undescribed.

Most of the animals confounded with him are about six times smaller than he is, and some there are that do not even use their four legs, but only two. The want of a critical knowledge in the Arabic language, and of natural history at the same time, has in some measure been the occasion of this among the moderns. Bochart\* discusses the several errors of the ancients with great judgment, and the Count de Buffon †, in a very elegant and pleasant manner, hath nearly exhausted the whole.

I do not think there is any one that hath hitherto written of this animal who ever saw the thousandth part of them that I have. They were a plague in Abyssinia in every situation, both in the city and in the field, and I think surpassed the sheep in number. Gondar was full of them from the time it turned dark till the dawn of day, seeking the different pieces of slaughtered carcases which this cruel  
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\* Boch. vol. I. cap. xxxiii.

† Buffon vol. IX. 4to.

and unclean people expose in the streets without burial, and who firmly believe that these animals are Falasha from the neighbouring mountains, transformed by magic, and come down to eat human flesh in the dark in safety. Many a time in the night, when the king had kept me late in the palace, and it was not my duty to lie there, in going across the square from the king's house, not many hundred yards distant, I have been apprehensive they would bite me in the leg. They grunted in great numbers about me, though I was surrounded with several armed men, who seldom passed a night without wounding or slaughtering some of them.

ONE night in Maitsha, being very intent on observation, I heard something pass behind me towards the bed, but upon looking round could perceive nothing. Having finished what I was then about, I went out of my tent, resolving directly to return, which I immediately did, when I perceived large blue eyes glaring at me in the dark. I called upon my servant with a light, and there was the hyæna standing nigh the head of the bed, with two or three large bunches of candles in his mouth. To have fired at him I was in danger of breaking my quadrant or other furniture, and he seemed, by keeping the candles steadily in his mouth, to wish for no other prey at that time. As his mouth was full, and he had no claws to tear with, I was not afraid of him, but with a pike struck him as near the heart as I could judge. It was not till then he shewed any sign of fierceness; but, upon feeling his wound, he let drop the candles, and endeavoured to run up the shaft of the spear to arrive at me, so that, in self defence, I was obliged to draw out a pistol from my girdle and shoot him, and nearly at the same time my

servant cleft his skull with a battle-ax. In a word, the hyæna was the plague of our lives, the terror of our night-walks, the destruction of our mules and asses, which above all others are his favourite food. Many instances of this the reader will meet with throughout my Travels.

THE hyæna is known by two names in the east, Deeb and Dubbah. His proper name is Dubbah, and this is the name he goes by among the best Arabian naturalists. In Abyssinia, Nubia, and part of Arabia, he is, both in writing and conversation, called Deeb, or Deep, either ending with a b or p; and here the confusion begins, for though Dubbah is properly a hyæna, Dabbu is a species of monkey; and though Deeb is likewise a hyæna, the same word signifies a jackal; and a jackal being by naturalists called a wolf, Deeb is understood to be a wolf also. In Algiers this difference is preserved strictly; Dubbah is the hyæna; Deeb is the jackal, which run in flocks in the night, crying like hounds. Dubb is a bear, so here is another confusion, and the bear is taken for the hyæna, because Dubb, or Dubbah, seems to be the same word. So Poncet, on the frontiers of Sennaar, complains, that one of his mules was bit in the thigh by a bear, though it is well known there never was any animal of the bear-kind in that, or, I believe, in any other part of Africa. And I strongly apprehend, that the leopards and tigers, which Alvarez and Don Roderigo de Lima mention molested them so much in their journey to Shoa, were nothing else but hyænas. For tigers there are certainly none in Abyssinia; it is an Asiatic animal. Though there are leopards, yet they are but few in number, and are not gregarious, neither, indeed, are the hyænas, only as they  
gather

gather in flocks, lured by the smell of their food; and of these it would seem there are many in Shoa, for the capital of that province, called Tegulat, means the City of the Hyæna.

IF the description given by M. de Buffon is an elegant and good one, the draught of the animal is no less so. It is exactly the same creature I have seen on Mount Libanus and at Aleppo, which makes me have the less doubt that there are two species of this animal, the one partaking more of the dog, which is the animal I am now describing, the other more of the nature of the hog, which is the hyæna of M. de Buffon. Of this the reader will be easily satisfied, by comparing the two figures and the measures of them. The same distinction there is in the badger.

THE animal from which this was drawn was slain at Te-awa, and was the largest I had ever seen, being five feet nine inches in length, measuring from his nose to his anus; whereas the hyæna exhibited by M. de Buffon was not half that, it being only three feet two inches nine lines in length. Notwithstanding the great superiority in size by which the hyæna of Atbara exceeded that of M. de Buffon, I did not think him remarkable for his fatness, or that he owed any of his size to his being at that time in more than ordinary keeping; on the contrary, I thought the most of those I had before seen were in a better habit of body. As near as I could guess, he might weigh about 8 stone, horseman's weight, that is, 14 pound to the stone, or 112 pound.

THE length of his tail, from the longest hair in it to its insertion above the anus, was one foot nine inches. It was composed.

composed of strong hair of a reddish, brown colour, without any rings or bands of blackness upon the points. In the same manner, the mane consisted of hairs exactly similar both in colour and substance, being longer as they approached the neck, where they were about seven inches long; and though it was obvious that, upon being irritated, he could raise them upon his back, yet they were not rigid enough, and were too long to have the resistance of bristles of the hog or boar. This mane reached above two inches beyond the occiput between his ears, but then turned short, and ended there.

FROM the occiput to his nose he was one foot three inches and a half. The length of the nose, from the bottom of the forehead, was five inches and a half, in shape much like that of a dog, the whole head, indeed, more so than that of the wolf or any other creature. The aperture of the eye was two inches nearly; that of the mouth, when not gaping or snarling, about four inches and a half. The ear, from its base to its extreme point, was nine inches and a quarter; it was mostly bare, or covered with very thin, short hair. From the inside of one ear to that of the other, measured across the forehead, was seven inches and a half. From the edge of the opening of one eye to that of the other, measured in the same manner, it was three inches nearly. From the sole of the fore-foot, as it stood on the ground, to the top of the back above the shoulder, it was three feet seven inches; but his back was smooth and plain, not rising or curved as the hyæna of M. de Buffon appears to have been. The fore-leg was two feet in length, the foot flat, and four inches broad. From the sole of the foot to the middle of the fore joint was six inches and a half, and this joint



joint seemed to be ill-made, and as it were crooked and half bent. He has four toes, and a straight nail between each of them, greatly resembling that of a dog, strong and black, but by no means calculated for tearing animals, and as little for digging, by which occupation he is said chiefly to get his food.

HE stands ill upon his hind-legs, nor can his measure there be marked with precision. It is observable in all hyænas, that when they are first dislodged from cover, or obliged to run, they limp so remarkably that it would appear the hind-leg was broken, and this has often deceived me; but, after they have continued to run some time, this affection goes entirely away, and they move very swiftly. To what this is owing it is impossible for me to say. I expected to have found something likely to be the origin of it in the dissection of this animal given by M. de Buffon, but no such thing appears, and I fear it is in vain to look for it elsewhere.

I APPREHEND from the sole of his hind-foot to the joining of the thigh at his belly, was nearer two feet seven inches than any other measure. The belly is covered with hair very little softer and shorter than that of his back. It grows shorter as it approaches his hind-legs. His colour is of a yellowish brown, the head and ears the lightest part of him. The legs are marked thick with black bands which begin at the lower hinder joint, then continue very dark in colour till the top of the thigh, where they turn broad and circular, reaching across the whole side. Over the shoulder are two semicircular bands likewise, then come very frequent bands down the outside of the fore-leg in the same manner

manner as the hind. The inside of all his legs are without marks, so are the neck, head, and ears, but a little above the thorax is a large black streak which goes up along the throat, and down to the point of the lower jaw. His nose is black, and above the point, for some inches, is of a dark colour also.

THE Hyæna is one of those animals which commentators have taken for the Saphan, without any probability whatever, further than he lives in caves, whither he retires in the summer to avoid being tormented with flies. Clement\* of Alexandria introduces Moses saying, You shall not eat the hare, nor the hyæna, as he interprets the word saphan; but the Hyæna does not chew the cud; they are not, as I say, gregarious, though they troop together upon the smell of food. We have no reason to attribute extraordinary wisdom to him; he is on the contrary brutish, indolent, slovenly, and impudent, and seems to possess much the manners of the wolf. His courage appears to proceed from an insatiable appetite, and has nothing of the brave or generous in it, and he dies oftener flying than fighting; but least of all can it be said of him that he is a *feeble folk*, being one of the strongest beasts of the field.

UPON the most attentive consideration, the animal here represented seems to be of a different species from the hyæna of M. de Buffon. This of Atbara seems to be a dog, whereas the first sight of the hyæna of M. de Buffon gives the idea of a hog, and this is the impression it seems to have made upon

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\* Clem. Alexan. lib. ii. Pædagog. cap. 10.

the first travellers that describe him. Kempfer \* calls him *Taxus Porcinus*, and says he has bristles like a hog.

WE have an example of variety of this sort in the badger. There is a sow of that kind, and a dog. The dog is carnivorous, and the sow lives upon vegetables, though both of them have been suspected at times to eat and devour animal food.

THE hyæna about Mount Libanus, Syria, the north of Asia, and also about Algiers, is known to live for the most part upon large succulent, bulbous roots, especially those of the fritillaria, and such large, fleshy, vegetable substances. I have known large spaces of fields turned up to get at onions or roots of those plants, and these were chosen with such care, that, after having been peeled, they have been refused and left on the ground for a small rotten spot being discovered in them. It will be observed the hyæna has no claws either for seizing or separating animal food, that he might feed upon it, and I therefore imagine his primitive manner of living was rather upon vegetables than upon flesh, as it is certain he still continues his liking to the former; and I apprehend it is from an opportunity offering in a hungry time that he has ventured either upon man or beast, for few carnivorous animals, such as lions, tigers, and wolves, ever feed upon both.

As to the charge against him of his disturbing sepulchres, I fancy it is rather supposed from his being unable

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\* Kemp. p. 411. and 412.

to seize his living prey that he is thought to attach himself to the dead. Upon much inquiry I never found one example fairly proved. The graves in the east are built over with mason-work; and though it is against the law of the Turks to repair these when they fall down, yet the body is probably consumed long before that happens; nor is the hyæna provided with arms or weapons to attempt it in its entire state; and the large plants and flowers, with fleshy bulbous roots, are found generally in plenty among the graves.

BUT the hyæna of Atbara seems long to have abandoned his primitive food of roots, if that was ever his, and to have gone largely and undeniably into the slaughter of living creatures, especially that of men. Indeed, happily for himself, he has adopted this succedaneum; for as to roots or fruit of any kind, they are not to be found in the desert country where he has chosen his domicil; and he has no difficulty from the sepulchres, because whole nations perish without one of them being buried. Add to this, that the depravity of human nature, the anarchy and bad government of the country, have given him greater opportunities than anywhere else in the world to obtain frequent and easy victories over man.

IT is a constant observation in Numidia, that the lion avoids and flies from the face of man, till by some accident they have been brought to engage, and the beast has prevailed against him; then that feeling of superiority imprinted by the Creator in the heart of all animals for man's preservation, seems to forsake him. The lion, having once tasted human blood, relinquishes the pursuit after the flock. He repairs;

repairs to some high way or frequented path, and has been known, in the kingdom of Tunis, to interrupt the road to a market for several weeks; and in this he persists till hunters or soldiers are sent out to destroy him.

THE same, but in a much greater extent, happens in Atbara. The Arabs, the inhabitants of that country, live in encampments in different parts of the country, their ancient patrimony or conquest. Here they plow and sow, dig wells, and have plenty of water; the ground produces large crops, and all is prosperity so long as there is peace. Insolence and presumption follow ease and riches. A quarrel happens with a neighbouring clan, and the first act of hostility, or decisive advantage, is the one burning the others crop at the time when it is near being reaped. Inevitable famine follows; they are provided with no stores, no stock in hand, their houses are burnt, their wells filled up, the men slain by their enemies, and many thousands of the helpless remainder left perfectly destitute of necessaries; and that very spot, once a scene of plenty, in a few days is reduced to an absolute desert. Most of the miserable survivors die before they can reach the next water; they have no subsistence by the way; they wander among the acacia-trees, and gather gum. There, every day losing their strength, and destitute of all hope, they fall spontaneously, as it were, into the jaws of the merciless hyæna, who finding so very little difference or difficulty between slaying the living and devouring the dead, follows the miserable remains of this unfortunate multitude, till he has extirpated the last individual of them. Thence it comes that we find it remarked in my return through the desert, that the whole country is strewed with bones of the dead; horrid

monuments of the victories of this savage animal, and of man more savage and cruel than he. From the ease with which he overcomes these half-starved and unarmed people, arises the calm, steady confidence in which he surpasses all the rest of his kind.

IN Barbary I have seen the Moors in the day-time take this animal by the ears and pull him towards them, without his attempting any other resistance than that of his drawing back : and the hunters, when his cave is large enough to give them admittance, take a torch in their hand, and go straight to him ; when, pretending to fascinate him by a senseless jargon of words which they repeat, they throw a blanket over him, and haul him out. He seems to be stupid or senseless in the day, or at the appearance of strong light, unless when pursued by the hunters.

I HAVE locked up a goat, a kid, and a lamb with him all day when he was fasting, and found them in the evening alive and unhurt. Repeating the experiment one night, he ate up a young ass, a goat, and a fox, all before morning, so as to leave nothing but some small fragments of the ass's bones.

IN Barbary, then, he has no courage by day ; he flies from man, and hides himself from him : But in Abyssinia or Atbara, accustomed to man's flesh, he walks boldly in the day-time like a horse or mule, attacks man wherever he finds him, whether armed or unarmed, always attaching himself to the mule or ass in preference to the rider. I may safely say, I speak within bounds, that I have fought him above fifty times hand to hand, with a lance or spear, when  
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I had fallen unexpectedly upon him among the tents, or in defence of my servants or beasts. Abroad and at a distance the gun prevented his nearer approach; but in the night, evening, or morning, we were constantly in close engagement with him.

THIS frequent victory over man, and his daily feeding upon him without resistance, is that from which he surely draws his courage. Whether to this food it is that he owes his superior size, I will not pronounce. For my own part, I consider him as a variety of the same rather than another species. At the same time I must say, his form gave me distinctly the idea of a dog, without one feature or likeness of the hog, as was the case with the Syrian hyæna living on Mount Libanus, which is that of M. de Buffon, as plainly appears by his drawing.

I HAVE oftentimes hinted in the course of my Travels at the liking he has for mules and asses; but there is another passion for which he is still more remarkable, that is, his liking to dog's flesh, or, as it is commonly expressed, his aversion to dogs. No dog, however fierce, will touch him in the field. My greyhounds, accustomed to fasten upon the wild boar, would not venture to engage with him. On the contrary, there was not a journey I made that he did not kill several of my greyhounds, and once or twice robbed me of my whole stock: he would seek and seize them in the servants tents where they were tied, and endeavour to carry them away before the very people that were guarding them.

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THIS animosity between him and dogs, though it has escaped modern naturalists, appears to have been known to the ancients in the east. In Ecclesiasticus (chap. xiii. ver. 18.) it is said, "What agreement is there between the hyæna and the dog?" a sufficient proof that the antipathy was so well known as to be proverbial.

AND I must here observe, that if there is any precision in the definition of Linnæus, this animal does not answer to it, either in the cauda recta or annulata, for he never carries his tail erect, but always close behind him like a dog when afraid, or unless when he is in full speed; nor is the figure given by M. de Buffon marked like the hyæna of Atbara, though, as have I said, perfectly resembling that of Syria, and the figure I have here given has, I believe, scarcely a hair misplaced in it. Upon the whole, I submit this entirely to my reader, being satisfied with having, I hope, fully proved what was the intent of this dissertation, that the saphan is not the hyæna, as Greek commentators upon the scripture have imagined.

J E R B O A.







*Gerboa.*

*London Published Dec: 27<sup>th</sup> 1783. by G. Robinson Sc: d.*

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JERBOA.

I HAVE already observed that the Arabs have confounded the Saphan with several other animals that have no sort of resemblance to it; there are two of these very remarkable, the Fennec and Jerboa, of which I am now to treat. As I have given excellent figures of both, by drawings taken from the creatures alive, I have no doubt I shall prevent any confusion for the future, and throw some light upon sacred scripture, the greatest profit and use that can result from this sort of writing.

If the rabbit has been frequently confounded with the saphan, and stood for it in the interpretation of the Hebrew text, the same has likewise happened to another animal, the Jerboa, still more dissimilar in form and in manners from the saphan, than even the rabbit itself, and much less known. The Jerboa is a small harmless animal of the desert, nearly the size of a common rat: the skin very smooth and shining, of a brown tinged with yellow or gold colour, and the ends of the hairs tipped with black. It lives in the smoothest plains or places of the desert, especially where the soil is fixed gravel,

vel, for in that chiefly it burrows, dividing its hole below into many mansions. It seems to be apprehensive of the falling in of the ground ; it therefore generally digs its hole under the root of some spurge, thyme, or absinthium, upon whose root it seems to depend for its roof not falling in and burying it in the ruins of its subterraneous habitation. It seems to delight most in those places that are haunted by the cerastes, or horned viper. Nature has certainly imposed this dangerous neighbourhood upon the one for the good and advantage of the other, and that of mankind in general. Of the many trials I made, I never found a Jerboa in the body of a viper, excepting once in that of a female big with young, and the Jerboa itself was then nearly consumed.

THE Jerboa, for the most part, stands upon his hind-legs ; he rests himself by sitting backwards sometimes, and I have seen him, though rarely, as it were lie upon all four ; whether that is from fatigue or sickness, or whether it is a natural posture, I know not. The Jerboa of the Cyrenaicum is six inches and a quarter in length, as he stands in the drawing. He would be full half an inch more if he was laid straight at his length immediately after death. The head, from his nose to the occiput, is one inch two lines. From the nose to the foremost angle of the eye, six lines. The opening of the eye itself is two lines and a quarter ; his ears three quarters of an inch in length, and a quarter of an inch in breadth ; they are smooth, and have no hair within, and but very little without ; of an equal breadth from bottom to top, do not diminish to a point, but are rounded there. The buttocks are marked with a semicircle of black, which parts from the root of the tail, and ends at the top of the thigh. This gives it the air of a compound  
4 animal,

animal, a rat with bird's legs, to which the flying posture still adds resemblance. From this stroke to the center of the eye is three inches, and to the point of his toe the same measure; his tail is six inches and a quarter long, seems awkwardly set on, as stuck between his buttocks, without any connection with his spine; half of it is poorly covered with hair of a light or whiter colour than his body; the other half is a beautiful feather of long hair, the middle white, the edges jet black: this tail, which by its length would seem an incumbrance to him, is of a surprising advantage in guiding and directing him in his jumping.

FROM the shoulder to the elbow of the fore-foot is half an inch: from the elbow to the joining of the paw,  $\frac{5}{8}$ ths of an inch. The claw itself is curved, and is something less than a quarter of an inch. It has very long mustachoes, some of them standing backward, and some of them forward from his nose; they are all of unequal lengths, the longest an inch and a half; his belly is white: he seems to be of a very cleanly nature, his hair always in great order. From his snout to the back part of the opening of the mouth is half an inch; his nose projects beyond his under jaw three quarters of an inch. He has four toes in his hind-foot, and a small one behind his heel, where is a tuft of hair coloured black. The fore-foot hath three toes only.

THE ancients have early described this animal; we see him in some of the first medals of the Cyrenaicum, sitting under an umbellated plant, supposed to be the silphium, whose figure is preserved to us on the silver medals of Cyrene. The high price set upon it is mentioned by several histo-

rians, but the reason of that value, or the use of the plant, I have never yet been able to comprehend. I suppose it was an adventitious plant, which the curiosity and correspondence of the princes of that state had probably brought from some part of Negroland, where the goats are browsing upon it at this day with indifference enough, unconscious of the price it bore in the time of the Ptolemies.

HERODOTUS \*, Theophrastus †, and Aristotle ‡, all mention this animal under the name of *διπυς, γαλαι διποδες*, or, two-footed rats. This animal is found in most of the parts of Arabia and Syria, in every part of the southern deserts of Africa, but no where so frequently, and in such numbers, as in the Cyrenaicum, or Pentapolis. In my unfortunate journey there, I employed the Arabs, together with my servants, to kill a number with sticks, so as that the skins might not be injured by shot. I got them dressed in Syria and in Greece, and sewed together, making use of the tail as in ermine for the lining of a cloak, and they had a very good effect; the longer they wore, the glossier and finer appearance the skins made. The Jerboa is very fat and well-coloured; the buttocks, thighs, and part of the back, are roasted and ate by the Arabs. I have eaten them; they are not distinguishable from a young rabbit either in colour or taste; they have not even the strong taste the rabbit has. Some writers have confounded these two animals together; at least they have mistaken this for  
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\* Herod. Melp. sect. 192.

† Theoph. apud Elian. Hist. Anim. lib. xv. cap. 26.

‡ Arist. de Mareb. Egypt. lib. vi.

the saphan, and the saphan for the rabbit. This, however, is plainly without foundation. These long legs, and the necessity of leaping, demand the plain ground, where nature has always placed this creature.

THE Arabs Ibn Bitar, Algiahid, Alcamus, and Damir, and many others, have known the animal perfectly, though some of them seem to confound it with another called the Afhkoko. Ibnalgiauzi says, that the Jerboa is the only kind that builds in rocks, which from ten thousand examples I am sure he does not, nor is he any way made for it, and I am very certain he is not gregarious. They have a number of holes indeed in the same place, but I do not remember ever to have seen more than two together at a time. The Arab Canonists are divided whether or not he can be lawfully eaten. Ibnalgiauzi is of opinion he cannot, nor any other animal living under the ground, excepting the land crocodile, which he calls El Dabb, a large lizard, said to be useful in venereal pursuits. Ata and Achmet, Benhantal, and several others, expressly say, that the eating of the Jerboa is lawful. But this seems to be an indulgence, as we read in Damir, that the use of this animal is granted because the Arabs delight in it. And Ibn Bitar says, that the Jerboa is called Israclitish, that the flesh of it is dried in the outward air, is very nourishing, and prevents costiveness, from which we should apprehend, that medicinal considerations entered into this permission likewise. However this may be, it seems to me plain, such was not the opinion of the old translators of the Arab version from the Hebrew; they once only name this animal expressly, and there they say it is forbidden. The passage is in Isaiah "They that sanctify themselves and purify themselves in the gardens behind one tree in the midst, eating swine's flesh,

“ and the abomination, and the mouse, shall be consumed together, saith the Lord \*.” The Hebrew word signifies mouse, and so our English translation renders it. But the Arabic version calls it expressly the Jerboa, and classes it with the abomination and swine’s flesh, that is, in the class of things in the highest degree forbidden.

THERE is little variety in this animal either in size or colour, in the wide range that they inhabit. Towards Aleppo they have broader noses than the African ones, their bodies also thicker, and their colour lighter; a thing we always see in the Syrian animals, compared to the African. The first of these I saw was in London, in the hands of Dr Ruffel, who has wrote the history of Aleppo, of whom I have before made mention. Haym published an account of the Jerboa, so does Dr Shaw, but there exists not, that I know, one good figure of him, or particular description.

THE figure given us by Edwards is thick and short, but of all proportion. His legs are too short, his feet too large, he wants the black mark upon his heel, the nails of his forefeet are greatly too long, and there is certainly a latitude taken in the description, when his head is said very much to resemble that of a rabbit. Dr Haffelquist has given us a kind of description of him without a figure. He says the Arabs call him Garbuka, but this is not so, he goes by no other name in all the east, but that of Jerboa, only the letter J, sometimes by being pronounced Y, for Jerboa he is called Yerboa, and this is the only variation in name.

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\*. Isaiah, chap. xvi. ver. 17.



THE Arabs of the kingdom of Tripoli make very good diversion with the Jerboa, in training their grey-hounds, which they employ to hunt the gazel or antelope after instructing him to turn nimbly by hunting this animal. The prince of Tunis, son of Sidi Younis, and grandson of Ali Bey, who had been strangled by the Algerines when that capital was taken, being then in exile at Algiers, made me a present of a small grey-hound, which often gave us excellent sport. It may be perhaps imagined a chace between these two creatures could not be long, yet I have often seen, in a large inclosure, or court-yard, the greyhound employ a quarter of an hour before he could master his nimble adversary; the small size of the creature assisted him much, and had not the greyhound been a practised one, and made use of his feet as well as his teeth, he might have killed two antelopes in the time he could have killed one Jerboa.

It is the character of the saphan given in scripture, that he is gregarious, that he lives in houses made in the rock, that he is distinguished for his feebleness, which he supplies by his wisdom: none of these characteristics agree with the Jerboa, and therefore though he chews the cud in common with some others, and was in great plenty in Judea, so as to be known by Solomon, yet he cannot be the saphan of the scripture.

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F E N N E C.

**T**HIS beautiful animal, which has lately so much excited the curiosity, and exercised the pens rather than the judgment of some naturalists, was brought to me at Algiers by Mahomet Rais, my drugoman or janizary, while consul-general to his Majesty in that regency.

MAHOMET Rais bought it for two sequins from an acquaintance, a Turkish oldash, or foot-soldier, just then returned from Biscara, a southern district of Mauritania Cæsariensis, now called the Province of Constantina. The soldier said they were not uncommon in Biscara, but more frequently met with in the neighbouring date territories of Beni Mez-zab and Werglah, the ancient habitations of the Melano-Gætuli; in the last mentioned of which places they hunted them for their skins, which they sent by the caravan to



*Fennec*

*London Publish'd Dec: 1<sup>st</sup> 1769. by G. Robinson & Co.*



fell at Mecca, and from whence they were after exported to India. He said that he had endeavoured to bring three of them, two of which had escaped by gnawing holes in the cage. I kept this for several months at my country-house near Algiers, that I might learn its manners. I made several drawings of it, particularly one in water-colours of its natural size, which has been the original of all those bad copies that have since appeared. Having satisfied myself of all particulars concerning it, and being about to leave Algiers, I made a present of him to Captain Cleveland, of his majesty's ship Phoenix, then in that port, and he gave him to Mr Brander, Swedish consul in Algiers. A young man, Balugani, of whom I have already spoken, then in my service, in which, indeed, he died, allowed himself so far to be surpris'd, as, unknown to me, to trace upon oiled paper a copy of this drawing in water-colours, just now mentioned. This he did so servilely, that it could not be mistaken, and was therefore, as often as it appeared, known to be a copy by people\* the least qualified to judge in these matters. The affectation of the posture in which it was sitting, the extraordinary breadth of its feet, the unnatural curve of the tail, to shew the black part of it, the affected manner of disposing its ears, were all purposely done, to shew particular details that I was to describe, after the animal itself should be lost, or its figure, through length of time, should be less fresh in my memory.

DOCTOR SPARMAN, with his natural dullness, and a disingenuousness which seems partly natural, partly acquired, and

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\* Sparman, vol. II. p. 186.

and improved by constant plagiarisms, from the works of others, pretends in favour of his country and countrymen, to steal this into a Swedish discovery. He says that Mr Brander has published an account of it in some Swedish transactions, a book I never saw, but that being long importuned by his friend Mr Nicander, to give the figure of the animal itself to be published, he constantly refused it.

WHETHER this fact is so or not, I do not pretend to give my opinion: if it is, I cannot but think Mr Brander's conduct in both cases was extremely proper. The creature itself passed, by very fair means, from my possession into Mr Brander's, who cannot doubt that I would have given it to him in preference to Mr Cleveland, if I had known he thought it of the least consequence; he was then, as having had the animal by just means in his possession, as much entitled to describe him as I was; or as the Turk, the prior possessor, who gave him to me, had he been capable, and so inclined. On the other hand, Mr Brander likewise judged very properly in refusing to publish the drawing at the request of Mr Nicander. The drawing was not justly acquired, as it was obtained by a breach of faith, and seduction of a servant, which might have cost him his bread. It was conducted with a privacy seldom thought necessary to fair dealing, nor was it ever known to me, till the young man began to be dangerously sick at Tunis, when he declared it voluntarily to me, with a contrition, that might have atoned for a much greater breach of duty.

DR SPARMAN attempts to conceal these circumstances. He says Mr Brander told him, that I saw this animal at Algiers, and that I employed the same painter that he did to make  
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the drawing of him, and speaks of a painter found at Algiers as readily as if he had been at the gates of Rome or Naples. These are the wretched subterfuges of low minds, as distant from science as they are from honour and virtue. Why, if the animal was equally known to Mr Brander and me, did he not, when writing upon it, give his name, his manners, the uses to which he was destined, and the places where he resided? why send to Algiers for an account of him, after having him so long in his possession, since at Algiers he was probably as great a stranger as he was at Stockholm? why call him a fox, or pronounce his genus, yet write to Algiers for particulars to decide what that genus was?

THE Count of Buffon \*, content with the merit of his own works, without seeking praise from scraps of information picked up at random from the reports of others, declares candidly, that he believes this animal to be as yet anonyme, that is, not to have a name, and in this, as in other respects, to be perfectly unknown. If those that have written concerning it had stopt here likewise, perhaps the loss the public would have suffered by wanting their observations would not have been accounted a great detriment to natural history.

MR PENNANT †, from Mr Brander's calling it a fox, has taken occasion to declare that his genus is a dog. Mr Sparman, that he may contribute his mite, attacks the description which I gave of this animal in a conversation with

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\* Supplement to Tom. iii. p. 148.

† Vol. I. p. 248.

the Count de Buffon at Paris. He declares I am mistaken by saying that it lives on trees \* ; for in consequence, I suppose, of its being a fox, he says it burrows in the ground, which, I doubt very much, he never saw an African fox do. His reason for this is, that there is a small animal which lives in the sands at Camdebo, near the Cape of Good Hope, which is rose-coloured, and he believes it to be the animal in question, for he once hunted it till it escaped by burrowing under ground, but he did not remark or distinguish his ears †.

I do really believe there may be many small animals found at Camdebo, as well as in all the other sands of Africa ; but having seen the rest of this creature during the whole time of a chase, without remarking his ears, which are his great characteristic, is a proof that Dr Sparman is either mistaken in the beast itself, or else that he is an unfortunate and inaccurate observer. There is but one other animal that has ears more conspicuous or disproportioned than this we are now speaking of. I need not name him to a man of the professor's learning. The Doctor goes on in a further description of this animal that he had never seen. He says his name is Zerda, which I suppose is the sweetest translation of the Arabic word Jerd, or Jerda. But here Dr Sparman has been again unlucky in his choice, for, besides many other differences, the Jerd, which is an animal well known both in Africa and Arabia, has no tail, but this perhaps is but another instance of the Doctor's ill fortune ; in  
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\* Sparman's voyage to the Cape, vol. ii. p. 185.

† P. 185.



the first case, he overlooked this animal's ears ; in the second, he did not perceive that he had a tail.

THE Arabs who conquered Egypt, and very soon after the rest of Africa, the tyranny and fanatical ignorance of the Khalifat of Omar being overpast, became all at once excellent observers. They addicted themselves with wonderful application to all sorts of science ; they became very skilful physicians, astronomers, and mathematicians ; they applied in a particular manner, and with great success, to natural history, and being much better acquainted with their country than we are, they were, in an especial manner, curious in the accounts of its productions. They paid great attention in particular to the animals whose figures and parts are described in the many books they have left us, as also their properties, manners, their uses in medicine and commerce, are set down as distinctly and plainly as words alone could do. Their religion forbade them the use of drawing ; this is the source of the confusion that has happened, and this is the only advantage we have over them.

I BELIEVE there are very few remarkable animals, either in Africa or Arabia, that are not still to be found described in some Arabian author, and it is doing the public little service, when, from vanity, we substitute crude imaginations of our own in place of the observations of men, who were natives of the country, in perpetual use of seeing, as living with the animals which they described. There cannot, I think, be a stronger instance of this, than in the subject now before us ; notwithstanding what has been as confidently as ignorantly asserted, I will venture to affirm, that this animal, so far from being *unknown*, is particularly described in all

the Arabian books; neither is he without a name; he has one by which he invariably passes in every part of Africa, where he exists, which in all probability he has enjoyed as long as the lion or the tiger have theirs. He is white, and not rose-coloured\*; he does not burrow in the earth, but lives upon trees; he is not the jerda, but has a tail, and his genus is not a dog, for he is no fox. Here is a troop of errors on one subject, that would give any man a surfeit of modern description, all arising from conceit, the *cacoethes scribendi*, too great love of writing, without having been at the pains to gain a sufficient knowledge of the subject by fair inquiry and a very little reading.

THE name of this quadruped all over Africa is El Fennec; such was the name of that I first saw at Algiers; such it is called in the many Arabian books that have described it. But this name, having no obvious signification in Arabic, its derivation has given rise to many ill-founded guesses, and laid it open to the conjectures of grammarians who were not naturalists. Gollius says, it is a weasel, and so say all the Arabians. He calls it *mustela fœnaria*, the hay weasel, from fœnum, hay, that being the materials of which he builds his nest. But this derivation cannot be admitted, for there is no such thing known as hay in the country where the Fennec resides. But supposing that the dry grass in all countries may be called hay, still fœnum, a Latin word, would not be that which would express it in Africa. But when we consider that long before, and ever after Alexander's conquest, down as low as the tenth century, the language

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\* Sparman, vol. II. p. 185.

guage of these countries behind Egypt was chiefly Greek, an etymology much more natural and characteristic will present itself in the word *φοινίς*, a palm tree, whence comes *phœnicus*, adjective, of or belonging to the palm or date-tree.

GABRIEL SIONITA \* says, the Fennec is a white weasel that lives in *Sylvis Nigrorum*, that is, in the woods of the *Melano-Gatuli*, where indeed no other tree grows but the palm-tree, and this just lands us in the place from which the Fennec was brought to me at Algiers, in *Biscara*, *Beni-Mezzab*, and *Werglah*. It will be observed, that he does not say it is an animal of *Nigritia*; for that country being within the tropical rains, many other trees grow besides the palm, and there the date does not ripen; and by its very thin hair, and fine skin, this creature is known at first sight to belong to a dry, warm climate. But to leave no sort of doubt, he calls him *Gatulicus*, which shews precisely what country he means. There, in the high palm-trees, of which this country is full, he writes, the Fennec builds its nest, and brings up its young. *Gigægius* tells us, that their skins are made use of for fine pelisses; *Ibn-Beitar*, that quantities of this fur is brought from the interior parts of Africa, and *Damir* and *Razi* say, that their skins are used for summer pelisses †.

AFTER leaving Algiers I met with another Fennec at Tunis;

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\* *Clem. 1. part 1.*

\* *Vid. Epist. J. Caii, Angli ad Gesnerum.*

nis; it had come last from the island of Gerba\*, and had been brought there by the caravan of Gadems, or Fezzan. I bought one at Sennaar, from whence it came I know not. I kept it a considerable time in a cage, till finding it was no longer safe for me to stay at Sennaar, I trusted it by way of deposit in the hands of a man whom it was necessary to deceive, with the expectation that I was to return, and only going for a few days to the camp of Shekh Adelan. It was known by Mahomet Towash, and several people at Sennaar, to be frequently carried to Cairo, and to Mecca, with paroquets, and such curiosities which are brought by the great caravan from the Niger which traverses the dreary desert of Selima, and takes the date villages in its way eastward.

ALL these animals found at separate times did exactly resemble the first one seen at Algiers. They were all known by the name of Fennec, and no other, and said to inhabit the date villages, where they built their nests upon trees perfectly conformable to what the Arabian authors, whether naturalists or historians, had said of them.

THOUGH his favourite food seemed to be dates or any sweet fruit, yet I observed he was very fond of eggs: pigeons eggs, and small birds eggs, were first brought him, which he devoured with great avidity; but he did not seem to know how to manage the egg of a hen, but when broke for him, he ate it with the same voracity as the others. When he was hungry, he would eat bread, especially with honey  
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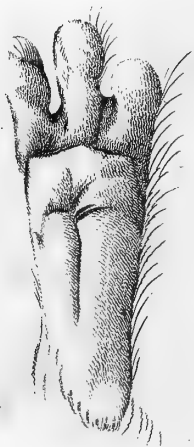
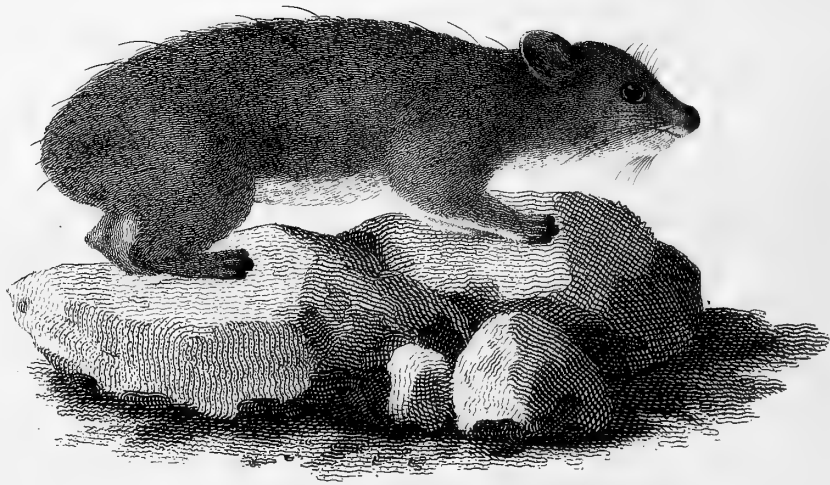
\* Meninx Ins.

or fugar. It was very observable that a bird, whether confined in a cage near him, or flying across the room, engrossed his whole attention. He followed it with his eyes wherever it went, nor was he at this time to be diverted by placing biscuit before him, and it was obvious, by the great interest he seemed to take in its motions, that he was accustomed to watch for victories over it, either for his pleasure or his food. He seemed very much alarmed at the approach of a cat, and endeavoured to hide himself, but shewed no symptom of preparing for any defence. I never heard he had any voice; he suffered himself, not without some difficulty, to be handled in the day when he seemed rather inclined to sleep, but was exceedingly unquiet and restless so soon as night came, and always endeavouring his escape, and though he did not attempt the wire, yet with his sharp teeth he very soon mastered the wood of any common bird-cage.

FROM the snout to the anus he was about ten inches long, his tail five inches and a quarter, near an inch on the tip of it was black. From the point of his fore-shoulder to the point of his fore-toe, was two inches and  $\frac{7}{8}$ ths. He was two inches and a half from his occiput to the point of his nose, the length of his ears three inches and  $\frac{3}{8}$ ths. These were doubled, or had a plait on the bottom on the outside; the border of his ears in the inside were thick-covered with soft white hair, but the middle part was bare, and of a pink or rose colour. They were about an inch and a half broad, and the cavities within very large. It was very difficult to measure these, for he was very impatient at having his ears touched, and always kept them erect, unless when terrified by a cat. The pupil of his eye was large

and black, surrounded by a deep blue iris. He had strong, thick mustaches; the tip of his nose very sharp, black, and polished. His upper jaw reached beyond the lower, and had four grinders on each side of the mouth. It has six fore-teeth in each jaw. Those in the under jaw are smaller than the upper. The canine, or cutting teeth, are long, large, and exceedingly pointed. His legs are small, and his feet very broad; he has four toes armed with crooked, black, sharp claws; those on his fore-feet more crooked and sharp than behind. All his body is nearly of a dirty white, bordering on cream colour; the hair of his belly rather whiter, softer, and longer than the rest, and on it a number of paps, but he was so impatient it was impossible to count them. He very seldom extended or stiffened his tail, the hair of which was harder. He had a very sly and wily appearance. But as he is a solitary animal, and not gregarious, as he has no particular mark of feebleness about him, no shift or particular cunning which might occasion Solomon to qualify him as wise; as he builds his nest upon trees, and not on the rock, he cannot be the saphan of the scripture, as some, both Jews and Arabians, not sufficiently attentive to the qualities attributed to that animal, have nevertheless erroneously imagined.





*Ashkoko.*

*London Published Dec: 1<sup>st</sup> 1789. by G. Robinson & Co.*



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A S H K O K O.

**T**HIS curious animal is found in Ethiopia, in the caverns of the rocks, or under the great stones in the Mountain of the Sun, behind the queen's palace at Koscam. It is also frequent in the deep caverns in the rock in many other places in Abyssinia. It does not burrow, or make holes, as the rat and rabbit, nature having interdicted him this practice by furnishing him with feet, the toes of which are perfectly round, and of a soft, pulpy, tender substance; the fleshy parts of the toes project beyond the nails, which are rather broad than sharp, much similar to a man's nails ill grown, and these appear rather given him for the defence of his soft toes, than for any active use in digging, to which they are by no means adapted.

His hind foot is long and narrow, divided with two deep wrinkles, or clefts, in the middle, drawn across the centre, on each side of which the flesh rises with considerable protuberancy, and it is terminated by three claws, the middle one is the longest. The forefoot has four toes, three dispo-

fed in the same proportion as the hind foot; the fourth, the largest of the whole, is placed lower down on the side of the foot, so that the top of it arrives no farther than the bottom of the toe next to it. The sole of the foot is divided in the centre by deep clefts, like the other, and this cleft reaches down to the heel, which it nearly divides. The whole of the forefoot is very thick, fleshy, and soft, and of a deep black colour, altogether void of hair, though the back, or upper part of it, is thick-covered like the rest of its body, down to where the toes divide, there the hair ends, so that these long round toes very much resemble the fingers of a man.

IN place of holes, it seems to delight in less close, or more airy places, in the mouths of caves, or clefts in the rock, or where one projecting, and being open before, affords a long retreat under it, without fear that this can ever be removed by the strength or operations of man. The Ashkoko are gregarious, and frequently several dozens of them sit upon the great stones at the mouth of caves, and warm themselves in the sun, or even come out and enjoy the freshness of the summer evening. They do not stand upright upon their feet, but seem to steal along as in fear, their belly being nearly close to the ground, advancing a few steps at a time, and then pausing. They have something very mild, feeble like, and timid in their deportment; are gentle and easily tamed, though, when roughly handled at the first, they bite very severely.

THIS animal is found plentifully on Mount Libanus. I have seen him also among the rocks at the Pharan Promontorium,

torium, or Cape Mahomet, which divides the Elanitic from the Heroopolitic Gulf, or Gulf of Suez. In all places they seem to be the same, if there is any difference it is in favour of the size and fatness, which those in the Mountain of the Sun seem to enjoy above the others. What is his food I cannot determine with any degree of certainty. When in my possession, he ate bread and milk, and seemed rather to be a moderate than voracious feeder. I suppose he lives upon grain, fruit, and roots. He seemed too timid and backward in his own nature to feed upon living food, or catch it by hunting.

THE total length of this animal as he sits, from the point of his nose to his anus, is 17 inches and a quarter. The length of his snout, from the extremity of the nose to the occiput, is 3 inches and  $\frac{3}{8}$ ths. His upper jaw is longer than his under; his nose stretches half an inch beyond his chin. The aperture of the mouth, when he keeps it close in profile, is a little more than an inch. The circumference of his snout around both his jaws is 3 inches and  $\frac{3}{8}$ ths; and round his head, just above his ears, 8 inches and  $\frac{3}{8}$ ths; the circumference of his neck is 8 inches and a half, and its length one inch and a half. He seems more willing to turn his body altogether, than his neck alone. The circumference of his body, measured behind his forelegs, is 9 inches and three quarters, and that of his body where greatest, eleven inches and  $\frac{3}{8}$ ths. The length of his foreleg and toe is 3 inches and a half. The length of his hind thigh is 3 inches and  $\frac{1}{8}$ th, and the length of his hind leg to the toe taken together, is 2 feet 2 inches. The length of the forefoot is 1 inch and  $\frac{3}{8}$ ths; the length of the middle toe 6 lines, and its breadth 6 lines also. The distance between

the point of the nose and the first corner of the eye is one inch and  $\frac{3}{4}$ ths; and the length of his eye, from one angle to the other, 4 lines. The difference from the fore angle of his eye to the root of his ear is one inch 3 lines, and the opening of his eye 2 lines and a half. His upper lip is covered with a pencil of strong hairs for mustachoes, the length of which are 3 inches and  $\frac{3}{8}$ ths, and those of his eyebrows 2 inches and  $\frac{2}{3}$ ths.

HE has no tail, and gives at first sight the idea of a rat, rather than of any other creature. His colour is a grey mixt with a reddish brown, perfectly like the wild or warren rabbit. His belly is white, from the point of the lower jaw, to where his tail would begin, if that he had one. All over his body he has scattered hairs, strong and polished like his mustachoes, these are for the most part two inches and a quarter in length. His ears are round, not pointed. He makes no noise that ever I heard, but certainly chews the cud. To discover this, was the principal reason of my keeping him alive; those with whom he is acquainted he follows with great assiduity. The arrival of any living creature, even of a bird, makes him seek for a hiding-place, and I shut him up in a cage with a small chicken, after omitting feeding him a whole day; the next morning the chicken was unhurt, tho' the Ashkoko came to me with great signs of having suffered with hunger. I likewise made a second experiment, by inclosing two smaller birds with him, for the space of several weeks; neither were these hurt, though both of them fed, without impediment, of the meat that was thrown into his cage, and the smallest of these a kind of tit-mouse, seemed to be advancing in a sort of familiarity with him, though I never saw it venture to perch

perch upon him, yet it would eat frequently, and at the same time, of the food upon which the Ashkoko was feeding; and in this consisted chiefly the familiarity I speak of, for the Ashkoko himself never shewed any alteration of behaviour upon the presence of the bird, but treated it with a kind of absolute indifference. The cage, indeed, was large, and the birds having a perch to sit upon in the upper part of it, they did not annoy one another.

IN Amhara this animal is called Ashkoko, which I apprehend is derived from the singularity of those long herinacious hairs, which, like small thorns, grow about his back, and which in Amhara are called Ashok. In Arabia and Syria he is called Israel's Sheep, or Gannim Israel, for what reason I know not, unless it is chiefly from his frequenting the rocks of Horeb and Sinai, where the children of Israel made their forty years peregrination; perhaps this name obtains only among the Arabians. I apprehend he is known by that of Saphan in the Hebrew, and is the animal erroneously called by our translators Cuniculus, the rabbit or coney.

MANY are the reasons against admitting this animal, mentioned by scripture, to be the rabbit. We know that this last was an animal peculiar to Spain, and therefore could not be supposed to be either in Judea or Arabia. They are gregarious indeed, and so far resemble each other, as also in point of size, but in place of seeking houses in the rocks, we know the 'cuniculus' desire is constantly sand. They have claws, indeed, or nails, with which they dig holes or burrows, but there is nothing remarkable in them, or their frequenting rocks, so as to be described by that circumstance;

cumstance; neither is there any thing in the character of the rabbit that denotes excellent wisdom, or that they supply the want of strength by any remarkable sagacity. The saphan then is not the rabbit, which last, unless it was brought to him by his ships from Europe, Solomon never saw. It was not the rabbit's particular character to haunt the rocks. He was by no means distinguished for feebleness, or being any way unprovided with means of digging for himself holes. On the contrary, he was armed with claws, and it was his character to dig such, not in the rocks, but in the sands. Nor was he any way distinguished for wisdom, more than the hare, the hedge-hog, or any of his neighbours.

LET US now apply these characters to the Ashkoko. He is above all other animals so much attached to the rock, that I never once saw him on the ground, or from among large stones in the mouth of caves, where is his constant residence; he is gregarious, and lives in families. He is in Judea, Palestine, and Arabia, and consequently must have been familiar to Solomon. For David describes him very pertinently, and joins him with other animals perfectly known to all men: "The hills are a refuge for the wild goats, and the rocks for the saphan, or ashkoko\*." And Solomon says, "There be four things which are little upon the earth, but they are exceeding wise †:"—"The saphanim are but a feeble folk, yet make they their houses in the rocks ‡." Now this, I think, very obviously fixes the Ashkoko to be the saphan, for this weakness seems to al-

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\* Psalm civ. ver. 18. † Prov. chap. xxx. ver. 24. ‡ Prov. chap. xxx. ver. 26.

lude to his feet, and how inadequate these are to dig holes in the rock, where yet, however, he lodges. These are, as I have already observed, perfectly round; very pulpy, or fleshy, so liable to be excoriated or hurt, and of a soft fleshy substance. Notwithstanding which, they build houses in the very hardest rocks, more inaccessible than those of the rabbit, and in which they abide in greater safety; not by exertion of strength, for they have it not, but are truly as Solomon says, a feeble folk, but by their own sagacity and judgment, and are therefore justly described as wise. Lastly, what leaves the thing without doubt is, that some of the Arabs, particularly Damir, say, that the saphan has no tail; that it is less than a cat, and lives in houses, that is, not houses with men, as there are few of these in the country where the saphan is; but that he builds houses, or nests of straw, as Solomon has said of him, in contradistinction to the rabbit, and rat, and those other animals, that burrow in the ground, who cannot be said to build houses, as is expressly said of him.

THE Christians in Abyssinia do not eat the flesh of this animal, as holding it unclean, neither do the Mahometans, who in many respects of this kind in abstinence from wild meat, have the same scruple as christians. The Arabs in Arabia Petrea do eat it, and I am informed those on Mount Libanus also. Those of this kind that I saw were very fat, and their flesh as white as that of a chicken. Though I killed them frequently with the gun, yet I never happened to be alone so as to be able to eat them. They are quite devoid of all smell and rankness, which cannot be said of the rabbit.

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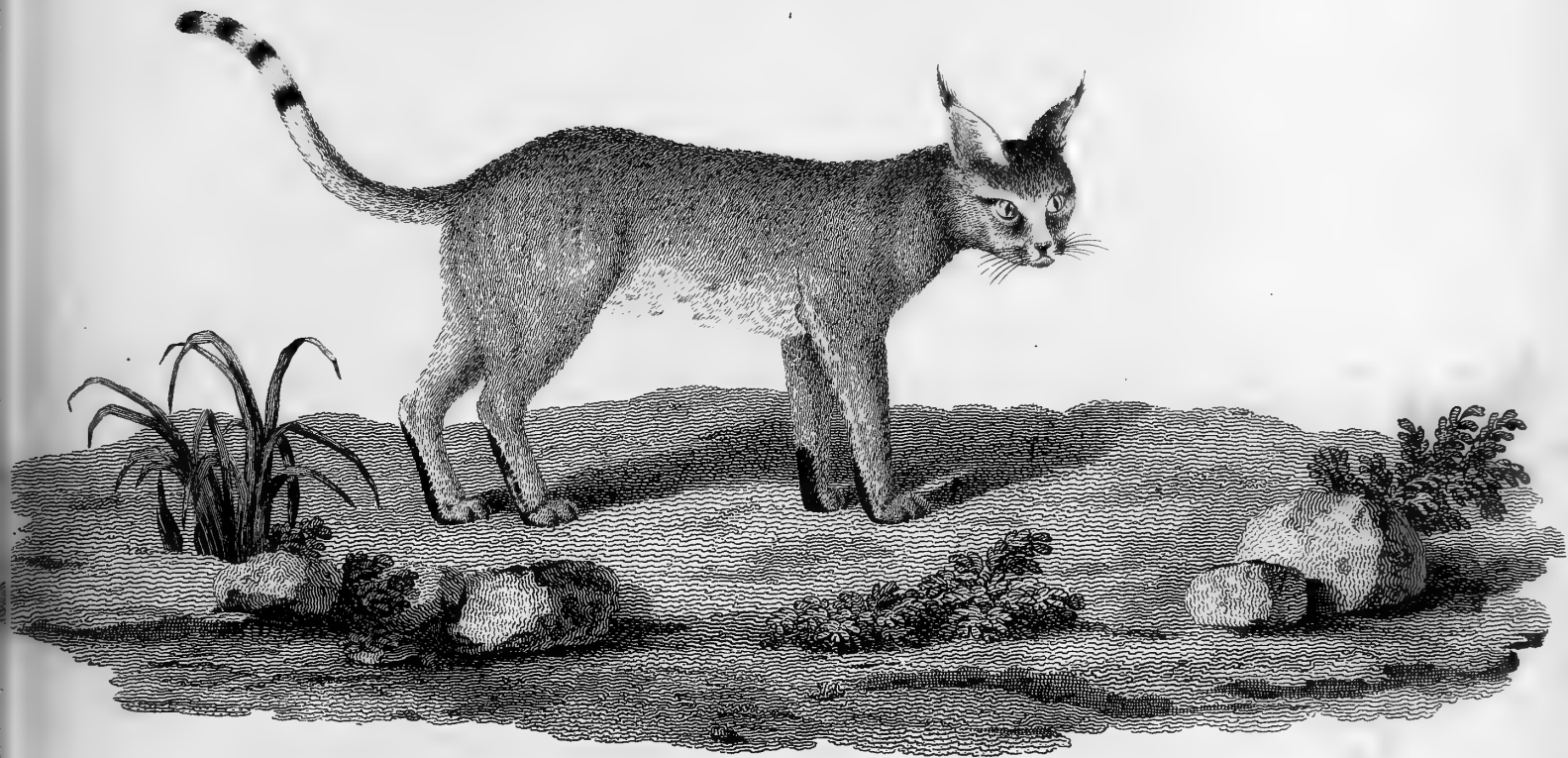
I HAVE no doubt that the El Akbar and the El Webro of the Arabs, are both the same animal. The El Akbar only means the largest of the *Mus-montanus*, under which they have classed the Jerboa. The Jerd, and El Webro, as also the Ashkoko or Akbar, answer to the character of having no tail.



#### BOOTED LYNX.

**T**HIS is a very beautiful species of *Lynx*, and, as far as I know, the smallest of the kind. His body from the tip of the nose to the anus being only 22 inches. His back, neck, and forepart of his feet are of a dirty grey. His belly is of a dirty white, spotted with undefined marks, or stains of red. Below his eyes, and on each side of his nose, is a reddish brown, the back of his ears being of the same colour, but rather darker; the inside of his ears is very thickly clothed with fine white hair, and at the end is the pencil of hairs distinctive of this genus. On the back of his forefeet, he has a black streak or mark, which reaches from his heel





*Lynx.*

*London Published Dec<sup>r</sup> 1<sup>st</sup> 1789. by G. Robinson & Co.*



two inches up his leg. On his hinder foot he has the same, which reaches four inches from the heel, and ends just below the first joint, and from this circumstance I have given him his name.

His tail is 13 inches long, the lower part of it, for 6 inches, is occupied with black rings. Between these rings his tail is nearly white, the rest much the same colour as his back. From his nose to his occiput is 4 inches and three quarters. From one eye to the other, measuring across his nose, is one inch and three quarters. From the base of one ear to that of the other, is 2 inches and  $\frac{2}{3}$ ths. The aperture of the eye three quarters of an inch, and of a yellow iris. The length of his ear from its base to the point of the pencil of hairs at the top of it, 4 inches and three quarters. From the sole of his forefoot to his shoulder, as he stands, 13 inches and three quarters. From the sole of his hind foot, to the top of his rump, 15 inches and a quarter.

He has very much the appearance of a common cat, both from the length of his tail, and the shape of his head, which however is broader, and his neck thicker than that of a domestic animal. He is an inhabitant of Ras el Feel, and, small as he is, lives among those tyrants of the forest, the elephant and rhinoceros. I do not mean that he has any hunting connections with them, as the jackal with the lion, I rather think he avails himself of what is left by the hunters of the carcases of those huge beasts. But the chief of all his food is the Guinea-hen, of which the thickets and bushes of this country are full. For these he lurks chiefly at the pools of water when they drink, and in this act of violence I surpris'd him. He is said to be exceedingly

fierce, and to attack a man if any way pressed. At this time he mounts easily upon the highest trees ; at other times he is content with hiding himself in bushes, but in the season of the fly he takes to holes and caverns in the ground. I never saw its young ones, nor did I ever hear any noise it makes, for the shot killed him outright, but did not in the least disfigure him ; so that the reader may depend upon this representation of him as I have given it, with all possible truth and precision.



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OF BIRDS.

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**T**HE number of birds in Abyffinia exceeds that of other animals beyond proportion. The high and low countries are equally ftored with them, the first kind are the carnivorous birds. Many species of the eagle and hawk, many more still of the vulture kind, as it were overstock all parts of this country. That species of glede called Haddaya, so frequent in Egypt, comes very punctually into Ethiopia, at the return of the sun, after the tropical rains. The quantity of shell-fish which then covers the edges of the desert, and leaves the salt springs where they have been nourished, surprised by the heat, and deserted by the moisture, are the first food these birds find in their way. They then are supplied in the neighbouring Kolla, by the carcases of those large beasts, the elephant, rhinoceros, and giraffa, the whole tribe of the deer kind, and the wild asses

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that are slain by the hunters, part of which only are used in food.

THE vast quantity of field-rats and mice that appear after harvest, and swarm in the cracks, or fissures in the ground, are their next supply. But above all, the great slaughter made of cattle upon the march of the army, the beasts of burden which die under carriage and ill treatment, the number of men that perish by disease and by the sword, whose carcases are never buried by this barbarous and unclean people, compose such a quantity, and variety of carrion, that it brings together at one time a multitude of birds of prey, it would seem there was not such a number in the whole earth. These follow the camp, and abide by it; indeed, they seem another camp round it, for, besides those that ventured among the tents, I have seen the fields covered on every side as far as the eyes could reach, and the branches of the trees ready to break under the pressure of their weight.

THIS unclean multitude remain together in perfect peace till the rains become constant and heavy; which deprive them of their food by forcing the hunters and armies to retire home. Nor are other circumstances wanting equally obvious, which account for the great number of birds that live on insects. The fly, of which we have already spoken so often, reigns in great swarms from May to September on the plains, and in all the low country down to the sands of Atbara. These are attended by a multitude of enemies, some of whom seek them for food; others seem to persecute them from hatred, or for sport, from the multitude they scatter upon the ground, without further care concerning  
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ing them. Honey is the principal food of all ranks of people in Abyssinia, and consequently a multitude of bees are produced everywhere. Part of these are kept in large cages, or baskets, hung upon the trees; others attach themselves to the branches, others build nests in the soft wood of the trees, especially the Bohabab, whose large and fragrant flower furnishes them with a honey which it strongly perfumes. The honey generally borrows its colour from the flowers and herbs from whence it is gathered. At Dixan we were surprised to see the honey red like blood, and nothing can have an appearance more disgusting than this, when mixed with melted butter. There are bees which build in the earth, whose honey is nearly black, as has been observed by the jesuit Jerome Lobo, I willingly place this truth to his credit, the only one, I think, I can find in his natural history, a small atonement for the multitude of falsehoods this vain and idle romancer has told on every occasion. Nor are the granivorous birds fewer in number or worse provided for; all the trees and shrubs in Abyssinia bear flowers, and consequently seeds, berries, or fruit, of some kind or other; food for all or some particular species of birds. Every tree and bush carries these likewise in all stages of ripeness, in all seasons of the year.

THIS is, however, not to be understood as meaning that any tree produces in the same part, fruit or flowers more than once a-year; but the time of each part's bearing is very particularly distributed. The west side of every tree is the first that blossoms, there its fruit proceeds in all stages of ripeness till it falls to the ground. It is succeeded by the south, which undergoes the same process. From this it crosses the tree, and the north is next in fruit; last

of all comes the east, which produces flowers and fruit till the beginning of the rainy season. In the end of April new leaves push off the old ones without leaving the tree at any time bare, so that every tree in Abyssinia appears to be an evergreen. The last I saw in flower was the coffee-tree at Emfras the 20th of April 1770: from this time till the rains begin, and all the season of them, the trees get fully into leaf, and the harvest, which is generally in these months throughout Abyssinia, supplies the deficiency of the feed upon bushes and trees. All the leaves of the trees in Abyssinia are very highly varnished, and of a tough leather like texture, which enables them to support the constant and violent rains under which they are produced.

THIS provision made for granivorous birds, in itself so ample, is doubled by another extraordinary regulation. The country being divided by a ridge of mountains, a line drawn along the top of these divides the seasons likewise; so that those birds to whom any one food is necessary become birds of passage, and, by a short migration, find the same seasons, and the same food, on the one side, which the rains and change of weather had deprived them of on the other.

THERE is no great plenty of water-fowl in Abyssinia, especially of the web-footed kind. I never remember to have seen one of these that are not common in most parts of Europe. Vast variety of storks cover the plains in May, when the rains become constant. The large indigenous birds that reside constantly on the high mountains of Samen and Taranta, have most of them an extraordinary provision made against the wet and the weather; each feather is a tube, from the pores of which issue a very fine dust



or powder; in such abundance as to stain the hand upon grasping them. This I shall presently mention in the description of one of these birds, the golden eagle of Lamalmon. In looking at this dust through a very strong magnifying power, I thought I discerned it to be in form of a number of fine feathers.

THOUGH all the deep and grassy bogs have snipes in them, I never once saw a woodcock: swallows there are of many kinds, unknown in Europe; those that are common in Europe appear in passage at the very season when they take their flight from thence. We saw the greatest part of them in the island of Masuah where they lighted and tarried two days, and then proceeded with moon-light nights to the south-west. But I once saw in the country of the Baharnagash, in the province of Tigré, the blue forked-tailed swallow, which builds in the windows in England, making his nest out of season, when he should have been upon his migration; this I have already taken notice of in my journey from Masuah to Gondar.

THERE are few owls in Abyssinia; but those are of an immense size and beauty. The crow is marked white and black nearly in equal portions. There is one kind of raven; he, too, of a large size, his feathers black intermixed with brown; his beak tipped with white, and a figure like a cup or chalice of white feathers on his occiput, or hinder part of his head. I never saw either sparrow, magpie, or bat in Abyssinia. Pigeons are there in great numbers, and of many varieties; some of them very excellent for eating. I shall hereafter describe one of them whose name is Waalia. All the pigeons but one sort are birds of passage, that one lives  
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in the eaves of houses or holes in the walls, and this is not eaten, but accounted unclean for a very whimsical reason; they say it has claws like a falcon, and is a mixture from that bird. The same sort of imagination is that of the Turks, who say, that the Turkey, from the tuft of black hair that is upon his breast, partakes of the nature of the hog. This pigeon's feet are indeed large, but very different in formation from that of the falcon.

THERE are no geese in Abyssinia, wild or tame, excepting what is called the Golden Goose, Goose of the Nile, or Goose of the Cape, common in all the South of Africa: these build their nests upon trees, and when not in water, generally sit upon them.

I HAVE already spoken of fishes, and have entered very sparingly into their history. These, and other marine productions of the Arabian Gulf, or even the small share that I have painted and collected, would occupy many large volumes to exhibit and describe, and would cost, in the engraving, a much larger sum than I have any prospect of ever being able to afford.

NISSER.





*Nisus Werk.*)

*London Publ'hd. Dec'r 1799. by G. Robinson & Co.*

*Some believe has a name of its own*

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NISSER, OR GOLDEN EAGLE.

I HAVE ventured from his colour to call this bird the Golden Eagle, by way of distinction, as its Ethiopic name, Niffer, is only a generic one, and imports no more than the English name, Eagle. He is called by the vulgar Abou Duch'n, or Father Long Beard, which we may imagine was given him from the tuft of hair he has below his beak.

I SUPPOSE him to be not only the largest of the eagle kind, but surely one of the largest birds that flies. From wing to wing he was 8 feet 4 inches. From the tip of his tail to the point of his beak when dead, 4 feet 7 inches. He weighed 22 pounds, was very full of flesh. He seemed remarkably short in the legs, being only four inches from the joining of the foot to where the leg joins the thigh, and from the joint of the thigh to the joining of his body 6

inches. The thickness of his thigh was little less than 4 inches; it was extremely muscular, and covered with flesh. His middle claw was about 2 inches and a half long, not very sharp at the point, but extremely strong. From the root of the bill, to the point, was 3 inches and a quarter, and one inch and three quarters in breadth at the root. A forked brush of strong hair, divided at the point into two, proceeded from the cavity of his lower jaw at the beginning of his throat. He had the smallest eye I ever remember to have seen in a large bird, the aperture being scarcely half an inch. The crown of his head was bare or bald, so was the front where the bill and scull joined.

THIS noble bird was not an object of any chase or pursuit, nor stood in need of any stratagem to bring him within our reach. Upon the highest top of the mountain Lalmalmon, while my servants were refreshing themselves from that toilsome rugged ascent, and enjoying the pleasure of a most delightful climate, eating their dinner in the outer air with several large dishes of boiled goats flesh before them, this enemy, as he turned out to be to them, appeared suddenly; he did not stoop rapidly from a height, but came flying slowly along the ground, and sat down close to the meat within the ring the men had made round it. A great shout, or rather cry of distress, called me to the place. I saw the eagle stand for a minute as if to recollect himself, while the servants ran for their lances and shields. I walked up as nearly to him as I had time to do. His attention was fully fixed upon the flesh. I saw him put his foot into the pan where was a large piece in water prepared for boiling, but finding the smart which he had

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not expected, he withdrew it, and forsook the piece which he held.

THERE were two large pieces, a leg and a shoulder, lying upon a wooden platter, into these he trussed both his claws, and carried them off, but I thought he looked wistfully at the large piece which remained in the warm water. Away he went slowly along the ground as he had come. The face of the cliff over which criminals are thrown took him from our sight. The Mahometans that drove the asses, who had, as we have already observed in the course of the journey, suffered from the hyæna, were much alarmed, and assured me of his return. My servants, on the other hand, very unwillingly expected him, and thought he had already more than his share.

As I had myself a desire of more intimate acquaintance with him, I loaded a rifle-gun with ball, and sat down close to the platter by the meat. It was not many minutes before he came, and a prodigious shout was raised by my attendants, He is coming, he is coming, enough to have discouraged a less courageous animal. Whether he was not quite so hungry as at the first visit, or suspected something from my appearance, I know not, but he made a small turn, and sat down about ten yards from me, the pan with the meat being between me and him. As the field was clear before me, and I did not know but his next move might bring him opposite to some of my people, and so that he might actually get the rest of the meat and make off, I shot him with the ball through the middle of his body about two inches below the wing, so that he lay down upon the grass without a single flutter. Upon laying hold of his monstrous carcase, I was

not a little surpris'd at seeing my hands covered and tinged with yellow powder or dust. Upon turning him upon his belly, and examining the feathers of his back, they produced a brown dust, the colour of the feathers there. This dust was not in small quantities, for, upon striking his breast, the yellow powder flew in fully greater quantity than from a hair-dresser's powderpuff. The feathers of the belly and breast, which were of a gold colour, did not appear to have any thing extraordinary in their formation, but the large feathers in the shoulder and wings seem'd apparently to be fine tubes, which upon pressure scatter'd this dust upon the finer part of the feather, but this was brown, the colour of the feathers of the back. Upon the side of the wing, the ribs, or hard part of the feather, seem'd to be bare as if worn, or, I rather think, were renewing themselves, having before fail'd in their function.

WHAT is the reason of this extraordinary provision of nature is not in my power to determine. As it is an unusual one, it is probably meant for a defence against the climate in favour of those birds which live in those almost inaccessible heights of a country, doomed, even in its lower parts, to several months of excessive rain. The pigeons we saw upon Lamalmon, had not this dust in their feathers, nor had the quails; from which I guess these to be strangers, or birds of passage, that had no need of this provision, created for the wants of the indigenous, such as this eagle is, for he is unknown in the low country. That same day I shot a heron, in nothing different from ours, only that he was smaller, who had upon his breast and back a blue powder, in full as great quantity as that of the eagle.

BLACK







*Nijser Tokoor.*

*London. Publish'd Dec: 1<sup>st</sup> 1789. by G. Robinson & Co.*

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BLACK EAGLE.

THIS beautiful bird was the first subject that suffered the loss of liberty, after the king and whole army had vindicated theirs; had passed the Nile in circumstances scarcely within the bounds of credibility, had escaped all the deep-laid schemes of Fasil, and by a train of accidents almost miraculous, passed triumphantly on before him after the battle of Limjour, having joined Kefla Yafous, advanced and encamped at Dingleber the 28th of May 1770.

THIS bird, who from the nobleness of his kind was appositely enough thought to be a type of the king, fell by a fate, in which he still more resembled him, overpowered by the strength and number of a species of birds in character infinitely below him. It has been repeatedly observed in the course of my narrative, that an inconceivable  
number

number of birds and beasts of prey, especially the former, follow an Abyssinian army pace by pace, from the first day of its march till its return, increasing always in prodigious proportion the more it advances into the country. An army there leaves nothing living behind, not the vestige of habitation, but the fire and the sword reduces everything to a wilderness and solitude.

THE beasts and birds unmolested have the country to themselves, and increase beyond all possible conception. The slovenly manner of this savage people, who after a battle neither bury friends nor enemies, the quantity of beasts of burden that die perpetually under the load of baggage, and variety of mismanagement, the quantity of offal and half-eaten carcases of cows, goats, and sheep, which they consume in their march for their sustenance, all furnish a stock of carrion sufficient to occasion contagious distempers, were there not such a prodigious number of voracious attendants, who consume them almost before putrefaction. In their voracious stomachs lies the grave of the bravest soldier, unless very high birth or office, or very extraordinary affection in their attendants, procure them a more decent, though more uncommon fate, a sepulchre in a neighbouring church-yard. There is no giving the reader any idea of their number, unless by comparing them to the sand of the sea. While the army is in motion they are a black canopy, which extend over it for leagues. When encamped, the ground is discoloured with them beyond the sight of the eye, all the trees are loaded with them. I need not say that these are all carrion birds, such as the vulture, kite, and raven, that is a species to which nature has refused

fed both the inclination and the power of feeding upon living subjects.

By what accident this small eagle, who was not a carrion bird, came among these cowardly and unclean feeders, is more than I can say; but it met the fate very common to those who assort with bad company, and those of sentiments and manners inferior to their own. One of these, a kite, vulture, or raven, I know not which, struck the poor eagle down to the ground just before the door of the king's tent, and hurt him so violently, that he had scarcely strength to flutter under the canopy where the king was sitting; pages and officers of the bed-chamber soon seized him. It was not long before they made the application that the king was to be dethroned by a subject, and Fasil was in everybody's mouth. The omen was of the kind too unpleasent to be dwelt upon; the sensible people of the attendants hurried it away, and it of course came to me with all the circumstances of the accident, the moral of that tale, and twenty prophecies that were current to confirm it. I confess my own weakness; at first it made a strong impression upon me. In the moment the passage of Shakespeare came into my mind,

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“ On Tuesday last,  
 “ A falcon tow'ring in his pride of place,  
 “ Was by a mousing owl hawk'd at and kill'd.”

And this recollection occupied my mind so forcibly, that I stood for a moment speechless, and as it were rivetted to the ground. This behaviour, unusual in me, who used always

to laugh at their presages, and prophecies, was observed by the page that brought me the bird, and was reported to the king; and though he did not speak of it that time, yet some days after, when I was taking my leave of him, on his retreat from Gondar to Tigré, he mentioned it to me: said we were mistaken, for the omen referred to Powussen of Begender, and not to Waragna Easil.

AFTER sketching his genteel and noble manner while alive, our unfortunate prisoner found his death by the needle, was put out of fight, and carried to Gondar, where the drawing was finished. He was altogether of a dark brown, or chestnut, leading to black. The whole length, from the extremity of the tail to the nose, was two feet four inches. The breadth, from wing to wing, four feet six inches. He was very lean, and weighed something less than five pounds. The fourth feather of his wing after the three largest, was white. The feathers of the lower side of his tail were of a bluish brown, checkered with white, and those of the upper side of the tail were black and white alternately. His thighs were thick-covered with feathers, and so were his legs, down to the joining of the foot. His feet were yellow, with strong black claws. The inside of his wings was white, with a mixture of brown. His leg, from the joining of the foot, was three inches. His beak, from the point to where the feathers reached, was two inches and a quarter. The length of his crest from the head to the longest feather, five inches. The eye was black, with a cast of fire colour in it, the iris yellow, and the whole eye exceedingly beautiful. He seemed wonderfully tame, or rather sluggish, but whether that was from his nature or





*Rachamaki*



misfortune I cannot be a judge, never having seen another.

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## RACHAMAH.

**T**HIS bird is met with in some places in the south of Syria and in Barbary, but is no where so frequent as in Egypt and about Cairo. It is called, by the Europeans, Poule de Faraone, the hen or bird of Pharaoh. It is a vulture of the lesser kind, not being much larger than our rook or crow, though, by the length of its wings, and the erect manner in which it carries its head, it appears considerably larger. In Egypt and all over Barbary it is called Rachamah, and yet it has been very much doubted what bird this was, as well as what was the origin of that name. Some of the Arabs will have it derived from Arham, which signifies variegated, or of different colours. It has been answered, that this is not the derivation, as arham in Arabic signifies variegated, or of more colours than two or three blended together,

together, whereas this is in its feathers only black and white, separate from one another, and cannot be called variegated. But I must here observe, that this is by no means a proper interpretation of the Arabic word. Among many examples I could give, I shall adduce but one. There is a particular kind of sheep in Arabia Felix, whose head and part of the neck are black, and the rest of the beast white; it is chiefly found between Mocha and the Straits of Babelmandeb. This in Arabic is called Rachama, for no other reason but because it is marked black and white, which are precisely the two colours which distinguish the bird before us.

BUT I still am induced to believe the origin of this bird's name has an older and more classical derivation than that which we have just spoken of. We know from Horus Apollo, in his book upon Hieroglyphics, that the Rachma, or she-vulture, was sacred to Isis, and that its feathers adorned the statue of that goddess. He says it was the emblem of parental affection, and that the Egyptians, about to write an affectionate mother, painted a she-vulture. He says further, that this female vulture, having hatched its young ones, continues with them one hundred and twenty days, providing them with all necessaries; and, when the stock of food fails them, she tears off the fleshy part of her thigh, and feeds them with that and the blood which flows from the wound. Rachama, then, is good Hebrew, it is from Rechem, female love, or attachment, from an origin which it cannot have in men. In this sense we see it used with great propriety in the first book of Kings \*,  
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\* Chap. iii. ver. 26.

in Ifaiah \*, and in Lamentations †, and it feems particularly to mean what the Egyptians made it a hieroglyphic of in very ancient ages, and before the time of Mofes, maternal affection towards their progeny. No mention is here made of the male Rachama, nor was he celebrated for any particular quality.

FROM this filence, or negative perfonage in him, arofe a fable that there was no male in this fpecies. Horus Apollo ‡, after naming this bird always in the feminine gender, tells us roundly, that there is no male of the kind, but that the female conceives from the fouth wind. Plutarch §, Ammianus ||, and all the Greeks, fay the fame thing; and Tzetzes ¶, after having repeated the fame ftory at large, tells us that he took it all from the Egyptians, fo there feems to be little doubt either of the origin or meaning of the name.

THE fathers in the firft ages, after the death of Chrift, feem to have been wonderfully preffed in point of argument before they could have recourfe to a fable like this to vindicate the poffibility of the Virgin Mary's conception without human means. Tertullian\*, Orgines‡, Bazil==, and Ambrofius ++, are all wild enough to found upon this ridiculous argument, and little was wanting for fome of thefe

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learned

\* Chap. xlix. ver. 15.

‡ Hieroglyph. lib. i. cap. 11.

|| Lib. xvii.

\* In Valentin. cap. 10.

= In hexaem homil. 8.

† Chap. iv. ver. 10.

§ Plut. In queft. Rom. queft. 93.

¶ Chil. 12. hift. 439.

‡ Lib. i. Contra Celfum.

++ In hexaem, page 27.

learned ones to land this fable upon Moses, who probably knew it as a vulgar error before his time, but was very far from paying any regard to it; on the contrary, it is with the utmost propriety and precision, that, speaking to the people, he calls it Rachama in the feminine, because he was then giving them a list of birds forbidden to be ate \*, among which he selected the female vulture, as that was best known, and the great object of idolatry and superstition; and the male, and all the lesser abominations of that species, he included together in the word that followed *his* kind; though the English translator, by calling the female vulture *bin*, has introduced an impropriety that there was not the least foundation for. That Moses was not the author of or believer in this Egyptian fable, is plain from a verse in Exodus, where, at another time, he speaks of this bird as a male, and calls him Racham, and not Rachama.

It will not be improper that I here take notice, that the English translator, by his ignorance of language, has lost all the beauty and even the sense of the Hebrew original. He makes God say, Ye have seen what I did unto the Egyptians, and how I bore you on eagles wings, and brought you unto myself †. Now, if the expression had been really Eagle, the word would have been Nifr, and would have signified nothing; but, in place of eagle, God says Vulture, the emblem of maternal affection and maternal tenderness towards his children, which has a particular connection with, "brought you unto myself;" so that the passage will run thus, Say to the children

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\* Dent. chap. xiv. ver. 13.

† Exod. chap. xix. ver. 4.

children of Israel, See how I have punished the Egyptians, while I bore you up on the wings of the Rachama, that is, of parental tenderness and affection, and brought you home to myself. It is our part to be thankful that the truths of Holy Scripture are preserved to us entire, but still it is a rational regret that great part of the beauty of the original is lost.

NOTWITHSTANDING all that has been said, this bird has been mistaken nearly by all the interpreters Hebrews, Syrians, and Samaritans; the Greeks, from imaginations of their own, have thought it to be the pelican, the stork, the swan, and the merops. Bochart, after a variety of guesses, acknowledges his own ignorance, and excuses it by laying equal blame upon others. Hitherto, says he, we have not been able to condescend upon what bird this was, because those that have wrote concerning it were as ignorant in the natural history of things as they were skilful in the interpretation of words.

THE point of the beak of this bird is black, very sharp and strong for about three quarters of an inch, it is then covered by a yellow, fleshy membrane, which clothes it as it were both above and below, as likewise the forepart of the head and throat, and ends in a sharp point before, nearly opposite to where the neck joins the breast; this membrane is wrinkled, and has a few hairs growing thinly scattered upon the lower part of it. It has large, open nostrils, and prodigious large ears, which are not covered by any feathers whatever. The body is perfect white from the middle of the head, where it joins the yellow membrane, down to the tail. The large feathers of its wing  
are

are black; they are six in number. The lesser feathers are three, of an iron-grey, lighter towards the middle, and these are covered with three others lesser still, but of the same form, of an iron rusty colour; those feathers that cover the large wing-feathers are at the top for about an inch and a quarter of an iron-grey, but the bottom is pure white. The tail is broad and thick above, and draws to a point at the bottom. It is not composed of large feathers, and is not half an inch longer than the point of its wings. Its thighs are clothed with a soft down-like feather, as far as the joint. Its legs are of a dirty white, inclining to flesh colour, rough, with small tubercles which are soft and fleshy. It has three toes before and one behind; the middle of these is considerably the longest; they are armed with black claws, rather strong than pointed, or much crooked. It has no voice that ever I heard, generally goes single, and oftener sits and walks upon the ground than upon trees. It delights in the most putrid and stinking kind of carrion, has itself a very strong smell, and putrifies very speedily.

It is a very great breach of order, or police, to kill any one of these birds near Cairo. But as there are few of its species in Egypt, and its name is the same all over Africa and Arabia, it seems to me strange that the Arabian or Hebrew writers should have found so much difficulty in discovering what was the bird. It lays but two eggs, and builds its nest in the most desert parts of the country. More of its history or manners I do not know. The books are full of fanciful stories concerning it, which the instructed reader at first sight will know to be but fable.





*Alba Gumba.*

*London. Published Dec. 1. 1789. by G. Robinson & Co.*

*Heath. Sc.*





## E R K O O M.

**I**T would appear that this bird is part of a large tribe, the greatest variety in which lies in his beak and horn. The horn he wears sometimes upon the beak, and sometimes upon the forehead above the root of the beak. These are the only parts that appear in collections. I gave to the cabinet of the king of France the first bird of this kind seen entire, and I have here exhibited the first figure and description of it that ever was seen in natural history, drawn from the life. In the east part of Abyssinia it is called Abba Gumba, in the language of Tigré; on the western side of the Tacazzè it is called Erkoom; the first of its names is apparently from the groaning noise it makes, the second has no signification in any language that I know.

At Ras el Feel, in my return through Sennaar, I made this drawing from a very entire bird, but slightly wounded;

ed; it was in that country called Teir el Naciba, the bird of destiny. This bird, or the kind of it, is by naturalists called the Indian crow, or raven; for what reason it is thus classed is more than I can tell. The reader will see, when I describe his particular parts, whether they agree with those of the raven or not. There is one characteristic of the raven which he certainly has, he walks, and does not hop or jump in the manner that many others of that kind do; but then he, at times, runs with very great velocity, and, in running, very much resembles the turkey, or bustard, when his head is turned from you.

THE colour of the eye of this bird is of a dark brown, or rather reddish cast; but darker still as it approaches the pupil; he has very large eye-lashes, both upper and lower, but especially his upper. From the point of the beak to the extremity of the tail is 3 feet 10 inches; the breadth from one point of the wing to the other extended, is 6 feet, and the length 22 inches. The length of the neck 10 inches, and its thickness 3 inches and a half; the length of the beak measuring the opening near the head straight to the point, 10 inches; and from the point of the beak to the root of the horn 7 inches and  $\frac{3}{4}$ ths. The whole length of the horn is 3 inches and a half. The length of the horn from the foot to the extremity where it joins the beak, is 4 inches. The thickness of the beak in front of the opening is one inch and  $\frac{7}{8}$ ths. The thickness of the horn in front is one inch and  $\frac{5}{8}$ ths. The horn in height, taken from the upper part of the point to the beak, 2 inches. The length of the thighs 7 inches, and that of the legs 6 inches and  $\frac{5}{8}$ ths. The thickness in profile 7 lines, and in front 4 lines and a half. It has three toes before and one behind, but they are not very strong, nor seemingly

ingly made to tear up carcafes. The length of the foot to the hinder toe is one inch 6 lines, the innermoft is one inch 7 lines, the middle 2 inches 2 lines, and the laft outer one 2 inches one line.

THIS bird is all of a black, or rather black mixed with foot-colour; the large feathers of the wing are ten in number, milk-white both without and within. The tip of his wings reaches very nearly to his tail; his beak and head meafured together are 11 inches and a half, and his head 3 inches and a quarter. At his neck he has thofe protuberances like the Turkey-cock, which are light-blue, but turn red upon his being chafed, or in the time the hen is laying.

I HAVE feen the Erkoom with eighteen young ones; it runs upon the ground much more willingly than it flies, but when it is raifed, flies both ftrong and far. It has a rank fmell, and is faid to live in Abyffinia upon dead carcafes. I never faw it approach any of thefe; and what convinces me this is untrue, is, that I never faw one of them follow the army, where there was always a general afsembly of all the birds of prey in Abyffinia.

It was very eafy to fee what was its food, by its place of rendezvous, which was in the fields of teff, upon the tops of which are always a number of green beetles, thefe he ftrips off by drawing the ftalk through his beak, and which operation wears his beak fo that it appears to be ferrated, and, often as I had occafion to open this bird, I never found in him any thing but the green fcarabeus, or beetle. He has a putrid or ftinking fmell, which I fuppofe is the reafon he has been imagined to feed upon carrion.

THE Erkoom builds in large, thick trees, always, if he can, near churches; has a covered nest like that of a magpie, but four times as large as the eagle's. It places its nest firm upon the trunk, without endeavouring to make it high from the ground; the entry is always on the east side. It would seem that the Indian crow of Bontius is of this kind: it is difficult, however, of belief, that his natural food is nutmegs; for there seems nothing in his structure or inclination, which is walking on the ground, that is necessary or convenient for taking such food.



#### ABOU HANNES:

THE ancient and true name of this bird seems to be lost. The present one is fancifully given from observation of a circumstance of its œconomy; translated, it signifies, Father John, and the reason is, that it appears on St John's day, the precise time when first the fresh water of the tropical rains is known in Egypt to have mixed with the Nile, and to have



*Ouon Hannes.*

*London Publish'd Dec: 5<sup>th</sup> 1789. by W. Robinson & Co.*



have made it lighter, sweeter, and more exhaleable in dew, that is in the beginning of the season of the tropical rains, when all water-fowl, that are birds of passage, resort to Ethiopia in great numbers.

As I have observed this bird has lost its name, so in the history of Egypt and Ethiopia we have lost a bird, once very remarkable, of which now nothing remains but the name, this is the Ibis, to which divine honours were paid, whose bodies were embalmed and preserved with the same care as those of men. There still remain many repositories full of them in Egypt, and appear everywhere in collections in the hands of the curious. Though the manner that these birds are prepared, and caustic ingredients, with which the body is injected, have greatly altered the consistency of their parts, and the colour of their plumage, yet it is from these, viewed and compared deliberately, and at leisure, that I am convinced the Abou Hannes is neither more nor less than the Ibis.

SEVERAL authors, treating of this bird, have involved it in more than Egyptian darkness. They have first said it was a stork, then the hæmatopus, or red-legged heron; they then say its colour is of a fine shining black, its beak and legs of a deep red. Some have said it was from it that men learned the way to administer clysters, others, that it conceived at the beak, and even laid eggs that way, and that its flesh is sweet and red like that of a salmon. All these and many more are fables. We know from Plutarch, that in the plumage, it is black and white like the pelargus. And the mummy pits, by furnishing part of the bird itself, confirm us in the opinion.

THE Abou Hannes has a beak shaped like that of a curlew, two-thirds of which is straight, and the remaining third crooked; the upper part of a green, horny substance, and the lower black. From the occiput to where it joins the beak is four inches and a half. Its leg, from the lower joint of the thigh to the foot, is six inches, the bone round and strong, according to the remark of Cicero, and from the lower joint of the thigh, to where it joins the body, is five inches and a half. The height of the body as it stands, from the sole of its foot to the middle of the back, is nineteen inches. The aperture of the eye is one inch. Its feet and legs are black; has three toes before, armed with sharp, straight claws: it has a toe also behind. Its head is brown, and the same colour reaches down to the back, or where the back joins with the neck. Its throat is white, so are its breast, back, and thighs. The largest feathers of its wings are a deep black for thirteen inches from the tail, and from the extremity of the tail, six inches up the back is black likewise.

Now the measures of the beak, the tibia, the thigh-bone, and the scull, compared with the most perfect of the embalmed birds taken from the mummy pits, do agree in every thing as exactly as can be expected. The length of the beak in my drawing seems to exceed that of the embalmed bird, but I will not be positive; this small error is not in the design, though the white feathers are scorched in the embalmed birds, yet there is no difficulty in perceiving the colour distinctly; there is less in distinguishing the black upon the wings and above its rump. The measure of both so exactly agree that they can scarcely be mistaken.



THE reason, we are told, why this bird was held in such veneration in Egypt, was the great enmity it had to serpents, and the use of freeing the country from them; but for my own part, I must confess, that as I know, for certain, there are no quantity of serpents in Egypt, as the reason of things is that they should be few, so I can never make myself believe they ever were in such abundance, as to need any particular agent to distinguish itself by destroying them. Egypt Proper, that is the cultivated and inhabited part of it, is overflowed for five months every year by the Nile, and it is impossible vipers can abound where there is such long and regular refrigerations. The viper casts his skin in May, and is immediately after in his renewed youth and fulness of vigour. All this time he would be doomed in Egypt to live under water, or hid in some hole, and this is the time when the Ibis is in Egypt, so that the end of his coming would be frustrated by the absence of his enemy. The vipers have their abode in the sandy desert of Libya, where even dew does not fall, where the sand is continually in motion, parched with hot winds, and glowing with the scorching rays of the sun. There the Ibis could not live; the country is not inhabited by man, and consequently vipers there would be no nuisance. Nay, we know these vipers of Libya are an article of commerce in Egypt. The Theriac is composed of them at Venice and at Rome, and they are dispersed for the uses of medicine throughout the different parts of the world.

Now, in this light, the Ibis could not live among them, nor would he be of benefit even if he could; but as we have it from a number of credible historians that the Ibis was plentiful in Egypt, that vipers, at least, in some part of

it, were so frequent as to be a nuisance, and that we know as surely two other things, that neither the vipers are a nuisance, nor is the Ibis in Egypt at this day, we must look for some change in the œconomy of the country which can account for this.

WE know in a manner not to doubt, that in ancient times Egypt was inhabited, and extended to the edges of the Libyan Desert; nay, in some places, considerably into it; large lakes were dug in this country by their first kings, and these, filled in the time of the Nile's inundation, continued immense reservoirs, which were let out by degrees to water the plantations and pleasure-ground that had been created by man, in what was formerly a desert. Nothing in fact was wanting but water, and these large lakes supplied this want abundantly, by furnishing water of the purest and most perfect kind: in the neighbourhood of these artificial plantations, there can be no doubt the viper must be a nuisance. Being indigenious in this his domicil, it is not probable he would quit it easily, and any deficiency of them in number would not have failed to be supplied from the deserts in the neighbourhood. The prodigious pools of stagnant water would bring the Ibis thither, and place him near his enemy, and after man had once discerned his use, gratitude would soon lead him to reward him.

BUT after, when these immense lakes, and the conduits leading to them, were neglected, and the works ruined which conducted these artificial inundations, and covered the deserts of Libya with verdure; when war and tyranny; and every sort of bad government, made people fly from the country, or live precariously and insecure in it, all this  
temporary

temporary paradise vanished: the land was overflowed no more; the sands of the desert resumed their ancient station; there were no inhabitants in the country, no pools of water for the Ibis, nor was the viper a nuisance. The Ibis retired to his native country Ethiopia, in the lower part of which, that is, in a hot country full of pools of stagnant water, he remains, and there I found him.

It is probable in Egypt he had increased greatly by the quantity of food and good entertainment he had. Upon these failing, he probably died and wore out of Egypt; and in the proportion in which he was at first created, which seems to have been a slender one, he remained in his native Ethiopia, for his emigration and increase in Egypt was merely accidental. This, I apprehend, is the true cause why the Ibis is now no longer known in Egypt; but I am satisfied to restore him to natural history, with at least a probable conjecture, why he is now unknown in those very regions where once he was worshipped as a god. His figure appears frequently upon the obelisks among the hieroglyphics, and further confirms my conjecture that this is the bird.

THE Count de Buffon has published the bird, which he calls the white\* Ibis of Egypt, the half of his head crimson, with a strong beak of a gold colour, liker to that of a toucan, and long, purple, weak legs, and a thick neck; in short, having none of the characters of the bird it is intended to represent.

THE

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\* Buffon, Plan. Entom. 389.

THE reader may be assured there is no such Ibis in Egypt; none ever appeared from the catacombs but what were black and white, as historians have described \*, so that this is so disguised by the drawing and colouring as not to be known, or else it came from some other country than Egypt.



## M O R O C.

I HAVE already said in the introduction which immediately precedes the history of birds, that among those that live upon insects there are some that attach themselves to flies in general, and others that seem to live upon bees alone: Of this last sort is the bird now before us. I never saw him in the low country where the fly is, nor indeed anywhere but in the countries where honey is chiefly produced as revenue, such as the country of the Agow, Goutto, and in Belessen.

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\* Vide Plutarch de Iside.



*Bee Cuckoo*



HE seems to pursue the bees for vengeance or diversion as well as for food, as he leaves a quantity of them scattered dead upon the ground without seeking further after them, and this pastime he unweariedly pursues without interruption all the day long; for the Abyssinians do not look so near, or consider things so much in detail, as to imagine all the waste which he commits can make any difference in their revenue.

His name is Maroc, or Moroc, I suppose from Mar, honey, though I never heard he was further concerned in the honey than destroying the bees. In shape and size he seems to be a cuckoo, but differs from him in other respects. He is drawn here of his natural size, and in all respects so minutely attended to, that I scarcely believe there is a feather amissing.

THE opening of his mouth is very wide when forced open, reaching nearly to under his eyes. The inside of his mouth and throat are yellow, his tongue sharp-pointed. It can be drawn to almost half its length out of its mouth beyond the point of its beak, and is very flexible. Its head and neck are brown, without mixture. It has a number of exceeding small hairs, scarcely visible at the root of his beak. His eye-brows are black likewise. His beak is pointed, and very little crooked; the pupil of his eye is black, surrounded with an iris of a dusky dull red. The fore part of his neck is light yellow, darker on each side than in the middle, where it is partly white; the yellow on each side reaches near the shoulder, or round part of the wing; from this his whole breast and belly is of a dirty white to under the tail; from this, too, his feathers begin to be tipped gently with

white, as are all those that cover the outside of his wing; but the white here is clear, and the size increases with the breadth and length of the feathers. The large feathers of his wing are eight in number, the second in size are six. The tail consists of twelve feathers; the longest three are in the middle, they are closely placed together, and the tail is of an equal breadth from top to bottom, and the end of the feathers tip with white. Its thighs are covered with feathers of the same colour as the belly, which reach more than half way down his leg; his legs and feet are black, marked distinctly with scales. He has two toes before and one behind, each of which have a sharp and crooked claw. I never saw his nest; but in flying, and while sitting, he perfectly resembles the cuckoo. I never heard, nor could I learn from any others, that he had any voice or song. He makes a sharp, snapping noise, as often as he catches the bees, which is plainly from closing his beak.

JEROME LOBO, whom I have often mentioned, describes this bird, and attributes to him a peculiar instinct, or faculty of discovering honey; he says, when this bird has discovered any honey he repairs to the high-way, and when he sees a traveller, he claps with his wings, sings, and by a variety of actions invites him to follow him, and flying from tree to tree before him, stops where the honey is discovered to be, and there he begins to sing most melodiously.

THE ingenious Dr Sparman could not omit an opportunity of building a story upon so fair a foundation. He too gives an account of a cuckoo in size and shape resembling a sparrow, and then gives a long description of it in Latin,  
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from which it should not resemble a sparrow. This he calls Cuculus Indicator\*. It seems it has a partition treaty at once both with men and foxes, not a very ordinary association.

To these two partners he makes his meaning equally known by the alluring sound, as he calls it, of Tcherr Tcherr, which we may imagine, in the Hottentot language of birds, may signify Honey; but it does not sing, it seems, so melodiously as Jerome Lobo's bird. I cannot for my own part conceive, in a country where so many thousand hives of bees are, that there was any use for giving to a bird a peculiar instinct or faculty of discovering honey, when, at the same time, nature had denied him the power of availing himself of any advantage from the discovery, for man seems in this case to be made for the service of the Moroc, which is very different from the common ordinary course of things; man certainly needs him not, for on every tree and on every hillock he may see plenty of combs at his own deliberate disposal. I cannot then but think, with all submission to these natural philosophers, that the whole of this is an improbable fiction, nor did I ever hear a single person in Abyssinia suggest, that either this, or any other bird, had such a property. Sparman says it was not known to any inhabitant of the Cape, no more than that of the Moroc was in Abyssinia; it was a secret of nature, hid from all but these two great men, and I most willingly leave it among the catalogue of their particular discoveries.

B b 2 I HAVE

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\* Sparman's voyage, vol. ii. p. 192.

I HAVE only to add, that though Dr Sparman and his learned associates, that feed upon the crumbs from other people's tables, may call this bird a cuckoo, still I hope he will not insist upon correcting my mistake, as, in the article of the fennec, by ignorantly tacking to it some idle fable of his own, that he may name it Cuculus Indicator.



#### S H E R E G R I G.

**T**HIS bird is one of those called Rollier in French; and Rollier in English, without either nation being able to say what is its signification in either language. In the French it is the name of a tribe, always as ill delineated as it is described, because scarce ever seen by those that either describe, or delineate it; in Latin it is called Merops. Its true name, in its native country, is Sheregrig, and by this name



*Sheregrig.*

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it is known in Syria, and Arabia, and in the low country of Abyffinia; on the borders of Sennaar, wherever there are meadows, or long grafs, interfperfed with lofty or fhady trees.

THERE are two different kinds of this bird in Syria considerably varying in colours, the brown of the back being considerably darker in that of the Syriac, and the blue much deeper, chiefly on its wings; the back of the head likewise brown, with very little pale-blue throughout any part of it, and wanting the two long feathers in the tail. It is a fly-catcher, or bee-eater, of which these long feathers are the mark. It is said by Dr Shaw, and writers that have described it, to be of the size of a jay, to which indeed the Syrian bird approaches, but this before us seems the least of his kind, and weighs half an ounce more than a blackbird. It is consequently true, as Dr Shaw says, that it has a smaller bill than a jay, because the bird itself is smaller, neither is there any disproportion in the length of its legs. Shaw says, it is called Shagarag, which he imagines, by a transmutation of letters, to be the same with Sharakrak of the Talmudists, or Shakarak of the Arabian authors, and is derived from sharak, to shriek or squall.

BUT all this learning is very much misplaced; for from the brightness of the colour, it is derived from a word which signifies *to shine*. Its belly and inside of its wings are of a most beautiful pale blue. The shoulder, or top of its wings, a dark blue. The middle of the wing is traversed by a band of light blue; the extremity of the wing, and the largest feathers, are of a dark blue. The two feathers of its  
tail,

tail, where broad, are of a light blue, but the long sharp single ones are of a dark blue, like the tips of the wings. Its bill is strong and well made, and has a pencil of hairs as whiskers. Round where the beak joins the head, the feathers are white; the eye black, and well proportioned, surrounded by a light flame-coloured iris. The back is of a very light brown inclining to cream colour, and of a cast of red. The feet are flesh-coloured and scaly, has three toes before and one behind, each with a sharp claw.

NOTWITHSTANDING what has been said as to the derivation of its name, I never heard it scream or make any sort of noise. It has nothing of the actions of either the magpie or the jay. Buxtorf interprets the sheregrig by merops the bee-eater, and in so doing he is right, when he applies it to this bird, but then he errs in mistaking another bird for it, called Sirens, a fly-catcher, very common in the Levant, which appear in great numbers, making a shrill, squalling noise in the heat of the day; and of these I have seen, and designed many different sorts, some very beautiful, but they fly in flocks, which the sheregrig does not; he attaches himself equally to swarms of bees and flies, which he finds in the woods upon the trees, or in holes in the ground among the high grass. Of these there are great swarms of different kinds in the low part of Abyssinia.

THE Count de Buffon has published two figures of this bird, one from a specimen I gave him from Abyssinia \*, the other from one stuffed, which he received from Senegal †, so

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\* Buffon, plan. enlum. 626.

† Buffon, plan. enlum. 326.

so that we know the bird possesses the whole breadth of Africa nearly on a parallel. I may be allowed to say, that, when I gave him mine, I did not expect he would so far have anticipated my publication as to have exhibited it as a part of the king's cabinet till he had heard my idea of it, and what further I could relate of its history more than he had learned from seeing the feathers of it only. When I saw the draught, it put me in mind of the witty poem of Martial: A man had stole some of his verses, but read them so ill, that the poet could not understand them well enough to know they were his own---

*Sed male dum recitas incipit esse tuum.*

The bird is so ill-designed that it may pass for a different species. It is too short in the body; too thick; its neck too short and thick; its legs, the pupil and iris of the eye, of a wrong colour; its tail affectedly spread. These are the consequences of drawing from stuffed subjects. The brown upon the back is too dark, the light-blue too pale, too much white upon the side of its head. These are the consequences of having a bad painter; and the reader, by comparing my figure with those drawn by Martinet in Buffon, may easily perceive how very little chance he has to form a true idea of any of these birds, if the difference is as great between his other drawings and the original, as between my drawing and his. De Seve would have given it a juster picture.

W A A L I A.



## W A A L I A.

**T**HIS pigeon, called Waalia, frequents the low parts of Abyffinia, where it perches upon the highest trees, and fits quietly in the shade during the heat of the day, so that it is difficult to discover it, unless it has been seen to alight. They likewise fly extremely high, in great flocks, and for the most part affect a species of the beech-tree, upon the mast or fruit of which they seem chiefly to live for food. They are rarely seen in the mountainous part of the country unless in their passage, for in the beginning of the rainy season, in the Kolla, they emigrate to the south and S. W. In this direction they are seen flying for days together. It is supposed the high country, even in the fair season, is too cold for them; and their seeking another habitation towards the Atlantic Ocean, where it is warm, and where the rains do not fall so copiously in that season as they do in the Kolla in Abyffinia, makes this conjecture still more probable.

THEY





*Nautilia*

*London Published Dec<sup>r</sup> 1<sup>st</sup> 1789. by C. Robinson & Co.*



THEY perch for most part upon the tops of trees, beyond the sphere of the action of Abyssinian powder ; but they sit so close together that I have sometimes shot six or more at the discharge of a single barrel. The rest immediately plunge down almost to touch you, apparently ignorant whence so unaccustomed a sound comes ; there, if you are a good marksman, and alert, you have another chance, though but a short one, for they immediately tower to an immoderate height, and never alight in flight unless they are wounded. They are exceedingly fat, and by far the best of all pigeons ; when they fall from a height, without life, upon their back, I have known the flesh on each side of their breast-bone separated by the concussion, and the fat upon their rump bruised like the pulp of an orange.

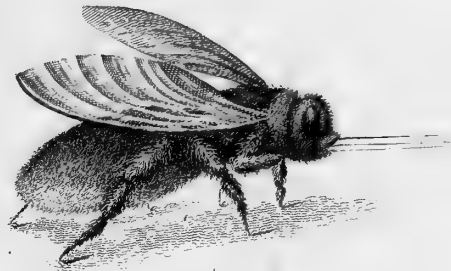
ALTHOUGH this is undoubtedly a pigeon, the Abyssinians do not eat it ; nay, after it is dead they will not touch it, for fear of defiling themselves, any more than they would do a dead horse. The waalia is less than the common blue pigeon, but larger than the turtle-dove. Its whole back, and some of the short feathers of its wings, are of a beautiful unvarnished green, lighter and livelier than an olive. Its head and neck are of a deader green, with still less lustre. Its beak is of a bluish white, with large nostrils ; the eye black, with an iris of dark orange. The pinion, or top of its wing, is a beautiful pompadour. The large feathers of the wing are black ; the outer edge of the wing narrowly marked with white ; the tail a pale, dirty blue ; below the tail it is spotted with brown and white. Its thighs are white, with small spots of brown ; its belly a lively yellow. Its legs and feet are a yellowish brown. Its feet stronger and larger than is generally found in this kind of bird. I

never heard it coo, or make any noise. I killed this, and many others, in our road to Tcherkin. In M. de Buffon's collection I see a bird resembling this, coming from the west of Africa, as I remember; but his birds in general are so very ill-drawn, and his coloured ones so shamefully daubed, that nothing certain can be founded upon resemblance.

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#### TSALTSALYA, OR FLY.

**T**HE insect which we have here before us is a proof how fallacious it is to judge by appearances. If we consider its small size, its weakness, want of variety or beauty, nothing in the creation is more contemptible and insignificant. Yet passing from these to his history, and to the account of his powers, we must confess the very great injustice we do him from want of consideration. We are



*Tsaltalya.*



*El. Adda.*



are obliged, with the greatest surprize, to acknowledge, that those huge animals, the elephant, the rhinoceros, the lion and the tiger, inhabiting the same woods, are still vastly his inferiors, and that the appearance of this small insect, nay, his very sound, though he is not seen, occasions more trepidation, movement, and disorder, both in the human and brute creation, than would whole herds of these monstrous animals collected together, though their number was in a tenfold proportion greater than it really is.

THE necessity of keeping my narrative clear and intelligible as I proceeded, has made me anticipate the principal particularities relating to this insect. His operations are too materially interwoven with the history of this country, to be left apart as an episode. The reader will find the \* description of its manners in that part of my history which treats of the Shepherds, and in several places throughout the narrative he will meet with accounts of the consequences of its wonderful influence. Providence, from the beginning it would seem, had fixed its habitation to one species of soil, being a black fat earth, extraordinary fruitful; and small and inconsiderable as it was, it seems from the first to have given a law to the settlement of the country. It prohibited absolutely those inhabitants of the fat earth, called Mazaga, domiciled in caves and mountains, from enjoying the help or labour of any beasts of carriage. It deprived them of their flesh and milk for food, and gave rise to another nation, whose manners were just the reverse of the first. These were the Shepherds, leading a wandering

C c 2

life,

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\* Vol. i. book 2. p. 388.

life, and preserving these immense herds of cattle by conducting them into the sands beyond the limits of the black earth, and bringing them back again when the danger from this insect was over.

WE cannot read the history of the plagues which God brought upon Pharaoh by the hands of Moses, without stopping a moment to consider a singularity, a very principal one, which attended this plague of the fly. It was not till this time, and by means of this insect, that God said, he would separate his people from the Egyptians. And it would seem, that then a law was given to them, that fixed the limits of their habitation. It is well known, as I have repeatedly said, that the land of Goshen, or Geshen, the possession of the Israelites, was a land of pasture, which was not tilled or sown, because it was not overflowed by the Nile. But the land overflowed by the Nile was the black earth of the valley of Egypt, and it was here that God confined the flies; for he says, it shall be a sign of this separation of the people, which he had then made, that not one fly should be seen in the sand or pasture ground, the land of Goshen, and this kind of soil has ever since been the refuge of all cattle emigrating from the black earth to the lower part of Atbara. Isaiah, indeed, says, that the fly shall be in all the desert places, and consequently the sands; yet this was a particular dispensation of providence, to answer a special end, the desolation of Egypt, and was not a repeal of the general law, but a confirmation of it; it was an exception, for a particular purpose, and a limited time.



I HAVE already said so much of this insect, that it would be tiring my reader's patience to repeat any thing concerning him. I shall therefore content myself, by giving a very accurate design of him, only observing, that, for distinctness sake, I have magnified him something above twice the natural size. He has no sting, though he seems to me to be rather of the bee kind; but his motion is more rapid and sudden than that of the bee, and resembles that of the gad-fly, in England. There is something particular in the sound, or buzzing of this insect. It is a jarring noise, together with a humming; which induces me to believe it proceeds, at least in part, from a vibration made with the three hairs at his snout.

THE Chaldee version is content with calling this animal simply Zebub, which signifies the fly in general, as we express it in English. The Arabs call it Zimb in their translation, which has the same general signification. The Ethiopic translation calls it Tfaltfalya, which is the true name of this particular fly in Geez, and was the same in Hebrew.

THE Greeks have called this species of fly *Cynomya*, which signifies the dog-fly, in imitation of which, those, I suppose, of the church of Alexandria, that, after the coming of Frumentius, were correcting the Greek copy, and making it conformable to the Septuagint, have called this fly Tfaltfalya Kelb, to answer the word *Cynomya*, which is dog-fly. But this at first sight is a corruption, apparently the language of strangers, and is not Ethiopic. It is the same as if we were to couple the two nominative substantives *Canis* and *Musca*, to translate *Cynomya*. *Canis* is indeed a dog, and *Musca* is a fly, but these two words together, as I have now wrote them, could never be brought to signify dog-fly. It is  
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the same in the Ethiopic, where Tfaltfalya alone signifies dog-fly, without the addition of any other word whatever. What is the derivation of this is doubtful, because there are several words, both in the Ethiopic and Hebrew, that are exceedingly apposite and probable. Salal, in the Hebrew, signifies to buzz, or to hum, and, as it were, alludes to the noise with which this animal terrifies the cattle: and Tfaltfalya seems to come from this, by only doubling the radicals. t'Tfalalou, in Amharic, signifies to pierce with violence; from this is derived Tfalatie, the name of a javelin with a round point, made to enter the rings of a coat of mail, which, by its structure, is impervious to the round cutting points of the ordinary lance or javelin. In the book of Job\* this seems to mean a trident, or fishing-spear, and is vaguely enough translated Habergeon in the English copy. I do not know that this insect, however remarkable for its activity and numbers, has ever before been described or delineated.

EL

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\* Chap. xli. ver. 26.

## E L A D D A.

THERE is no genus of quadrupeds that I have known in the east so very numerous as that of the lizard, or of which there are so many varieties. The eastern, or desert parts of Syria, bordering upon Arabia Deserta, which still have moisture sufficient, abound with them beyond a possibility of counting them. I am positive that I can say, without exaggeration, that the number I saw one day in the great court of the Temple of the Sun at Baalbec amounted to many thousands; the ground, the walls and stones of the ruined buildings, were covered with them, and the various colours of which they consisted made a very extraordinary appearance, glittering under the sun, in which they lay sleeping, or basking. It was in vain, in a place so full of wonders as Baalbec, to think of spending time in designing lizards. I contented myself with collecting and preserving those I could catch entire, many of which have perished.

rished by the accidents of the journey, though some of very great beauty have escaped, and are in my collection in great preservation.

As I went eastward towards the desert, the number of this animal decreased, I suppose, from a scarcity of water; for example, at Palmyra, tho' there were ruins of ancient buildings, and a great solitude, as at Baalbec, the lizards were few, all of the colour of the ground, without beauty or variety, and seemingly degenerated in point of size.

THE Arabian naturalists and physicians were better acquainted with the different species of this animal than any philosophers have been since, and in all probability than any strangers will ever be; they lived among them, and had an opportunity of discovering their manners and every detail of their private œconomy. Happy if succeeding the Greeks in these studies, they had not too frequently left observation to deviate into fable; the field, too, which these various species inhabit is a very extensive one, and comprehends all Asia and Africa, that is, great portion of the old world, every part of which is, from various causes, more inaccessible at this day, than after the Arabian conquest. It is from the Arabian books then that we are to study with attention the descriptions given of the animals of the country. But very great difficulties occur in the course of these disquisitions. The books that contain them are still extant, and all the animals likewise exist as before; but, unfortunately, the Hebrew, the Syriac, and the Arabic, are languages very ambiguous and equivocal, and are in terms too loose and vague for modern accuracy and precise description, and especially so in that of colours; besides, that unbounded liberty of transposition

position of letters, and syllables of words, in which the writers of those languages have indulged themselves, from notions of elegance, seem to require, not only a very skilful and attentive, but also a judicious and sober-minded reader, that does not run away with whimsical, or first conceptions, but weighs the character of his author, the common idioms of language which he uses, and opportunities of information that he had concerning the subjects upon which he wrote, in preference to others that may have treated the same, but who differ from them in facts.

THE small lizard here described is a native of Atbara beyond the rains, in that situation where we have said the island and city of Meroë formerly were. It seemed also to be well known by the different black inhabitants that came from the westward by the great caravan which crossed the desert north of the Niger, and is called the Caravan of Sudan, of which I have often spoken, as being the only barbarians who seem to pay the least attention to any articles of natural history. These bring to Cairo, and to Mecca, multitudes of green paroquets, monkeys, weasels, mice, lizards, and serpents, for the diversion and curiosity of the men of note in Arabia, or of the Beys and the women of the great at Cairo. This lizard is called El Adda, it burrows in the sand, and performs this operation so quickly, that it is out of sight in an instant, and appears rather to have found a hole, than to have made one, yet it comes out often in the heat of the day, and basks itself in the sun; and if not very much frightened, will take refuge behind stones, or in the withered, ragged roots of the absinthium, dried in the sun to nearly its own colour.

ALMOST the whole of this large tribe of lizards is, by the Arabians, described as poisonous. Experiment has detected the falsehood of this, in very many species; the same idea has led them to attribute to them medicinal virtues in the same proportion, and, I am apt to believe, with nearly as little reason; at least, though the books prescribing them are in everybody's hands, the remedy is not now made use of in the places where those books were wrote; and this affords a strong proof that the medicine was never very efficacious.

THE Fl Adda is one of the few which the Arabs in all times have believed to be free of poisonous qualities, and yet to have all the medicinal virtues that they have so abundantly lavished upon the more noxious species. It has been reputed to be a cure for that most terrible of all diseases, the Elephantiasis; yet this distemper is not, that I know, in the hotter parts of Africa, and certainly this lizard is not an inhabitant of the higher or colder parts of Abyssinia, which we may call exclusively the domicil of the elephantiasis. It is likewise thought to be efficacious in cleansing the skin of the body, or face, from cutaneous eruptions, of which the inhabitants of this part of Africa are much more afraid than they are of the plague; it is also used against films, and suffusions on the eyes. I never did try the effect of any of these, but give their history solely upon the authority of the Arabian authors.

I HAVE drawn it here of its natural size, which is  $6\frac{1}{2}$  inches. Though its legs are very long, it does not make use of them to stand upright, but creeps with its belly almost close to the ground. It runs, however, with very great velocity.

locity. It is very long from its shoulder to its nose, being nearly two inches. Its body is round, having scarce any flatness in its belly. Its tail too is perfectly round, having no flatness in its lower part. It is exceedingly sharp-pointed, and very easily broke, yet I have seen severals where the part broke off has been renewed so as scarcely to be discernible. It is the same length,  $2\frac{1}{8}$  inches, between the point of the tail and the joint of the hinder leg, as was between the nose and the shoulder of the foreleg. Its forehead from the occiput is flat, its shape conical, not pointed, but rounded at the end in the shape of some shovels or spades. The head is darker than the body, the occiput darker still; its face is covered with fine black lines, which cross one another at right angles like a net. Its eyes are small, defended with a number of strong black hairs for eye-lashes. Its upper jaw is longer, and projects considerably over the under; both its jaws have a number of short, fine, but very feeble teeth, and when holding it in my hand, though it struggled violently to get loose, it never attempted to make use of its teeth; indeed it seems to turn its neck with great difficulty. Its ears are large, open, and nearly round. Its body is a light-yellow, bordering on a straw-colour, crossed with eight bands of black, almost equally distant, except the two next the tail. All these decrease both in breadth and length from the middle towards each extremity of the animal. The scales are largest along the back, they are very close, though the divisions are sufficiently apparent. Their surface is very polished, and seems as if varnished over. Its legs from the shoulder to the middle toe are nearly an inch and three quarters long; its feet are composed of five toes, the extremity of each is armed with

a brown claw of no great strength, whose end is tipped with black.

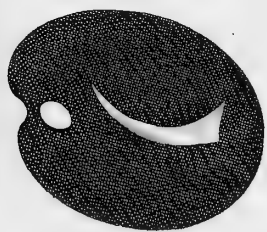
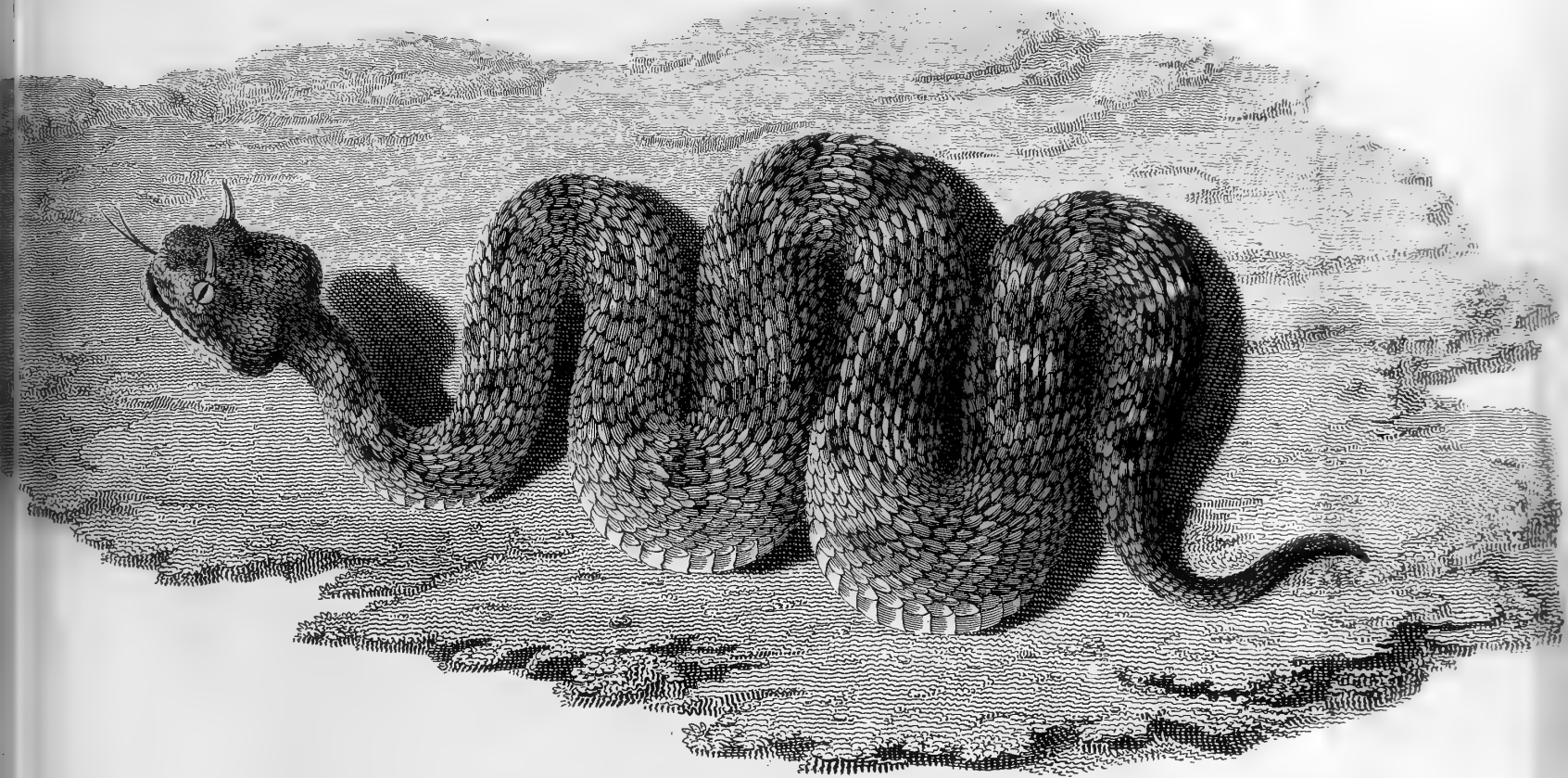
I HAVE heard some of the common people call this lizard Dhab: This we are to look upon as an instance of ignorance in the vulgar, rather than the opinion of a naturalist well informed; for the Dhab is a species perfectly well known to be different from this, and is frequently met with in the deserts which surround Cairo.



#### CERASTES, OR HORNED VIPER.

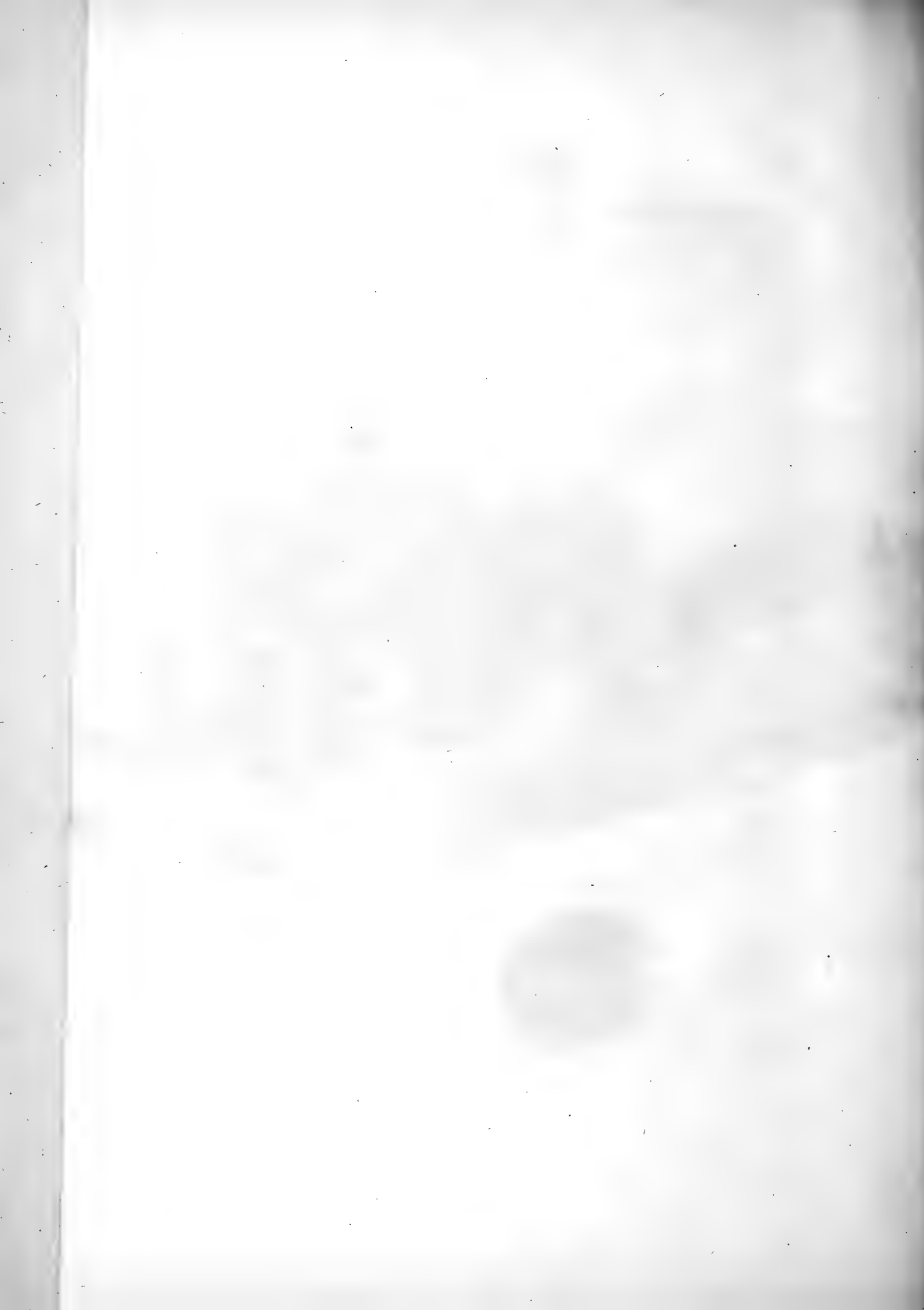
**T**HERE is no article of natural history the ancients have dwelt on more than that of the viper, whether poets, physicians, or historians. All have enlarged upon the particular sizes, colours, and qualities, yet the knowledge of their manners is but little extended. Almost every author that has treated of them, if he hath advanced some truths which he has left slenderly established by proof or experiment, by way of compensation





*Cerastes.*

*London Published Dec: 7<sup>th</sup> 1789. by G. Robinson & Co.*



compensation, hath added as many falsehoods so strongly asserted, that they have occasioned more doubt than the others have brought of light, certainty, and conviction.

LUCAN, in Cato's march through the desert of the Cyrenaicum in search of Juba, gives such a catalogue of these venomous animals, that we cannot wonder, as he insinuates, that great part of the Roman army was destroyed by them; yet I will not scruple to aver this is mere fable. I have travelled across the Cyrenaicum in all its directions, and never saw but one species of viper, which was the Cerastes, or Horned Viper, now before us. Neither did I ever see any of the snake kind that could be mistaken for the viper. I apprehend the snake cannot subsist without water, as the Cerastes, from the places in which he is found, seems assuredly to do. Indeed those that Lucan speaks of must have been all vipers, because the mention of every one of their names is followed by the death of a man.

THERE are no serpents of any kind in Upper Abyssinia that ever I saw, and no remarkable varieties even in Low, excepting the large snake called the Boa, which is often above twenty feet in length, and as thick as an ordinary man's thigh. He is a beast of prey, feeds upon antelopes, and the deer kind, which having no canine teeth, consequently no poison, he swallows whole, after having broken all its bones in pieces, and drawn it into a length to be more easily mastered. His chief residence is by the grassy pools of rivers that are stagnant. Notwithstanding which, we hear of the Monk Gregory telling M. Ludolf, that serpents were so frequent in Abyssinia, that every man carried with him a stick bent in a particular manner, for the more commodiously

modiously killing these creatures, and this M. Ludolf recommends as a discovery. And Jerome Lobo, among the rest of his fables, has some on this subject likewise. A cold and rainy country can never be a habitation for vipers. We see, on the contrary, that their favourite choice are deserts and burning sand, without verdure, and without any moisture whatever.

THE very learned, though too credulous, Prosper Alpinus, says, that many have assured him, that near the lakes contiguous to the sources of the Nile there is a number of basilisks, about a palm in length, and the thickness of a middle finger; that they have two large scales, which they use as wings, and crests and combs upon their head, from which they are called Basilisci or Reguli, that is, crowned, crested, or kingly serpents; and he says that no person can approach these lakes without being destroyed by these crested snakes.

WITH all submission to this naturalist's relation, I should imagine he could not have heard the description of these lakes from many travellers, if all those that approached them were killed by the basilisks. I shall only answer for this, that having examined the Lake Gooderoo, those of Court Ohha, and Tzana, the only lakes near the sources of the Nile, I never yet saw one serpent there, whether crowned or uncrowned, nor did I ever hear of any, and therefore believe this account as fabulous as that of the Acontia and other animals he speaks of in this whole chapter\*. The basilisk is a species of serpent, frequently made mention of in scripture,

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\* Prosp. Alpin. lib. iv. cap. 4.

scripture, though never described, farther than that he cannot be charmed so as to do no hurt, nor trained so as to delight in music; which all travellers who have been in Egypt know is exceedingly possible, and frequently seen. “For, behold, I will send basilisks among you, saith the scripture, which will not be charmed, and they shall bite you, saith the Lord†”. And‡ “Thou shalt tread upon the lion and basilisk || &c.

I SHALL mention one name more, under which the Cerastes goes, because it is equivocal, and has been misunderstood in scripture, that is Tseboa, which name is given it in the Hebrew, from its different colours and spots. And hence the Greeks § have called it by the name of Hyæna, because it is of the same reddish colour, marked with black spots as that quadruped is. And the same fable is applied to the serpent and quadruped, that they change their sex yearly.

SOME philosophers, from particular system, have judged from a certain disposition of this animal's scales, that it is what they term, Coluber, while others, from some arrangement of the scales of its tail, will have it to be what they call Boa. I enter not into the dispute, it is here as faithfully represented as the size will permit, only I shall observe that,  
unless

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† Jerem. chap. viii. ver. 17.

‡ Psalm ix. ver. 13.

|| It is to be observed here, it is the Greek text that calls it Basilisk. The Hebrew for the most part calls it Tsepha, which are a species of serpents real and known. Our English translation, very improperly, renders it Cockatrice; a fabulous animal, that never did exist. I shall only further observe, that the basilisk, in scripture, would seem to be a snake, not a viper, as there are frequent mention made of their eggs, as in Isaiah, chap. lix. ver. 5. whereas, it is known to be the characteristic of the viper to bring forth living young.  
§ Elian, Hist. lib. i. cap. 25. Horia, hieroglyph. lib. ii. chap. 65.

unless Boa means something more than I know it does, the name is ill chosen when applied to any species of poisonous serpents, because it is already the proper name of the large snake, just mentioned, that is not viviparous, and has no poison. Pliny and Galen say, that the young vipers are so fierce as to become parricides, and destroy their mother upon their birth. But this is surely one of the ill-grounded fancies these authors have adopted. The Ceraftes is mentioned by name in Lucan, and without warranting the separate existence of any of the rest, I can see several that are but the Ceraftes under another term. The thebanus ophites, the ammodytes, the torrida dipfas, and the prester\*, all of them are but this viper described from the form of its parts, or its colours. Cato must have been marching in the night when he met this army of serpents. The Ceraftes hides itself all day in holes in the sand, where it lives in contiguous and similar houses to those of the jerboa, and I have already said, that I never but once found any animal in this viper's belly, but one jerboa in a gravid female ceraftes.

I KEPT two of these last-mentioned creatures in a glass jar, such as is used for keeping sweetmeats, for two years, without having given them any food; they did not sleep, that I observed, in winter, but cast their skins the last days of April.

THE Ceraftes moves with great rapidity, and in all directions, forward, backward, and sideways. When he inclines to surprize any one who is too far from him, he creeps with his

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\* Lucan. lib. ix.

his side towards the person, and his head averted, till judging his distance, he turns round, springs upon him, and fastens upon the part next to him; for it is not true what is said, that the Ceraftes does not leap or spring. I saw one of them at Cairo, in the house of Julian and Rosa, crawl up the side of a box, in which there were many, and there lye still as if hiding himself, till one of the people who brought them to us came near him, and though in a very disadvantageous posture, sticking as it were perpendicular to the side of the box, he leaped near the distance of three feet, and fastened between the man's forefinger and thumb, so as to bring the blood. The fellow shewed no signs of either pain or fear, and we kept him with us full four hours, without his applying any sort of remedy, or his seeming inclined to do so.

To make myself assured that the animal was in its perfect state, I made the man hold him by the neck so as to force him to open his mouth, and lacerate the thigh of a pelican, a bird I had tamed, as big as a swan. The bird died in about 13 minutes, though it was apparently affected in 50 seconds; and we cannot think this was a fair trial, because a very few minutes before, it had bit the man, and so discharged part of its virus, and it was made to scratch the pelican by force, without any irritation or action of its own.

THE Ceraftes inhabits the greatest part of the eastern continent, especially the desert sandy parts of it. It abounds in Syria, in the three Arabias, and in Africa. I never saw so many of them as in the Cyrenaicum, where the Jerboa is frequent in proportion. He is a great lover of heat; for tho'

the sun was burning hot all day, when we made a fire at night, by digging a hole, and burning wood to charcoal in it, for dressing our victuals, it was seldom we had fewer than half a dozen of these vipers, who burnt themselves to death approaching the embers.

I APPREHEND this to be the asp which Cleopatra employed to procure her death. Alexandria, plentifully supplied by water, must then have had fruit of all kinds in its gardens. The baskets of figs must have come from thence, and the asp, or Cerafles, that was hid in them, from the adjoining desert, where there are plenty to this day; for to the westward in Egypt, where the Nile overflows, there is no sort of serpent whatever that I ever saw; nor, as I have before said, is there any other of the mortal kind that I know in those parts of Africa adjoining to Egypt, excepting the Cerafles.

IT should seem very natural for any one, who, from motives of distress, has resolved to put a period to his existence, especially women and weak persons unaccustomed to handle arms, to seek the gentlest method to free themselves from that load of life now become insupportable. This, however, has not always been the case with the ancients. Aria, Petus's wife, stabbed herself with a dagger, to set her husband an example to die, with this memorable assurance, after giving herself the blow, "Petus, it is not painful." Porcia, the wife of Brutus, died by the barbarous, and not obvious way of perishing, by swallowing fire; the violent agitation of spirits prevailing over the momentary difference in the suffering. It is not to be doubted but that a woman, high-spirited like Cleopatra, was also above



the momentary differences in feeling; and had the way in which she died not been ordinary and usual, she certainly would not have applied herself to the invention of a new one. We are therefore to look upon her dying by the bite of the Ceraftes, as only following the manner of death which she had seen commonly adopted by those who were intended to die without torment.

GALEN speaking of the Aspic in the great city of Alexandria, says, I have seen how speedily they (the aspics) occasioned death. Whenever any person is condemned to die whom they wish to end quickly and without torment, they put the viper to his breast, and suffering him there to creep a little, the man is presently killed. Pausanias speaks of particular serpents that were to be found in Arabia among the balsam trees, several of which I procured both alive and dead, when I brought the tree from Beder Hunein; but they were still the same species of serpent, only some from sex, and some from want of age, had not the horns, though in every other respect they could not be mistaken. Ibn Sina, called by Europeans Avicenna, has described this animal very exactly; he says it is frequent in Shem (that is the country about and south of Damascus) and also in Egypt; and he makes a very good observation on their manners; that they do not go or walk straight, but move by contracting themselves. But in the latter part of his description he seems not to have known the serpent he is speaking of, because he says its bite is cured in the same manner as that of the viper and Ceraftes, by which it is implied, that the animal he was describing was not a Ceraftes, and the Ceraftes is not a viper, both which assertions are false.

THE general size of the Cerastes, from the extremity of its snout to the end of its tail, is from 13 to 14 inches. Its head is triangular, very flat, but higher near where it joins the neck than towards the nose. The length of its head, from the point of the nose to the joining of the neck, is  $\frac{10}{12}$ ths of an inch, and the breadth  $\frac{9}{12}$ ths. Between its horns is  $\frac{3}{12}$ ths. The opening of its mouth, or rictus oris  $\frac{8}{12}$ ths. Its horns in length  $\frac{3}{12}$ ths. Its large canine teeth something more than  $\frac{2}{12}$ ths and  $\frac{1}{2}$ . Its neck at the joining of the head  $\frac{4}{12}$ ths. The body where thickest  $\frac{10}{12}$ ths. Its tail at the joining of the body  $\frac{2}{12}$ ths and  $\frac{1}{2}$ . The tip of the tail  $\frac{1}{12}$ th. The length of the tail one inch and  $\frac{3}{12}$ ths. The aperture of the eye  $\frac{2}{12}$ ths, but this varies apparently according to the impression of light.

THE Cerastes has sixteen small immoveable teeth, and in the upper jaw two canine teeth, hollow, crooked inward, and of a remarkable fine polish, white in colour, inclining to blueish. Near one fourth of the bottom is strongly fixed in the upper jaw, and folds back like a clasp knife, the point inclining inwards, and the greatest part of the tooth is covered with a green soft membrane, not drawn tight, but as it were wrinkled over it. Immediately above this is a slit along the back of the tooth, which ends nearly in the middle of it, where the tooth curves inwardly. From this aperture I apprehend that it sheds its poison, not from the point, where with the best glasses I never could perceive an aperture, so that the tooth is not a tube, but hollow only half way; the point being for making the incision, and by its pressure occasioning the venom in the bag at the bottom of the fang to rise in the tooth, and spill itself through the slit into the wound.

By

By this flat position of the tooth along the jaw, and its being defended by the membrane, it eats in perfect safety; for the tooth cannot press the bag of poison at the root while it lies in this position, nor can it rise in the tube to spill itself, nor can the tooth make any wound so as to receive it, but the animal is supposed to eat but seldom, or only when it is with young.

THE viper has but one row of teeth, none but the canine are noxious. The poison is very copious for so small a creature, it is fully as large as a drop of laudanum dropt from a vial by a careful hand. Viewed through a glass, it appears not perfectly transparent or pellucid. I should imagine it hath other reservoirs than the bag under the tooth, for I compelled it to scratch eighteen pigeons upon the thigh as quick as possible, and they all died nearly in the same interval of time; but I confess the danger attending the dissection of the head of this creature made me so cautious, that any observation I should make upon these parts would be less to be depended upon.

PEOPLE have doubted whether or not this yellow liquor is the poison, and the reason has been, that animals who had tasted it did not die as when bitten, but this reason does not hold in modern physics. We know why the saliva of a mad dog has been given to animals and has not affected them; and a German physician was bold enough to distil the pus, or putrid matter, flowing from the ulcer of a person infected by the plague, and taste it afterwards without bad consequences; so that it is clear the poison has no activity, till through some sore or wound it is admitted into circulation. Again, the tooth itself, divested of

that poison, has as little effect. The viper deprived of his canine teeth, an operation very easily performed, bites without any fatal consequence with the others; and many instances there have been of mad dogs having bit people clothed in coarse woollen stuff, which had so far cleaned the teeth of the saliva in passing through it, as not to have left the smallest inflammation after the wound.

I FORBEAR to fatigue the reader by longer insisting upon this subject. A long dissertation would remain upon the incantation of serpents. There is no doubt of its reality. The scriptures are full of it. All that have been in Egypt have seen as many different instances as they chose. Some have doubted that it was a trick, and that the animals so handled had been first trained, and then disarmed of their power of hurting; and fond of the discovery, they have rested themselves upon it, without experiment, in the face of all antiquity. But I will not hesitate to aver, that I have seen at Cairo (and this may be seen daily without trouble or expence) a man who came from above the catacombs, where the pits of the mummy birds are kept, who has taken a *Cerastes* with his naked hand from a number of others lying at the bottom of the tub, has put it upon his bare head, covered it with the common red cap he wears, then taken it out, put it in his breast, and tied it about his neck like a necklace; after which it has been applied to a hen, and bit it, which has died in a few minutes; and, to complete the experiment, the man has taken it by the neck, and beginning at his tail, has ate it as one would do a carrot or a stock of celery, without any seeming repugnance.

WE know from history, that where any country has been remarkably infested with serpents, there the people have been screened by this secret. The Pfylli and Marmarides of old undoubtedly were defended in this manner,

*Ad Quorum cantus mites facuere Ceraſta.*

SIL. ITAL. lib. iii.

To leave ancient history, I can myself vouch, that all the black people in the kingdom of Sennaar, whether Funge or Nuba, are perfectly armed against the bite of either scorpion or viper. They take the Ceraſtes in their hands at all times, put them in their bosoms, and throw them to one another as children do apples or balls, without having irritated them, by this usage so much as to bite. The Arabs have not this secret naturally, but from their infancy they acquire an exemption from the mortal consequences attending the bite of these animals, by chewing a certain root, and washing themselves (it is not anointing) with an infusion of certain plants in water.

ONE day when I was with the brother of Shekh Adelan, prime minister of Sennaar, a slave of his brought a Ceraſtes which he had just then taken out of a hole, and was using it with every sort of familiarity. I told him my suspicion that the teeth had been drawn, but he assured me they were not, as did his master Kittou, who took it from him, wound it round his arm, and at my desire ordered the servant to carry it home with me. I took a chicken by the neck, and made it flutter before him; his seeming indifference left him, and he bit it with great signs of anger, the chicken died almost immediately; I say his seeming indifference

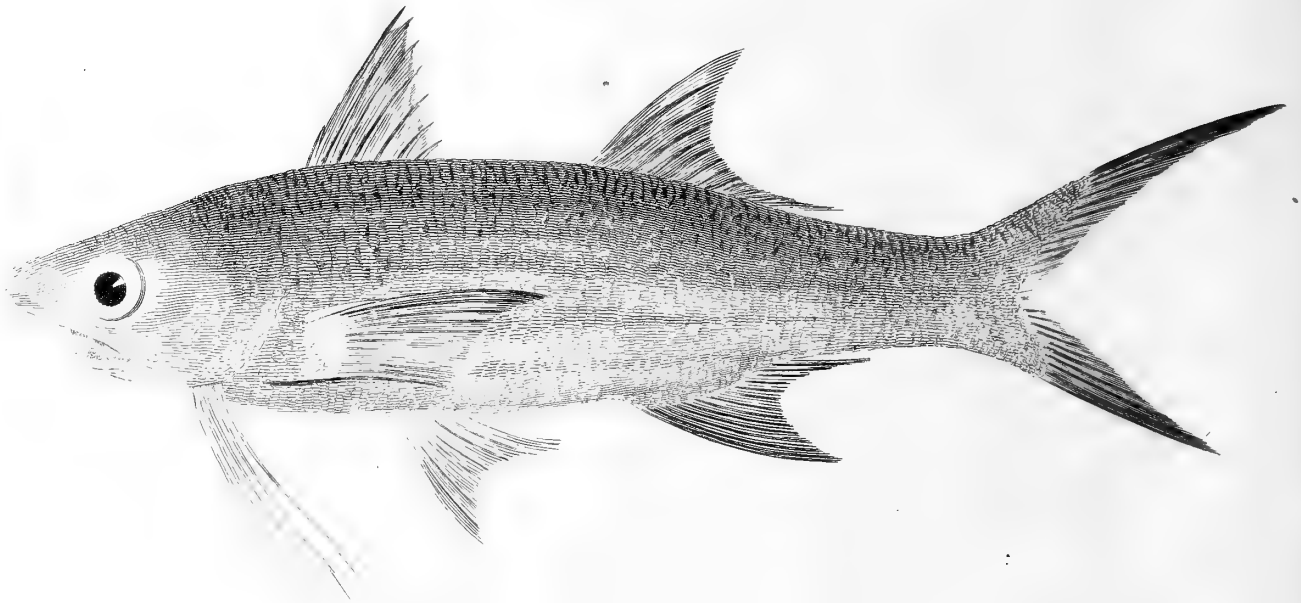
ference, for I constantly observed, that however lively the viper was before, upon being seized by any of these barbarians he seemed as if taken with sickness and feebleness, frequently shut his eyes, and never turned his mouth towards the arm of the person that held him. I asked Kittou how they came to be exempted from this mischief? he said, they were born so, and so said the grave and respectable men among them. Many of the lighter and lower sort talked of enchantments by words and by writing, but they all knew how to prepare any person by medicine, which were decoctions of herbs and roots.

I HAVE seen many thus armed for a season do pretty much the same feats as those that possessed the exemption naturally, the drugs were given me, and I several times armed myself, as I thought, resolved to try the experiment, but my heart always failed me when I came to the trial; because among these wretched people it was a pretence they might very probably have sheltered themselves under, that I was a Christian, that therefore it had no effect upon me. I have still remaining by me a small quantity of this root, but never had an opportunity of trying the experiment.

THE reader will attend to the horn which is placed over the eye in the manner I have given the figure of it, it is fluted, and has four divisions. He will likewise observe the tooth as viewed through a glass. He may suppose the black represents a painter's pallet, for the easier discerning the white tooth, which could not otherwise appear distinctly upon the white paper.

BINNY.





*Binnny*

*London Published Jan. 21<sup>st</sup> 1790 by G. Robinson & Co*



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**B I N N Y.**

**A**LTHOUGH the fish we find in the east are generally more distinguished for their beauty and variety of colours, or for their uncouth forms, rather than for the goodness of the fish itself, this before us appears to be an exception; though it is not without singularities, yet its form and colour are very simple, and, for the elegance of its taste, may vie with any fish caught in any river which runs either into the Mediterranean or Ocean. Whether it is the Latus, or the Oxyrinchus of antiquity, both fishes of the Nile, so famous that divine honours were paid them, by large cities, nomes, or districts situated upon that river, is what I am not naturalist enough to discover. Such as it is, in all its parts, I have placed it before the reader faithfully.

By the disproportion in the length of its jaws, I should imagine this to be a fish of prey, though a circumstance concerning the bait with which it is taken seems to contradict this. The fish from which this drawing was made weighed 32 pounds English, but is often caught of 70 pounds and upwards, as I have been told by the fishermen, for I never saw one larger than the one I am now describing. The largest of this kind are caught about Rosetto and the mouth of the river, but they are very numerous, higher up as far as Syene and the first cataract. This was caught at Achmim, the ancient Panopolis, and the manner in which this is performed is very uncommon and ingenious, and by the few trials that I saw is also very successful.

THEY take a quantity of oil, clay, flour, and honey, with straw, and some other thing that makes it stick together, they knead or tread it with their feet till it is perfectly mixed. They then take two handfuls of dates, and break them into small pieces about the bigness of the point of the finger, and stick them in different parts of this mixture, which begins now to have such consistency as to adhere perfectly together, and appears in form like a Cheshire cheese. In the heart of this cake they put seven or eight hooks, with dates upon them, and a string of strong whipcord to each. The fisherman then takes this large mass of paste, and putting it upon a goat's skin blown with wind, rides behind it out into the middle of the stream; there he drops it in the deepest part of the river, then cautiously holding the ends of each of the strings slack, so as not to pull the dates and the hooks out of the heart of the composition, he gets again ashore upon his skin a little below where he had sunk the solid mass.

WHEN arrived on the shore, he carefully separates the ends of the strings, and ties them, without straining, each to a palm branch made fast on shore, to the end of every one of which hangs a small bell. He then goes and feeds his cattle, digs ditches, or lies down and sleeps as his business calls him. The oil resists the water for some time, at last the cake begins to dissolve, pieces fall off, the broken dates dipped in the honey flow down the stream, and the large fish below catch ravenously at them as they pass. The fish follow these pieces up the stream, gathering them as they go along till they get to the cake at last, when altogether, as many as are assembled, fall voraciously to seek the dates buried in the composition; each fish that finds a date swallows it, together with an iron hook, and feeling himself fast, makes off as speedily as possible; the consequence is, endeavouring to escape from the line by which he is fastened, he pulls the palm branch, and rings the bell fastened to it.

THE fisherman runs immediately to the bell, and finding thereby the particular line, hauls his prisoner in, but does not kill him; the hook being large, it generally catches him by the upper jaw, which is considerably longer than the under. He then pulls him out of the water, and puts a strong iron ring through his jaw, ties a few yards of cord to it, and fastens him to the shore, so he does with the rest. Very rarely one hook is found empty. Those that want fish at Girgé, a large town opposite, or at Achmim itself, come thither as to a fish-market, and every man takes the quantity he wants, buying them alive. Fish when dead do not keep here, which makes that precaution necessary. We bought two, which fully dined our whole boat's crew;

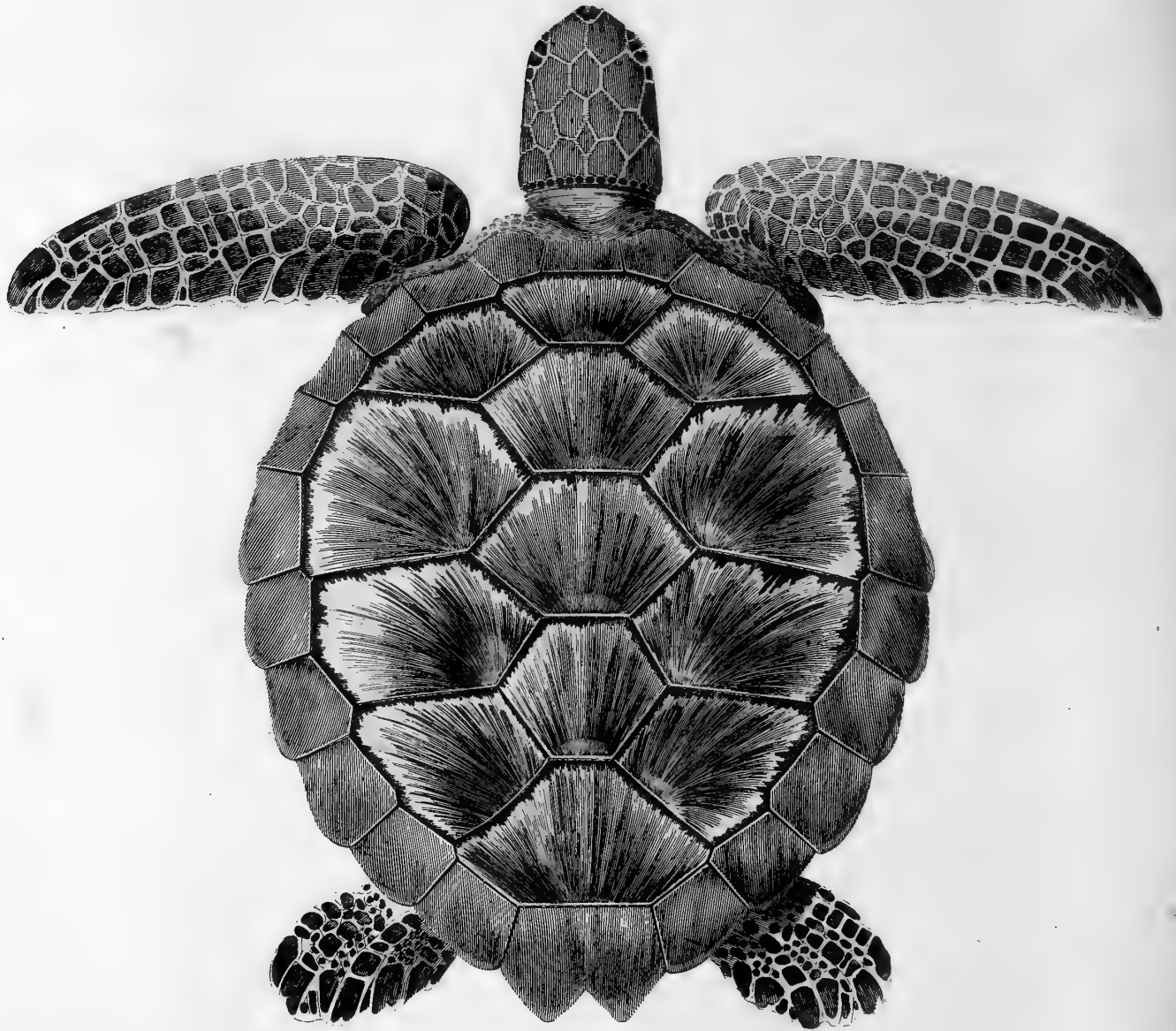
the fisherman had then ten or twelve fastened to the shore, all of which he pulled out and shewed us.

I APPREHEND that formerly this method of fishing was oftener practised, and better known than it is now, for I have seen, in several fishing towns, a tree, in which there was a fish with a ring through its nose, and beside it a bell. I likewise imagine that this is the fish which Mr Norden says the Kennoufs caught at Syene, and which he calls a Carp; but as I have already observed, streams are not the haunt of leather-mouthed, or sucking fish, as is the carp, but rather of such as are powerfully furnished with fins, as this is, to struggle with, and traverse the current in all its directions. I believe the carp to be a fish of northern climates; I have never even seen them in these, they are certainly not in Ethiopia whence the Nile comes; their name, Cyprinus, seem to indicate they belong to Greece. They are found in the island of Cyprus, but whether exclusively from the rest of the islands is what I cannot determine.

THIS fish has two fins upon its back; the first has a sharp short thorn before it, and is composed of seven longer ones, sharp pointed, but much weaker in shape, resembling the latine sail of a boat. The one behind it is composed of eleven small pliable bones, but not armed with any defence. The belly has two fins, made of pliable, unarmed bones likewise, and on its side near the gills it has two others of the same kind. The tail is forked into two sharp thin narrow divisions, that below are considerably shorter than above. Below its throat is a parcel of long bones hanging down like a beard, which grow longer as they approach the tail, the last being the largest of all.

THE





*Tortoise*

*London. Published Dec: 1<sup>st</sup> 1799. by G. Robinson & Co.*

THE whole body of this fish is covered with silver scales much resembling silver spangles, they lie close together. There is no variety of colour upon the whole fish excepting a shade of red upon the end of the nose, which is fat and fleshy. His eye is large and black, with a broad iris of white stained with yellow. It has a number of small teeth very sharp and closely set, nature has probably given him this quantity of fins to save him from the crocodile, whom by his size he seems destined to feed.



#### CARETTA, OR SEA-TORTOISE.

**A**MONG the natural productions of the Red Sea, which either have been or are at present articles of commerce, I shall just speak a little of that species of the Testudo or Tortoise, called the Caretta or Hawk's-bill. It is greatly inferior in size to the West Indian or American sea-tortoise. The extreme length of the shell of this was 3 feet 7 inches, and  
which

which was esteemed a large one. Simple as it is, I do not know one good figure of it. This which I have submitted to the reader may be depended upon for its exactness, otherwise the animal is well known, and has often been described.

Its back is covered like the rest of other turtles, with a bony substance, and this again is covered by lamina, or scales of a thin transparent texture, variegated with dark brown streaks, disposed in each scale as radii proceeding from a centre. The outer rows of the great scales are irregular pentagons. The row that runs down the middle between these are regular hexagons, and round the whole circumference the large scales are inclosed by a kind of quadrangular frame firmly united; the broadest and largest of these scales being nearest the tail. The lowest of all, as it were in the centre of the lowest part of the figure, is notched, the centre of this division answering to a line drawn through the middle of the oval, and the head or occiput.

This fish lays a multitude of eggs. Some have said that these are laid among stones, contrary to the practice of the large sea-turtle, which lays them upon sand. All I can say to this is, that I have seen them but seldom, and always upon sand, but never among stones. The fish itself is a very dry and coarse food, very different from that delicate species which comes from the West Indies, if the difference does not lie a great deal in the cookery. At the time that I ate of this animal, I was going to view the junction of the Indian Ocean without the Straits of Babelmandeb, and the wind setting in contrary,



trary, we were in great fear of not being able to return, as the reader will have seen in our voyage. Particularly, I did not observe any of the green fat, so well known to our epicures, nor indeed any fat at all. When roasted, it tasted to me much like old veal new killed. It is only an inhabitant of the mouth of the Gulf. They seldom come up the length of Mocha; when they do, they are few in number, are probably sick, and not able to bear the agitation of the waves from the south-westerners.

THE Egyptians dealt largely with Rome in this elegant article of commerce. Pliny tells us, the cutting them for fineering or inlaying, was first practised by Carvilius Pollio, from which we would presume that the Romans were ignorant of the Arabian and Egyptian art of separating the lamina by fire, placed in the inside of the shell when the meat is taken out; for these scales, though they appear perfectly distinct and separate, do yet adhere, and oftener break than split where the mark of separation may be seen distinct. Martial\* says, that beds were inlaid with it. Juvenal†, and Apuleius, in his tenth Book mentions that the Indian bed was all over shining with tortoise-shell in the outside, and swelling with stuffing of down within. The immense use made of it in Rome may be guessed by what we learn from Velleius Paterculus ‡, who says, that when Alexandria was taken by Julius Cæsar, the magazines, or warehouses, were so full of this article, that he proposed to have made it the principal ornament of his triumph, as he did  
ivory

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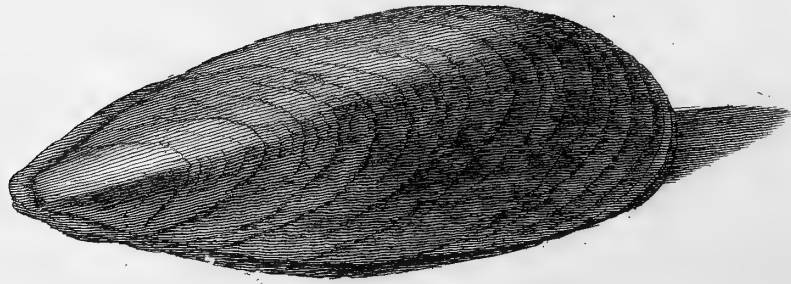
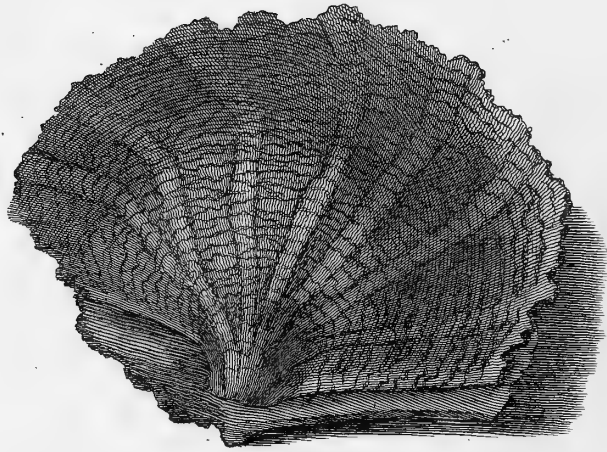
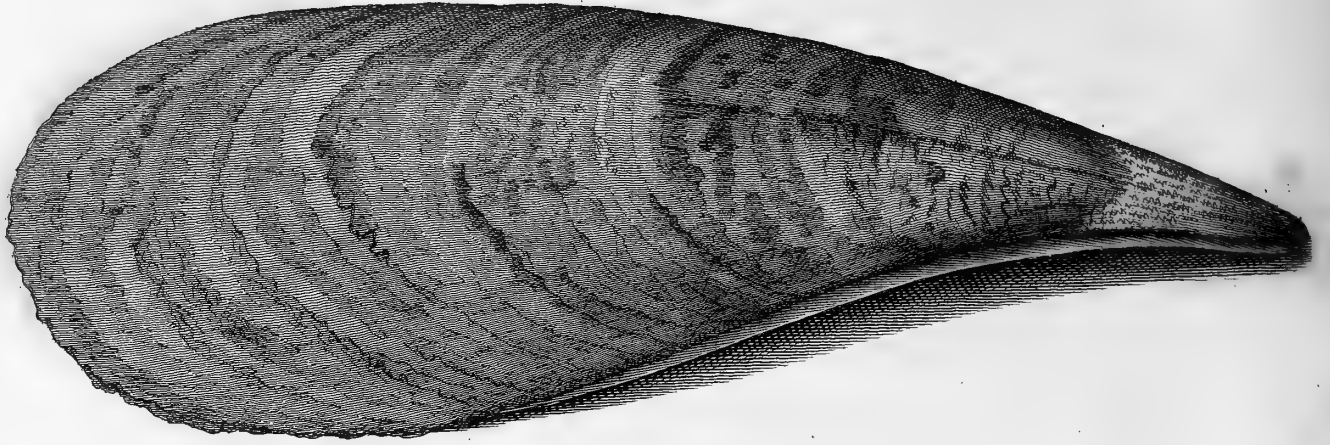
\* Mart. lib. xii. and lxxvii. epig.    † Juv. sat. xi.    ‡ Vell. Pat. lib. ii. cap. 56.

ivory afterwards when triumphing for having happily finished the African war.

THIS, too, in more modern times, was a great article in the trade to China, and I have always been exceedingly surpris'd, since near the whole of the Arabian Gulf is comprehended in the charter of the East India Company, that they do not make an experiment of fishing both pearls and tortoisés; the former of which, so long abandoned, must now be in great plenty and excellence, and a few fishers put on board each ship trading to Jidda, might surely find very lucrative employment with a long-boat or pinnace, at the time the vessels were felling their cargo in the port, and while busied in this gainful occupation, the coasts of the Red Sea might be fully explored.







*Pearls.*

*London Published Dec. 1<sup>st</sup> 1789, by G. Robinson & C<sup>o</sup>*

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OF PEARLS.

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THE ships which navigated the Red Sea brought gold and silver from Ophir and Tarshish; they brought myrrh, frankincense, and ivory, from Saba, and various kinds of spices from the continent of Asia, across the Indian ocean. If we judge by the little notice taken of them in very ancient times, the treasures which lay nearer home, in their own seas, and upon their own shores, were very little sought after, or spoken of, in the days when the navigation of the Arabian gulf was at its height. We are not, however, to believe that the pearl fishery, even in those days, was totally neglected; but foreign trade was grown to such a magnitude, and its value so immense, that we are not to be surpris'd, that articles, that were only a matter of ornament and luxury, or of domestic use, and did not enter into the medium of

VOL. V. G g commerce,

commerce, were little spoken of, however closely followed and well understood.

WE gather from scripture, the only history of these early times to be depended upon, that precious stones were imported from the southern coast of Africa. This trade, however great it might be, is mentioned but slightly, and as it were accidentally, being absorbed in the very great articles of commerce then spoken of. In the same manner we read of the beauty and excellence of pearls cursorily introduced, often by allusions and comparisons throughout the sacred books, but always in a manner which sufficiently shews the great intrinsic estimation in which they were held.

PEARLS are found in all the four quarters of the world, but in no degree of excellence, excepting in the east of Africa and in Asia. They are in every part of the Red Sea, they are in the Indian Ocean, in that low part of the coast of Arabia Felix called the Baherein, which joins to the Gulf of Persia. There are banks where they are found about Gombroon to the eastward of that Gulf, or in the flat coast there; and in the seas which wash the island of Ceylon, many have been found of the greatest beauty and price; and for number, they are nowhere so plentiful as in the Baherein, between the coast of Arabia Felix and the island of Ormus, whence they are transported to Aleppo, then sent to Leghorn, and circulated through Europe, and this above all others is the market for seed pearls.

THE oyster is currently reported to be the species of fish where this precious guest is lodged, and many a weary search

search and inquiry I have made after these oysters in the Red Sea, despairing always to see a pearl, till we had first found an oyster. The fact, however, turned out to be, that there are no such fish as oysters in the Arabian Gulf, and though our success in finding pearls was small, yet we got from the natives of the coast a sufficient number as well as information, to put it beyond doubt to what fish this beautiful and extraordinary production belonged.

PEARLS are produced only in shells that are bivalves, that is, which have an upper and lower shell closing by a hinge in a manner little differing from the oyster. It is commonly said by the fishermen, that all bivalves in the Red Sea have pearls of some kind in them. This is a very rude and large view of the matter, for though it is true that some excrescences, or secretions, of the nature of pearls, may be found in the biffer, and the large bivalves with which this sea abounds, yet it is well known to all conversant in these matters, that many of the pearl shell itself (I shall not call it an oyster, for it is not one) are found without any pearl or likeness of pearl in them; being, I suppose, not yet arrived to that age when the extravasation of that juice which forms the pearl happens.

THERE are three shell fish in the Red Sea which regularly are sought after as containing pearls. The first is a mussel, and this is of the rarest kind, whether they are now failed in number, or whether they were at any former time frequent, is now unknown. They are chiefly found in the north end of the Gulf, and on the Egyptian side. The only part I have ever seen them was about Cossair, and to the northward of it, where I must observe there was an ancient

port, called Myos Hormos, which commentators have called the Port of the Mouse, when they should have translated it, the Harbour of the Muffel. This fish contains often pearls of great beauty for lustre and shape, but seldom of a white or clear water. Pliny relates this to be the case in the Italian seas, and also in the Thracian Bosphorus, where he observes they are more frequent.

THE second sort of shell which generally contains the pearl is called Pinna. It is broad and semicircular at the top, and decreases till it turns sharp at the lower end, where is the hinge. It is rough and figured on the outside, of a beautiful red colour, exceedingly fragil, and sometimes three feet long. In the inside it is cloathed with a most beautiful lining called Nacre, or mother-of-pearl, white, tinged with an elegant blush of red. Of this most delicate complexion is the pearl found in this fish, so that it seems to confirm the sentiments of M. Reamur on the formation of pearls, that they are formed of that glutinous fluid which is the first origin of the shell, that it forms the pearl of the same colour and water that is communicated to it from that part of the shell with which it is more immediately in contact, and which is generally observed in the pinna to be higher in colour as it approaches the broadest, which is the reddest end.

UPON the maturest consideration, I can have no doubt that the pearl found in this shell is the penim or peninim rather, for it is always spoken of in the plural, to which allusion has been often made in scripture. And this derived from its redness is the true reason of its name. On the contrary, the word pinna has been idly imagined to be derived



rived from penna, a feather, as being broad and round at the top, and ending at a point, or like a quill below. The English translation of the scripture, erroneous and inaccurate in many things more material, translates this peninim by rubies \*, without any foundation or authority, but because they are both red, as are bricks and tiles, and many other things of base and vile materials. The Greeks have translated it literally pina, or pinna, and the shell they call Pinnicus ; and many places occur in Strabo, Elian, Ptolemy, and Theophrastus, which are mentioned famous for this species of pearl. I should imagine also, that by Solomon saying it is the most precious of all productions, he means, that this species of pearl was the most valued, or the best known in Judea. For though we learn from Pliny that the excellency of pearls was their whiteness, yet we know the pearls of a yellowish cast are those esteemed in India to this day, as the peninim, or reddish pearl was in Judea in the days of Solomon.

THE third sort of pearl-bearing shell is what I suppose has been called the Oyster ; for the two shells I have already spoken of surely bear no sort of likeness to that shell-fish, nor can this, though most approaching to it, be said any way to resemble it, as the reader will judge by a very accurate drawing given of it, now before him,

BOCHART

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\* See Proverbs, chap. xxxi. verse 10. But in Job, where all the variety of precious stones are mentioned, the translator is forced, as it were unwillingly, to render Peninim pearls, as he ought indeed to have done in many other places where it occurs. Job, chap. xxviii. verse 18.

BOCHART says these are called Darra, or Dora in Arabic, which seems to be the general word for all pearls in scripture, whereas the peninim is one in particular. In the Red Sea, where it holds the first rank among pearls, it is called Lule fingle, or\* Lulu el Berber, *i. e.* the pearl of Berber, Barabra, or Beja, the country of the Shepherds, which we have already spoken of at large, extending from the northern tropic, southward, to the country of the Shanggalla or Troglodytes. Androstheneſes ſays, the ancient name of theſe pearls was Berberis, which he believes to be an Indian word, and ſo it is, underſtanding, as the ancients did, India to mean the country I have already mentioned between the tropics.

THE character of this pearl is extreme whiteness, and even in this whiteness Pliny justly ſays there are shades or differences. To continue to use his words, the clearest of theſe are found in the Red Sea, but thoſe in India have the colour of the flakes, or divisions of the lapis specularis. The moſt excellent are thoſe like a solution of alum, limpid, milky like, and even with a certain almoſt imperceptible caſt of a fiery colour. Theophrastus ſays, that theſe pearls are tranſparent, as indeed the foregoing deſcription of Pliny would lead us to imagine; but it is not ſo, and if they were, it is apprehended they would loſe all their beauty and value, and approach too much to glaſs.

It has been erroneouſly ſaid, that pearl ſhells grow upon rocks, and again, that they are caught by nets. This  
is

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\* Bochart reads this Lala falſely, miſtaking the vowel point *a* for *u*, but there is no ſuch word in Arabic.

is certainly a contradiction, as nobody would employ nets to gather fish from among rocks. On the contrary, all kinds of pearl are found in the deepest, stillest water, and softest bottom. The parts of most of them are too fine to bear the agitation of the sea among rocks. Their manners and œconomy are little known, but, as far as I have observed, they are all stuck in the mud upright by an extremity, the mussel by one end, the pinna by the small sharp point, and the berberi, or lule, by the hinge or square part which projects from the round.

In shallow and clear streams I have seen small furrows or tracts, upon the sandy bottom, by which you could trace the mussel, from its last station, and these not straight, but deviating into traverses and triangles, like the course of a ship in a contrary wind laid down upon a map, the tract of the mussel probably in pursuit of food. The general belief is, that the mussel is constantly stationary in a state of repose, and cannot transfer itself from place to place. This is a vulgar prejudice, and one of those facts that are mistaken for want of sufficient pains, or opportunity, to make more critical observation. Others finding the first opinion a false one, and that they are endowed with power of changing place like other animals, have, upon the same foundation, gone into the contrary extreme, so far as to attribute swiftness to them, a property surely inconsistent with their being fixed to rocks. Pliny and Solinus say, that the mussel have leaders, and go in flocks, and that their leader is endowed with great cunning, to protect himself and his flock from the fishers, and when he is taken, the others fall an easy prey. This however I think we are to look upon as a fable. Some of the most accurate observers having discovered

vered the motion of the mussel, which is indeed wonderful; and that they lie in beds, which is not at all so, have added the rest to make their history complete.

It is observed that pearls are always the most beautiful in those places of the sea where a quantity of fresh water falls. Thus in the Red Sea they were always most esteemed that were fished from Suakem southward, that is in those parts corresponding to the country anciently called Berberia, and Azamia, from reasons before given; on the Arabian coast, near the island Camaran, where there is abundance of fresh water; and the island of Fooseht, laid down in my map, where there are springs; there I purchased one I had the pleasure to see taken out of the shell. It has been said that the fish of these shells are good, which is an error; they were the only shell-fish in the Red Sea I found not eatable. I never saw any pearl shells on either side southward of the parallel of Mocha in Arabia Felix. As it is a fish that delights in repose, I imagine it avoids this part of the gulf, as lying open to the Indian Ocean, and agitated by variable winds.

IN that part of my narrative where I speak of my return through the Desert of Nubia, and the shells found there, I have likewise mentioned the mussel found in the salt springs that appear in various parts of that desert. These likewise travel far from home, and are sometimes surpris'd by the ceasing of the rains, at a greater distance from their beds than they have strength and moisture to carry them. In many of these shells I have found those kind of excrescences which we may call Pearls, all of them ill-formed, foul, and of a bad colour, but of the same consistence, and lodged in  
in

in the same part of the body as those in the sea. The mussel, too, is in every respect similar, I think larger, the outer skin or covering of it is of a vivid green. Upon removing this, which is the epidermis, what next appears is a beautiful pink, without gloss, and seemingly of a calcareous nature. Below this, the mother-of-pearl, which is undermost, is a white without lustre, partaking much of the blue, and very little of the red, and this is all the difference I observed between it and the pearl-bearing mussel in the Red Sea; but even this latter I always found in still water, soft bottom, and far from stony or rocky ground. None of these pearl mussels, either in the Red Sea or the desert, have any appearance of being spinners, as they are generally described to be.

I HAVE said that the Baherein has been esteemed the place whence the greatest quantity of pearls are brought. I would be understood to mean, that this has been the reputed greatest regular market from antiquity to the present time. But Americus, in his second navigation, says, that he found an unknown people of that continent, who sold him above 54 pound weight for 40 ducats\*. And Peter the Martyr says, that Tunacca, one of the kings of that country, seeing the great desire the Spaniards had for pearls, and the value they set upon them, sent some of his own people in search of them, who returning the fourth day, brought with them 12 pounds of pearls, each pound 8 ounces. If this is the case, America surely excels both Africa and Asia in the quantity of this article.

VOL. V.

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\* The Spaniards have no gold ducats, so this must have been silver, value about a crown, so that the sum-total was L. 10 Sterling.

THE value of pearls depends upon size, regularity of form, (for roundness is not always requisite) weight, smoothness, colour, and the different shades of that colour. Suetonius says, that Cæsar gave to Servilia, Marcus Brutus's mother, a pearl worth about L.50,000 of our money. And Cleopatra, after vaunting to her lover, Mark Antony, that she would give him a supper which should cost two hundred and fifty-thousand pounds, for this purpose dissolved one of the pearls which she carried in her ears, which amounted to that price, and drank it. The other, it is said, was carried afterwards to Rome by Augustus Cæsar, fawn in two, and put in the ears of Venus Genetrix.

THE price of pearls has been always variable. Pliny seems to have over-rated them much, when he says they are the most valuable and excellent of all precious stones. He must probably have had those just mentioned in his view, for otherwise they cannot bear comparison with diamonds, amethysts, rubies, or sapphires.

IT has been observed to me by the pearl fishers in the east, that when the shell is smooth and perfect, there they have no expectation of a pearl, but are sure to find them when the shell has begun to be distorted and deformed. From this it would seem, as the fish turned older, the vessels containing the juice for forming the shell, and keeping it in its vigour, grew weak and ruptured; and thence, from this juice accumulating in the fish, the pearl was formed, and the shell brought to decay, perfectly in the manner, as I have before said, supposed by M. Reamur.

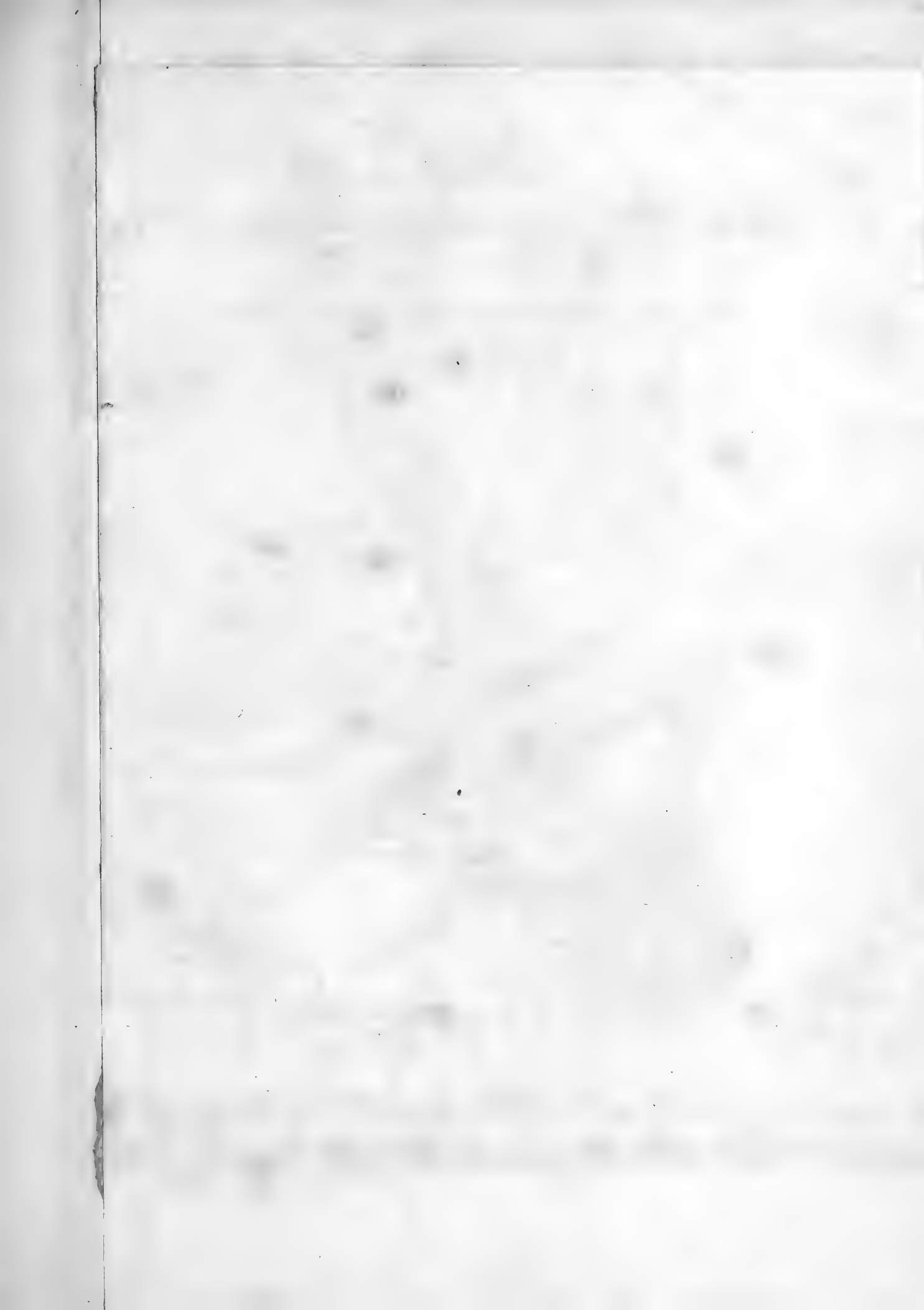
IN Scotland, especially to the northward, in all rivers running from lakes, there are found mussels that have pearls of more than ordinary merit, though seldom of large size. I have purchased many hundreds, till lately the wearing of real pearls coming into fashion, those of Scotland have increased in price greatly beyond their value, and superior often to the price of oriental ones when bought in the east. The reason of this is a demand from London, where they are actually employed in work, and sold as oriental. But the excellency of all glass or paste manufactory, it is likely, will keep the price of this article, and the demand for it within bounds, when every lady has it in her power to wear in her ears, for the price of sixpence, a pearl as beautiful in colour, more elegant in form, lighter and easier to carry, and as much bigger as she pleases, than those famous ones of Cleopatra and Servilia. I shall only further observe, that the same remark on the shell holds in Scotland as in the east. The smooth and perfect mussel shell rarely produces a pearl, the crooked and distorted shell seldom wants one.

I SHALL here mention a very elegant sort of manufactory, with which I cannot positively say the ancients were acquainted, which is fineering, or inlaying with the inside of the shell called mother-of-pearl, known to the dealers in trinkets all over Europe, and in particular brought to great perfection at Jerusalem. That of Peninim, though the most beautiful, is too fragile and thin to be employed in large pieces. It is the nacre, or mother-of-pearl taken from the Lulu el Berberi, or what is called Abyssinian oyster, principally used in those fine works. Great quantities of this shell are brought daily from the Red Sea to Jerusalem. Of these all  
the

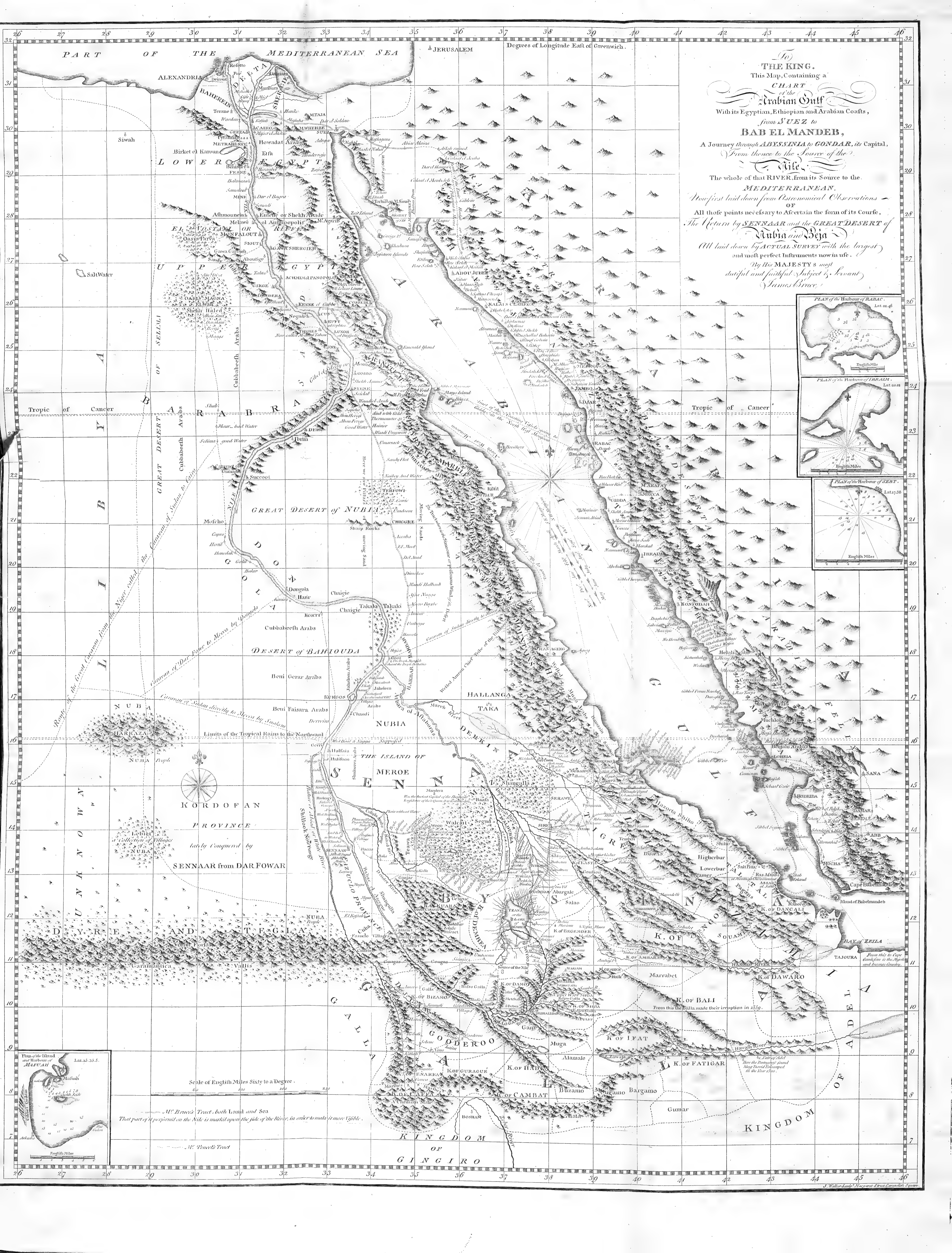
the fine works, the crucifixes, the wafer-boxes, and the beads, are made, which are sent to the Spanish dominions in the new world, and produce a return incomparably greater than the staple of the greatest manufactory in the old.

*THE END.*









To  
**THE KING.**  
 This Map, Containing a  
**CHART**  
 of the  
**Arabian Gulf**  
 With its Egyptian, Ethiopian and Arabian Coasts,  
 from **SUEZ** to  
**BAB EL MANDEB,**  
 A Journey through **ABYSSINIA** to **GONDAR,** its Capital,  
 From thence to the Source of the Nile.  
 The whole of that RIVER, from its Source to the  
**MEDITERRANEAN.**  
 Now first laid down from Astronomical Observations  
 or  
 All those points necessary to ascertain the form of its Course,  
 The Return by **SENNAR** and the **GREAT DESERT** of  
**Nubia and Seja**  
 (All laid down by ACTUAL SURVEY with the largest  
 and most perfect Instruments now in use.)  
 By His MAJESTY'S most  
 dutiful and faithful Subject, &c. *James Bruce.*

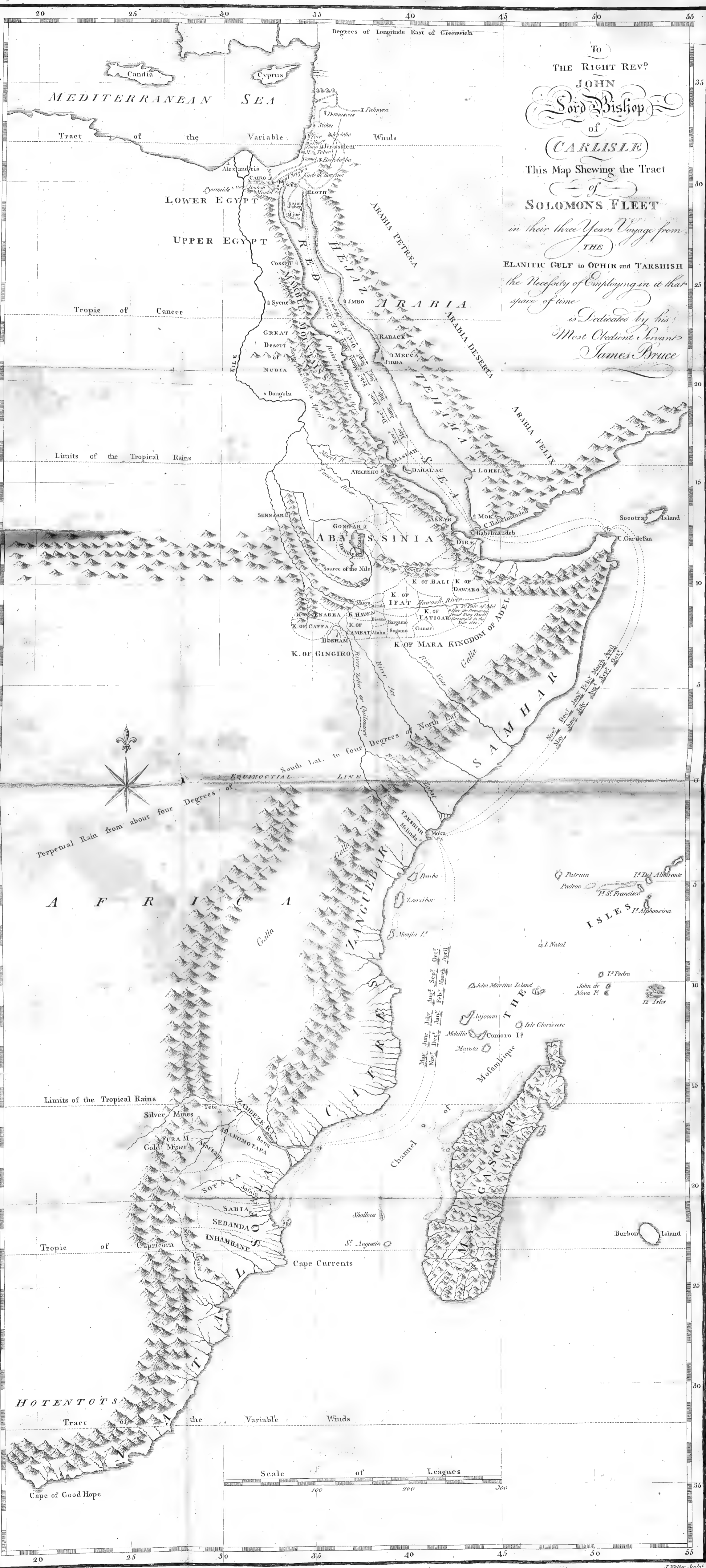


Scale of English Miles Sixty to a Degree.  
 M. Bruce's Tract, both Land and Sea  
 That part of it performed on the Nile is marked upon the side of the River, in order to make it more visible.  
 M. Pons's Tract









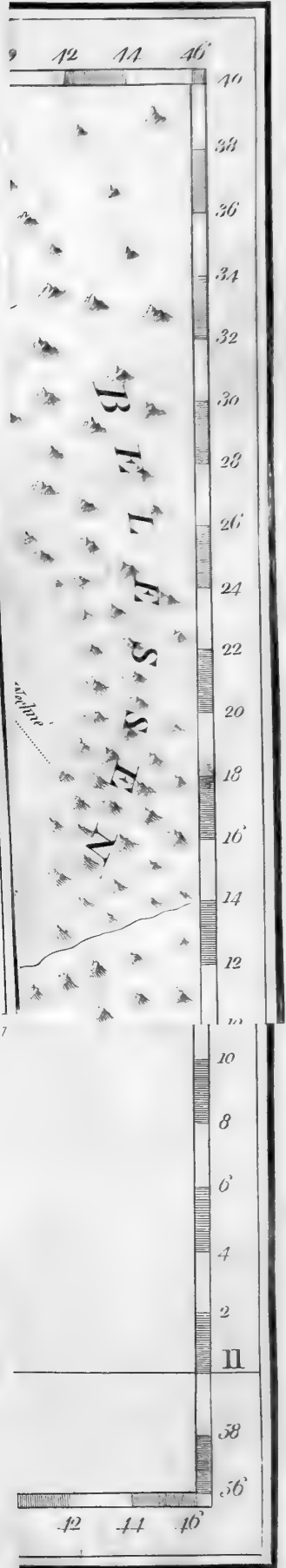
To  
 THE RIGHT REV.<sup>d</sup>  
 JOHN  
*Lord Bishop*  
 of  
 CARLISLE  
 of  
 SOLOMONS FLEET  
 in their three Years Voyage from  
 THE  
 ELANITIC GULF to OPHIR and TARSHISH  
 the Necessity of Employing in it that  
 space of time  
 is Dedicated by his  
 Most Obedient Servants  
 James Bruce

Perpetual Rain from about four  
 Degrees of  
 EQUINOCTIAL  
 LINE  
 South Lat. to four  
 Degrees of

Scale of Leagues  
 100 200 300

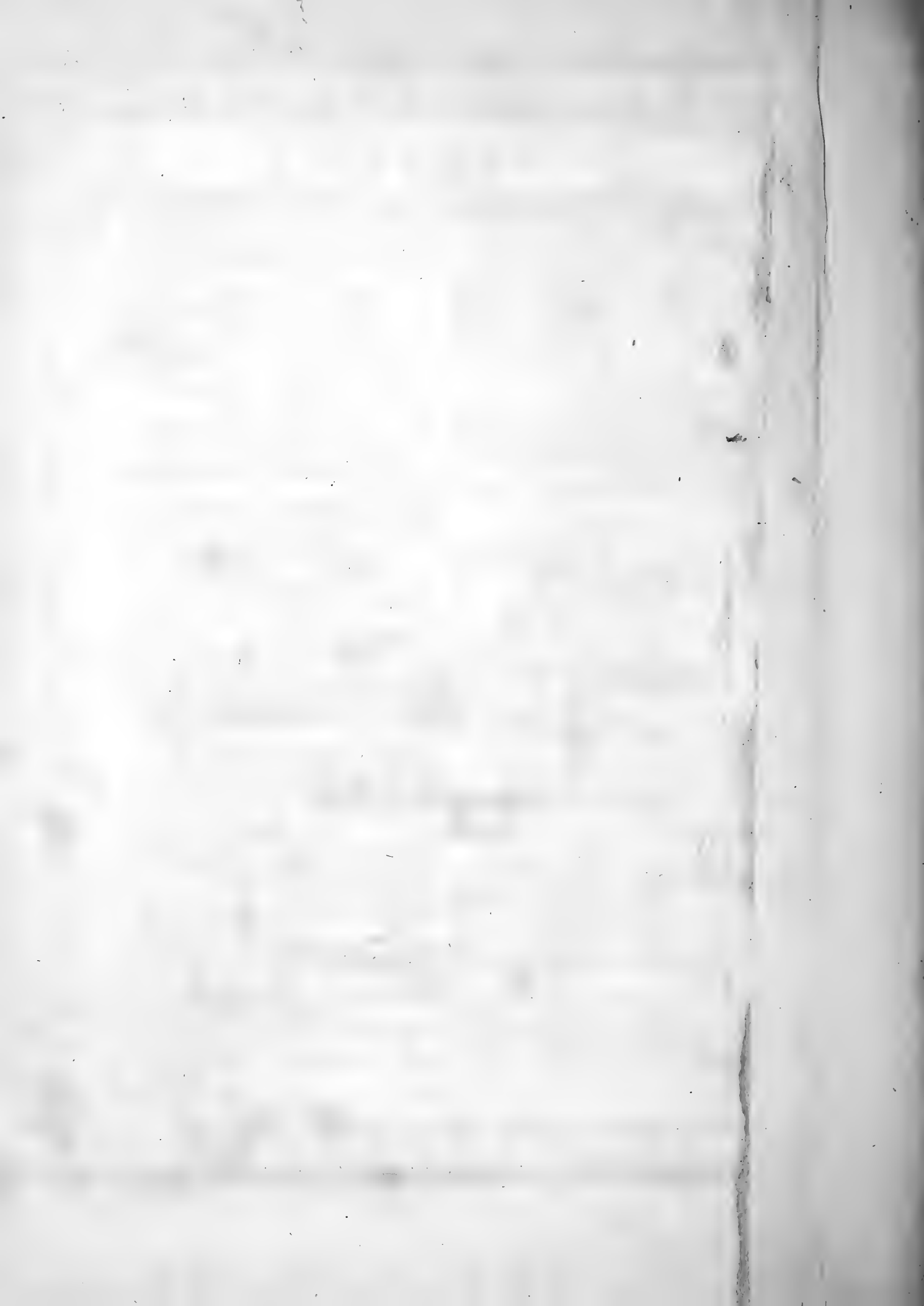












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