

cones, until the planting season, and that they should be kept dry. I had a quantity spoiled by some wet moss, with other plants being imprudently packed with them, in my absence. The port and bearing as well as colour, are quite different from that of any other species. The form, where the tree is fairly developed, is round and massy, frequently resembling that of some of the deciduous trees, the long arms sweeping the ground. The foliage is longer, and much more tangled than that of the Scotch fir, and the green much more intense. It is so dark, that the Spanish woodmen distinguish it by the name of *pino negro*, the two varieties of the *sylvestris* being called *blanco* and *roxo*. The growth, as far as I could judge, appeared to be about the same or of rather greater rapidity than that of the Scotch fir. The wood is highly resinous, so much so that it serves for torches, and it is reputed in the Pyrennees to be of very great duration. A peculiar quality, which, if it succeed in other respects, will make it invaluable in some parts of England, is that of resisting the wind. From some cause not explained, but which proceeds, in all probability, from the operations of nature in restoring the equilibrium of temperature between the Siberian regions of the high Pyrennees with that of the comparatively burning plains below; it may be connected probably also, with the arrangement which has made the *puertos* or passes of this chain the highest in Europe; they reach nine and even ten thousand feet, the highest peaks being a very little more elevated than the ridges which unite them. Whatever be the cause, the wind in those upper regions rages with a violence and constancy, unknown elsewhere, even in the Alps, where the same phenomena might be supposed to exist. There

are barrancos in the district of the Maledetta *, where, according to the figurative expressions of the Spanish peasantry, it blows every day in the year. In these inclement regions, where I have observed the tree in every form and situation, I never saw an instance where the wind appeared to affect it, nor where it showed a weather side. At the upper limits of its habitat, where it is compelled to yield to the law of nature, and lower its "diminished head", the same rule is observed, and instead of the stunted and starveling appearance of the rest of the tribe in similar situations, it assumes the shape of a furze bush, presenting an impenetrable and bristling front of dark spiculæ on every side, the stem or branches being quite undiscoverable. This is the species to which the name of pyrenaica ought to have been given, it being, as far as observations have yet been made, peculiar to that chain. It may be expected to form a valuable addition to our forest trees, and it is singular that it should have hitherto been nearly unnoticed. It is mentioned in Sweet's catalogue as introduced in 1820, but in the botanical garden at Glass Nevin, near Dublin, is an individual of much longer standing. I have not seen that tree since I visited the Pyrennees, but I have little doubt, from the recollection of it, that it is the right sort. I could obtain no certain information of its history; most probably it came from Paris.

The principal remains of this pine on the French side of the Pyrennees, are at the lake of Gaube and at the Cirque de Gavarnie. A few remain at the Port de Benasque, and at the Lac d'Oo, and there are some scraps

* The highest peak of the Pyrennees, in Aragon.

on the Arriege. The noble forests which once clothed these mountains have disappeared by the ignorant barbarity of the peasantry, who have extirpated them, and the valuable iron mines of Vicdessos, on the Arriege, are dependent on the republicans of Andorre, who have been more provident, for the greater part of their fuel; which is transported across the range by roads scarcely practicable, over which I had great difficulty to lead a horse. The native forests of this noble species, must now be sought for on the southern side of the range. On the east of Benasque there is an extensive line covered with it, and nearer to Mont Perdu, another, which is nearly inaccessible, below the sources of the Cinca.

A contract was made some years since by a French company, who purchased it, and undertook to bring the timber down by the valley between Bigorre and Luchon, but after a considerable expence had been incurred in making roads, the Spanish government refused to ratify the bargain, and the forest is still standing.

These Spanish forests are likely to remain, as there are no roads for transport on that side, and no demand, excepting for a scanty supply of charcoal, which is made in a destructive and wasteful mode, but fortunately they are obliged, for their own convenience, to select the old trees, and the younger ones are left to supply their place.

The republic of Andorre occupies a wild and Alpine valley opposite to that of the Arriege, the waters falling to the side of Catalonia, and joining those of the Segre. The lofty ranges which bound this valley, are clothed with uncinata, and alone in the Pyrennees it resembles those of Switzerland, the lower part being covered with walnuts and other deciduous trees, and the upper

parts with continuous masses of dark pine of this species. The *Rhododendron ferrugineum*, grows in the valley in prodigious quantities, attesting its elevated situation, and in the high pastures, above the trees, is the habitat of the beautiful *gentiana pyrenaica*, and other rare plants. These are the sites where this species is now found, and I conceive it has never been much extended beyond the Arriege to the east, and the Lac de Gaube and its district to the west, being replaced by the silver and Scotch fir as the chain respectively declines in height to its flanks. It is found both on the primary and secondary formations, and I am not aware of any difference in its growth, in these different soils.

We now proceed to the *p. pyrenaica* of Lapeyrouse, which grows at the foot of the chain, immediately opposite the highest range, and at an elevation probably from two to four thousand feet. Lapeyrouse had never seen these trees, but described them, as I have been informed, from the reports of others, who brought the cones and branches to him, consequently the original description in the work is quite erroneous. That in the supplement is however, extremely accurate*. The foliage is of a light grass green, quite unlike any other European species. The spiculæ are very long, and of free growth. The tree is of elegant and noble form, and more resembles those of southern climates than most of the European sorts. The cones are of a light reddish green, and the seed is inclosed in a thin shell. The wood is not bad, but is of much inferior value to

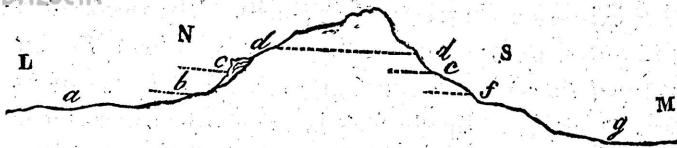
* I believe M. Lapeyrouse was indebted for his information, respecting this tree, and many plants of the southern side of the Pyrennees, to M. Paul Boileau, now maire of Bagneres de Luchon.

the other kinds which grow above it. I visited the place where these trees commence to appear, in the autumn of 1829, and procured some cones, as well as some from the trees in the garden of Mr. Lapeyrouse, near Toulouse, now in possession of his son, to whom I was indebted for them, where the trees planted about thirty years since are now of large size. On observing the real habitat of this tree, the impropriety of the name is evident, but subsequent observations will shew that it has a much wider range, and ought to have a different denomination. There are other species mentioned in the list of Lapeyrouse, but in the various tours I made in the Pyrennees, I never met with any other than the three species above mentioned. The *p. pumila*, I believe to be only the stunted *uncinata*, at a great elevation. Neither the spruce nor larch; *p. abies*, and *larix Europea*, exist in the Pyrennees, nor, I firmly believe, in any part of Spain. A contrary opinion is held in the country respecting the larch, but after much inquiry and observation, I am quite satisfied that the real larch neither exists, nor has existed in Spain. The word *alerce* certainly would appear to be connected with *larix*, but even if the Arab derivation, mentioned as traced by Mr. Drummond in the account of Cordova were incorrect, which there is no reason to suppose, words do not prove the existence or identity of species. The practice of Spain alone, where the same words are applied to different trees, in almost every province, would prove the fallacy of depending on etymology to solve questions of natural history.

The oaks on the north side of the Pyrennees are the *robur*, of both kinds; the *tosa*, or *tauzin* and its variety, the *pubescens*; the curious variety, the *fastigiata* or cypress

oak, which is found in the route to Gavarnie, and another variety of which I am ignorant of the name, the acorns having failed. It has peculiarly large buds and shoots, and an ill shapen leaf, and grows also in Asturias. Below towards Bayonne, and I believe on the opposite flank, in Languedoc and Roussillon, the *q. suber*, cork tree, abounds, but no evergreen oak is seen on the northern side of the high Pyrennees. On the Spanish side, high up, in the Peña de Ventimilla, and at the village of Andorre, are found the first evergreen oaks. In Aragon they are termed the Alcina, and are of the species which will be more particularly described hereafter as the Spanish oak. The elm described by Lapeyrouse as a variety of *montana*, under the name of *M. Pyrenaica*, is it be a variety, grows on the Malvern hills, where are two salices which are also common in the Pyrennees.

FOREST SECTION ACROSS THE HIGH PYRENEES.



N. North side.

L. Plain of Languedoce.

a Lower region, oak chesnut, lime etc.

b Beech, and Yew, Holly, Elder, etc.

c Silver fir and Scotch Pine.

d. *Pinus Uncinata*.

S. South side.

d. *Pinus Uncinata*.

e. Scotch Pine.

f. *P. Pyrenaica* of Lapeyrouse, supposed to be identical with *P. Hispanica* of S. Segura.

g. *P. Halepensis*.

M. Mediterranean.

SIERRA DE CUENCA.

The section is now carried across the Ebro, and the treeless plains of Aragon, to the Sierra de Cuenca. The lower zone of that range, on the south side, is the *p. halepensis*, above which, and mingled with it, but now nearly extinct, is found the *p. pinaster*, and above that, occupying the highest part of the range, I found the *sylvestris*. I have every reason to believe that there is no species at a higher level than this, which supplies Madrid with building timber, floated down by the Tagus to Aranjuez. This species is named by the woodmen *alvar*, and I saw it in the Val de Cabras, about three leagues from the city of Cuenca, the whole intervening pines, on the route from the city, being now exclusively the *halepensis*. Travelling to the west from this, we again cross the plains of La Mancha, and reach the Sierra de Segura, which is described in a visit to it. The upper zone of this vast district is covered by a tree, undescribed by any Spanish author or other to my knowledge, unless it be the same as that noticed by Roxas de San Clemente, as growing on the Sierra de Baza, which is a detached fragment of this range, at its southern end, and called by him *pinaster Hispanicus*.

The description of this tree is so exactly identical with that of Aragon, that I am quite convinced they are the same, and they grow at similar elevations. The cones of both these species are now in England, and as they have vegetated at the garden of the horticultural society, and in other places, it will be known certainly whether they be identical, of which I have not the smallest doubt, from ample examination and opportunity of judging.

The height of range of this species, in the localities mentioned, may be taken at from two to four thousand feet, and in the Sierra de Segura, somewhat more. One peculiarity is to be observed in the cones of this species. A quantity I brought from the spot were packed amongst geological specimens, and opened at Somerset house, during the heat of summer, when a delicious perfume, a perfect "Sabœan odour" exhaled from them, but was quickly lost in the gases of an atmosphere very unlike that of its native Sierra.

From a variety of concurrent and cross testimony, I have no doubt whatever that this same species exists in the Sierra de Cuenca, in that part of it to the south, where are the sources of the *Gabriel*, the chief subsidiary of the *Xucar*. This district is called the *Marquesado de Moya*, and the timber of it is floated down to Valencia, where it is known in the timber yards, by the name of *pino blanco*. As the species is peculiar to the country, and is thus widely spread, it ought to be denominated *p. Hispanica*. The tree would be a noble addition to our park or ornamental kinds, from the differences of its foliage from the common kinds, and the beauty of the form. It is essential to observe that its native habitats are entirely on limestone. The timber cannot be called good, but is of middling quality, probably a little better than that of the silver fir. It is white and dry, without much turpentine, and by the navy was used for decks, and similar purposes. The lower zone of the Sierra de Segura is of *halepensis*. There is said to be *p. pinea*, but it never occurred in the wide range I took through those forests. This forest supplies the building timber of Granada, at least the best quality, the forests of *pinea* which probably supplied the Moors being now extinct.

South of the Sierra de Segura is the Sierra Nevada, on the north side of which are now no pine forests or even remains of them. In the neighbourhood of Loxa are remnants of *halepensis*, which supply their scanty stock of fuel. On the southern side, the forest of Macael, which is in an elevated situation of the Sierra de Filabres, is of *halepensis*. The woodwork of the Alhambra appeared to me to be of the *p. pinea* or stone pine, and I have no doubt forests of it existed in time of the Moors. It is still called, in that district, *pino real*, probably from the use made of the wood. *Pinos del Rey*, and *Pinos del Valle*, villages in sites no doubt named from local causes, are now without them, as is *Pinos del Puente*, on the outskirts of the Vega.

The Serrania de Ronda terminates the southern section of the forests. In the barrancos and river courses is *p. pinaster*, which is used at Marbella for smelting the iron ore. Mixed with it, but lower down is *halepensis*, and to the western side, I believe, the *pinea*. High up, on the most elevated ridges of the Serrania, is a species I have not been able to classify, and know only by the vague descriptions of the natives, obtained too late to enable me to visit the place. It grows on St.-Cristobal, and the Sierra de la Nieve, and is not improbably, from the description, *p. sylvestris*.

SECTION

ACROSS THE CASTILES, BETWEEN VALENCIA AND GIJON.

The *p. halepensis* is found on the sands of the Albufera to the very brink of the Mediterranean, and

extends probably uninterruptedly across the Sierra de Cuenca, in following the course of the Xucar. Above it, on the southern verge of the Sierra, I have every reason to believe, is the *p. Hispanica*, as before stated, and on the north side, are the *p. pinaster*, and *sylvestris*. The Alcarria, and district near the junction of the Tagus with its great western branch the Guadiela, where there is a considerable mass of pine, has to my knowledge no other species than the *halepensis*. This locality, in the vicinity of Sacedon, is, as far as my observation extends, the northern limit of this species, as the Sierra de Cuenca is the southern limit, certainly in Europe, of the *sylvestris*.

Reaching the foot of the Guadarrama, which is in the line of section, the *p. pinaster* is seen, forming the lower zone, but has nearly disappeared, and above it is a vast mass of *sylvestris*, which forms the noble forest of St. Ildefonso, and no doubt the same order prevails in those of the Tietar, in the neighbourhood of Talavera and in the same range; where pitch and tar are made in considerable quantities.

It will be observed that the same order exactly, prevails on the opposite at sides of the plain of New Castile, in ascending the Sierra de Cuenca and Guadarrama. After crossing this central range, the scanty remains of forest in old Castile, between the Guadarrama and Valladolid, are of the *pinæa*, according to information I have received. In approaching the chain which divides Leon from Asturias, the oak, *q. prasina?* is topped by the beech, which is at the Puerto of Pajares, on the road to Oviedo, and below it on the other side of the range, are other oaks, elms, and chesnuts to the sea. I could not ascertain that any pines exist in the elevated range of

Asturias, the beech occupying, as in the Abruzzi, the highest level. The *p. pectinata*, which is next in the series, does not appear until you reach the western Pyrennees.

The districts not included in these sections are, Catalonia, in which, from the coast as far as my observation has extended, there is only the *halepensis*, which is in large quantities, every hamlet and village having a proportion, which would be much more valuable, but from the barbarous practice of polling, or cutting off the branches, so fatal to the fir tribe, and which completely defeats the purpose meant to be obtained by it, of procuring a larger quantity of timber on a given extent of ground. There are said to be three kinds of pine on Monserrat, but they escaped my observation, the more easily, as it is impossible, in the manner the trees are cut, to distinguish a species from individuals with only a small bunch of branches at the top of a trunk twenty or thirty feet high. It is not improbable that the *p. Hispanica* may be found in the upper region of the mountain, and a desideratum in this part would be to follow the line from the coast to the forests of *p. Hispanica* on the Essera to ascertain, which I have not had the opportunity of doing, whether there be a species or more interposed between the *halepensis* and *Hispanica*, in ascending from the coast level.

In the Pyrennees, on the confines of Aragon and Navarre, and on the river which gives the name to the former kingdom, is a valley named Roncal, which produces the timber used at Zaragoza, and which they assured me was of excellent quality. I could obtain no certain information about the species of the tree, which is most probably either *uncinata* or *sylvestris*, most

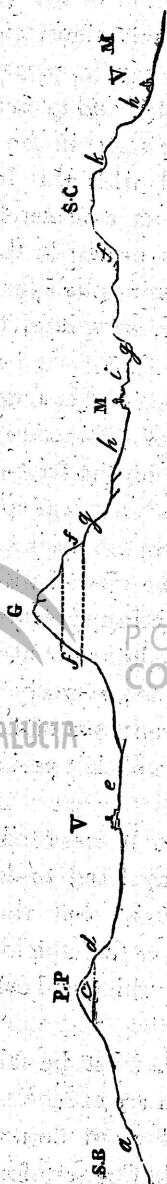
likely the latter. The adjoining country, to the west, the Roncesvalles district, is clothed with the *pectinata*, like the opposite side of the French Pyrennees. Along the whole coast of the Tierra Caliente as far as the Serrania de Ronda, I believe no other species to exist than the *halepensis*. On the western coast of Andalusia are *halepensis* and *pinæa*. The latter forms a forest, through which the old road passes from Utrera to Seville, which is still followed by horsemen and muleteers. In the Sierra Morena, I saw no native pines, but I believe the species which properly represents that region, and which is found cultivated, is the *pinæa*, which probably extends into the southern provinces of Portugal. In lower Estremadura I am unacquainted with any pinæares or pine forests.



JUNTA DE ANDALUCIA

P.C. Monumental de la Alhambra y Generalife
CONSEJERÍA DE CULTURA

FOREST SECTION ACROSS THE CASTILES.



- S. B. Sea of Biscay.
- a. Oak, chestnut, hazle etc, of Asturias.
- P. P. Puerto de Pajares.
- c. Beech.
- d. Oak of Castile, Q. Prasina.
- F. Valladolid.
- e. P. Pine, Stone Pine.

- G. Guadarrama range.
- f. P. Silvestris, forming the upper zone of the range.
- g. P. Pinaster.
- h. Oak, Qureus Tosa, Encina etc. Madrid.
- i. P. Halepensis, Encina etc. of Alcarria.

- g. P. Pinaster.
- f. P. Silvestris, of Val de Cabrias.
- S. C. Sierra de Cuenca.
- k. P. Hispanica?
- h. P. Halepensis.
- V. Valencia.
- M. Mediterranean.

The distances from P. P. to G. and from G. to S. C. are shortened in order to present the section in one view.

The respective lines of vegetation of the pine as to altitude, established by these observations, give, in the ascending series, *halepensis*, *Hispanica*, *pinaster*, *pinæa* (in old Castile), *pectinata*, *sylvestris* and *uncinata*. The *pinæa* also occupies a much lower range in the flat of the Guadalquivir, where it is equal with the *halepensis*, thus varying its native habitats considerably. The value for economical purposes is nearly in the ratio of the ascent, the order increasing being, *halepensis*, *pinaster*, *pinæa*, *Hispanica*, *pectinata*, *sylvestris*, and *uncinata*.

It may be necessary to observe, that in naming these species, the only certain mode of distinction has been followed, which is that founded on the fruit or cones; the other characters of colour, of length of spicula, and other artificial methods, only tend to mislead, and even to the experienced eye, should be viewed with extreme caution. The difficulty of obtaining accurate information is so great as to be nearly insurmountable. The subject has been little attended to, scarcely at all, and the observations even of the translator of Linncæus in the imperfect state of knowledge of that period, in this department, only mislead.

It is far from being meant to be asserted, that the species in this vast country are confined to those in this list; it is possible more may exist, but they require examination and proof, and more than the idea held by many people in Spain, that every thing and every species is to be found on their soil.

In examining the forests, care must be taken not to be misled by local names, which are exceedingly varied in the different provinces, and often do not apply to species at all. In the Sierra de Cuenca, for instance,

they have a term applied to a tree in a particular state of foliage, and of stunted form, or what the French call "rabougri" in distinction from a sound and well growing tree.

ON THE OAKS.

The evergreen oak is one of the leading vegetable features of nearly all Spain. The native woods of Aragon, of the greater part of Catalonia, of the Castiles, Estremadura, Andalusia, Valencia and Murcia, are formed in a great measure of a species which has been little noticed, and has acquired an unfortunate appellation, that of Gramuntia, from having been observed in a remnant of a wood near Montpellier, which is a kindred soil and climate to the middle and southern regions of Spain. This species is quite distinct from the *q. ilex*, its nearest congener. The leaves are thicker, more rounded at the point, of a dull glaucous green, and the tree altogether of a more compact and less graceful form, than the Italian *ilex*. The great and essential difference however consists in the acorns, which are edible, and when in perfection, are as good or superior to a chesnut. To give this sweetness they must be kept; as at first they have a considerable taste of the tannin, like the other species, which disappears in a few days, and accounts for the scepticism of some writers, who assert that both sweet and bitter are the produce of the same tree, and that their sweetness is no character. These are the edible acorns of the ancients, which they believed fattened the tunny fish, on their passage from the Ocean to the Mediterranean; a fable only proving that they grew on the delicious shores and

rocks of Andalusia, which unhappily is no longer the case. Remains of them may however still be traced in the west, and they produced the celebrated salted meats of Malaga, and that vicinity. These are the bellotas, which Teresa, the wife of Sancho, gathered herself in La Mancha, where they grow in the greatest perfection, and sent to the Duchess, wishing, instead of their being only the best of their kind, they were the size of ostrich eggs. I have frequently seen them produced by individuals and offered to the company, as bonbons are in some countries, with a sort of apology for their small intrinsic value, from their size and flavour. This species is beyond question very hardy, I believe even more so than the ilex of Italy. It ascends the sides of the Sierras, in the inclement region of the centre of Castile, and in Aragon is seen within the limits of the pinus sylvestris and uncinata, as also in the cold and wintry valley of Andorre. The widest forests of it are now in Estremadura, where the best sausages, and other salted meats are made from the vast herds of swine which are bred in them*. This species ought to be denominated *q. Hispanica*, instead of a weak and obscure name from a wood, which I have heard no longer exists, where the tree may possibly not have been a native; although the climate and soil of lower Languedoc very much resemble that of the two regions of Spain, to which this tree is confined.

The genuine *q. ilex* grows in the first or humid region, and alone would serve to indicate the difference of climate of that part of the Peninsula. It may be

* This species and some others, both pines and oaks, may be seen at Malcolm's nursery, Kensington, where the forest trees are more attended to than is usual in those establishments.

seen in the neighbourhood of Bilbao, Santander, and in Asturias, where no doubt it was once much more abundant. The *quercus Hispanica* is not found in that division, but appears the instant you cross the boundaries assigned to it, nor is the *q. ilex* found in either of the other two. The habitats would indicate a dry climate as best suited to this valuable species.

A beautiful species was observed by Cavanilles, in the eastern part of the kingdom of Valencia, and named by him *q. Valentina*. A good plate is given in the *Icones plantarum*, which is unfortunately the only tree he has figured. He mentions it having the valuable property of ripening the acorns a month sooner than the other species. They are however bitter and fit only for animals. This species is not far spread. The district it was observed is in the Tierra Caliente, but I saw the branches of it in a *corral* in La Mancha near Valdepeñas, where it had been brought from the adjoining hills for fuel. This is a much colder country, and quite within the middle region, I believe it to be identical with the *quercus ballotta* of the catalogues, which is stated to be a native of Barbary, and has no doubt been named by some misapplication of the Spanish term *bellotas*, which means acorns generally. These evergreen oaks are termed in the country, *encinas*, to distinguish them from the *robles* or deciduous oaks, and the cork trees, which have the specific name of *alcornoque*.

This last species is spread through the Tierra Caliente in all its extent, but is most abundant in Catalonia and Valencia, whence the principal exports have been made. The forests of lower Andalusia are proceeding rapidly to extinction. A contract has lately been made for the extraction of a quantity of the finest bark from the Sierra

Morena, in the neighbourhood of Seville, where it has hitherto been allowed to pass unnoticed. The money resulting from this bargain, I have understood, was applied to building the new theatre at Madrid, but to show the manner in which business is conducted in these jobs; the contractors were compelled to take the inner bark as well as the outer, which forms the cork. This inner rind is only fit for tanning, and was an incumbrance to the parties, who had no demand for it, and were obliged to go abroad to seek for purchasers. The evil is, that the stripping it kills the tree, so that this contract, for the sake of a paltry, temporary gain, will be the cause of a national loss of a prodigious number of valuable trees. The form of this tree is much more beautiful than that of the encina, as it grows with more freedom, and, in the districts suited to it, attains a great height. It is little seen in the middle region, excepting in Estremadura, and in a wood near Talavera de la Reyna, where I believe it is mixed with the encina. I cannot positively assert it to be so, having passed it rapidly, but if it be, this is its northern limit.

A noble species is associated with the suber, in the neighbourhood of Gibraltar, where I met with it in ascending through a forest to the left of the common route to Cadiz, above Los Barrios. We were compelled to quit the road on account of the floods, which made the regular line impassable, and to scramble up amidst masses of sandstone, where it was growing with the suber, and rhododendrons, and other beautiful plants. This species, one of the finest of the European trees, and which has not yet found its way into our nurseries, was pronounced by M. Lindley to be the *quercus Australis* of Link. The leaf is very large and ovate, with small

indentures. The acorns might be easily procured, in October, or the beginning of November, from Gibraltar, where the species could be preserved, and gradually removed to a more northern climate. The *quercus coccifera*, or kermes oak, is found in vast quantities in the southern division, and as far north as near the central line of Spain, but I think it does not pass the Guadarrama range. There are said to be two kinds, but it is not improbable that the spray or young shoots of other species, which sometimes resemble it, may have caused this idea.

DECIDUOUS OAKS.

The uplands of Castile, the Alcarria, and Guadalaxara districts, the neighbourhood of Leon and of Valladolid, at a corresponding elevation with that of the encina, offer an oak, thought by M. Lindley to be the *q. prasina*, of Bosc, but there is not an absolute certainty of it, and I never crossed any of these districts in the fruit season. Another species, somewhat similar in appearance, if it be not the *lusitanica*, grows on the flanks of the Sierra de Segura with the encina. At a parallel above these, on the Somosierra, at St.-Ildefonso, and on the Sierra Nevada, in ascending to the Barranco de San Juan, where it forms the upper zone of forest, above the encina, is seen the *quercus tosa* or *tauzin*, or its variety of *pubescens*.

In the Sierra de Morena, is found the *quercus egilops**

* I am indebted for this information to the padre Manos, of the Regius professor of botany at Cordova, who was omitted to be mentioned in the list of botanists for the Sierra-Morena.

but it is rare, owing to a prejudice of the peasantry that it causes abortion in the brood mares.

The *quercus robur* is the most abundant, and almost the only species in the whole of the northern district, or first region, such parts at least as I visited. It extends through Navarre, Guipuscoa, Biscay, maritime Castile, and Asturias, but I never saw it in the middle region, where it is immediately replaced by the other kinds above mentioned. The oaks in the park or outer grounds of Aranjuez, are of this species, but they have evidently been planted, and whether from the soil not suiting them, or from over irrigation, are bad specimens of it. By a singular prejudice which we may well pardon, the oak for the sculpture of the cathedral of Pamplona, was brought from England, as mentioned in the sketch of that place, whilst it is the common species of the neighbourhood.

The other kinds in the northern region, are, the *tosa* and *pubescens*, rarely; and the variety, I am not acquainted with the name, mentioned in the account of the Pyrenees. I am ignorant of the species of deciduous oaks which grow in Catalonia, where there is a considerable quantity, having been in that country in a backward spring, before the leaves were sufficiently developed. There is also beech, which is exported, but I am not acquainted with the locality.

In an economical view, there is a lamentable deficiency in this catalogue. In the whole of the species enumerated in the southern and middle regions, it is doubtful if there be a single one which produces good timber. The best is the *encina*, which is heavy, and unfit for most uses, and is now unfortunately the only firewood in most parts of Castile, which is hourly dimi-