DILLON'S

TRAVEL

Publish'd as the Act directs Apr.ˡ 15.ᵗʰ 1780. Page sculp.ᵗ

CHARLES the III.ᴰ KING of SPAIN &c.

In the Robes of the New-Order of Carlos Tercero.

from the Original Picture of Antonio Velasquez.

TRAVELS THROUGH SPAIN,

WITH A VIEW TO ILLUSTRATE

THE NATURAL HISTORY

AND

PHYSICAL GEOGRAPHY OF THAT KINGDOM,

IN A

SERIES OF LETTERS.

INTERSPERSED WITH

HISTORICAL ANECDOTES;

ADORNED WITH COPPER-PLATES AND A NEW MAP OF SPAIN;

WRITTEN IN THE

COURSE OF A LATE TOUR THROUGH THAT KINGDOM.

BY JOHN TALBOT DILLON,

KNIGHT AND BARON OF THE SACRED ROMAN EMPIRE.

THE SECOND EDITION, WITH IMPROVEMENTS AND CORRECTIONS.

Lo unico a que puedo aſpirar, es a la gloria de ſer el primero que ha intentado una deſcripcion fiſica de eſte pais.

DON GUILLERMO BOWLES.

LONDON,

PRINTED FOR R. BALDWIN, NO. 47. PATER-NOSTER ROW; AND PEARSON AND ROLLASON, IN BIRMINGHAM.

MDCCLXXXII.

Page delin.et sculp.

To

The Right Honourable

THOMAS LORD GRANTHAM,

Late

His Majesty's Ambassador *at the Court of*

MADRID.

This Work, *is most respectfully* INSCRIBED,

By His Lordship's

most obliged, and

most humble Servant,

John Talbot Dillon.

Published as the Act directs Apr.ˡ 15.ᵗʰ 1780.

PREFACE.

AT my return from Italy, in the year, 1778, I once more viſited Spain, and traverſed the whole kingdom (*a*). This journey afforded me the greater pleaſure, from not only being verſed in the Spaniſh language, but having made many friends and acquaintance during my former reſidence in that kingdom, beſides, being no ſtranger to their manners and cuſtoms; which circumſtance greatly contributed to increaſe my amuſement, and render my travels far more agreeable than they would have been to a perſon in a leſs eligible predicament.

On my arrival at Madrid, the ingenious and elaborate work of Don Guillermo Bowles (*b*), firſt fell into my hands. This valuable treatiſe is deſigned as an introduction to the *Natural Hiſtory and Phyſical Geography* of the kingdom of Spain, for the execution of which the author was very well qualified, having been employed many years by his Catholic Majeſty in viſiting mines and other purpoſes tending to the improvement of that kingdom, in different branches of mineralogy, and other uſeful arts. Upon the peruſal of this production, it occurred to me, that at a period when *Natural Hiſtory* is ſo much cultivated, a more perfect acquaintance with a country, which had hitherto in this reſpect almoſt eſcaped philoſophical enquiry, would meet the approbation of an Engliſh reader; more eſpecially as we might be induced to expect from ſuch a writer, abundant variety of accurate information, that could not be offered by any common inveſtigator: particularly when the many inconveniencies of bad roads, and other embarraſſments, that offer themſelves perpetually in that kingdom, are conſidered. I have therefore availed myſelf of this work as my chief guide with reſpect to the principal objects of natural hiſtory, without being a mere copyiſt in every minute detail; but on the contrary, ſuch original remarks are offered as I flatter myſelf will not be unacceptable to the candid reader.

We are informed by Mr. Bowles, that having caſually (in 1752) met with at Paris, Don Antonio de Ulloa, now an admiral in the Spaniſh fleet, he was induced by this gentleman to enter into the ſervice of Spain, and that he ſoon after ſet out for that kingdom to receive his inſtructions, and to put them into execution. In this commiſſion he was aſſociated with Don Joſeph Solano, who in 1773, was appointed governor of St. Domingo; Don Salvador de Medina, who died at California, whither he went to make obſervations upon the tranſit of Venus; and Don Pedro Saura, an advocate of Madrid. The two former gentlemen were naval officers and well known by their literary abilities and travels.

The firſt object that engaged Mr. Bowles's attention was an inſpection into the quickſilver mine of Almaden, in La Mancha, at that time greatly neglected, though a place of the utmoſt

(*a*) This was my third voyage to Spain.

(*b*) Introduccion a la hiſtoria natural y a la geografia fiſica de Eſpana, por Don Guillermo Bowles. Madrid, 1775, 4to.

conſequence to the Spaniards, as they extract from the cinnabar ore of that mine, the major part of the quickſilver that is requiſite for the working of their ſilver mines in America.----Mr. Bowles relates that he ſet out for Almaden on the 17th of July, 1752, and having with great attention viſited the mines, he offered new propoſals to the Spaniſh miniſtry, in which was contained a more eligible proceſs than that which had been adopted for extracting the quickſilver, which was certified by experiments made on the ſpot, in the preſence of the king's officers, which received the approbation of government, and ſerved to fix him in their ſervice. Several years after this firſt expedition he continued his progreſs through moſt of the provinces of Spain, of which he has given rather a deſultory, though curious account, which he laid before the public, and publiſhed at Madrid in 1775, dedicated to his catholic majeſty Charles the third.

In the letters which I now preſent to the public, I have included moſt of the obſervations and remarks of Mr. Bowles in the courſe of his various journies, from the year 1752 down to the preſent time, which were read with great applauſe by the Spaniards, and bought up with ſuch eagerneſs, that in 1778 no copies were to be found. A tranſlation was ſoon after made into French by the viſcount de Flavigny, who has every where literally followed the original text, without any additional note or obſervation (*a*): in the progreſs of a work of ſo extenſive a nature, which compriſes ſuch a variety of ſubjects, we could not reaſonably expect that Mr. Bowles, as a foreigner, and more particularly at his advanced age, could ſet before the public, in the metropolis of Spain, ſo elaborate a performance, without the aſſiſtance of a native perfectly acquainted with his maternal language, till now ſo little introduced in philoſophical reſearches, though extremely copious and expreſſive.

Accordingly we find no leſs a perſon in the literary world than the ingenious and erudite Don Nicholas de Azara, the preſent Spaniſh agent at the court of Rome, the reviſor of this work; but notwithſtanding this extraordinary aſſiſtance, there remain many obſcure paſſages in different parts of the text, which neceſſarily render an exact tranſlation extremely difficult, as well as tedious and diſagreeable. Some paſſages are merely local, and would therefore afford little or no entertainment to an Engliſh reader. We find moreover, that in his introduction he is compelled, from a deficiency of expreſſion applicable to his ſubject, to enter into tedious details. The ambiguity of the Spaniſh language perplexes him, and throws a cloud over his meaning. After this he further tells us, that he confines himſelf to no kind of order or method; one chapter treats of Valencia, the next of Aragon, another of Biſcay, Catalonia, or the Eſcurial, and what is ſomewhat ſingular, the thirtieth chapter preſents us with his firſt journey from Bayonne into Spain. Judging it expedient to avoid ſuch confuſion, I have endeavoured to arrange his materials in a proper manner; and have accordingly divided this work into two parts. The firſt compriſes the journey to Madrid, by the way of Navarre, then I enter into a deſcription of the northern parts of Spain, which includes many remarkable objects in Caſtile, Aragon, and Biſcay. In the ſecond part, departing from Madrid, I tra-

(*a*) Introduction a l'hiſtoire, naturelle et a la geographic phyſique de L'Eſpagne traduit de l'original Eſpagnol de Guillermo Bowles, par le Vicomte de Flavigny. Paris, 1775. 8vo.

verſe

verſe the provinces of Eſtremadura, Andaluſia, Grenada, Murcia, Valencia, and Catalonia; and though many of theſe diſtricts have been the immediate objects of my obſervation, I ingenuouſly acknowledge that the chief remarks, with regard to the natural hiſtory of thoſe provinces, are from Mr. Bowles's valuable memoirs; where I have differed from him in opinion, my objection is thrown into a note; and where I judged extraneous matter was introduced, it is ſuppreſſed; upon the whole, if I can derive the merit of giving theſe ſheets an Engliſh dreſs, or afford any kind of novelty by enlivening the text, I ſhall be ſatisfied in having compaſſed my deſign; more eſpecially, if the literati ſhould indulge me with the opinion, that I have offered them any thing deſerving their attention, which has not appeared before in print, occaſioned by the dearth of reſearch in a country ſo rich nevertheleſs in materials, that Mr. Bowles juſtly calls it "A Virgin Land."

There are, I flatter myſelf, ſome parts of this book, which cannot, in any reſpect, be conſidered as borrowed from Mr. Bowles's work: in thoſe parts the hiſtorian and the antiquary may probably meet with ſuch detached pieces, as have hitherto eſcaped their obſervation. I muſt acknowledge that I am likewiſe indebted to the works of the celebrated Don Antonio Ponz, ſecretary to the royal academy of San Fernando at Madrid, whoſe travels through Spain have met with univerſal applauſe and recommended him to the royal favour. As the extenſive circulation of Ponz's works induced Mr. Bowles not to quote from them, I have been prevailed upon to avail myſelf of them, judging they would be agreeable to the Engliſh reader, and have endeavoured to blend the quotations with the text, in ſuch a manner as I deemed would render them the moſt acceptable: my deſign being merely intended as an eſſay to afford a guide to future travellers. It is offered to the public in the flattering expectation that it may ſtimulate more capable travellers to inveſtigate the ſubjects it treats of with greater judgment and accuracy. A ſummary account of the mineral waters of Trillo is introduced with a ſimilar view. It is ſelected from the judicious treatiſe of Dr. Ortega, F. R. S. and I am indebted to the obſervations of the late Don Joſeph Quer, his Majeſty's Surgeon, for what is offered on the virtues of the Perennial leaved Strawberry tree.

If it ſhould be urged that I have taken too great liberties with Mr. Bowles's text, let it be remarked, I have invariably prefixed his name at the head of each letter, any part of the contents of which is borrowed from him, to acknowledge fairly my obligation. I have likewiſe endeavoured to do juſtice to his ideas as far as the great variation of idioms would allow; it being as diſtant as poſſible from my intentions to depreciate in the ſmalleſt degree, the extraordinary merit, which muſt impartially be aſcribed to his uncommon talents. To what I have ſaid I muſt ſubjoin that it never was my intent to produce a tranſlation of his book; of which many curious pieces are omitted relative to *platina*, the Mexican mines, and other miſcellaneous matter. On the whole I have aimed at catching the quinteſſence of his book. I have ventured to communicate it to my countrymen for their inſtruction, benefit, and entertainment. How far I have ſucceeded, I leave to the candid, the intelligent reader; but ſhall venture to ſay with Wentworth Dillon, Earl of Roſcommon,

The

The genuine ſenſe intelligibly told,
Shews a tranſlator both diſcreet and bold.

It now behoves me to apologize for the many defects and imperfections that will preſent themſelves to the eye of criticiſm in the courſe of peruſing this work. Should my ſtyle appear cold and inanimate when I climb the bleak ſnowy mountains of Aragon and Biſcay, how much more muſt I dread languor and torpidity in the fruitful plains of Andaluſia and Granada; or amidſt the flowery lawns of captivating Valencia. But thus ſituated at the bar of criticiſm, I truſt myſelf to the candour of my jury, the impartial public; let me plead in defence of any defects in language, a long abſence from my native country, which however afforded me great ſatisfaction, more particularly at the Court of Vienna, from the extraordinary favours I had the honour to receive there, from two ſucceſſive emperors.

It yields me a moſt flattering retroſpect to repaſs in my memory, the various friendly offices I received from many diſtinguiſhed perſons, during my tour through different parts of Spain, and alſo the aſſiſtance of ſome of my friends in England, in the execution of this deſign. I hope my learned friend, Dr. Withering, will pleaſe to accept my ſincereſt acknowledgments for his very liberal aſſiſtance and obliging reviſion of this work. I am further particularly indebted for many communications to a Gentleman, whoſe long reſidence in Spain, gave him the beſt opportunities of information, equal to his kind diſpoſition to promote literary reſearches there, and to whoſe friendly aſſiſtance the firſt hiſtorian of the age has expreſſed ſuch particular obligations.

The reader need not be ſurprized that I have not engaged in politics, naval or military operations: they were foreign to my ſubject, which leads not to ſpeak of fleets or armies, or the efforts of contending princes, no more than of national characters. The reſearches of nature alone, and the admiration of providence in their diſcovery, afford an ample field for the philoſophic traveller! If I have ſometimes expatiated on the qualities or excellence of Spaniſh productions (*a*), I hope, nevertheleſs, it will not be thought, that I mean to leſſen or feel leſs warmth for the innumerable advantages of my own country, wherein, if we have not the rich fruits of the ſouthern climes, we enjoy ſo many other eſſential benefits, ſuperadded to the greateſt abundance of every neceſſary, every convenience of life, as cannot fail, from our inſular ſituation, to render us a moſt happy people. Thus even ſuppoſing for a moment we grant to other nations every advantage of a luxuriant climate, or that the Spaniard lives in ten degrees of more indulgent ſkies;

'Tis Liberty that crowns Britannia's iſle,
And makes her barren rocks, and her bleak mountains ſmile.

ADDISON.

Birmingham, April 15, 1780.

(*a*) Even the great Linnæus, ſpeaking of the natural advantages of the climate of Portugal has ſaid, Bone Deus! Si Luſitani noſcent ſua bona naturæ, quam infelices eſſent, plerique alii, qui non poſſident terr as Exoticas. See Linnæus in epiſtola die. 12 Februarii, 1765.

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terranean towards the east; by the Straights of Gibraltar

NEW MAP of SPAIN.

Intended for TRAVELS into SPAIN &c.

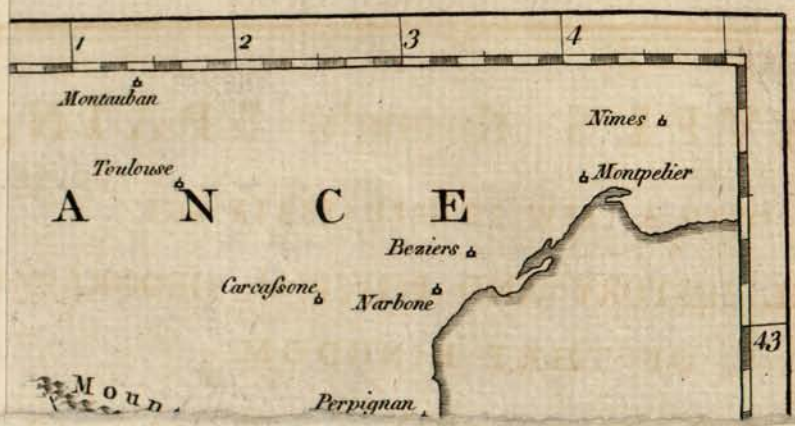
By JOHN TALBOT DILLON, Knight & Baron of the Sacred Roman Empire.

Engraved by J. Page, London. 1780.

Published as the Act directs April 15th 1780.

British Statute Miles.
10 20 40 60 80 100 120

ATLANTIC OCEAN
MEDITERRANEAN SEA
BAY OF BISCAY
FRANCE
PORTUGAL
KING M. OF GALICIA
PRINCIPALTY OF ASTURIAS
LORDS OF BISCAY
KING M. OF NAVARRE
KING M. OF OLD CASTILE
PRINCIPALTY OF CATALUNA
KING M. OF ARAGON
ENTRE MINHO E DOURO
TRASOS MONTES
BEIRA
LEON
ESTREMADURA
ALENTEJO
ALGARVE
KING M. OF TOLEDO
NEW CASTILE
LA MANCHA
KING M. OF VALENCIA
KING M. OF MURCIA
KING M. OF ANDALUSIA
KING M. OF CORDOVA JAEN
KING M. OF SEVILLA
KING M. OF GRANADA
AFRICA
Pyrenean Mountains
Sierra Morena Mts
MINORCA
MAJORCA
IVIÇA
FORMENTERA I.
Mouths of the Ebro River
C. de Palos
C. de Gat.
Alboran I.
Straits of Gibraltar



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The tail-piece, a landſcape, exhibiting a view of the Spaniſh gennet and lizard, with different trees and plants, ſuch as the palm, ſcarlet oak, Indian fig, aloe, vine, &c.

TRAVELS

TRAVELS through SPAIN;

WITH A VIEW TO ILLUSTRATE THE

NATURAL HISTORY AND PHYSICAL GEOGRAPHY

OF THAT KINGDOM.

PART I.

LETTER I.

Diviſion of the kingdom of SPAIN.

THE dominions of Spain are generally claſſed by their writers in the following order. The kingdom of Spain, conſiſting of Old and New Caſtile; the kingdoms of Leon, Aragon, Navarre, Granada, Valencia, Galicia, Seville, Cordova, Murcia, Jaen, and Majorca; the principalities of Aſturias, and Catalonia, the provinces of Eſtremadura, Guipuſcoa, and Alava, and the lordſhips of Biſcay, and Molina: they are bounded by the Cantabrian ocean, or bay of Biſcay, on the north, by the Pyrenean mountains and the Mediterranean towards the eaſt; by the ſtreights of Gibraltar

and the Mediterranean, which divide it from Africa, on the ſouth, and by the great Atlantic ocean on the weſt: lying between 36 and 43 degrees of north latitude, and between 8. 22. longitude, reckoning from the iſland of Ferro, the moſt weſtern of the Canary iſlands (*a*). The Pyrenean mountains are the higheſt in Spain, extending from the ocean to the Mediterranean, ſeveral others branching out, as from their root, ſuch as mount Idubeda now called Montes de Oca, the Orbion, Moncayo, the Puerto de Pajares, or paſs from Caſtile to Aſturias, the Puerto de Guadarrama, which ſeparates the two Caſtiles, that of Molina, of Cuenca, of Conſuegra, of Alcaraz, of Segura, of Cazorla, and the Montes Marianos now called the Sierra Morena (*b*): the Puerto del Rey (*c*),

(*a*) Deſcripcion de la provincia de Madrid, por Thomas Lopez. Madrid, 1763, 12mo.

(*b*) *Sierra* is a general name in Spain for all wild diſtricts whoſe rugged appearance ſeems to reſemble the notches of a ſaw (which is *Sierra* in Spaniſh.) Of theſe places the Sierra Morena in Andaluſia is one of the moſt extenſive and bleak. Tranſlated literally it anſwers to our Engliſh word, Black-Heath.---The inhabitant of ſuch a country is called *Serrano*, and if the diſtrict is ſmall, it is called *Serrania*.

(*c*) The word *Puerto* is applied to paſſes from one province to another where duties are paid. I could not help ſmiling to read in a modern geographer, that *Ordunna*, (becauſe there is a *Puerto* there) has a good harbour, when it is an inland city ſeven leagues from Bilboa. J. Barrow's geog. dict. 2 vol. fol. 2d edition reviſed and corrected, 1763.

At many of theſe *Puertos* there are ludicrous duties eſtabliſhed, as for example, at the *Puerto del Rey* in Sierra Morena a ſingular toll is paid for monkies, parrots, negroes, and guittars unleſs played upon at the time: married women unleſs in company with their huſbands or producing certificates;---viz. for any monkey, parrot or ſingular bird, one *real vellon*; a guitarre, one *peſeta*; any drum, unleſs the king's, one *peſeta*; a woman as above deſcribed, one *real vellon*; a travelling mule, one *quarto*.

which

which commands the communication between Caſtile and Andaluſia, and the Puerto del Muradal, where lies that famous paſs called las Navas de Toloſa, celebrated for the victory obtained there in 1212 over the king of Morocco, and other paſſes of leſs note.

Amongſt the rivers, the Ebro has its ſource near Fontibre, ſix leagues from Aguilar del Campo, paſſes by Logrono, Viana, Calahorra, Tudela, Zaragoſſa, Mequinenza, and Tortoſa, and a little lower falls into the Mediterranean at the Alfaque iſlands.

The Guadalquivir has its ſource in the Sierra de Segura, paſſes by Beas, Baeza, Andujar, Cordova, Loxa and Seville, and enters the ocean at San Lucar de Barrameda, receiving in its courſe the waters of the rivers Guadalbullon and Genil.

The Tagus riſes in the Sierras near Albarracin, paſſes by Zurita, Aranjuez, Toledo, Almaraz, Alcantara, Abrantes, Santarem, and Liſbon, where it is three miles broad and enters the ocean, having the tide as high as Santarem, and receiving in its courſe the waters of the Jarama, Manzanares, Guadarama, Alberche, and others.

The Guadiana riſes about four leagues from Montiel in the Laguna Ruydera, and after running under ground

appears again near Damiel at the lakes or lagunes called *Ojos de Guadiana* "the Eyes of Guadiana," then paſſes by Calatrava, Ciudad Real, Medellin, Merida, Badajoz, and Ayamonte, where it falls into the ocean, after running for ſome time in Alentejo, in Portugal, and ſeparating that kingdom from Spain, having Caſtro Marin of Portugal on the weſt, and Ayamonte on the eaſt.

The Duero riſes in the Sierra of Orbion and paſſes by Soria, Almazan, Oſma, San Eſtevan de Gormaz, Aranda de Duero, Roa, Simancas, Tordeſillas, Toro, Zamora, Miranda de Duero, Lamego, and enters the ocean at Oporto, receiving the rivers Ereſma, Adaja, Piſuerga, Ezla, Agueda, and others.

The Minho has its ſource in Galicia near Caſtro del Rey. It runs South Weſt and paſſes by Lugo, Orrenſe and Tuy, after which it divides Galicia from Portugal, and falls into the Atlantic at Caminha.

Other ſmaller rivers are alſo worthy of notice ſuch as the Segura, Guadalaviar, Lobregat, Caya, Vidaſo, Tinto, Guadalate, &c.

Spain may be ſaid to enjoy a temperate and healthy air, neither ſo cold as the northern regions, nor ſo burning

ing as the ſcorching heats of Africa, and abounds in cattle, game, fowl, corn, wool, ſilk, wax, honey, excellent wine, brandy, oil, and ſugar, all kinds of fruit and pulſe, aromatic herbs and plants, the fineſt of oaks, quarries of marble, alabaſter, jaſper, and other precious ſtones; mines of ſilver, lead, copper, iron, mercury, antimony, and cobalt: in ſhort every natural advantage tending to the pleaſure and happineſs of mankind.

The territories of Spain are ſaid to contain 25,000 ſquare leagues (*a*). According to returns made to the Count de Aranda in 1768, the general population of the whole, including the Canaries and Mediterranean iſlands, amounted to about nine millions of ſouls. In the year 1778 it was further calculated to be between ten and eleven millions, and ſuppoſed to be increaſing.

(*a*) The Spaniſh league is 7680 varas. 17 Spaniſh leagues make one degree, equal to 20 French leagues.

Three Caſtilian feet make one *vara* of Caſtile, whoſe length is about 33 inches Engliſh.

LETTER

LETTER II.

Itinerary from Bayonne to Pamplona, and from thence to Madrid. A mine of ſal gem at Valtierra deſcribed.

QUITTING Bayonne I proceeded on my journey towards Spain (*a*), and travelling through an uneven country, I began to perceive a ſpecies of flaty ſtone which announced the vicinity of the Pyrenees about half a league diſtant. The environs of Anoa are mountainous. The farmers manure the ground with lime to ſow maiz or Indian corn, laying on a greater quantity for wheat, without which it yields nothing, which proves the neceſſity of this method to cheriſh and expand the tough and cold ſoil in mountainous countries.

Half a league from Anoa a rivulet forms the boundary between France and Spain. The country is covered with fern, which they cut and heap in piles, till it rots and ſerves for manure. In the arable land, and where cattle have grazed, there are two kinds of mint, ground ivy, and other uſual plants. You next paſs a Carthuſian

(*a*) The itinerary of Mr. Bowles is ſupported in this letter, with reſpect to natural hiſtory, and further illuſtrated with the hiſtorical part not mentioned by that writer.

convent

convent at the foot of a high mountain chiefly of quartz (*a*), whoſe ſummit is a rock of purpliſh ſand, and from thence deſcend to the firſt village in Spain called Maya, ſeated in a valley where they have good crops of maiz and turneps, and whoſe ſoil though not calcareous produces equally the ſame kind of plants. Such as the elder, henbane, nightſhade, ſwallow wort, figwort, thorn-apple, hawthorn and bullace tree. After paſſing the village of Elizondo and traverſing the vale, I aſcended a mountain of blueiſh lime rock with fine beech towards the top, its ſides lined with many other trees, ſuch as elder, hawthorn, and holm. This mountain is one of the higheſt in this country; but in ſpeaking of the plants found here, I only mean ſuch as are ſeen in that part ſtill uncultivated, for where the ground has been opened, and near the inn called Venta de Belate, not far from the top of the mountain, being acceſſible to animals, the following plants are to be ſeen, celandine, mint, cuckow-flower, crowfoot, plantain, ſowthiſtle, figwort, archangel, dock, arſmart, and two ſorts of maidenhair on the walls, from whence I judge that if a houſe was built on the higheſt and moſt barren mountain, and the ground manured with the dung of animals, we ſhould ſoon perceive the ſame plants that are obſerved in the neigh-

(*a*) Quartz is a hard vitrifiable ſtone, ſomething intermediate betwixt rock cryſtals and flints or opake vitrifiable ſtones, well known to metallurgiſts, mineralogiſts, and miners. According to Cronſted, it is eaſier to be known than deſcribed.

bourhood

bourhood of villages and in plains, and that it is not a good rule to judge of the height of a mountain by the appearance of plants, if no diſtinction is made between the ſpontaneous ones and the others, elſe we might conclude that the little hill of Meudon near Paris is as high as the Pyrenees.

From the Venta de Belate it is an eaſy deſcent into another vale well cultivated with vines and corn, which extends as far as the city of Pamplona, capital of the kingdom of Navarre. In this vale there is a wood of ſtately oaks, with plenty of box, thorntree, wild roſes and other common plants of cultivated countries. You keep conſtantly on the borders of a rivulet running amongſt round ſand-ſtone of a purple colour, ſimilar to thoſe on the other ſide towards France. I ſaw the following plants in the plains of Pamplona, on the ſide of the roads, in the fields and the vineyards; two ſorts of eringo, one called the hundred headed ſort, and the other with large leaves, poppy, dockweed, white horehound, vipergraſs, elder, white gooſegraſs, devilſbit, cinquefoil, croſſwort, henbane, tutſan, agrimony, teaſel, hawthorn, reſt harrow, crowfoot and bullace.

In this plain it is clearly ſeen how the limy rock decays, for in an almoſt perpendicular fiſſure above an hundred feet high, the earth which at firſt ſight and even

to

to the touch appears to be clay, is nothing more than limy earth, mixed with a ſmall portion of clay, the reſult of rotten plants as I experienced with the acid I always carry with me whenever I travel. The ſame ſort of earth of a blueiſh colour is found near Pamplona, but harder, and ſo very hard in a hill oppoſite to the city, as to deſerve the name of ſtone, diſpoſed in ſtrata with the ſame obliquity as the fiſſure abovementioned, all which proves the decompoſition of the rocks.

Leaving Pamplona I traverſed a champaign country for two leagues and a half to the mountain oppoſite, which having paſſed, a variety of cultivation takes place. Some limy rocks are ſo barren, that nothing is to be ſeen but butchers broom, a few oaks, juniper, and lavender, for two leagues and a half further, when I arrived at the city of Tafalla; then paſſing an extenſive plain full of aromatic plants, had five leagues to Caparroſo. This plain may be thrown into four diviſions, the firſt from Tafalla being olive trees, the ſecond vineyards, the third corn-fields, and the fourth barren, except a few olive trees and ſome corn-fields near Caparroſo, where a hill divides the plain, and now and then, the rounded purple ſtone ſhews itſelf again the ſame as in France.

From Caparroſo I croſſed a high hill where any miner might miſtake the ſtrata of gypſeous ſtone which is only one or two inches thick, for ſpar, but you may dig as

deep as you pleaſe, and never find any thing but gypſum, which is very ſeldom ſeen where there is mineral. The country, is every where barren and miſerable, a perfect deſert without water, and nothing but roſemary, lavender, and a few ſtarved oaks. After quitting this wretched diſtrict a fertile plain opens to the eye, ſupplied by wheels with water from the Ebro, and here I ſaw the tamariſk, which is a beautiful plant when in flower.

From Caparroſo it is four leagues to the Ebro in a plain bordered by a chain of hills from eaſt to weſt, compoſed of limy earth mixed with gypſeous ſtone, ſometimes in ſtrata, granulated, or in maſſes, white as ſnow. This chain extends about two leagues, and towards the middle, where it is the higheſt, ſtands the village of Valtierra: about half way up, there is a mine of foſſil common ſalt, which being tranſparent and reſembling chryſtal, goes by the name of Salgem, and is ſeen above ground where the ſhaft is made at the entrance of the mine. About twenty paces within, one obſerves that the ſalt, which is white and abundant, has penetrated into the very beds of gypſeous ſtone. This mine may be about four hundred paces in length, with ſeveral lateral ſhafts, upwards of eighty paces, ſupported by pillars of ſalt, and gypſum, which the miners have very judiciouſly left at proper diſtances, ſo that it has all the appearance of a gothic cathedral. The ſalt follows the

direction

direction of the hill, inclining a little to the north, like the ſtrata of gypſum, being compriſed in a ſpace about five feet in height without variation, and ſeems to have corroded ſeveral beds of gypſum, and marl, and inſinuated itſelf into their place, though much of thoſe ſubſtances ſtill remain.

At the end of the principal ſhaft, the miners have carried out a branch to the right, where the ſaline bed appears to have followed exactly the inclination of the hill, which in that part is very perpendicular: this ſtratum of ſalt deſcends to the valley, and goes on to the oppoſite hill; which regularity deſtroys the ſyſtem of thoſe who pretend that ſal gem is formed by the evaporation occaſioned by ſubterraneous fire. If this was the caſe, the beds would not be undulated in this manner, reſembling thoſe of coal at Chamond, near Lyons, in France, or thoſe of aſphaltos (*a*), in Alſace, that follow the elevation and declivity of the hills or vallies, the bi-

(*a*) *Aſphaltos* or *Jewiſh bitumen* is ſo called from the lake Aſphaltites or dead ſea in Judea, which riſes up in the nature of a liquid pitch, and floats upon the ſurface of the water like other oleaginous bodies, and is condenſed by degrees through the heat of the ſun; the Jews formerly uſed it to embalm their dead. The Arabs gather it for pitching their ſhips, but Europeans uſe it in medicinal compoſitions, eſpecially in theriaca, or Venice treacle; as alſo a fine black varniſh, in imitation of that of China. Rolt's dict. of commerce. London, 1761.

The origin of bitumens is an intereſting queſtion, concerning which naturaliſts are not agreed, ſome imagining that they eſſentially belong to the mineral kingdom, and others that they proceed originally from vegetable ſubſtances; we muſt allow this latter opinion to be the moſt probable, &c. See dict. of chemiſtry, tranſlated from the French. London, printed for T. Cadell, 1777.

tumen often floating on the water when it meets with it. I am of opinion that ſalt grows in the mine like minerals, that coal is the product of foſſil wood, as appears from ſuch remnants as are found in the mines (*a*), and that the aſphaltos is produced by the water of ſome ſpring. I examined attentively theſe ſtrata of ſalt, comparing them with the matter in which they are embedded. I obſerved the roof to be of gypſum with aromatic plants, then two inches of white ſalt, ſeparated from the gypſum by a few threads of ſaline earth, then, three fingers breadth of pure ſalt, with two of ſtone ſalt, and a coat of earth, next another blueiſh bed, followed by two inches of ſalt; and laſtly, other beds alternately of earth, and chryſtaline ſalt to the bed of the mine, which is gypſeous ſtone undulated like the reſt, deſcending to the valley, and riſing on the oppoſite hills. The ſtrata of ſaline earth are of a dark blue, but thoſe of ſalt, are white. This mine is of a great elevation with reſpect to the ſea, for you always go up hill to it from Bayonne, excepting thoſe caſual deſcents which are inſeparable from mountainous countries.

(*a*) It has been aſſerted that coals being ſometimes produced from clay ſaturated by petroleum, may be found in any place or ſituation where clay or argillaceous ſlate is to be met with, in ancient ſimple or modern ſtratified mountains, as well as on, and in volcanic mountains, and that henceforth coals will not be conſidered as conſtantly produced from trees, plants, and foreſts, buried by inundations, though many coal mines may have had ſuch an origin. See Ferber's mineralogical hiſtory of Bohemia, page 308, note 5, prefixed to Baron Born's travels through Tranſilvania and Hungary, tranſlated by R. E. Raſpe, London, 1777.

It is a continual aſcent from Valtierra to Agreda, the firſt town in Caſtile, on the top of one of the higheſt mountains in Spain called Moncayo, whoſe rocks ſo decompoſe into earth, as to be covered with plants, deſerving the attention of a botaniſt, from the great variety thence afforded in the vegetable kingdom. From Agreda the country is well cultivated to Hinojoſo, without any trees or plants, as far as Almeriz, and forwards to Almazan, on the banks of the Duero: examining this diſtrict, which produces wheat and barley, I diſcovered lime rock at a few feet from the ſurface, which for a great extent has an outward coat of ſandy ſoil, with quartz and ſand ſtone totally different from the bottom, which gives it the appearance of a foreign matter brought from a diſtance. The phænomenon is ſingular, and thoſe who are fond of hypotheſes have here an ample field to employ their imagination.

Leaving Almazan you riſe upon an eminence which affords an extenſive proſpect, the country at a diſtance having the appearance of a plain, the eye not being able to catch the many irregularities of ground. After ſome leagues of uncultivated land, the country improves; three leagues and a half further, I came to Paredes, and croſſing a barren plain arrived at Baraona, then paſſing over the ſteep hill of Atienza, the confines of the two Caſtiles,

Caſtiles, I came in five hours to Xadraque, and four leagues further, to Flores; about half way, there is a place where there are hills with great clefts; one evidently ſees they were cauſed by the rains which carry away the limy earth, and that all that country had been a plain, for the parts that remain without gullies, have a bottom of hard rock, and in proportion as the water makes its way through, they form gullies; I ſaw ſome juſt beginning, with a likelihood of riſing into hills in the courſe of twenty years; from whence I conjecture, that if ſome hills give way, and crumble into plains, others, in the courſe of time by the motion of waters, gradually form themſelves into mountains.

In paſſing this road, you go through a wood of ſcarlet oak, whoſe leaves are covered with the gall inſect, and on coming out of the wood, find a well cultivated country with vineyards, corn fields, and plenty of lavender, thyme, lavender cotton, and ſage; then paſs by the village of Hita at the foot of a pyramidical hill, rearing its lofty creſt above the others, like a great rock in the ſea, with an old Mooriſh caſtle on its ſummit.

Having croſſed the river Henares you enter a fertile plain with a great deal of ſmall grained ſandy pebble. It is remarkable that on entering New Caſtile, ſtone of this kind is always found, even in hills of limy earth:

after

after paſſing a range of cultivated hills I arrived at the famous city of Alcala de Henares, with an univerſity founded in 1499, by that great ſtateſman Cardinal Ximenez de Ciſneros, who alſo endowed it with a good library, and printed here, at his own expence, the firſt polyglot bible, known by the name of Complutenſian. The univerſity is a handſome ſtructure, Ximenes is buried in the church with an elegant monument, by Dominico of Florence. The medaillon of the Cardinal has been removed from the tomb into the library. Before I leave Alcala, let me entertain you with a ſtory related by the witty Don Antonio Ponz, ſecretary of the royal academy of San Fernando, at Madrid, in his tour through Spain, who, viſiting the convent of San Diego, belonging to the Franciſcans, thus expreſſes himſelf; "I could not ſwallow two pills that my conductor endeavoured to ram down my throat, which, for his part, he ſeemed to have very eaſily digeſted. He ſhewed me a picture of St. Jerome in a cardinal's robe, and a red hat, which is quite out of character, and wanted to perſuade me it was a portrait of Cardinal Wolſey; after that would make me believe it was valued at fifteen thouſand dollars (£. 2500) though I was ſtartled at the ſum, I did not chooſe to diſpleaſe the perſon who was doing me a favour. I muſt not forget to tell you I alſo ſaw, in a chapel, on the altar of St. Francis, the head of that ſaint in clay, painted to imitate nature. I do not know

what

what you will think of the manner in which I was aſſured it was made; a potter had placed his veſſels in the oven to be baked, and behold one of them came out changed into this head! you may believe it if you pleaſe; many believe it at Alcala! for my part, as I know no other circumſtances of this miracle, and have no other authority than that of my guide, with his tale about the fifteen thouſand dollars, I am rather ſuſpicious (*a*)."

Alcala is only ſix leagues from Madrid, and belongs to the Archbiſhop of Toledo; it gave birth to Miguel Cervantes de Saavedra, the celebrated author of the much admired romance of Don Quixote (*b*). The country

(*a*) Viage de Eſpana par Don Antonio Ponz, tom 1, Madrid, 1776.

(*b*) Miguel Cervantes de Saavedra was born at Alcala de Henares the 9th of October 1547, and died at Madrid the 23d of April, 1616. The ſame nominal day as his illuſtrious cotemporary Shakeſpear.

There is ſuch a variety of matter and ſo many beautiful paſſages and alluſions in Don Quixote, that it is impoſſible to travel through Spain, without their frequently occurring to the mind. Don Guillermo Bowles has occaſionally quoted him, and I hope I may be allowed the ſame liberty. This book is one of thoſe capital pieces only underſtood by thoſe who can read him in the original. We may now ſoon expect a new and claſſical edition of Don Quixote printed in England in the original Spaniſh, illuſtrated by annotations and extracts from the hiſtorians, poets and romances of Spain and Italy, and other writers ancient and modern, with a gloſſary and indexes, by the Reverend John Bowle, M. A. F. S. A. See letter to the Rev. Dr. Percy concerning a new edition of Don Quixote, by the Rev. John Bowle, M. A. F. S. A. London printed for B. White, 1777.

Beſides the advantage of having a more perfect and accurate text than has ever yet appeared, this is a work of ſuch magnitude as will reflect infinite honour on the erudition and taſte of the ingenious editor; how ſingular a pleaſure to the admirers of Cervantes in general! how great the ſurpriſe to the Spaniards! when they behold one of their favorite characters ſo nobly emblazoned by an Engliſhman.

around

around is bleak, owing to the ſingular averſion which the Caſtilians have in general to the planting of trees. Nothing further occurs between this place and Madrid, the environs of which will be deſcribed on another occaſion.

C LETTER

LETTER III.

Natural hiſtory of the Grana Kermes, or ſcarlet grain.

AMONGST the various and valuable productions with which the beneficent hand of nature has enriched the dominions of Spain, the *Grana Kermes* is chiefly deſerving of attention. This valuable production had been conſiderably neglected in that kingdom ſince the importation of cochineal from America; however, the royal Junta de Comercio, or board of trade at Madrid, having an eye to the further advantages to be drawn from this precious article, gave orders a few years ago to Don Juan Pablo Canals, director general of the madder and dyes of Spain, to report the ſtate of this product; and to him I am indebted for the preſent information on this ſubject(*a*).

The grana kermes is the *coccos baphica* of the Greeks; the vermiculus, or coccum inſectorium of the Romans; and the kermes, alkermes, of the Arabs; being the ingredient with which the antients uſed to dye their gar-

(*a*) Memorias que de orden de la real junta general de comercio y Moneda ſe dan al publico ſobre la Grana Kermes de Eſpana. Pon Don Juan Pablo Canals y Marti. Madrid, 1768.

ments

ments of that beautiful grain colour, called coccinus, coccineus, or cocceus, different from the purpura of the Phœnicians, which at firſt had been obtained from that teſtaceous fiſh, called the murex (*a*). But in courſe of time the purple colour and other tints having been more eaſily effected by means of the kermes, the murex was neglected on account of the expence, and the kermes we are now ſpeaking of, was introduced; which giving a ſtronger and brighter colour, was univerſally adopted, and ſupported its reputation for ages, till the diſcovery of America; as is evident from the many old tapeſtries, damaſks, and velvet hangings, ſtill preſerved in cathedrals, which ſeem yet to retain their primitive luſtre and brightneſs (*b*).

In the reign of Lewis the fourteenth, Giles and John Gobelin, in the year 1667, under the patronage of Col-

(*a*) Tyrioque ardebat murice lana. Virg. En. lib. 4.

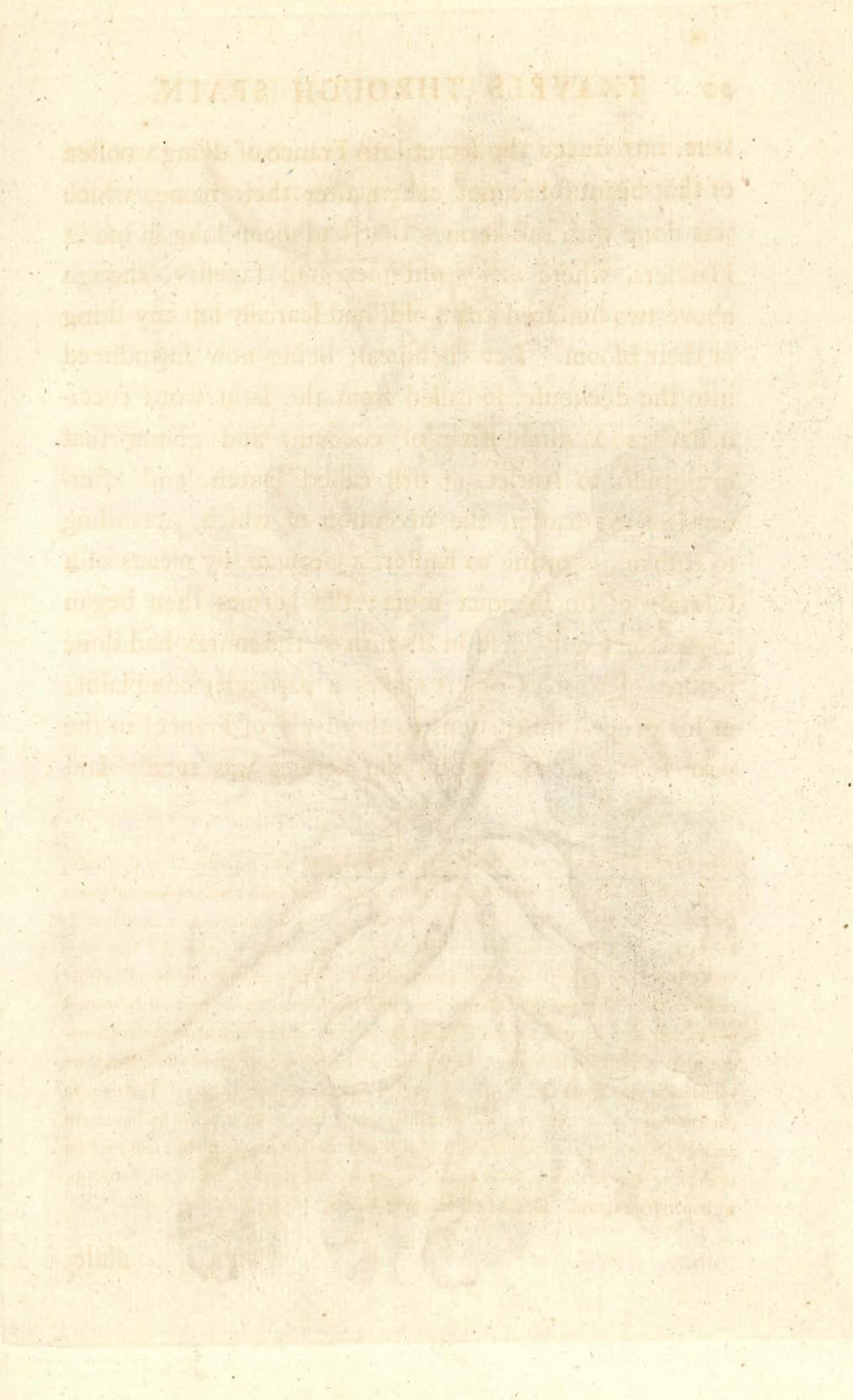
Though the dye obtained from the murex was thought to have been loſt, it ſeems to be known on the coaſts of England, France, Spain, and the Weſt Indies, though neglected on account of the great trouble and expence. See Padre Feijoo Theat. critico, tom 6, diſc. 4. According to Gage, they find a ſhell fiſh in the ſeas of the Spaniſh Weſt Indies, which perfectly reſembles the antient purpura, and in all probability is the ſame. Cloth of Segovia dyed with it, uſed to ſell for 20 crowns the ell, and none but the greateſt Spaniſh lords wore it. Don Antonio de Ulloa alſo gives a particular account of this fiſh, and the uſe made of it in America. See gentleman's magazine, for October and November, 1753.

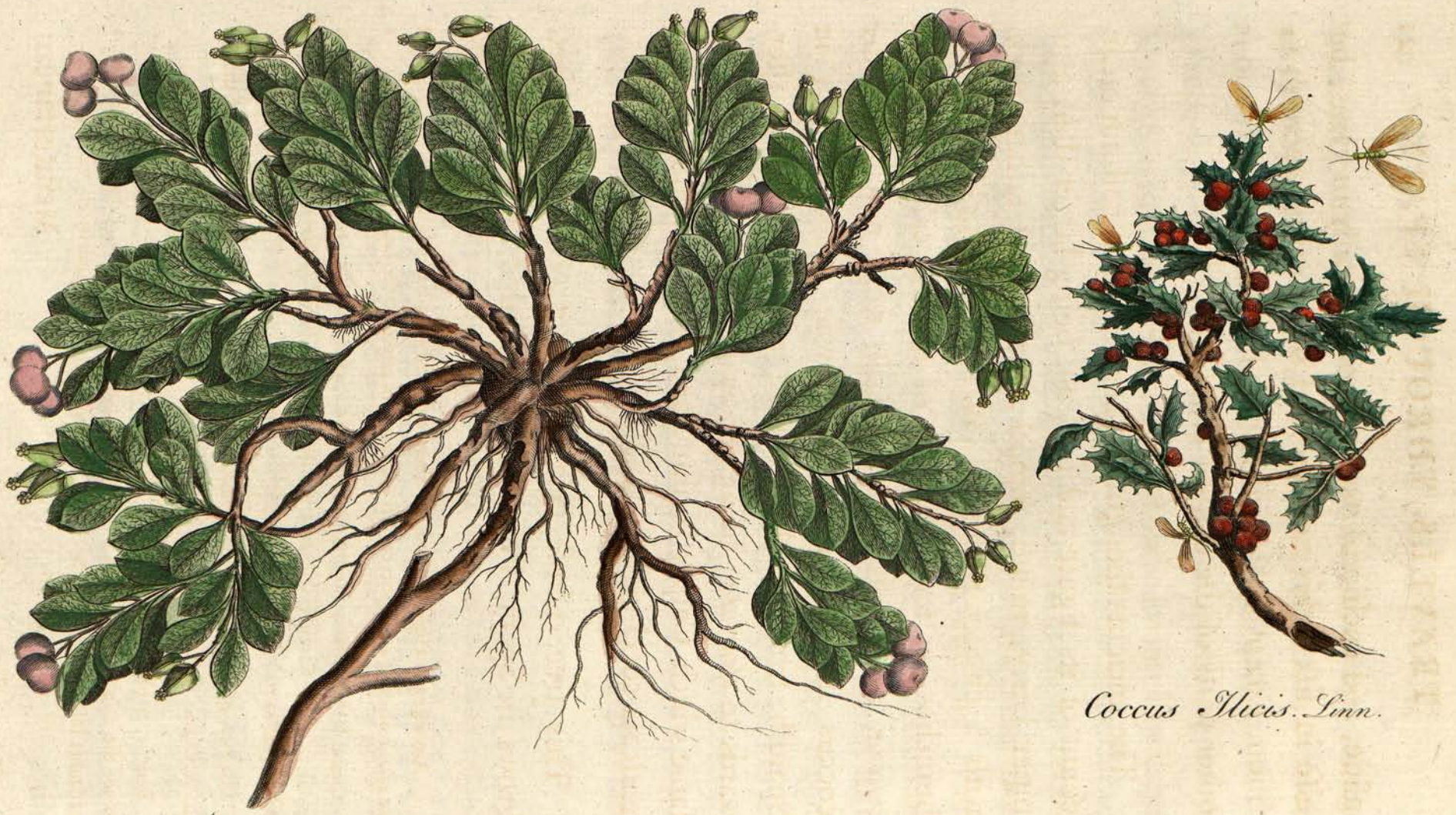
(*b*) This was the colour called *carmeſi*, by the Spaniards; cramoiſi, by the French; and crimſon, by the Engliſh.

bert, introduced the ſecret into France of dying woollen of that beautiful ſcarlet called after their name, which was done with the kermes that had been long in uſe in Flanders, where many old pieces of tapeſtry, though above two hundred years old, had ſcarcely loſt any thing of their bloom. But cochineal, being now introduced into the dyehouſe, ſo called from the latin word coccinella, as a diminutive of coccum, and giving that brightneſs to ſcarlet, at firſt called Dutch, and afterwards Paris ſcarlet, the invention of which, according to Kunkel, is owing to Kuſter, a German, by means of a ſolution of tin in aqua regia; the kermes then began to decline, and yield in its turn as the murex had done before, of which Colbert makes a particular complaint, in his general inſtructions to the dyers of France, in the year 1671 (*a*). Inſenſibly, the kermes was totally laid

(*a*) As the Phœnicians neglected the antient purple, and gave a preference to the ſcarlet, whoſe colour is leſs coſtly and more beautiful; juſt ſo, the French have forſaken our ſcarlet for that of the Dutch. This new-invented colour was at firſt in eſteem on account of its brightneſs; but being leſs durable than that of France, and under a notion that they were both equally liable to ſpots, they were ſoon laid aſide, which occaſioned the downfal of our moſt valuable cloth manufactures, where this colour was ſo much in uſe, particularly amongſt our nobility, that few were without a ſcarlet cloak of cloth, much preferable to thoſe of Barracan now in faſhion, which are of foreign manufacture, leſs becoming, and alſo dearer, if we conſider the ſhort time they laſt. Chap. 304. "Again in the next chapter:" Therefore, to reinſtate our cloth manufactory and vermilion dye, (the kermes) it ſhould be introduced amongſt the nobility and army as the nobleſt of colours, moſt ſuitable to their rank; beſides cloth being more ſerviceable, either of this, or any other colour, than thoſe flimſy Barracans, we import from abroad. General inſtructions of Colbert, 1671.

aſide,





Coccus Ilicis. Linn.

Arbutus Uva Ursi. Linn.

Page Sculp.

Published as the Act directs Apr.l 15. 1780.

aſide, and cochineal made uſe of, not only in yarns, but alſo in ſilk; this new method being every where in faſhion, except at Venice, and in Perſia, for ſcarlet, and in other parts of the eaſt for crimſon.

The ancients thought the kermes was a gall-nut on account of its figure and ſize, not being larger than a juniper berry, round, ſmooth, gloſſy, and rather black, with a cinereous down. It is found ſticking to the branches, or tender leaves of the oak called in Spain *coſcoxa*, a derivative of the latin word cuſculium, the coccus ilicis of Linneus, likewiſe called *carraſca* in Spaniſh, from the Arabic word *yxquerlat*, ſoftened afterwards to *eſcarlata*; being the ſmalleſt ſpecies of oak, the ſame which Caſpar Bauhine and other botaniſts call ilex aculeata cocci-glandifera (*a*).

This tree, whoſe height is about two or three feet, grows in Spain, Provence, Languedoc, and along the

(*a*) According to Pliny, the term cuſculium is derived from a Greek word, ſignifying to *cut the excreſcencies*, as it happens on this occaſion with reſpect to the kermes.

Cluſius ſays, Hiſpanis major frutex qui grandem fert *carraſca* dicitur, qui vero coccum gignit *coſcoxa*. Caroli Cluſii rariorum aliquot ſtirpium per Hiſpanias obſervatarum hiſtoria, Antuerpiæ, 1576.

It is ſtill called ſcarlet grain by the dyers, under the notion of being a grain of ſeed, though the very name in Arabic, ſignifies little worms.

Roderic, archbiſhop of Toledo, who finiſhed his hiſtory of Spain in 1243, ſeems to have coined the latin word *ſcarlatum*, to expreſs this colour. Tunc comes Petrus Aſſurii indutus ſcarlato et inſidens equo albo, &c. Rod. Toletani de rebus Hiſpanicis, lib. vii. cap. 1.

Mediterranean

Mediterranean coaſt; alſo in Galatia, Armenia, Syria, and Perſia, where it was firſt made uſe of. Dioſcorides ſays it grows plentifully in Armenia, and without particularizing other places, mentions what grows there to be better than that of Spain, which proves its high eſtimation in thoſe days; moreover confirmed by Pliny, who, ſpeaking of that which grew near Merida, adds, "Coccum Galaciæ rubens granum aut Circa Emeritam Luſitaniæ in maxima Laude eſt." Lib. 9. cap. 41. For which reaſon the Romans obliged the Spaniards, according to the ſame writer, to pay their tribute in this article (*a*).

Joſeph Moya, a Catalan writer of the laſt century, publiſhed a treatiſe entitled *Ramillet de Tinturas*, dedicated to the city of Barcelona, under the feigned name of Pheſio Mayo. He ſays, the Kermes is common all over Spain, principally in that part of Aragon bordering on Catalonia, in Valencia, and in the biſhopric of Badajoz in Eſtremadura, as likewiſe in Setimbre of Portugal, where it is the beſt, and equal to the kermes of Galatia and Armenia. Mr. Hellot of the French academy of ſciences, in his Art of Dying, chap. 12. ſays it is found in the woods of Vauvert, Vendeman, and Narbonne; but more abundantly in Spain, towards

(*a*) Book 16. chap. 8.

Alicant,

Alicant, and Valencia. It not only abounds in Valencia, but alſo in Murcia, Jaen, Cordova, Seville, Eſtremadura, la Mancha, Serranias de Cuenca, and other places.

In Xixona and Tierra de Relleu, there is a diſtrict, called De la Grana, where the people of Valencia firſt began to gather it, whoſe example was followed all over Spain. It has, ſome years, produced thirty thouſand dollars (£5000 --) to the inhabitants of Xixona. In the Year 1758, there went out of that town, Relleu, Buſſot, Caſtilla, Ibi, Tibi, Unil, Santa faz, Muchiamel, and San Juan de la Huerta de Alicante, above a thouſand perſons to gather the kermes, which was afterwards ſent to Alicant, where it was put into caſks for exportation, being chiefly ſhipped for Genoa and Leghorn, paſſing from thence to Tunis. In the ſame year, 1758, they gathered about 300 arrobes of kermes at Xixona, which ſold for about twenty-four dollars (£4 --) the arrobe (*a*), with about ſix per cent. duty and ſhipping charges, till on board. In the kingdom of Seville it is put up to public ſale and is generally bought by the people of the neighbourhood, who ſell it again for exportation to the merchants of Cadiz.

(*a*) An arobe is 25 lb. Spaniſh weight; 100 lb. Spaniſh weight equal to 97 lb. Engliſh.

Both

Both antients and moderns ſeem to have had very confuſed notions concerning the origin and nature of the kermes; ſome conſidering it as a fruit, without a juſt knowledge of the tree which produced it; others, taking it for an excreſcence formed by the puncture of a particular fly, the ſame as the common gall obſerved upon oaks. Tournefort was of this number. Count Marſigli, and Dr. Niſole, a phyſician of Montpelier, made experiments and obſervations, with a view of further diſcoveries, but did not perfectly ſucceed. Two other phyſicians at Aix, in Provence, Dr. Emeric and Dr. Garidel, applied themſelves about the ſame time, and with greater ſucceſs; having finally diſcovered that the kermes is in reality nothing elſe but the body of an inſect transformed into a grain, berry or huſk, according to the courſe of nature; whoſe hiſtory I ſhall now briefly relate:

The progreſs of this transformation muſt be conſidered at three different ſeaſons. In the firſt ſtage, at the beginning of March, an animalcule, no larger than a grain of millet, ſcarce able to crawl, is perceived ſticking to the branches of the tree, where it fixes itſelf, and ſoon becomes immoveable; at this period it grows the moſt, appears to ſwell and thrive with the ſuſtenance it draws in by degrees: This ſtate of reſt ſeems to have deceived

deceived the curious obſerver, it then reſembling an excreſcence of the bark; during this period of its growth, it appears to be covered with a down, extending over its whole frame, like a net, and adhering to the bark: its figure is convex, not unlike a ſmall ſloe; in ſuch parts as are not quite hidden by this ſoft garment, many bright ſpecks are perceived of a gold colour, as well as ſtripes running acroſs the body from one ſpace to another.

At the ſecond ſtage in April, its growth is compleated, its ſhape is then round, and about the ſize of a pea: it has then acquired more ſtrength, and its down is changed into duſt, and ſeems to be nothing but a huſk, or a capſule, full of a reddiſh juice not unlike diſcoloured blood.

Its third ſtate is towards the end of May, a little ſooner or later, according to the warmth of the climate. The huſk appears replete with ſmall eggs, leſs than the ſeed of a poppy. Theſe are properly ranged under the belly of the inſect, progreſſively placed in the neſt of down, that covers its body, which it withdraws in proportion to the number of eggs: after this work is performed, it ſoon dies, though it ſtill adheres to its poſition, rendering a further ſervice to its progeny, and ſhielding them from the inclemency of the weather or the hoſtile attacks of an enemy. In a good ſeaſon they multiply exceedingly, having from 1800 to 2000 eggs, which pro-